The Ecology and Conservation of the Aspen hoverfly

Hammerschmidtia ferruginea

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MALLOCH SOCIETY

RSPB

SCOTTISH NATURAL HERITAGE

Strategic Development Fund

UNIVERSITY OF STIRLING

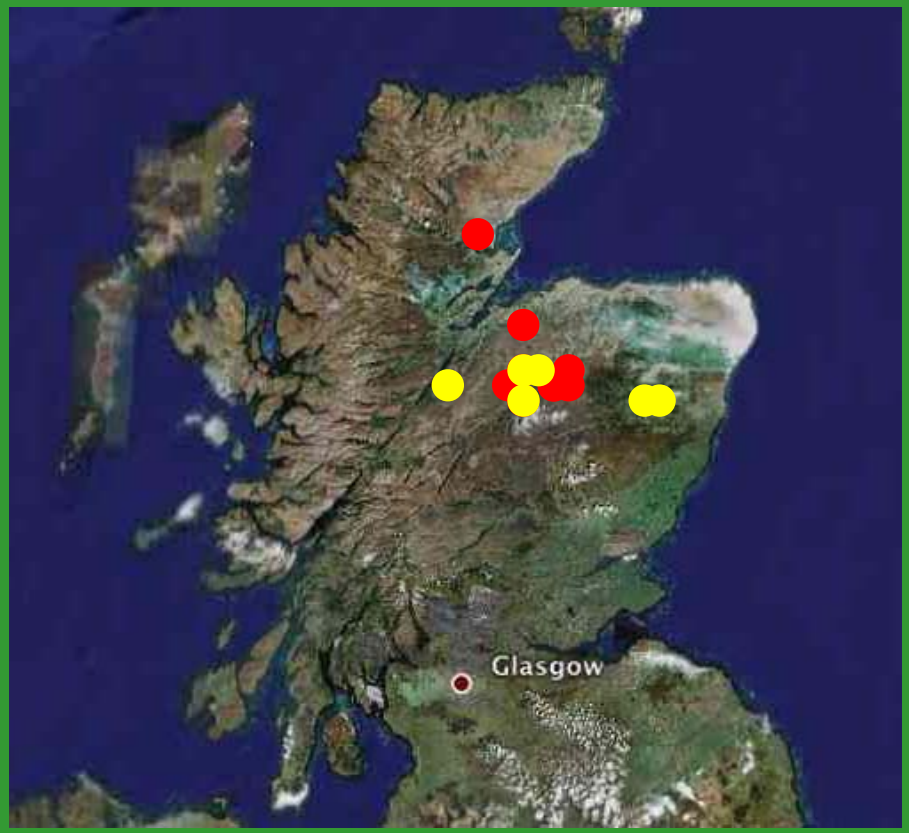
Distribution

In Britain, *H. ferruginea* has reduced from 15 to 8 locations in Scotland since the 1990s (the Malloch Society)

***H. ferruginea* sites**

Presence 2006

- Achany Glen
- Dulsie
- Kinveachy
- Dulicht
- Torr Alvie
- Invertromie
- Speybank
- Speybridge



Additional sites

- Achility
- Creagan Bruegach
- Boat of Garten
- Dinnet
- Inverfarigaig
- Kinnord
- Tomnagowan

Images: http://earth.google.com

Ecology

- **Saproxylic hoverfly that depends on temporary and declining habitat**
  - Fallen decaying aspen
  - Black sap flows
  - min 100 trees of min 75cm CBH

- **Correct condition**
  - 12-15cm diameter
  - 7 to 12 months to decay
  - Can last 3 years
- **Larval stage**
  - 1 to 2 years as larvae

Habitat Manageme

How many larvae can a fallen aspen support?

- Management currently involves cutting up fallen logs, thus it is important to know **how much is required to maintain the population**

Emergence traps and mark-recapture

- Dispersal ability
- Emergence and flight periods
- Longevity
- Behaviour
- Adult food-plants

Results?

Total emerged 2006: 339

Total emerged 2008: 302

How many larvae can a fallen aspen support?

