

Population dynamics of solitary bees: some European case studies

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Workshop on Solitary Bees: Conservation, Rearing and
Management for Pollination - Beberibe, Ceará April 26-30, 2004

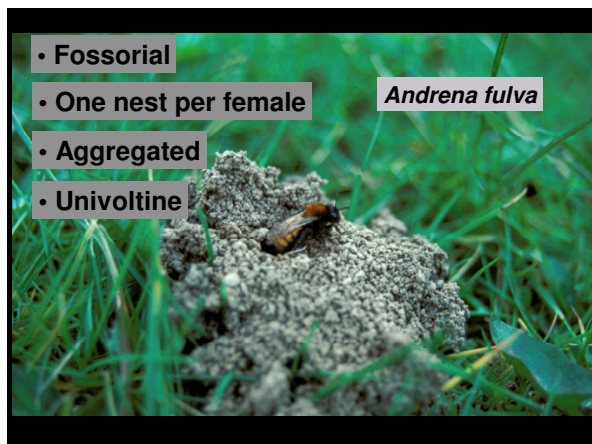


Solitary bees: key questions

- Magnitude of population fluctuations
- Drivers of population fluctuations

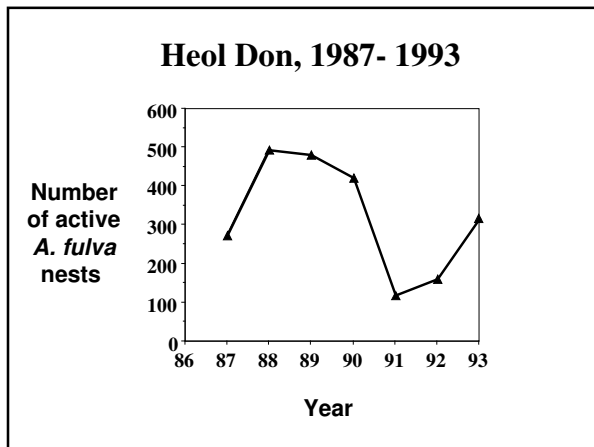
Talk outline

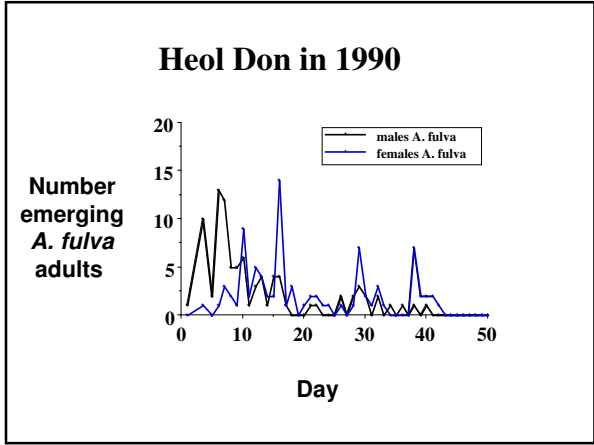
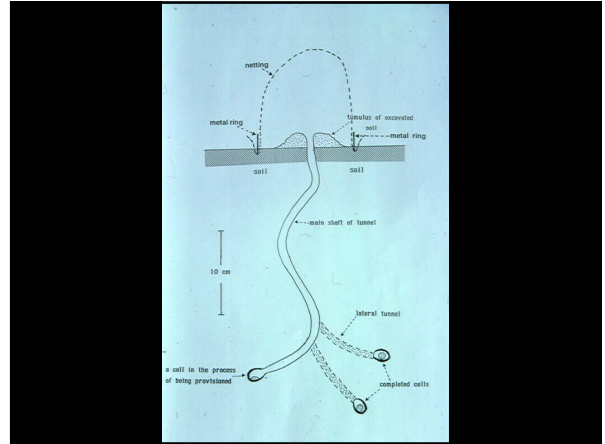
- Local - one aggregation
 - *Andrena fulva*
 - *Andrena scotica*
- Regional - many aggregations
 - *Andrena vaga*



