Math 3310 Class
Appalachian State University
Boone, NC 28608

Ranger Bob Berra
Jellystone National Park
Wildwood Forest, CO 23456

Dear Ranger Bob Berra,

I am deeply sorry about your acid rain problem causing a lack of vegetation for the bears. After using your collected bear data to come up with a solution for you, I found that the best way to limit the number of bears going to a new location is to use the formula as follows:

$$\text{Weight} \sim= 20*(\text{neck.g})+\text{chest.g}-0.5*(\text{length})$$

Weight can be approximated by taking the length plus the length times circumference of chest plus length times circumferences of neck plus length divided by circumference of chest. I also attached the graphical representation that led me to this formula conclusion. While you are looking at the graphs, you'll notice the linearity of each and see that the bears weight and chest circumference, and the bears weight and neck circumference have the most linear relationship. I also came to the conclusion that it is not important to take into account the gender of the bear, unless of course you are worried about breeding issues which is something else to consider that could potentially continue to increase the population. If this is the case, then limiting the amount of a particular gender is recommended.

In order to use the formula, you can take the information that you collected and gave me, and simply plug in the numbers to the formula. Once you have all the weights of the bears, you can proceed to move the heaviest bears elsewhere in order to preserve vegetation for the remaining bears.

I believe that the formula that I came up with is very accurate. Looking at the graphical representations of each measurement compared to weight helped me realize what exactly is the most and least contributing factor. Upon using these contributing factors, I tested my formula with the data you provided me to ensure that it was the most accurate that it could be. I recommend using this formula in order to determine the weights of the bears you have.

Good luck with the bear move and thank you for relying on me to analyze and solve the problem for you!

Sincerely,

Samantha Widman