SOIL IN VAN NORDEN MEADOW

Claire and Cat

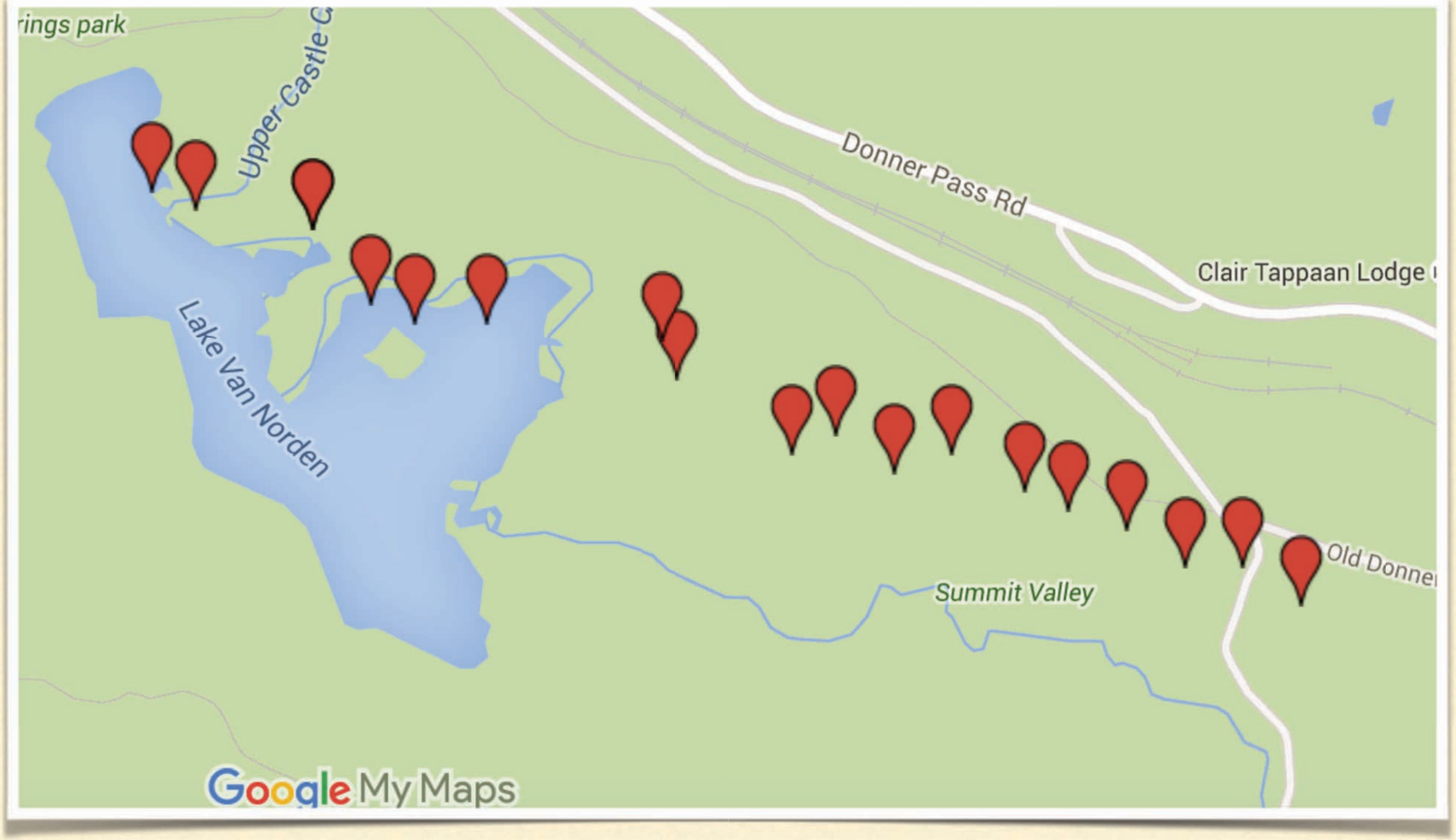
Does moisture have an effect on nutrient and pH levels in soil?

