Midterm

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## Problem 1

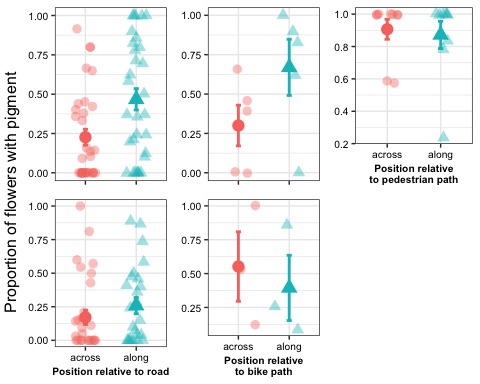
1. Biological: Ho = the phosphorus contents in the soils at the burned and unburned sites are equal. Ha = the soil of the burned and unburned sites do not have the same phosphorus content. Statistical: Ho = there is no significant difference in the mean phosphorus between the data sets. Ha = there is a significant difference in the mean phosphorus between the data sets.
2. A t-test can be used to determine if the mean of the two areas is significantly different.
3. To perform a successful student’s t-test, we assume that the data sets are evenly distributed and have an equal variance.
4. If the data sets had an unequal variance we could perform a Welch’s t-test.
5. The null hypothesis was that there is no difference in phosphorus content between the burned and unburned sites. 34 soil samples were collected and there was found to be a significant difference in phosphorus content between burned and unburned sites (two-sample two-tailed t-test, t(66) = 2.5, ⍺ = 0.05, p = 0.014)
6. Ho = the mean phosphorus content in the soil is equal before and after the fire. Ha = there is a difference in soil phosphorous content before and after the fire.
7. I would preform a t-test to compare the mean phosphorus content of the soil before and after the fire in each survey site in order to determine if there is a significant difference in the means.

## Problem 2

1. Roads may hinder pollinator movement and limit pollination of plants across and along roads. In this study, a fluorescent pigment is used as an analogue for pollen to track the visitation of flowers by pollinators. Generally, flowers across a road or bike path are less likely to be visited by pollinators than flowers across a road or bike path. The pedestrian path seemed to have little effect on the rate of pollination. Habitat corridors could help pollinators cross roads and bike paths to reach flowers. Promoting alternative methods of transportation and reducing the number of cars on the road could also reduce pollinator deaths by collision and allow for safer road crossings.

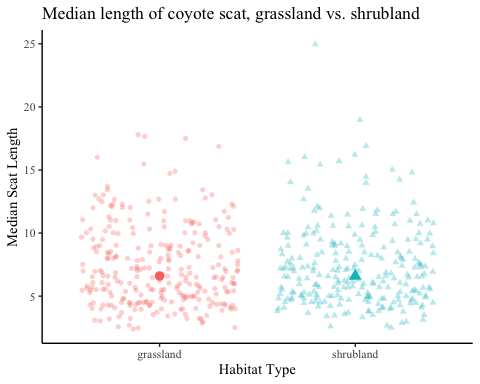
## Warning in read.table(file = file, header = header, sep = sep, quote = quote, :  
## not all columns named in 'colClasses' exist

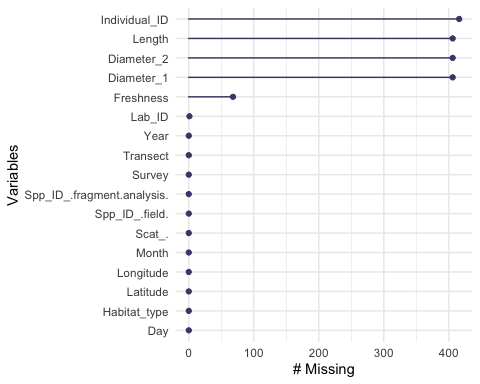
## Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.  
## ℹ Please use `linewidth` instead.  
## This warning is displayed once every 8 hours.  
## Call `lifecycle::last\_lifecycle\_warnings()` to see where this warning was  
## generated.

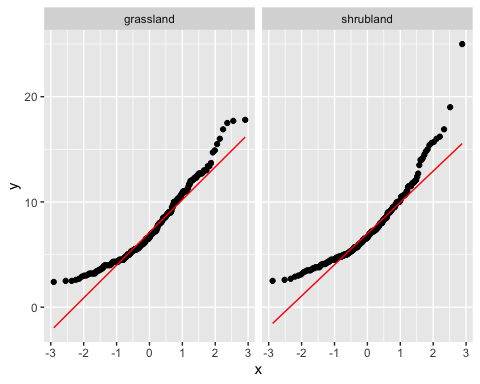


## Problem 3

## Warning: Removed 406 rows containing missing values (`geom\_point()`).

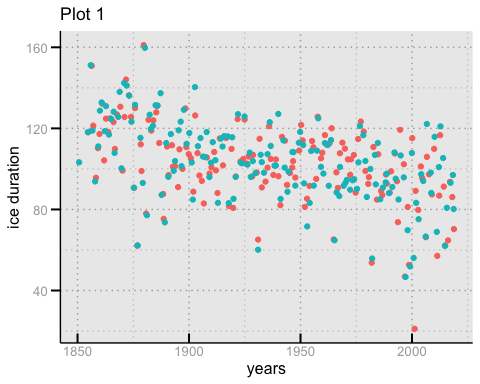


1. 
2. Using the Kruskal-Wallis test can help us determine if the median scat length is the same between the two habitat types. compare the median of two random data sets This test is the best choice because it whether the medians of two data sets.



##   
## Wilcoxon rank sum test with continuity correction  
##   
## data: coyotes\_test$Grassland and coyotes\_test$Scrubland  
## W = 35154, p-value = 0.9486  
## alternative hypothesis: true location shift is not equal to 0

## Problem 4



1. 