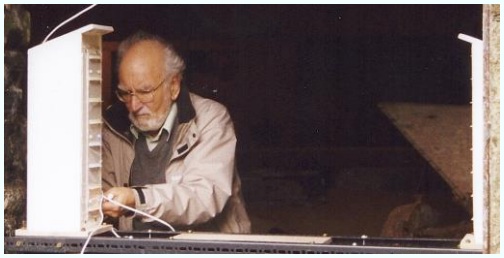
A 20 year study on the influence of weather on a population of pipistrelle bats (*Pipistrellus pygmaeus*) shows that

monitoring periods need to be reviewed

Peter Andrews

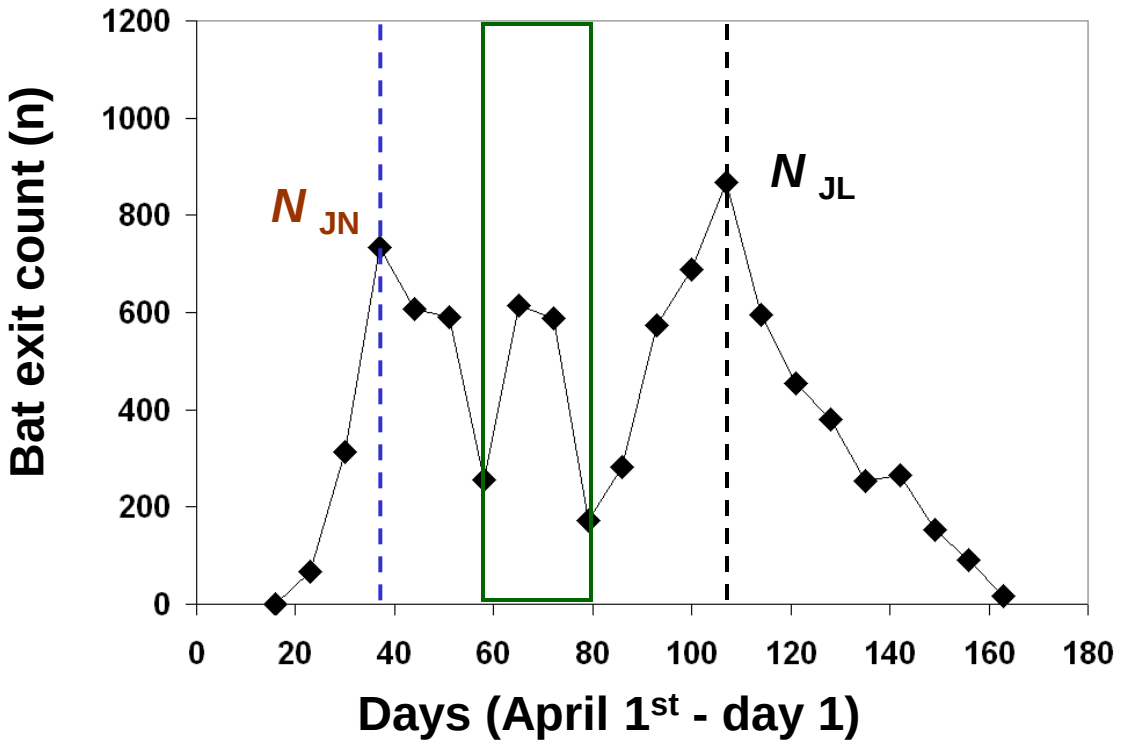


Robin Crump
David Harries

Maggie Andrews, reporter

Monitoring *P. pygmaeus* exit counts from maternity roosts would be advisable from 1st week in May

28 th May - 18 th June Peak 615 4 th June



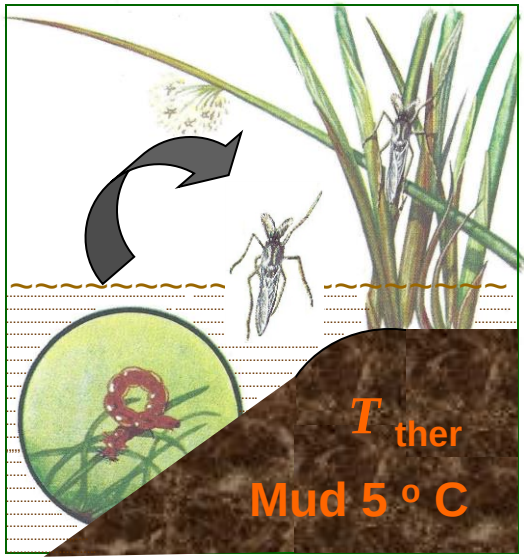
Peak 733 7 th May

Peak 868 16 th July

N_{JN} = Number of adult female bats N_{JL} = Number of adult female bats + young in roost

= period of U.K. monitoring of pipistrelle bats in nursery roosts; sample year 1990

How does the weather affect the first peak exit count ?