HYPOTHESIS

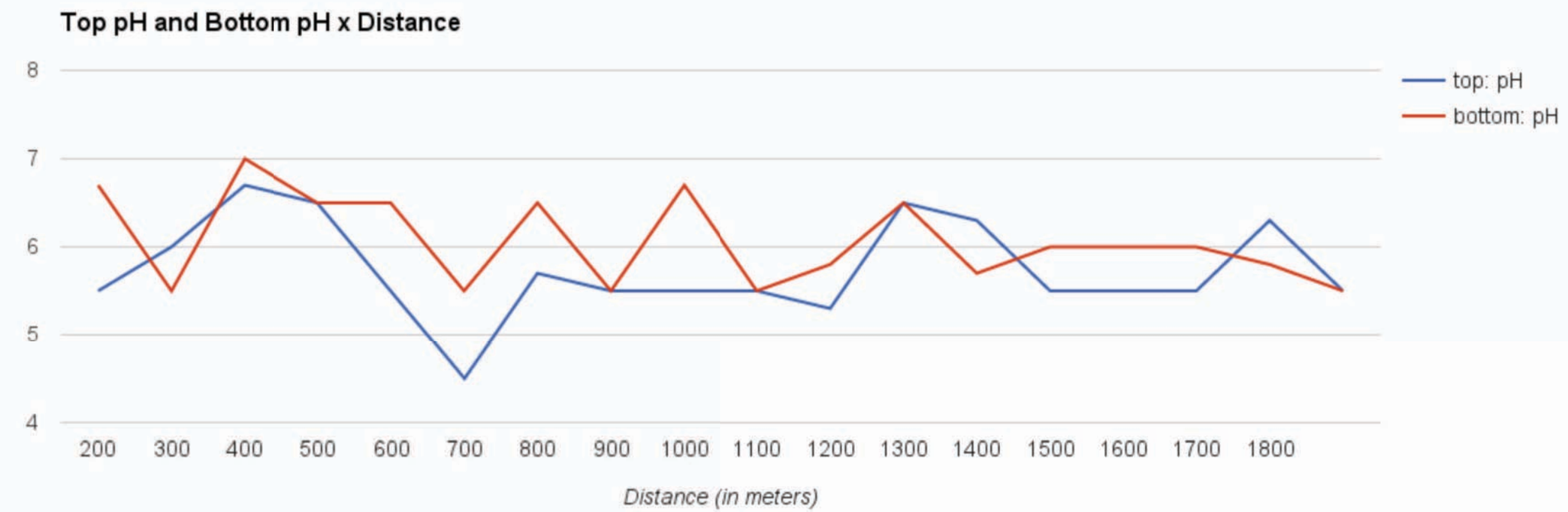
- Wet soil - lower pH - carbonic acids from the water in the soil
- Wet soil - more nutrients than dry soil - water will distribute the nutrients