Andrena fulva
one aggregation

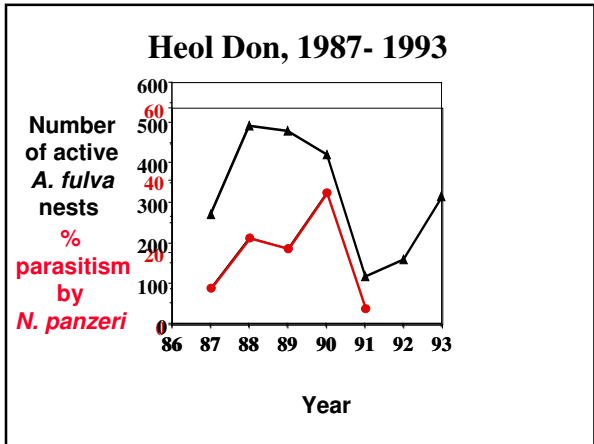
1987-1993





Heol Don emergence data 1990

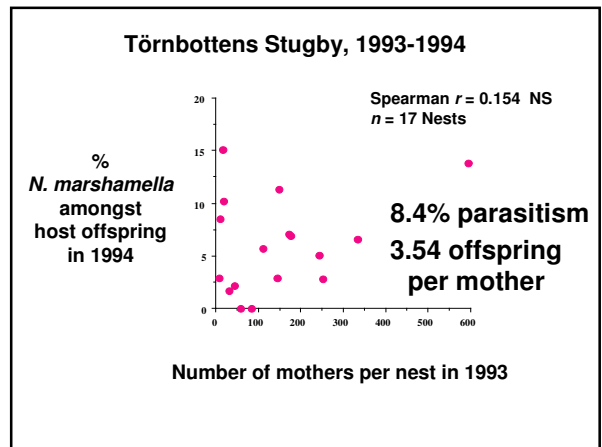
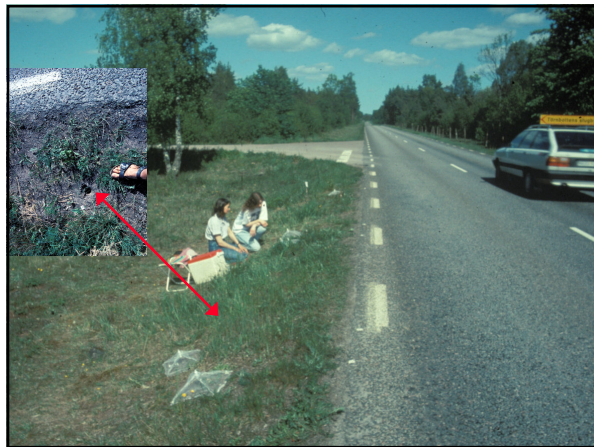
- 74 nests covered by an emergence net
- 2.38 offspring per mother
- 20.5% offspring parasitised by *N. panzeri* in 1989

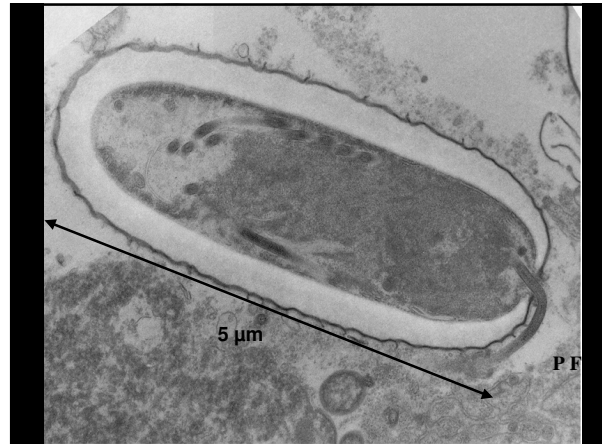
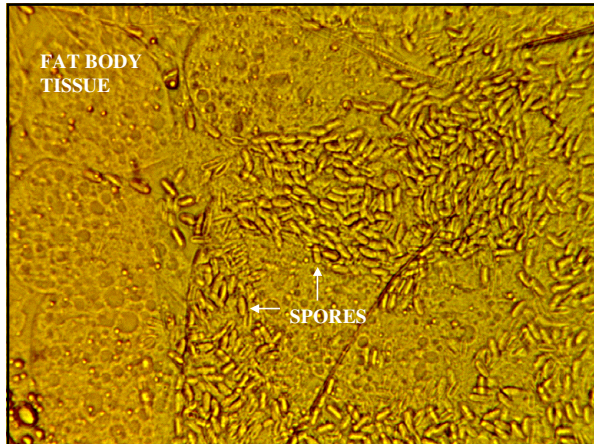


Andrena scotica

one aggregation

1993-1998



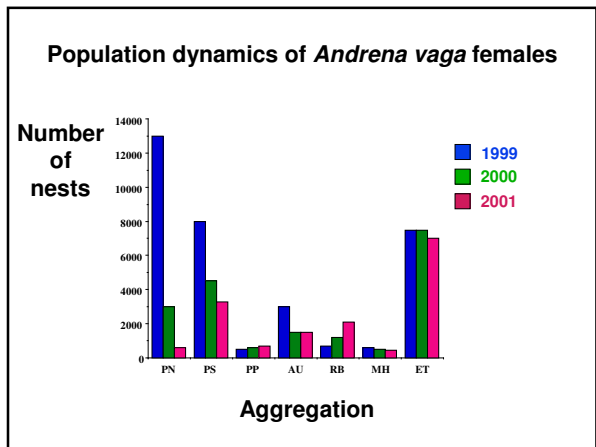
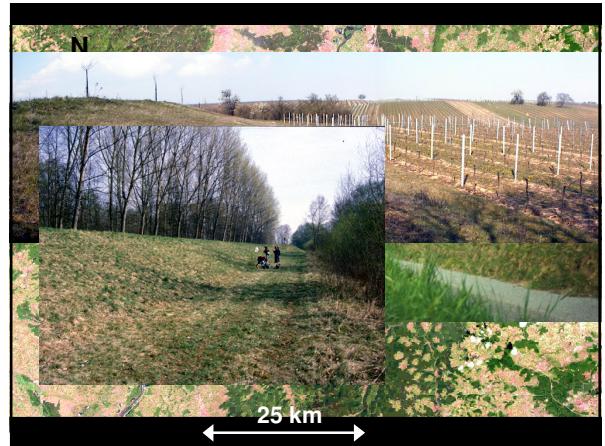


