

Notes about analysis

**Day 150 for time period 2006-2013**

Window: 7 days

# observations: 445

Correlations between predictors

|    |              |              |           |
|----|--------------|--------------|-----------|
| 2  | mean_airtemp | min_airtemp  | 0.9477954 |
| 3  | mean_vegcvr  | mean_trnstr  | 0.9257377 |
| 4  | mean_trnstr  | mean_vegcvr  | 0.9257377 |
| 5  | mean_airtemp | max_airtemp  | 0.8945360 |
| 6  | max_airtemp  | mean_airtemp | 0.8945360 |
| 7  | mean_wilt    | mean_trnstr  | 0.8480014 |
| 8  | mean_trnstr  | mean_wilt    | 0.8480014 |
| 9  | mean_sndep   | mean_sncvr   | 0.7843003 |
| 10 | mean_sncvr   | mean_sndep   | 0.7843003 |
| 11 | min_airtemp  | max_airtemp  | 0.7429152 |
| 12 | max_airtemp  | min_airtemp  | 0.7429152 |
| 13 | mean_wilt    | mean_vegcvr  | 0.6469105 |
| 14 | mean_vegcvr  | mean_wilt    | 0.6469105 |

Poisson Point Process models:

1. ppm(tick.ppp ~ mean\_airtemp + mean\_humidity + mean\_vegcvr + uwind + vwind + sum\_precip {+v3} )
2. ppm(ticks.ppp ~ min\_airtemp + mean\_vegcvr + uwind + vwind + sum\_precip +v3)
3. ppm(tick.ppp ~ mean\_airtemp + mean\_humidity + uwind + sum\_precip +v3)
4. ppm(ticks.ppp ~ min\_airtemp + mean\_vegcvr + uwind + vwind + sum\_precip + v3)
5. ppm(ticks.ppp ~ min\_airtemp + mean\_vegcvr + uwind + vwind + sum\_precip + v3)

## Day 170 for time period 2006-2013

Window: 7 days

# observations: 262

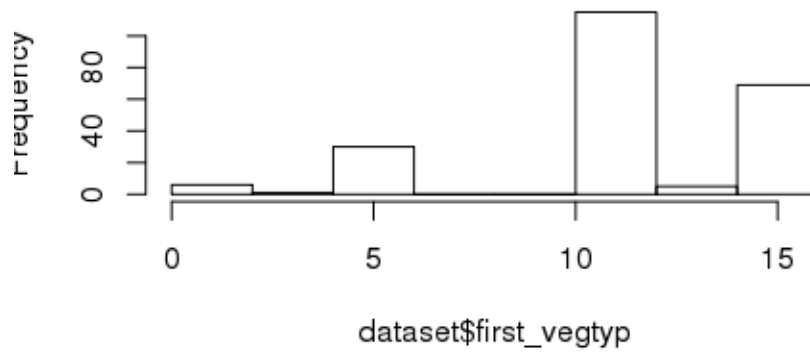


Window: 3 days



Window: 7 days

## histogram of veg type



used binary variable v4: vegtype = 11-15.

Correlations:

|              |              |           |
|--------------|--------------|-----------|
| mean_sncvr   | mean_sndep   | 0.9706247 |
| mean_vegcvr  | mean_trnstr  | 0.9400287 |
| mean_trnstr  | mean_vegcvr  | 0.9400287 |
| min_airtemp  | mean_airtemp | 0.9105016 |
| mean_airtemp | min_airtemp  | 0.9105016 |
| mean_airtemp | max_airtemp  | 0.9098439 |
| max_airtemp  | mean_airtemp | 0.9098439 |
| mean_wilt    | mean_trnstr  | 0.8401035 |
| mean_trnstr  | mean_wilt    | 0.8401035 |
| min_airtemp  | max_airtemp  | 0.7001948 |
| max_airtemp  | min_airtemp  | 0.7001948 |
| mean_wilt    | mean_vegcvr  | 0.6489837 |
| mean_vegcvr  | mean_wilt    | 0.6489837 |