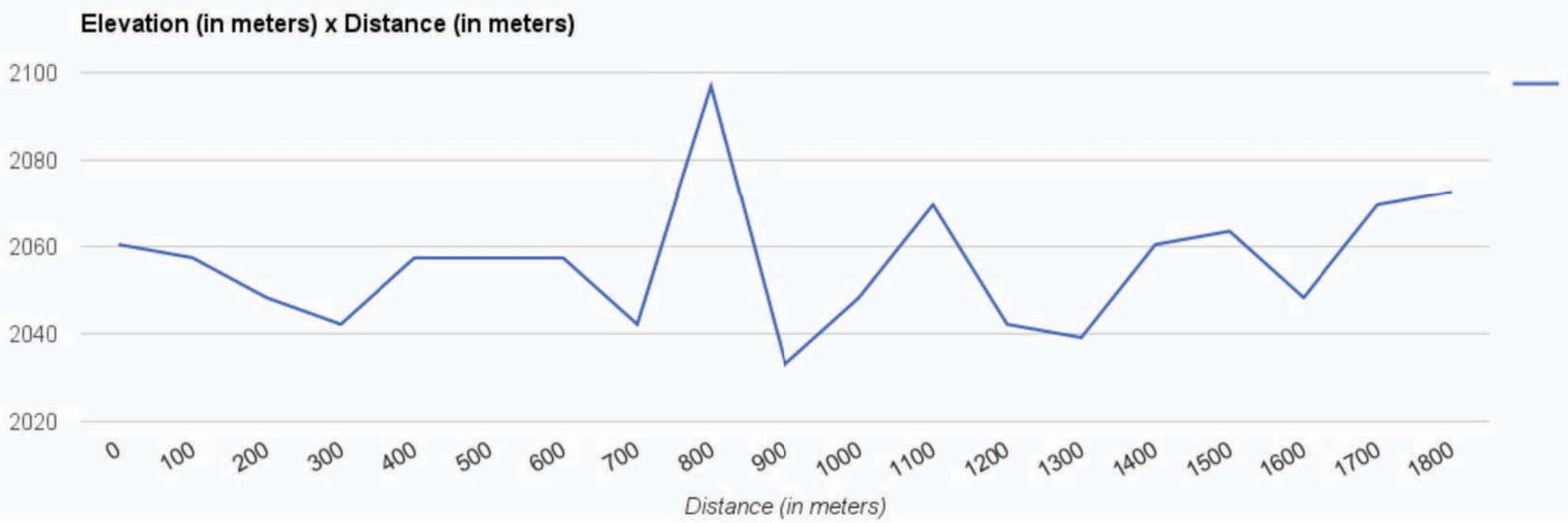
PROCEDURE

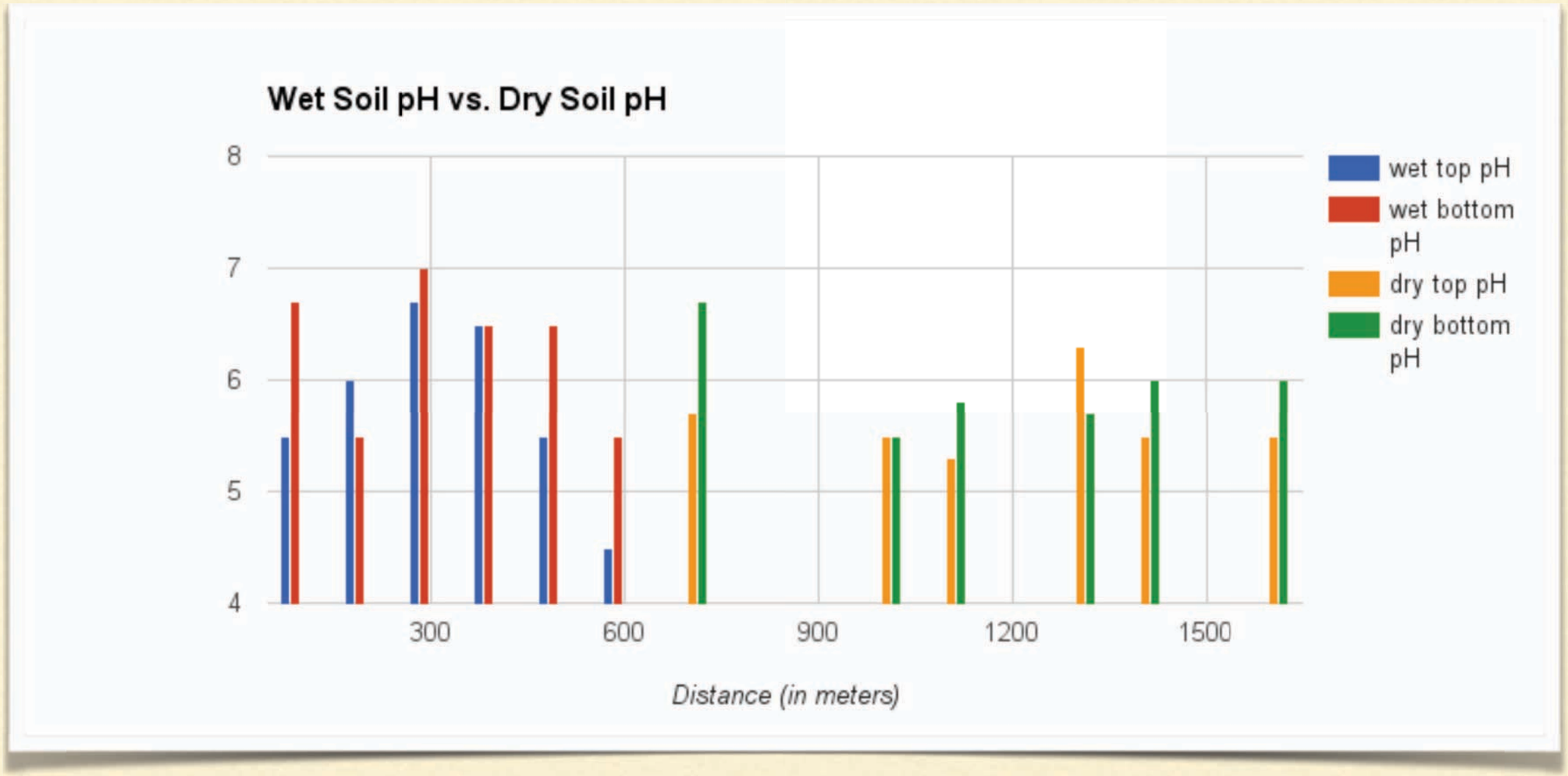
- Take soil sample with corer every 100 meters
- Take photo of whole core
- Take soil sample from top 15mm and bottom 20mm
- Place in separate bags and label



