

1 Data Description

This data was collected on September 20, 2016 along 3 reaches of the Santa Ana River, with 9 observations per reach. Site A (plunge pool): 34°2'5" N, 117°21'17" W Site B (below confluence): 34°2'21" N, 117°21'20" W Site C (above confluence): 34°2'29" N, 117°21'15" W. Each observation contains the following variables: algae percent cover, canopy cover, water temperature, bed composition.

1.1 Importing Data

The following code was used to import data into rstudio, assign a file path, and create a command to read the csv file.

```
mydataGood= "/home/CAMPUS/vesj2015/Santa-Ana-Sucker-Recovery/Data/Data_TUES_1/AllParameters.csv"
importGood=read.csv(mydataGood)
```

1.2 Summary Statistics

The following code was used to generate summary statistics.

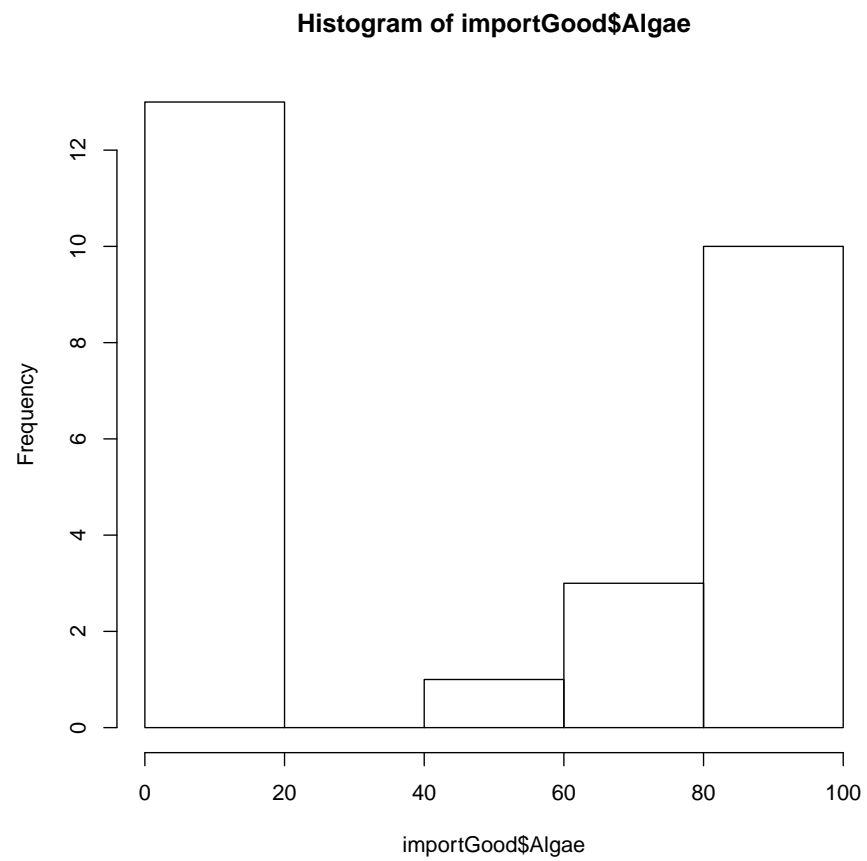
```
summary(importGood)
```

##	ID	Site	Algae	Sediment	Temperature
##	Min.	: 1.0	A:9	Min. : 0.00	Min. : 28.00
##	1st Qu.:	7.5	B:9	1st Qu.: 0.00	1st Qu.: 29.00
##	Median	: 14.0	C:9	Median : 50.00	Median : 29.00
##	Mean	: 14.0		Mean : 48.52	Mean : 28.89
##	3rd Qu.:	20.5		3rd Qu.: 100.00	3rd Qu.: 29.00
##	Max.	: 27.0		Max. : 100.00	Max. : 30.00
##	Canopy				
##	Min.	: 0.000			
##	1st Qu.:	3.000			
##	Median	: 11.000			
##	Mean	: 8.593			
##	3rd Qu.:	14.000			
##	Max.	: 15.000			