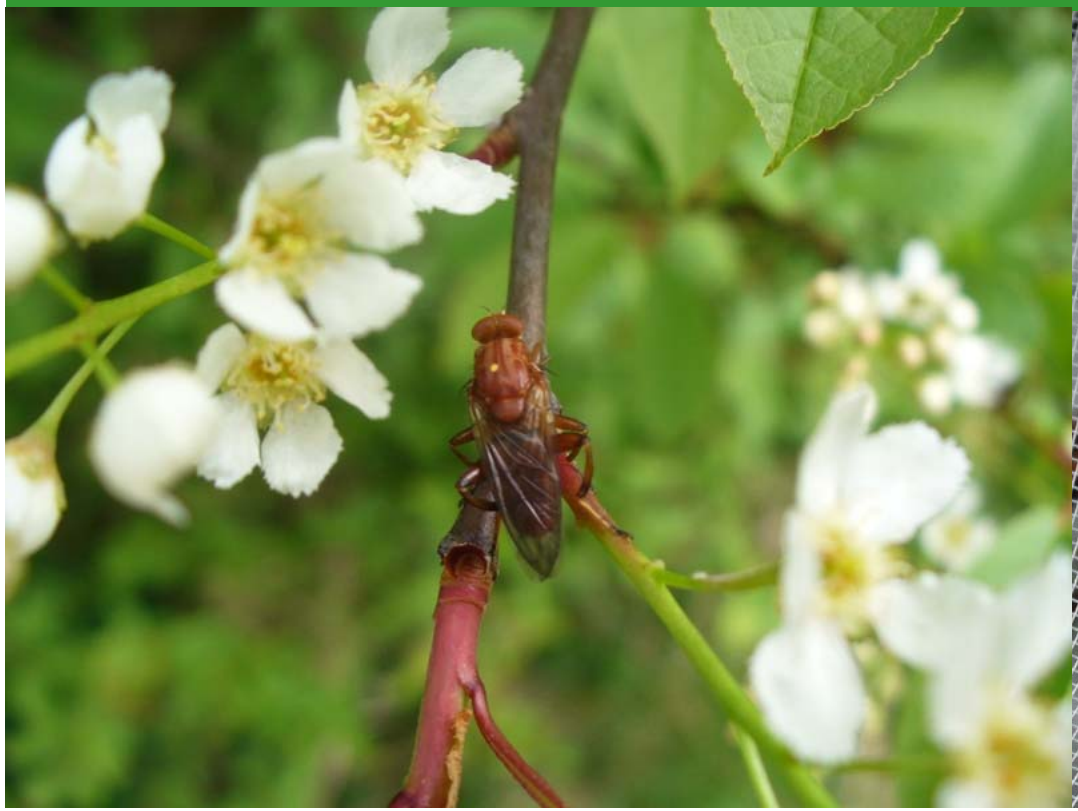
Fallen aspen	Length (cm)	Circumference (cm)	Surface Area (cm)	Total Emergence	Area per insect (cm^2)
log1	320	72	23040	231	100
log2	80	60	4800	22	218
log3	165	81	13365	86	155
Total					**158** (Sd. = 95.6)