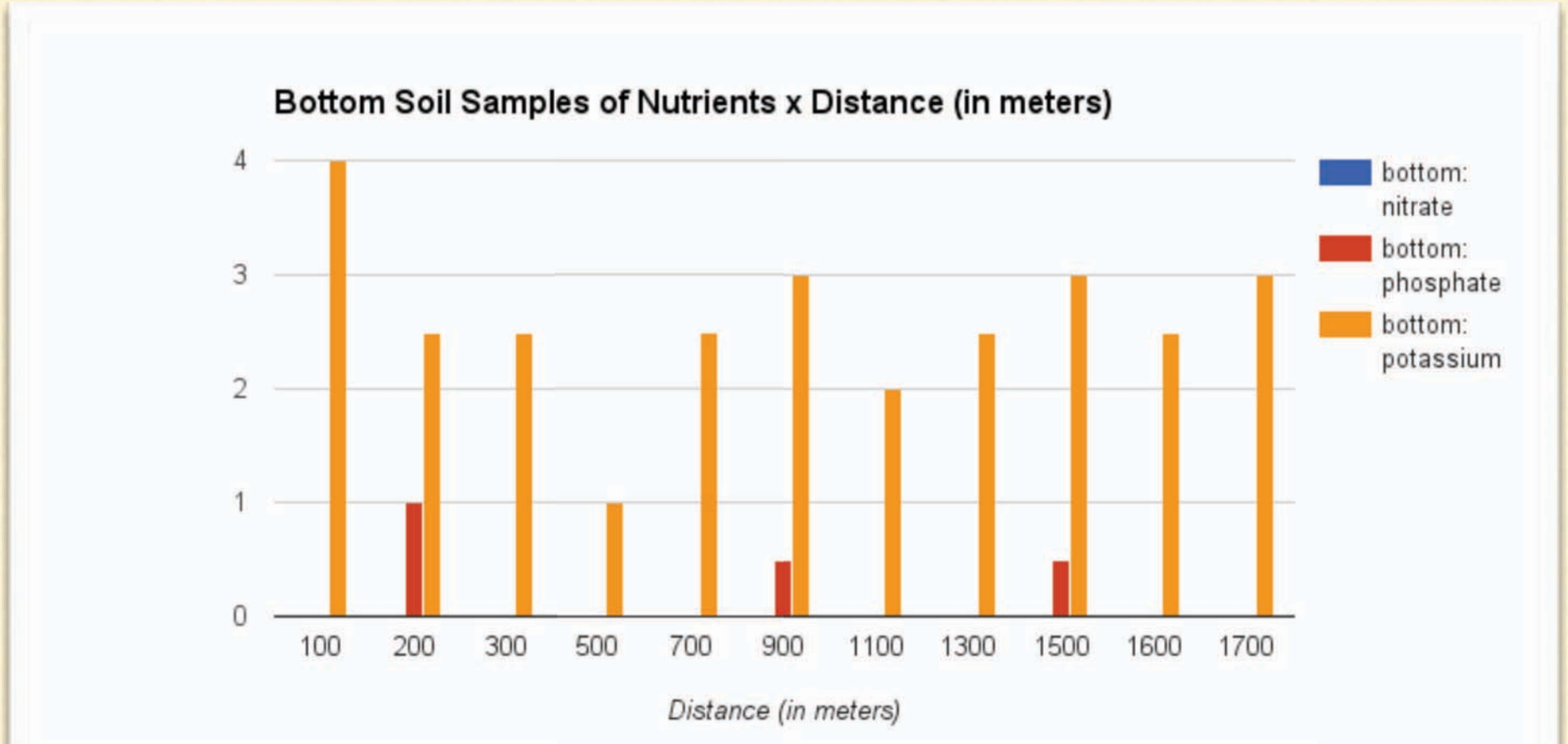
We took soil samples every 100 meters, starting by the edge of the lake and moving towards drier soil.


Top pH and Bottom pH x Distance
8
7
6
5
4
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
Distance (in meters)
top: pH
bottom: pH