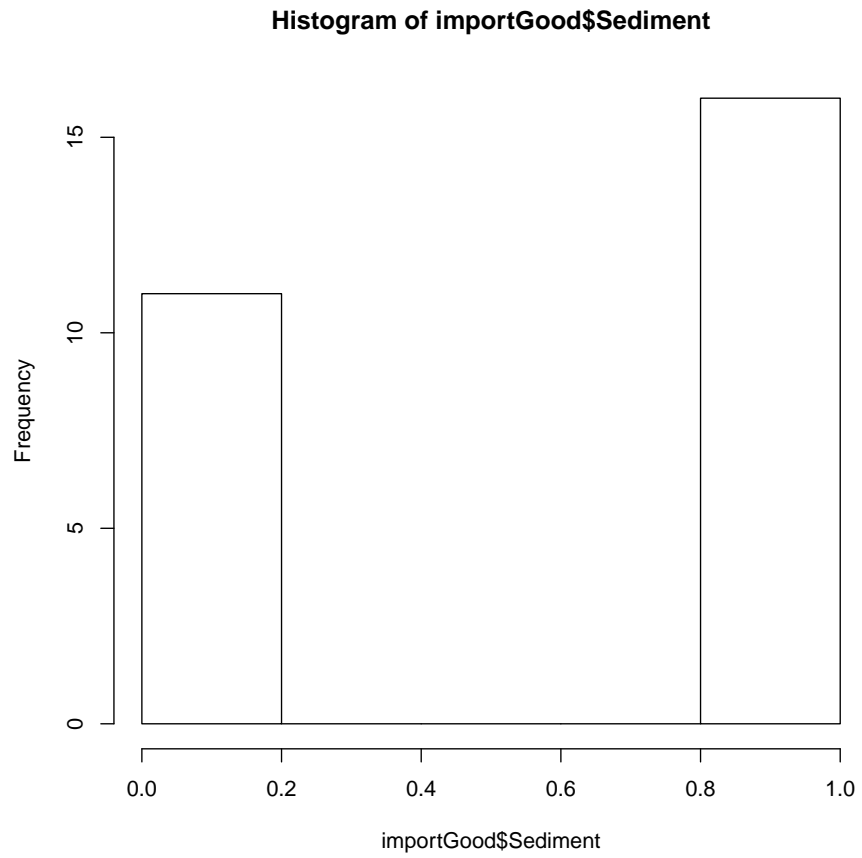
1.3 Distribution

Write some stuff about the summary here...

