

Handout 04: Advanced Graphics

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WE HAVE ALREADY SEEN HOW TO BUILD FAIRLY complex graphics within R. This handout fills in a few gaps that will serve us well throughout the remainder of the semester.

In this handout, I will again use the `msleep` dataset in my examples:

```
data(msleep)
```

Multiple Datasets

It is possible to plot multiple datasets in a single graphic. This is particularly useful when combined with the `filter` function. For example, we can highlight the insectivores by filtering them into a separate dataset:

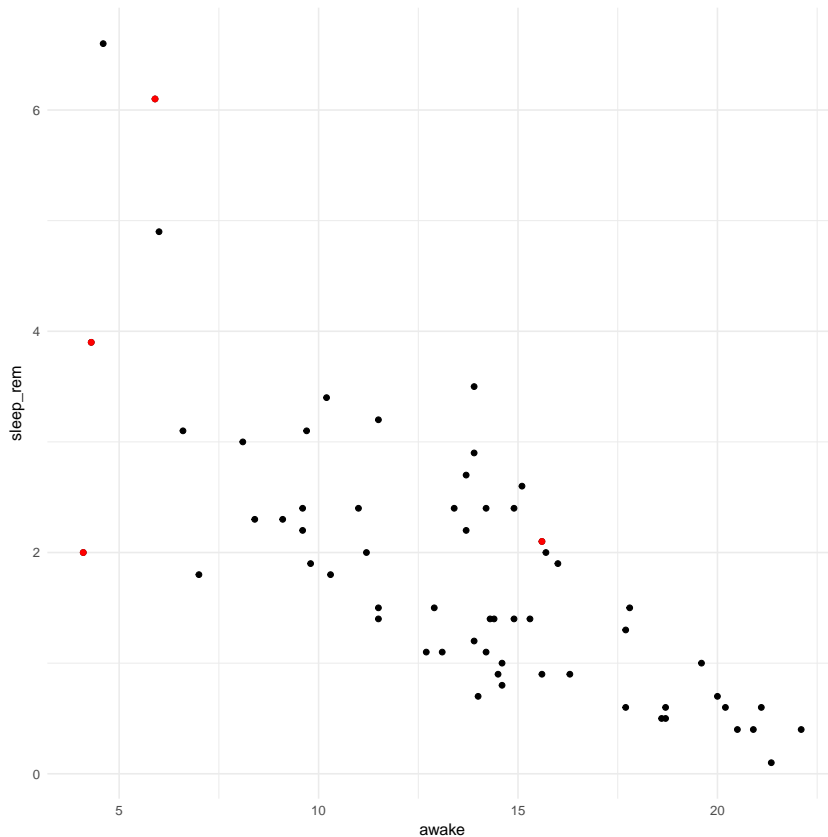
```
insecti <- filter(msleep, vore == "insecti")
```

And then plotting all of the mammals in black, but the insectivores in red. This is accomplished by using the `geom_point` function and giving it the name of the secondary dataset:

```
qplot(awake, sleep_rem, data = msleep) +  
  geom_point(data = insecti, color = I("red"))
```

```
## Warning: Removed 22 rows containing missing values  
## (geom_point).
```

```
## Warning: Removed 1 rows containing missing values  
## (geom_point).
```



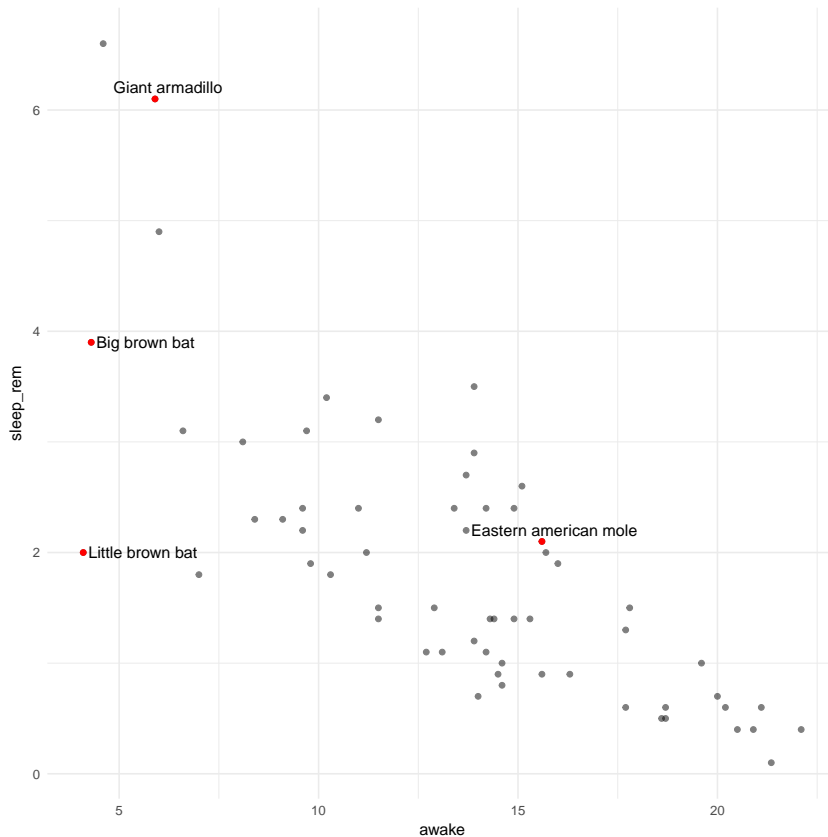
We can add multiple layers to the same plot. For example, the `geom_text_repel` adds smart labels to the plot; using it we can label all of the insectivores in our dataset:

```
qplot(awake, sleep_rem, label = name, alpha = I(0.5), data = msleep) +  
  geom_point(data = insecti, color = I("red")) +  
  geom_text_repel(data = insecti)
```

```
## Warning: Removed 22 rows containing missing values  
## (geom_point).
```

```
## Warning: Removed 1 rows containing missing values  
## (geom_point).
```

```
## Warning: Removed 1 rows containing missing values  
## (geom_text_repel).
```