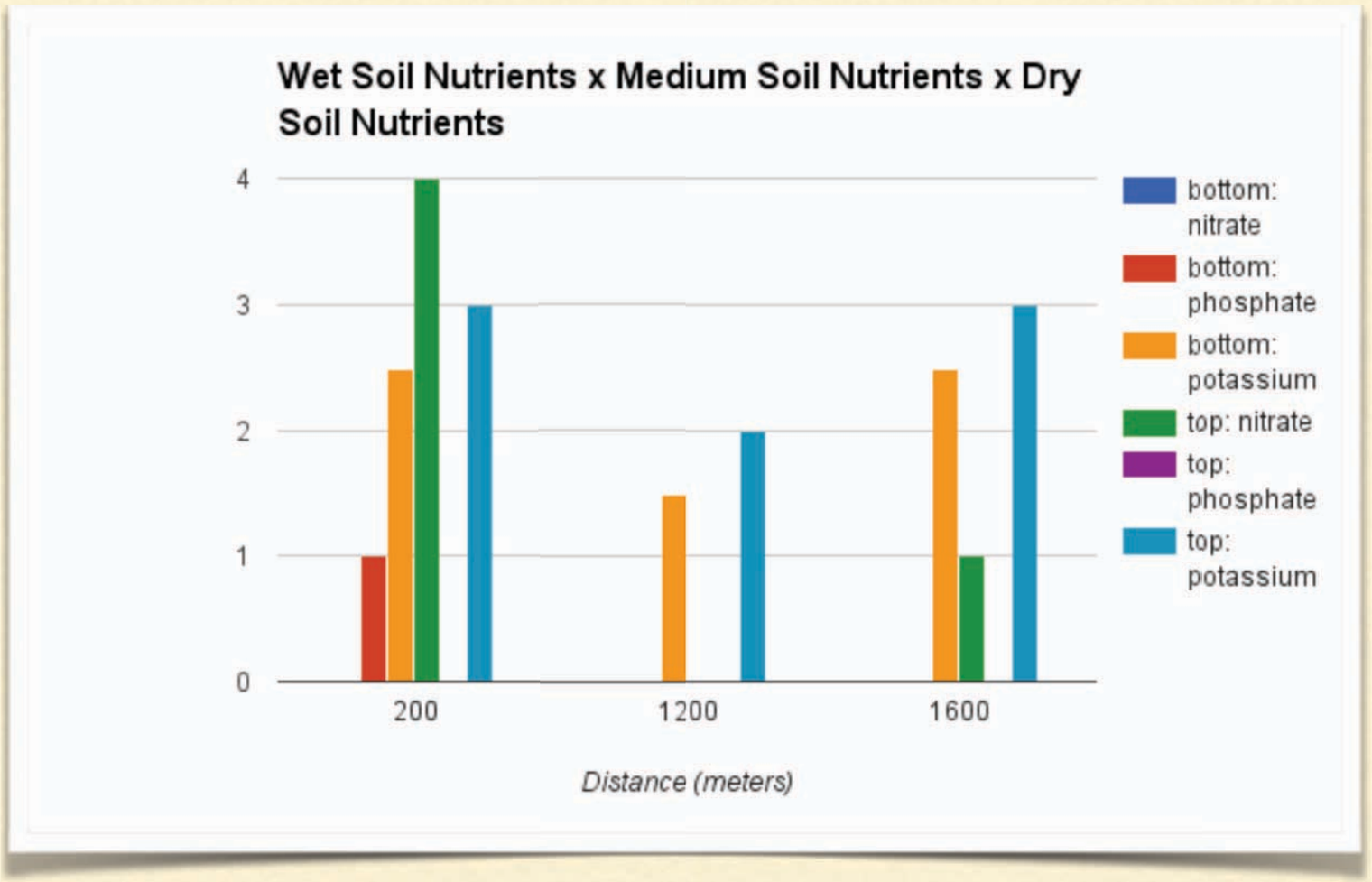

Elevation (in meters) x Distance (in meters)
2100
2080
2060
2040
2020
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
Distance (in meters)



- r-squared value (pH of wet, top soil) = 0.1998 = no correlation
- r-squared value (pH of dry, top soil) = 0.00057 = no correlation
- r-squared value (pH of wet, bottom soil) = 0.087 = no correlation
- r-squared value (pH of dry, bottom soil) = 0.1615 = no correlation



- High potassium levels due to granite rock in meadow
- Site 3 (200m) = dry lake edge, no ground cover
- Site 10 (900m) = dry meadow, near willow bush, still damp at bottom
- Site 16 (1500m) = dry meadow, long grass, short/green vegetation
- 4 = surplus, 0 = deficient



- Wetter soil contains more nutrients overall (highest level of nitrate)
- Medium soil has least amount of nutrients
- Nitrate only in top soil samples, possibly due to large amounts of goose poop and decomposing plants

CONCLUSION

- Wetter soil contains more nutrients than drier soil
- No correlation between the pH levels of the soil and moisture content or elevation

FURTHER QUESTIONS

- Do certain types of animals choose to live in the meadow because of the high levels of potassium?

- How do different organisms contribute to the nutrient levels in the soil?