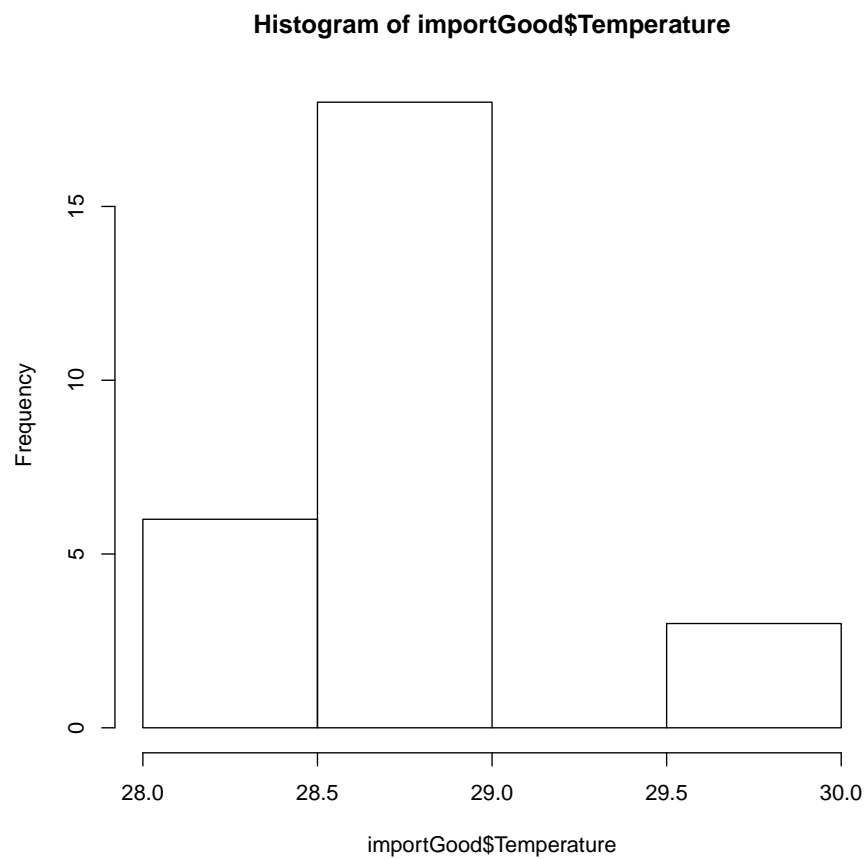
```
hist(importGood$Algae)
```



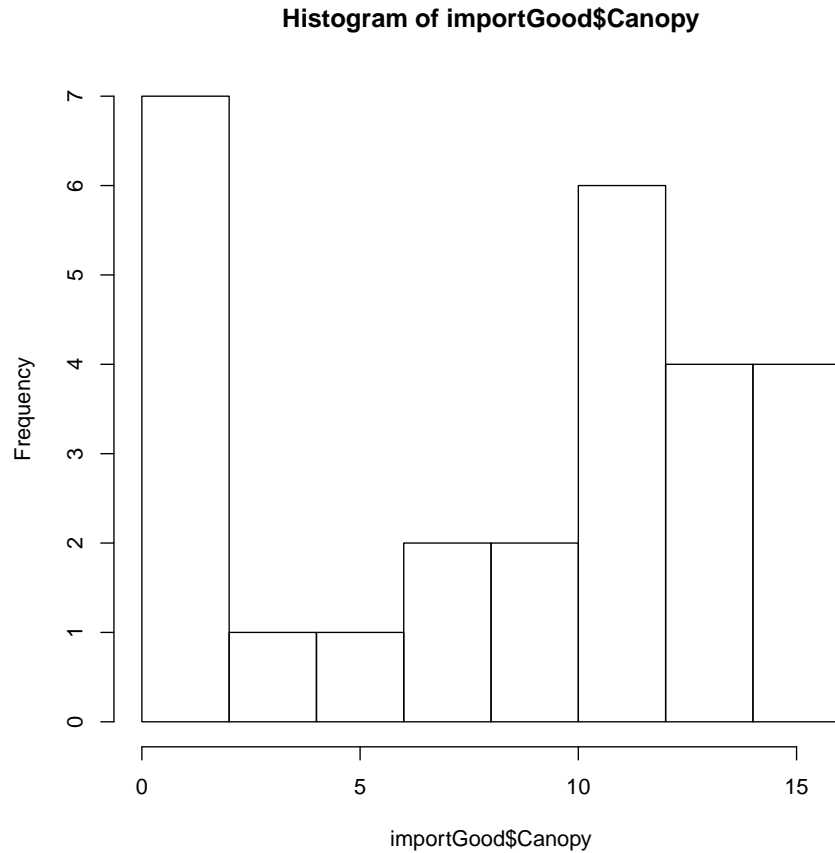
```
hist(importGood$Sediment)
```



```
hist(importGood$Temperature)
```



```
hist(importGood$Canopy)
```