**Microsporidia in *A. scotica*
at Törnbottnens Stugby**

- 5,690 females nesting in 1993
- 87.4% bees infected in 1994
- 38 x 10⁶ spores per individual
- Aggregation devoid of bees by 1998

***Andrena vaga*
seven aggregations
1999-2001**





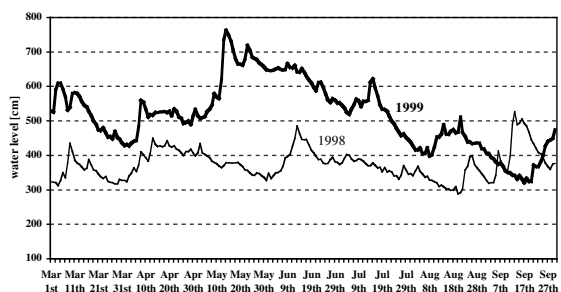


Rhine emergence data 2000

- 67 nests covered by an emergence net
- 3.49 offspring per mother
- 2.9% offspring parasitised by *N. lathburiana* in 1999
- Zero emergence from aggregation PN



River Rhine high water level near PN



Conclusions

- Cleptoparasites - small effect
- Microparasites - major effect
- Anthropogenic effects - major
- Solitary, fossorial bees have a low intrinsic rate of increase

Thanks to

Andrena scotica

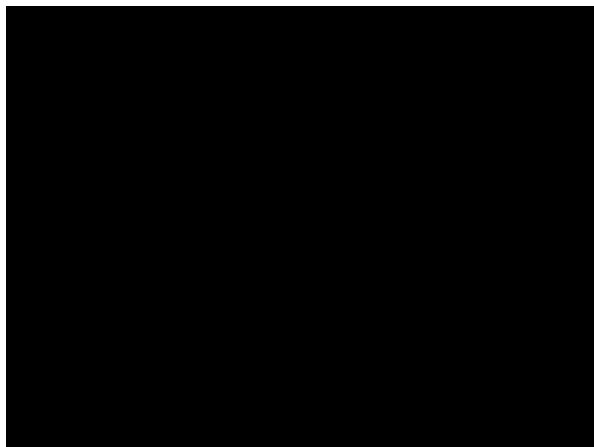
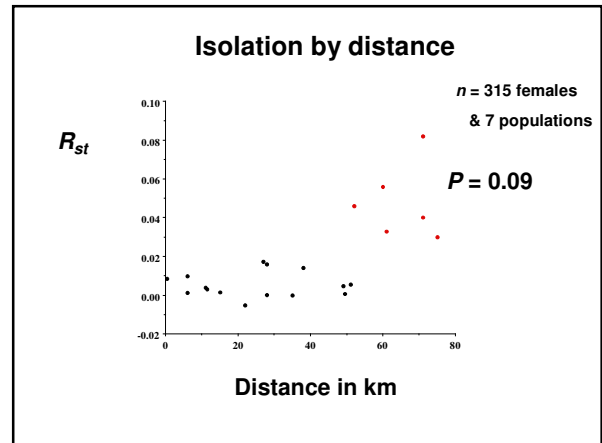
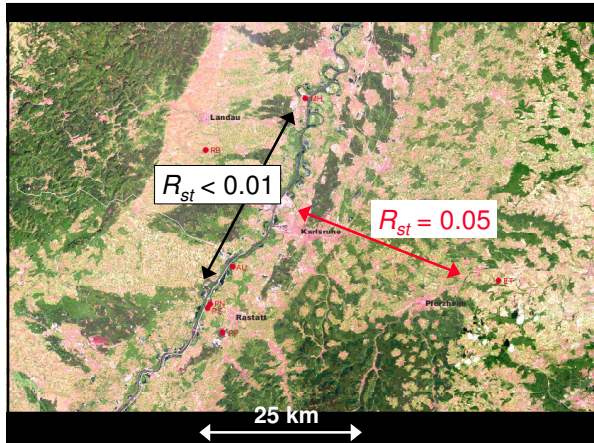
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Andrena vaga

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Conservation genetics of Irish bees - a whole island perspective -

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Dr Uná Bradley

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