Models:

```
ppm(ticks.ppp ~ mean_airtemp+ mean_humidity+ uwind+ vwind + sum_precip +v4)
```

```
ppm(ticks.ppp ~ min_airtemp+ mean_humidity+ uwind + sum_precip +v4)
```

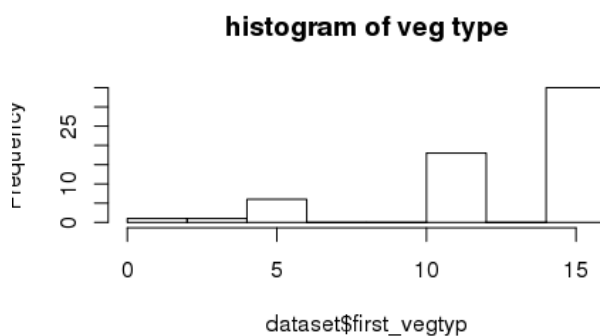
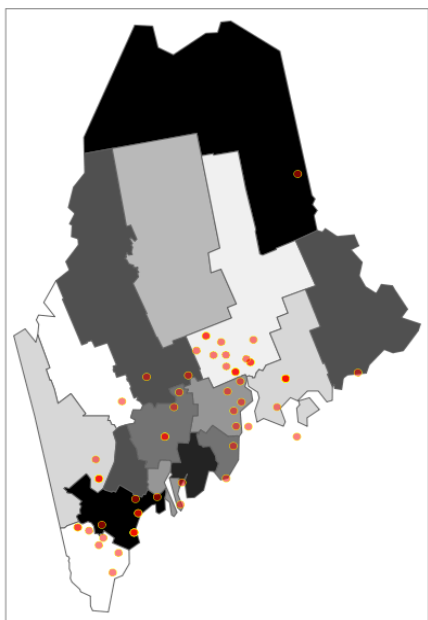
```
ppm(ticks.ppp ~ min_airtemp+ max_airtemp+ mean_humidity+ uwind+ vwind +  
sum_precip +v4)
```

```
ppm(ticks.ppp ~ min_airtemp+ max_airtemp+ mean_humidity+ uwind+ trnstr+ sum_precip  
+v4)
```

```
ppm(ticks.ppp ~ min_airtemp+ max_airtemp+ mean_humidity+ uwind+ vwind +wilt +  
sum_precip +v4)
```

## Day 200 for time period 2006-2013

Window: 3 days -> 19 obs, 7 days -> 40 obs 10 -> 61

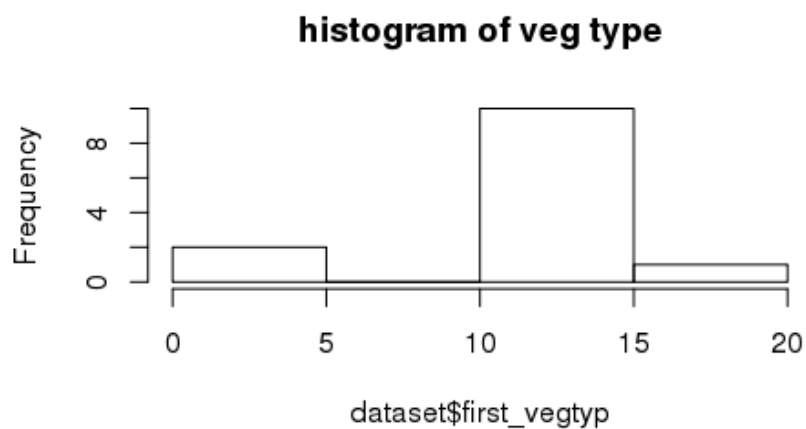
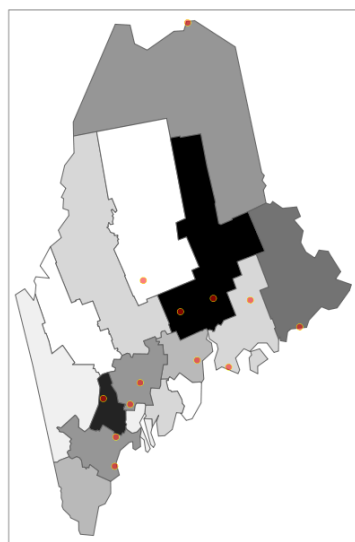