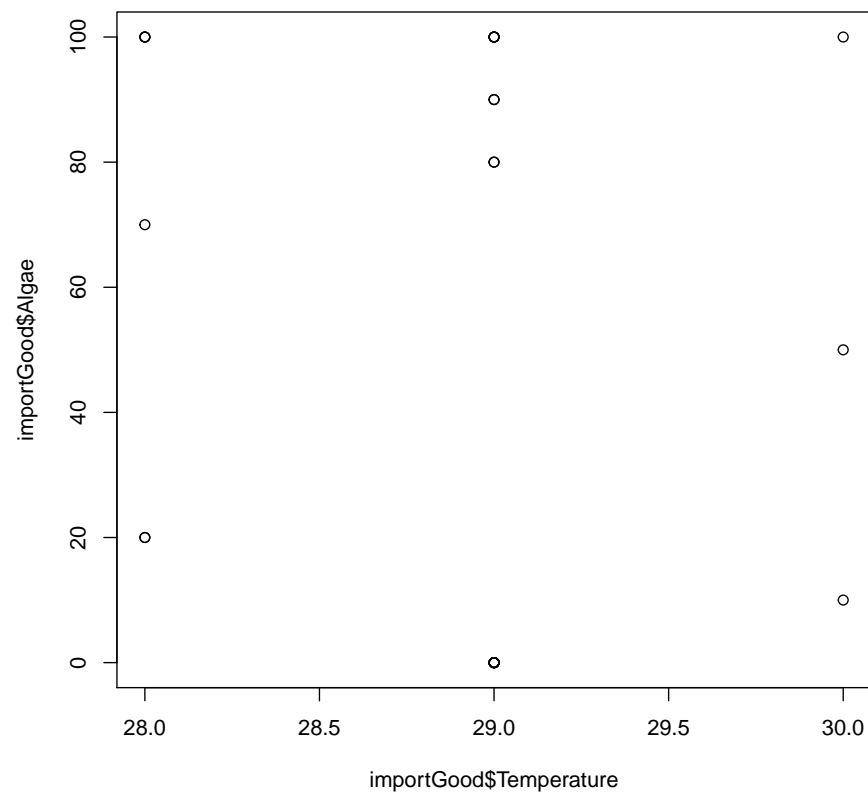
2 Bias and Data Limitations

All data collected on one day, Sept. 20, 2016.

Abnormal event (car accident) occurred a few ? days before data collection which caused the RIX treatment plant to temporarily shut off water outlet pipes, effectively draining the river and adversely impacting algae populations to an unknown degree. Therefore our measurements likely reflect less-than-typical algae abundance. Our measurements were taken by undergraduate students without extensive algae fieldwork experience or training.

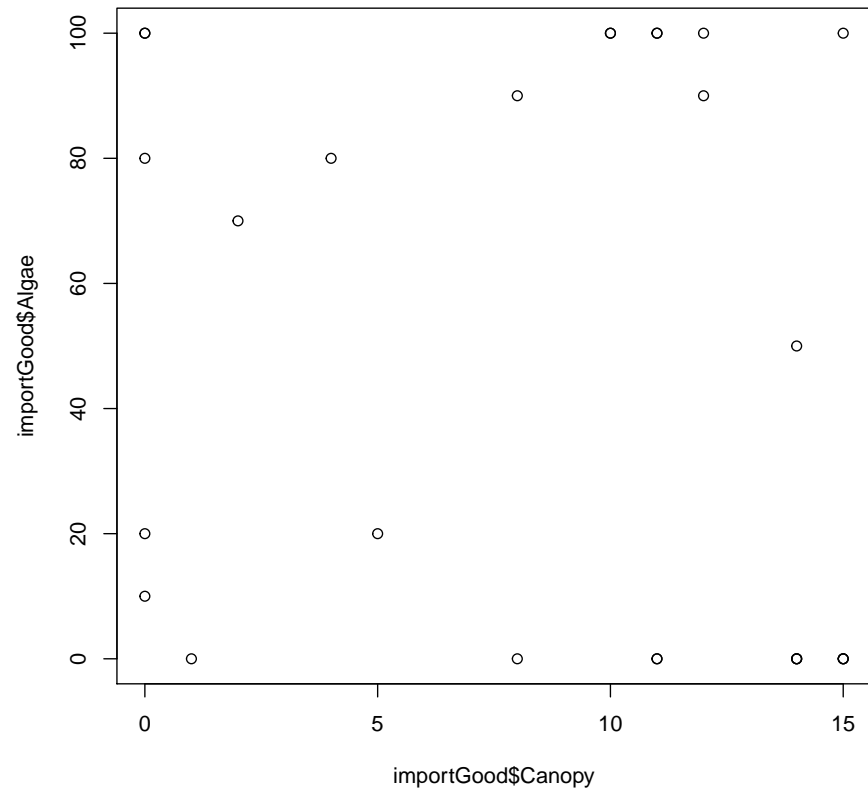
3 Results

```
plot(importGood$Temperature,importGood$Algae)
```