Non-biting midges are the main diet of *P. pygmaeus*

Larval development to adult is temperature dependent

A degree day (D) is the amount of heat accumulated over a threshold temperature (T_{ther}) in a 24 hr period

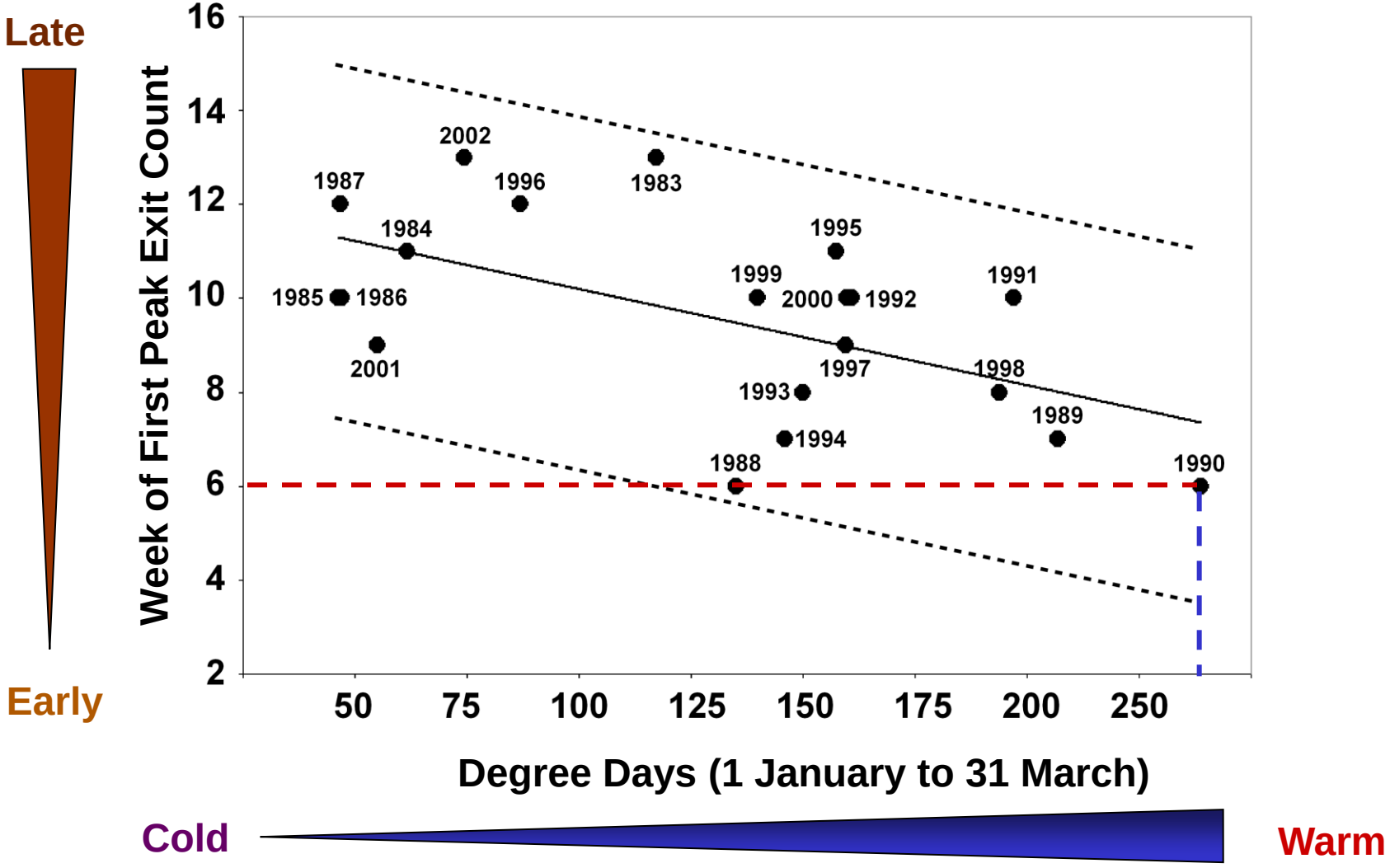
Temperature in January, February and March had an effect on the first peak count (N_{JN})

$$D = \left[\frac{(T_{max} + T_{min})}{2} \right] - T_{ther} =$$

Degree Days	January > March	First Peak Exit Count
231.9	Warm	15 th May
99.5	Cold	24 th June

Sample years January > March, 1989 (warm), 2002 (cold)

The first peak exit count was affected by the *integrated* air temperature (degree days) from January to March



Conclusions

- When *integrated* air temperature (degree days) was high the first peak exit count occurred early in May

- Monitoring *P. pygmaeus* exit counts from maternity roosts would be *advisable* from 1st week in May

- Rising air temperatures from January to March were *detrimental* to the *P. pygmaeus* population :-

  a) because the midges emerged early in the year and the *density* of insects was low in the summer

  b) bats need a *high* insect *density* during late gestation and lactation

Thank you for your attention

Any Questions ?

Please come and see the poster