|              |              |           |
|--------------|--------------|-----------|
| mean_trnstr  | mean_vegcvr  | 0.9597807 |
| mean_airtemp | max_airtemp  | 0.9254528 |
| max_airtemp  | mean_airtemp | 0.9254528 |
| min_airtemp  | mean_airtemp | 0.9154988 |
| mean_airtemp | min_airtemp  | 0.9154988 |
| mean_wilt    | mean_trnstr  | 0.8715334 |
| mean_trnstr  | mean_wilt    | 0.8715334 |
| min_airtemp  | max_airtemp  | 0.7483884 |
| max_airtemp  | min_airtemp  | 0.7483884 |
| mean_wilt    | mean_vegcvr  | 0.7319078 |
| mean_vegcvr  | mean_wilt    | 0.7319078 |
| mean_uwind   | max_airtemp  | 0.5296166 |
| max_airtemp  | mean_uwind   | 0.5296166 |

```
ppm(ticks.ppp ~ wilt+sum_precip + v4 )
```

## Day 231 for time period 2006-2013

Window 13 days; 13 observations



|              |              |           |
|--------------|--------------|-----------|
| mean_trnstr  | mean_vegcvr  | 0.9717943 |
| min_airtemp  | mean_airtemp | 0.9156275 |
| mean_airtemp | min_airtemp  | 0.9156275 |
| mean_wilt    | mean_trnstr  | 0.8810245 |
| mean_trnstr  | mean_wilt    | 0.8810245 |
| mean_airtemp | max_airtemp  | 0.8778115 |
| max_airtemp  | mean_airtemp | 0.8778115 |
| mean_wilt    | mean_vegcvr  | 0.7626061 |
| mean_vegcvr  | mean_wilt    | 0.7626061 |
| sum_precip   | min_airtemp  | 0.7210798 |
| min_airtemp  | sum_precip   | 0.7210798 |
| min_airtemp  | max_airtemp  | 0.6774406 |
| max_airtemp  | min_airtemp  | 0.6774406 |
| mean_vwind   | mean_relhum  | 0.6280291 |
| mean_relhum  | mean_vwind   | 0.6280291 |
| sum_precip   | mean_airtemp | 0.6165027 |
| mean_airtemp | sum_precip   | 0.6165027 |

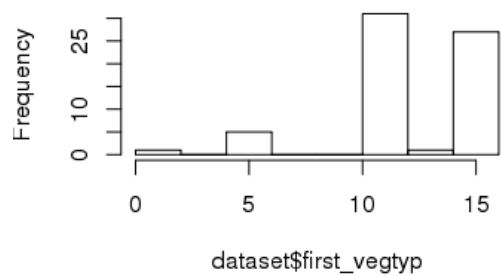
```
ppm(ticks.ppp ~ mean_airtemp)
ppm(ticks.ppp ~ trnstr)
ppm(ticks.ppp ~ wilt)
```

## Day 262 for time period 2006-2013

window: 7-> 36; 10 -> 62



histogram of veg type

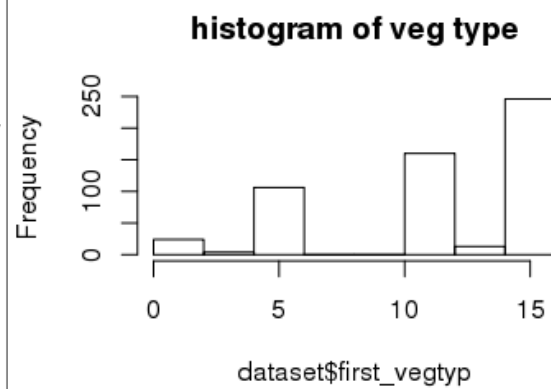
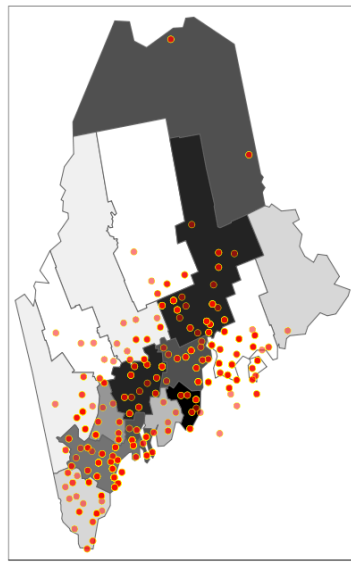