These types of plots become very useful for understanding how one subset relates to a larger collection of points.

Labels

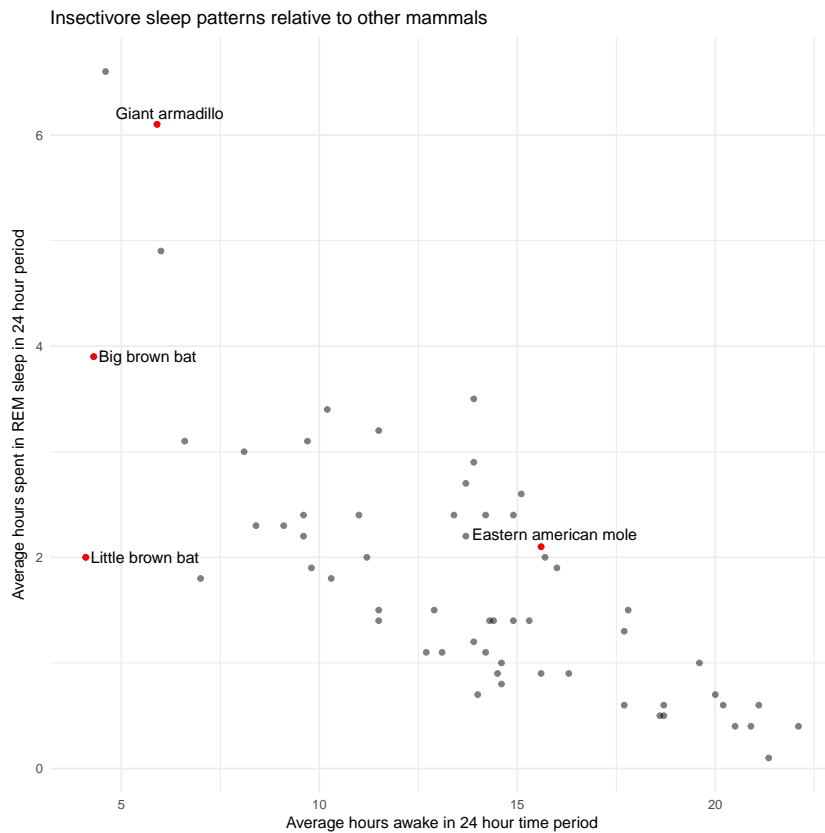
The default labels on our plots are mostly fine for exploratory analysis. When presenting your work in a paper or other venue it can, however, be useful to modify these with more descriptive terms. To do so, we simply add the functions `xlab`, `ylab`, and `ggtitle` to the plot. For example:

```
qplot(awake, sleep_rem, label = name, alpha = I(0.5), data = msleep) +
  geom_point(data = insecti, color = I("red")) +
  geom_text_repel(data = insecti) +
  xlab("Average hours awake in 24 hour time period") +
  ylab("Average hours spent in REM sleep in 24 hour period") +
  ggtitle("Insectivore sleep patterns relative to other mammals")

## Warning: Removed 22 rows containing missing values
## (geom_point).

## Warning: Removed 1 rows containing missing values
## (geom_point).
```

```
## Warning: Removed 1 rows containing missing values
## (geom_text_repel).
```



You may of course add only those elements you wish to choose; those not specified will be left at their default values.