

Pea aphid response to temperature

Kim Cuddington (original doc Cory Savage)

June 15 2021

““

Data description and file naming convention

Data files were constructed by

```
# import data from files
patemp <- read.table(file = "Siddiqui and Barlow - Extracted Pea aphid fecundity data on
  header = T, sep = ",")

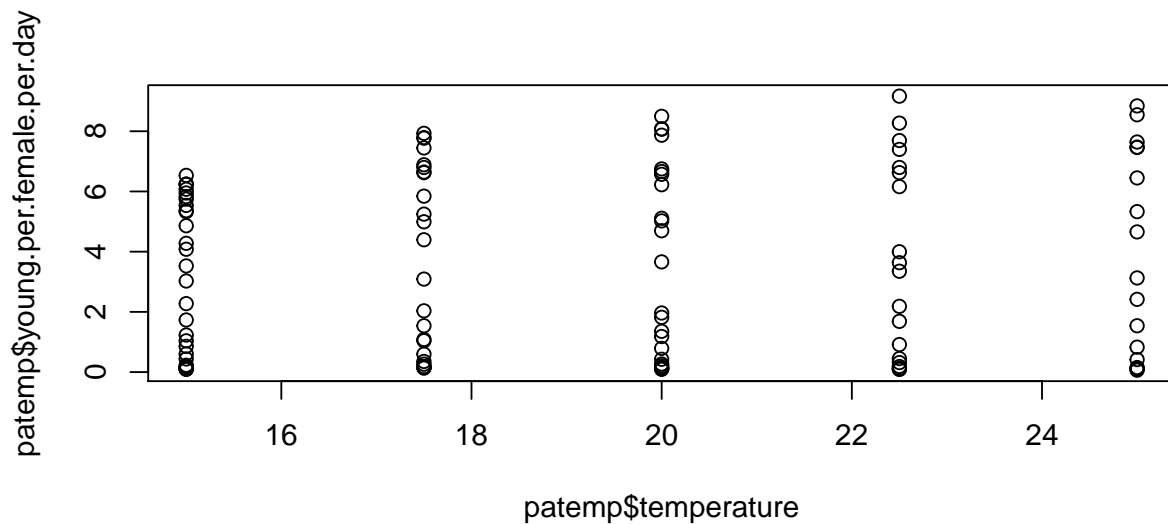
# check that data was imported properly
head(patemp)
```

```
##  temperature age.in.days young.per.female.per.day
## 1           15    12.41031             1.039435
## 2           15    13.24740             4.080326
## 3           15    14.36801             5.829289
## 4           15    15.26596             5.745124
## 5           15    16.25964             5.327537
## 6           15    17.06134             5.535128
```

Examine the data

The data is organized into 3 columns...

```
# plot reproductive output as a function of temp
plot(patemp$temperature, patemp$young.per.female.per.day)
```



Problem with this data representation

So, we have a problem here. Clearly reproductive output is a function of age, but we don't have controlled ages here, simply measured ones, so we cannot create separate curves for each age. In addition, there are no variance estimates about either age or reproductive output.

Since only temperature has been controlled, we can only reorganize easily on this factor.

```
library(lattice)
# reorganize the plotting of the data to produce a
# separate line for each temperature
xyplot(young.per.female.per.day ~ age.in.days, type = c("l",
  "p"), groups = temperature, data = patemp, auto.key = T)
```