|              |              |           |
|--------------|--------------|-----------|
| min_airtemp  | mean_airtemp | 0.9440952 |
| mean_airtemp | min_airtemp  | 0.9440952 |
| mean_vegcvr  | mean_trnstr  | 0.9297405 |
| mean_trnstr  | mean_vegcvr  | 0.9297405 |
| mean_airtemp | max_airtemp  | 0.9195529 |
| max_airtemp  | mean_airtemp | 0.9195529 |
| mean_wilt    | mean_trnstr  | 0.8204510 |
| mean_trnstr  | mean_wilt    | 0.8204510 |
| min_airtemp  | max_airtemp  | 0.7839863 |
| max_airtemp  | min_airtemp  | 0.7839863 |
| mean_wilt    | mean_vegcvr  | 0.5937820 |
| mean_vegcvr  | mean_wilt    | 0.5937820 |

```
ppm(ticks.ppp ~ mean_airtemp+ uwind+ vwind+ sum_precip )
```

## Day 292 for time period 2006-2013

window 3: 553

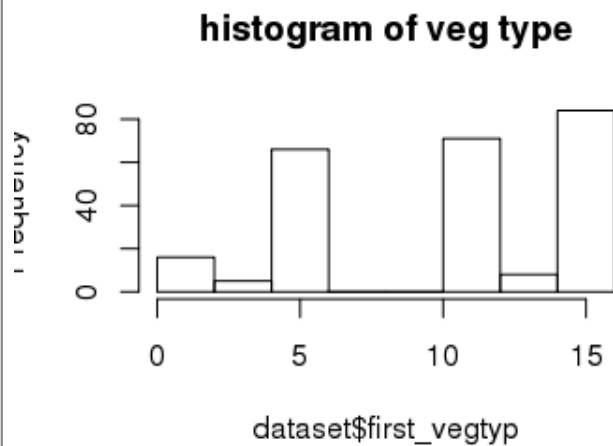
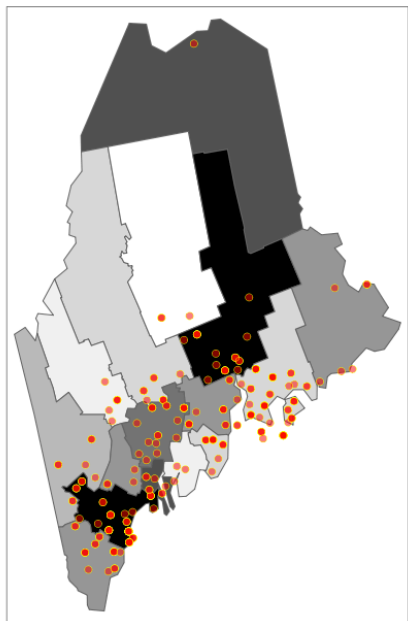


|              |              |           |
|--------------|--------------|-----------|
| mean_vegcvr  | mean_trnstr  | 0.9392926 |
| mean_trnstr  | mean_vegcvr  | 0.9392926 |
| mean_airtemp | max_airtemp  | 0.8911385 |
| max_airtemp  | mean_airtemp | 0.8911385 |
| mean_wilt    | mean_trnstr  | 0.8755327 |
| mean_trnstr  | mean_wilt    | 0.8755327 |
| min_airtemp  | max_airtemp  | 0.7395101 |
| max_airtemp  | min_airtemp  | 0.7395101 |
| mean_wilt    | mean_vegcvr  | 0.6987841 |
| mean_vegcvr  | mean_wilt    | 0.6987841 |
| mean_sndep   | mean_sncvr   | 0.6815756 |
| mean_sncvr   | mean_sndep   | 0.6815756 |
| sum_precip   | mean_relhum  | 0.5923389 |
| mean_relhum  | sum_precip   | 0.5923389 |
| mean_vwind   | mean_airtemp | 0.5866086 |
| mean_airtemp | mean_vwind   | 0.5866086 |
| min_airtemp  | mean_vwind   | 0.5727464 |
| mean_vwind   | min_airtemp  | 0.5727464 |
| mean_vwind   | max_airtemp  | 0.5229474 |

```
ppm(ticks.ppp ~ mean_airtemp+ uwind+mean_vegcvr +v4)
ppm(ticks.ppp ~ max_airtemp+ uwind+ wilt +v4)
ppm(ticks.ppp ~ max_airtemp+ uwind+ trnstr +v4)
```

