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The Great Moose Hunt

Introduction

The mighty moose is the largest species in the deer family. Standing at a maximum height of 2 meters(1) these creatures are the giants of the forrest. During the early 1900's, moose were introduced into New Zealand in an attempt to start a moose colony here however, the moose failed to reproduce and died out(2), presumably. There has been evidence that these mighty creatures still roam the South Island and the task of this assignment is to set up cameras in the best habitats which moose can reside in, in attempt to catch a glimse of the illusive creature.

Photographer: unknown, Year: unknown. Retrieved from http://www.ninevahfoundation.org/wp-content/uploads/2012/06/Moose-head-shot.jpg

Information on the moose

The information that we have been given on the moose is that moose activity has been spotted in an area known as the Dusky Rivers. The basic information that we know about the moose is that they live in areas less than 500m in elevation, found within 200m of rivers, preferring land < 7.5 degrees in slope and that they like cool southerly, SW and SE aspects.

Method

From the information given from the assignment on the best habitat conditions for the moose, it was easy to enter the data into the ArcGIS program to run the simulations.

- When the data is compiled into different shape files for elevation, distance from rivers, land slope and bearing the next type of analysis can begin.
- Using the reclassify tool, the program will provide absolute data allowing for informaton that is needed for the question to be answered about slope and elevation.
- The Euclidean distance tool will be used next for the calculation of the variable that the moose are always 200m from a river, which will strengthen the data in capturing a picture.
- The aspect tool will then be used by layering the shape-file onto the dem file allowing for only areas in the South, SW and SE areas to be shown.
- With all the information gathered, the main question could then be answered using the view-shed tool to place cameras at 20m in areas where the moose will be best seen.

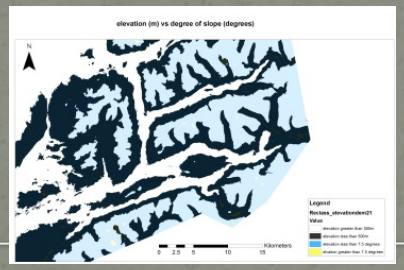

Fig.1

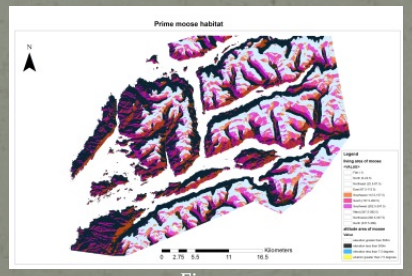

Fig.2

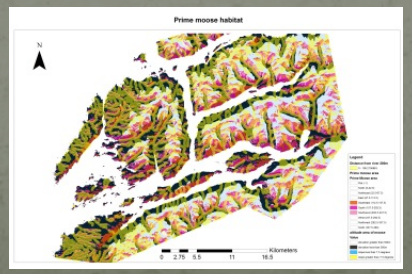

Fig.3

Results

The calculations carried out by the tools in this specific order allowed for the systematic analysis and calculation of the data to formulate an answer for the question. As you can see from figures 1 to 3 show the addition of layers being put on as more and more data is compiled. Figure 3 was the final calcuation before the addition of the view shed and with so many layers, some had to be made transparent to see where in the Dusky Rivers would be the best place to set up cameras. From the information provided by figure 3, allowed for the creation of figure 4, the viewshed in which provides the best place to see moose. The cameras were placed in these positions because despite moose having the ability to swim, will not want to expend so much energy trying to get to an island that has limited resources. Camera positions were put rather inland on the mainland coast as seen in fig 4 to maximise slope, elevation, aspect and river habitat to increase the chances to see the illusive moose. The camera height was put at 20m above the ground as it is probably the maximum realistic distance in which a camera could be put which allowed for a greater visibility of the area. However there is an issue of a vast number of trees in this area causing the camera height set to be not the best option for this terrain practically but for the purpose of this exercise would be the possible best option. Fig. 5 was created to show how the cameras would be positioned in a 3D surface to show the extent of range that the cameras have.

Fig.4

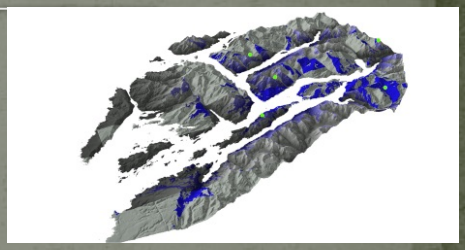

Fig.5

Conclusion

The cameras in these 5 areas are in the best positions for the task at hand as they provide the best possible cover to capture a photograph of a moose. This analysis is a very basic view of the maximum distance a camera could see but due to varying factors such as trees that block areas in reality and moose camouflage, any area within the variables analysed in this assessment is fair game for placing cameras.

References

(1)(2) http://en.wikipedia.org/wiki/Moose