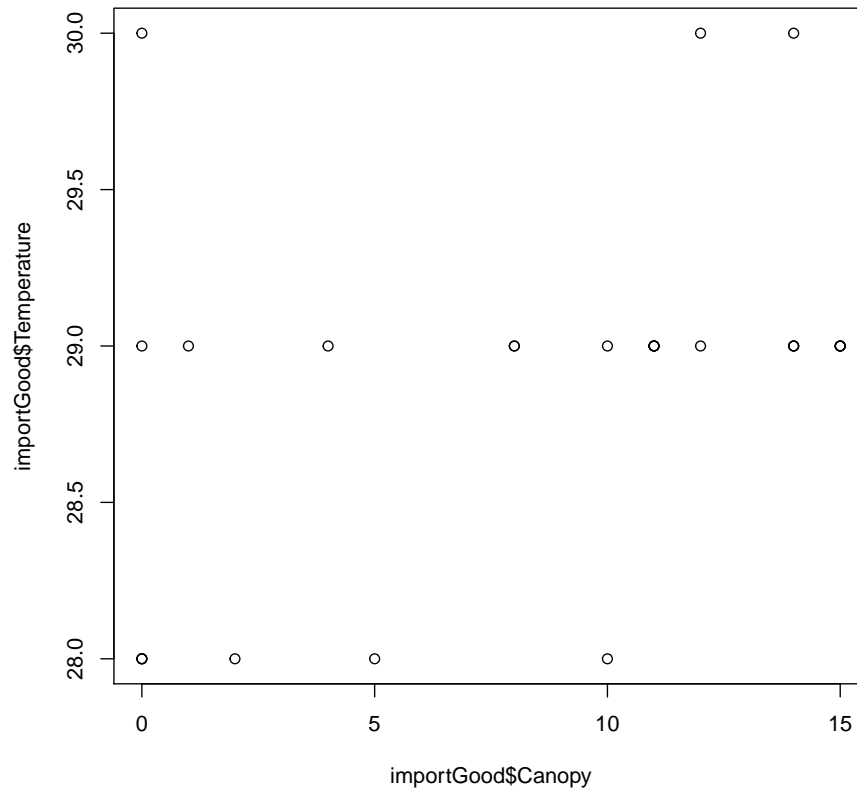
Our temperature data was too coarse to really be useful. Will eventually redo with other temp data, perhaps testing variance of temp by site rather than raw temp data.

```
plot(importGood$Canopy,importGood$Algae)
```



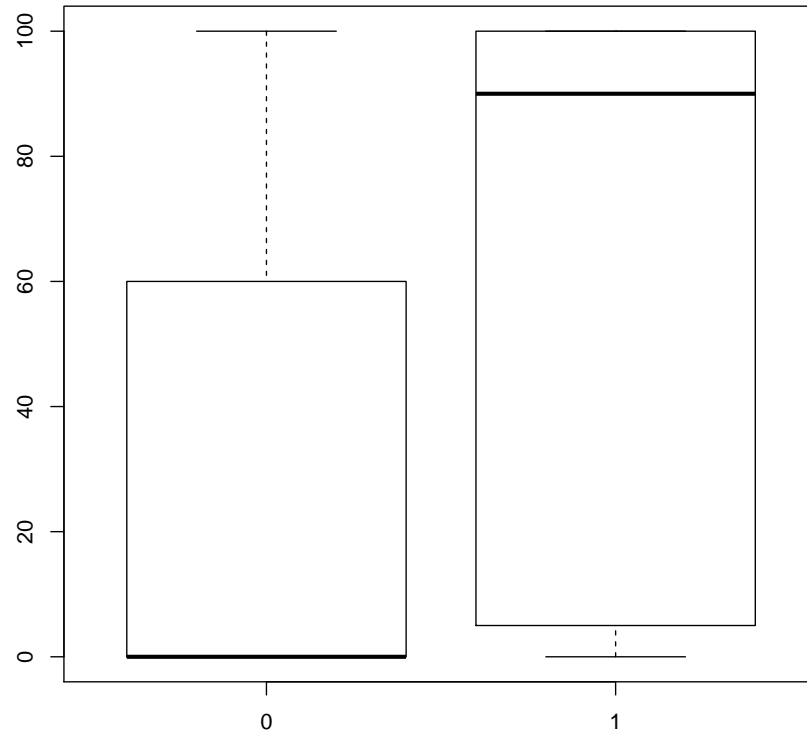
Cannot reject null hypothesis.

```
plot(importGood$Canopy,importGood$Temperature)
```



Our temperature data was too coarse to really be useful. Will eventually redo with other temp data, perhaps testing variance of temp by site rather than raw temp data.

```
boxplot(Algae~Sediment,importGood)
```

Our $\Pr(\hat{z}|F)=0.0643$ which means we cannot reject null hypothesis, but only barely. This indicates that there is probably some relationship between algae cover and sediment composition of the stream bed, and this should be examined in future.