### Day 323 for time period 2006-2013

window = 3 ; #obs = 250

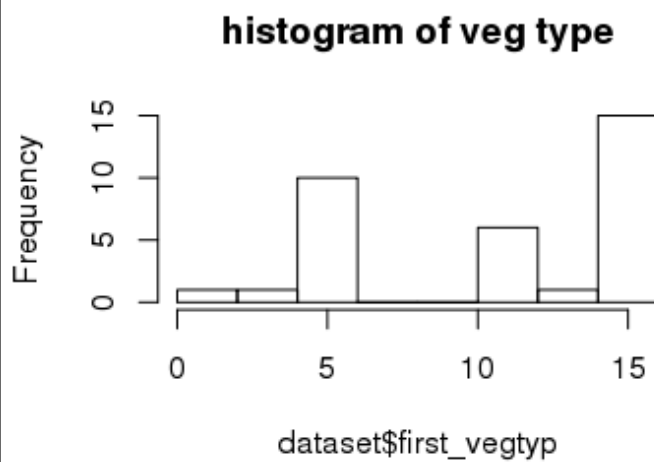
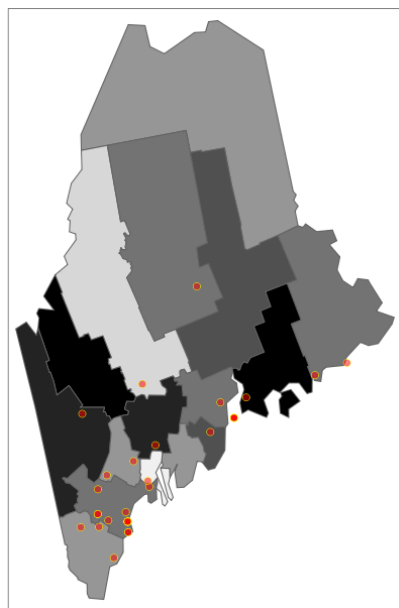


```
ppm(ticks.ppp ~ mean_airtemp+ trnstr+uwind+ vwind +v4)
ppm(ticks.ppp ~ mean_airtemp+ wilt+uwind+ vwind +v4)
ppm(ticks.ppp ~ mean_airtemp+ mean_vegcvr +uwind+ vwind +v4)
```



## Day 353 for time period 2006-2013

window->10; 34

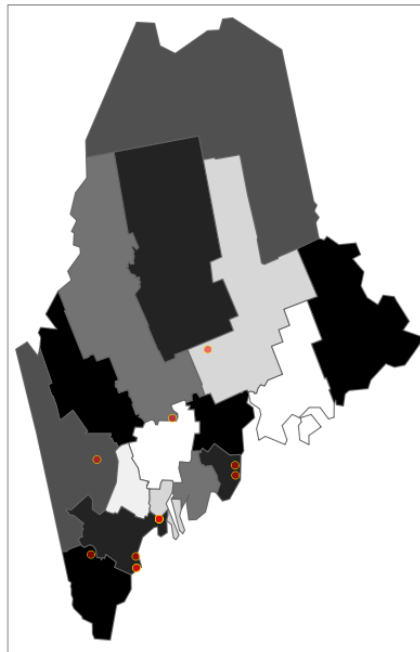
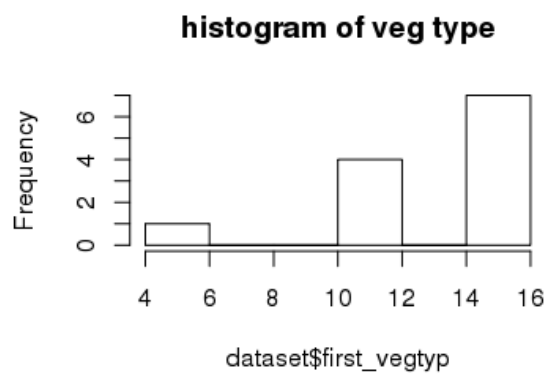


|              |              |           |
|--------------|--------------|-----------|
| min_airtemp  | mean_airtemp | 0.9700001 |
| mean_airtemp | min_airtemp  | 0.9700001 |
| mean_airtemp | max_airtemp  | 0.9370351 |
| max_airtemp  | mean_airtemp | 0.9370351 |
| mean_wilt    | mean_trnstr  | 0.8786891 |
| mean_trnstr  | mean_wilt    | 0.8786891 |
| min_airtemp  | max_airtemp  | 0.8554971 |
| max_airtemp  | min_airtemp  | 0.8554971 |
| mean_sndep   | mean_sncvr   | 0.6872991 |
| mean_sncvr   | mean_sndep   | 0.6872991 |
| mean_vwind   | max_airtemp  | 0.5755400 |
| max_airtemp  | mean_vwind   | 0.5755400 |
| mean_wilt    | mean_sncvr   | 0.5533342 |
| mean_sncvr   | mean_wilt    | 0.5533342 |

ppm(ticks.ppp ~ mean\_humidity+ uwind+mean\_vegcvr+v4)

**Day 19 for time period 2006-2013**

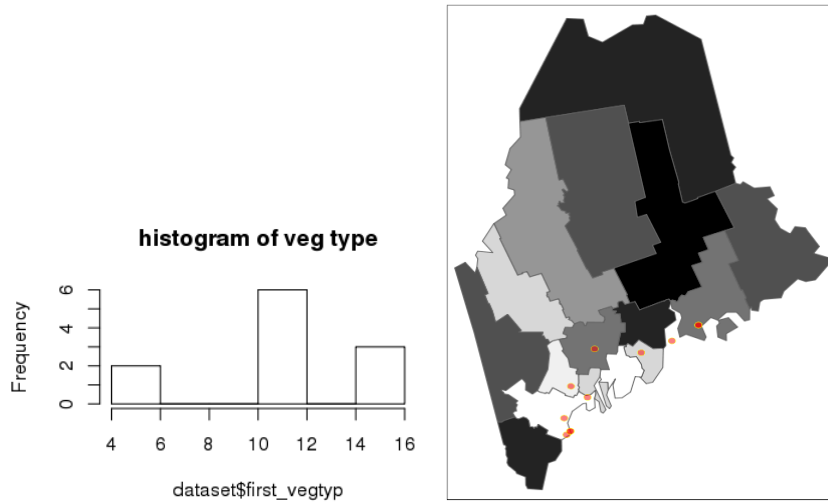
window 20: obs 12



```
ppm(ticks.ppp ~ mean_airtemp+ vwind+ sndepth + sum_precip )  
ppm(ticks.ppp ~ mean_airtemp + v4 )
```

## Day 50 for time period 2006-2013

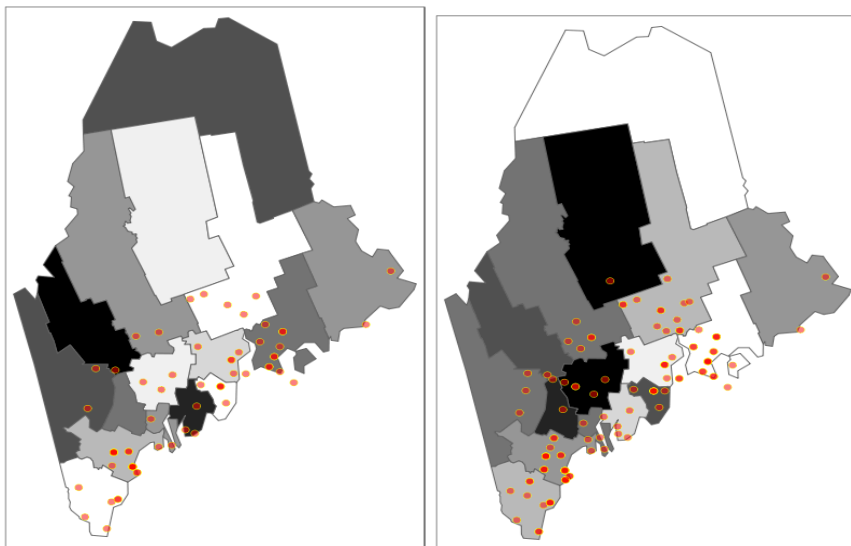
window: 20; #obs 11

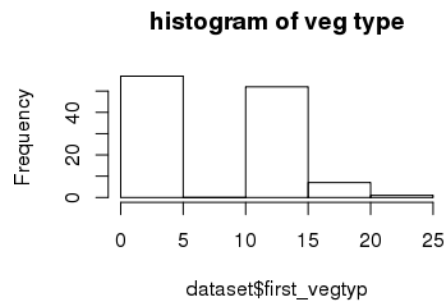


```
ppm(ticks.ppp ~ mean_airtemp+ vwind +sncvr)  
ppm(ticks.ppp ~ mean_airtemp+ vwind+v4)
```

## Day 78 for time period 2006-2013

window: 3->66 7 ->117

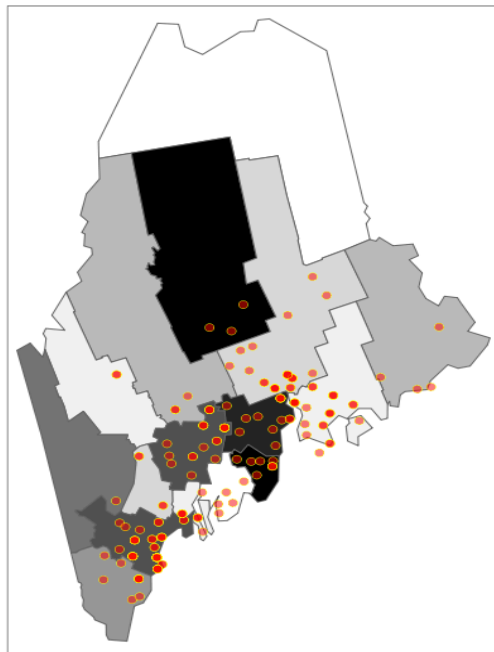
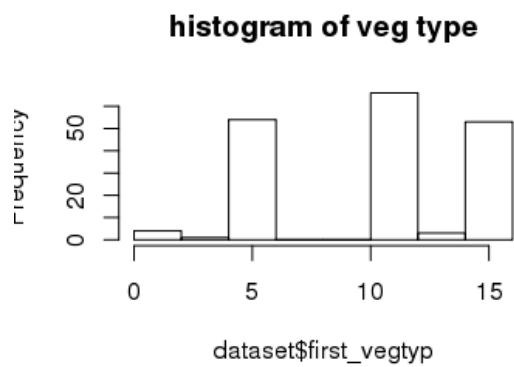




```
ppm(ticks.ppp ~ mean_airtemp+mean_vegcvr+ vwind + sum_precip+sncvr )
ppm(ticks.ppp ~ mean_airtemp+mean_vegcvr+ vwind + sum_precip+sncvr +v4)
```

**Day 109 for time period 2006-2013**

window 3 days -> 118

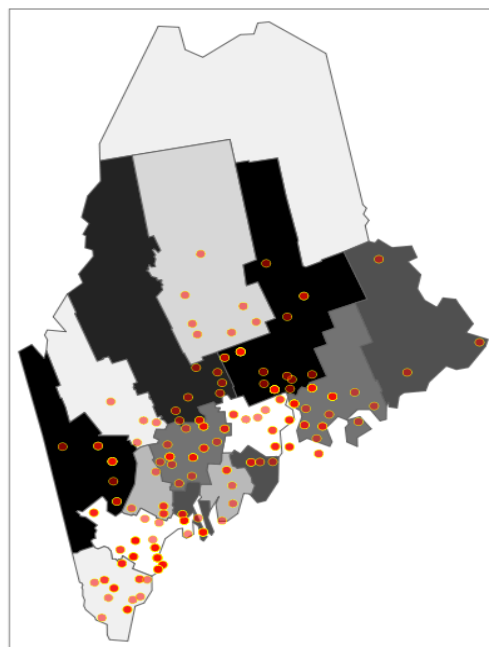
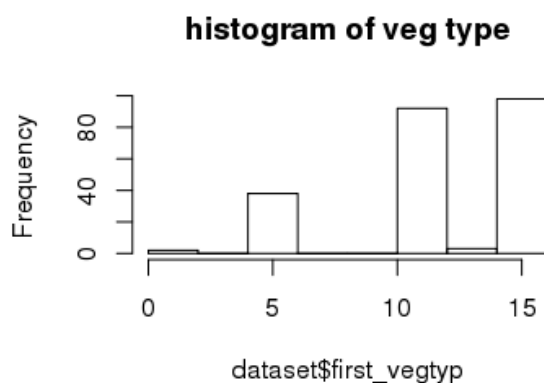


|              |              |           |
|--------------|--------------|-----------|
| mean_airtemp | max_airtemp  | 0.9192855 |
| max_airtemp  | mean_airtemp | 0.9192855 |
| min_airtemp  | mean_airtemp | 0.9184097 |
| mean_airtemp | min_airtemp  | 0.9184097 |
| mean_vegcvr  | mean_trnstr  | 0.8466389 |
| mean_trnstr  | mean_vegcvr  | 0.8466389 |
| mean_wilt    | mean_trnstr  | 0.8017429 |
| mean_trnstr  | mean_wilt    | 0.8017429 |
| min_airtemp  | max_airtemp  | 0.7247190 |
| max_airtemp  | min_airtemp  | 0.7247190 |
| sum_precip   | mean_sndep   | 0.6102523 |
| mean_sndep   | sum_precip   | 0.6102523 |
| mean_sndep   | mean_sncvr   | 0.5589193 |
| mean_sncvr   | mean_sndep   | 0.5589193 |

```
ppm(ticks.ppp ~ mean_airtemp+ uwind+mean_vegcvr+ vwind+ min_airtemp + sum_precip
+v4)
```

**Day 139 for time period 2006-2013**

**window 3 -> #obs 233**



|              |              |           |
|--------------|--------------|-----------|
| mean_vegcvr  | mean_trnstr  | 0.9405134 |
| mean_trnstr  | mean_vegcvr  | 0.9405134 |
| min_airtemp  | mean_airtemp | 0.9137828 |
| mean_airtemp | min_airtemp  | 0.9137828 |
| mean_airtemp | max_airtemp  | 0.9025232 |
| max_airtemp  | mean_airtemp | 0.9025232 |
| mean_wilt    | mean_trnstr  | 0.8427099 |
| mean_trnstr  | mean_wilt    | 0.8427099 |
| mean_sndep   | mean_sncvr   | 0.7579176 |
| mean_sncvr   | mean_sndep   | 0.7579176 |
| min_airtemp  | max_airtemp  | 0.6888013 |
| max_airtemp  | min_airtemp  | 0.6888013 |
| mean_wilt    | mean_vegcvr  | 0.6552899 |
| mean_vegcvr  | mean_wilt    | 0.6552899 |
| sum_precip   | mean_relhum  | 0.5495780 |
| mean_relhum  | sum_precip   | 0.5495780 |

```

ppm(ticks.ppp ~ mean_airtemp+ uwind+mean_vegcvr+ vwind+ wilt + sum_precip)
ppm(ticks.ppp ~ mean_airtemp+ mean_vegcvr+ vwind+ sncvr)
ppm(ticks.ppp ~ mean_airtemp+ uwind+mean_vegcvr+ vwind+ wilt + sum_precip+v4)
ppm(ticks.ppp ~ mean_airtemp+ mean_vegcvr+ vwind+ sndepth+v4)
ppm(ticks.ppp ~ mean_airtemp+ mean_vegcvr+ vwind+ sndepth)

```