0.55 to 1 larvae per 100cm²

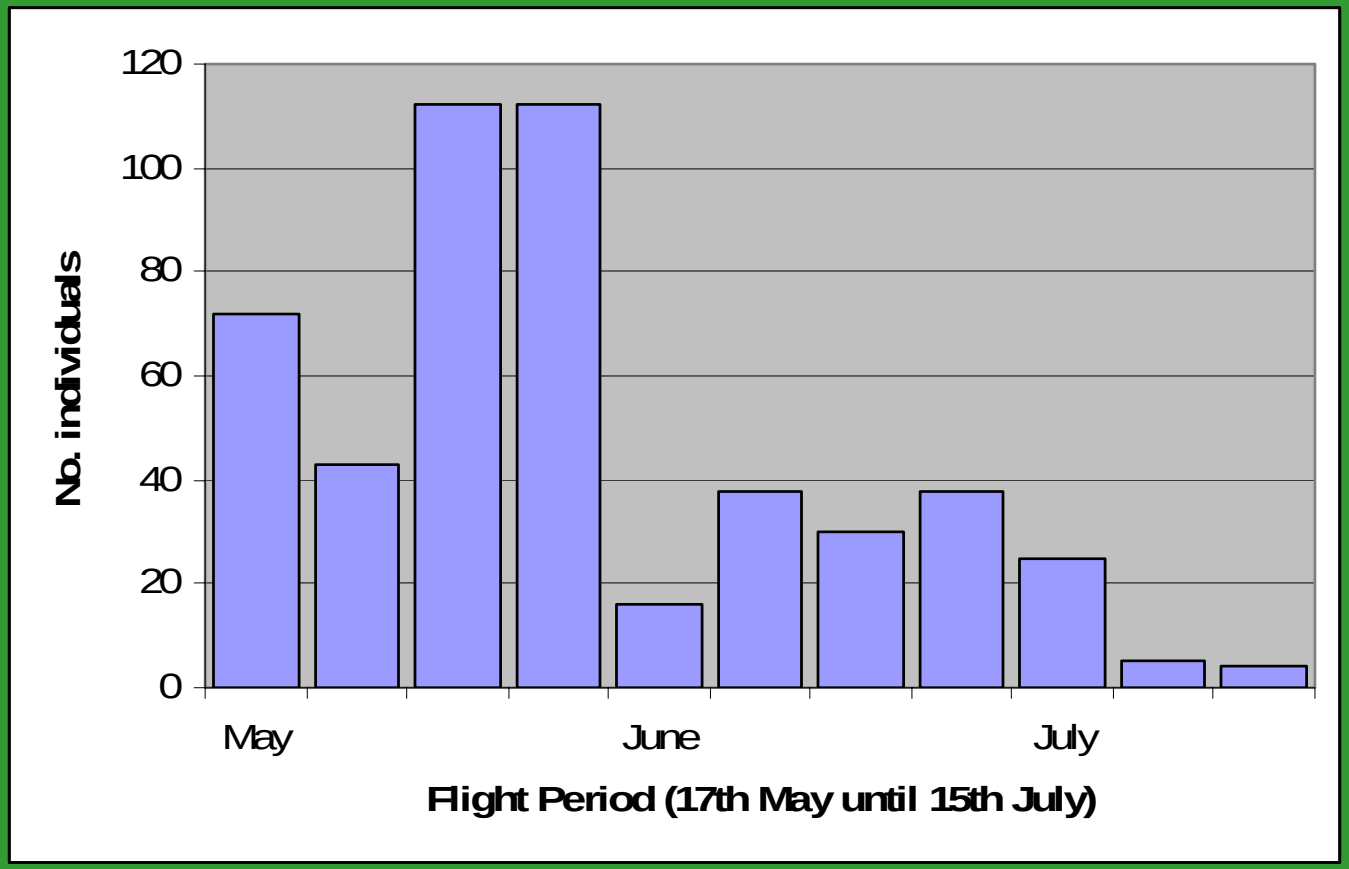
The emergence period

- 22 days (17th May until 6th June 2006)

- 26 days (17th May until 16th June 2008)



Flight period

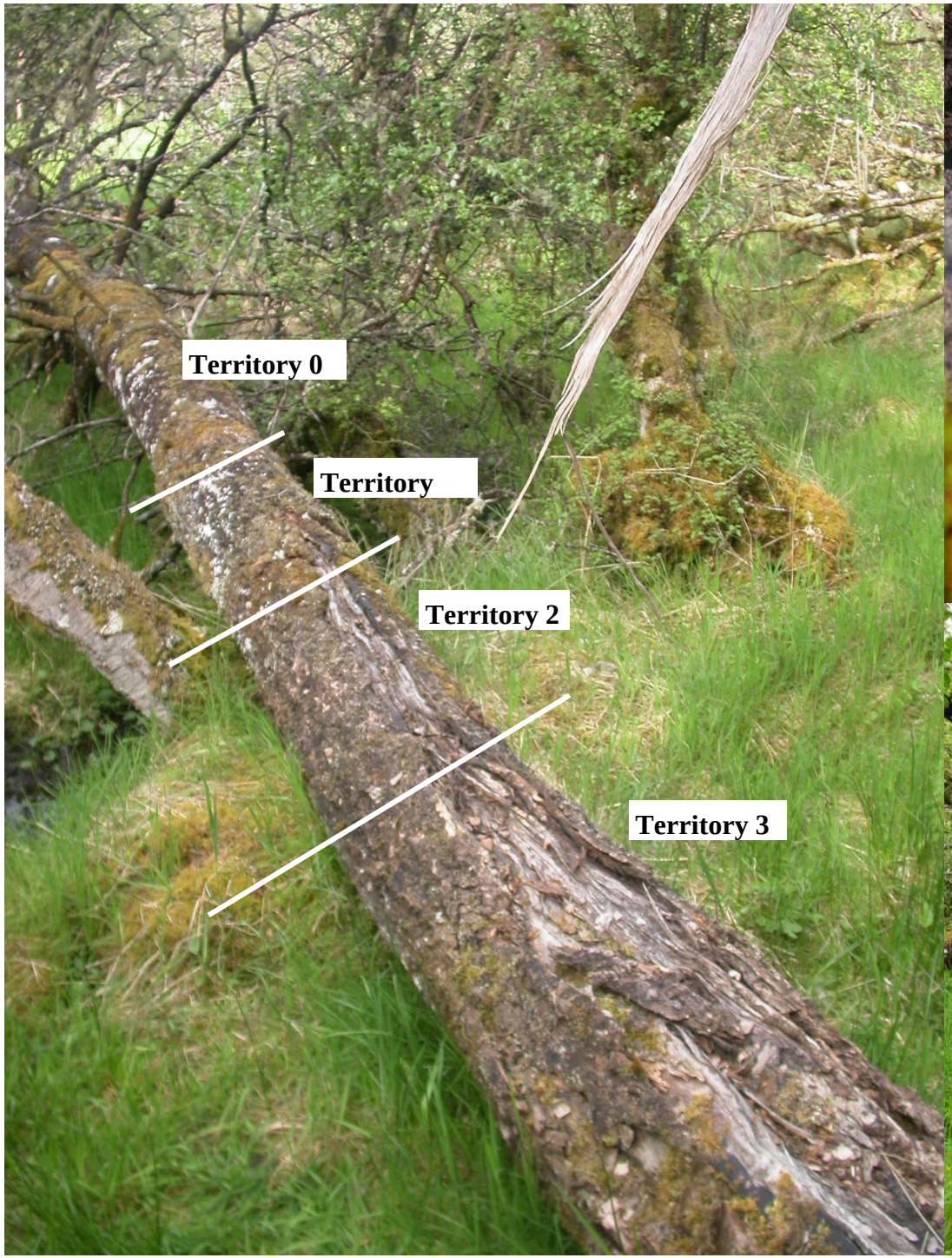


Total emergence period: 17th May until 16th June (26 days)
Flight period: 17th May until 15th July (60 days)

Longevity

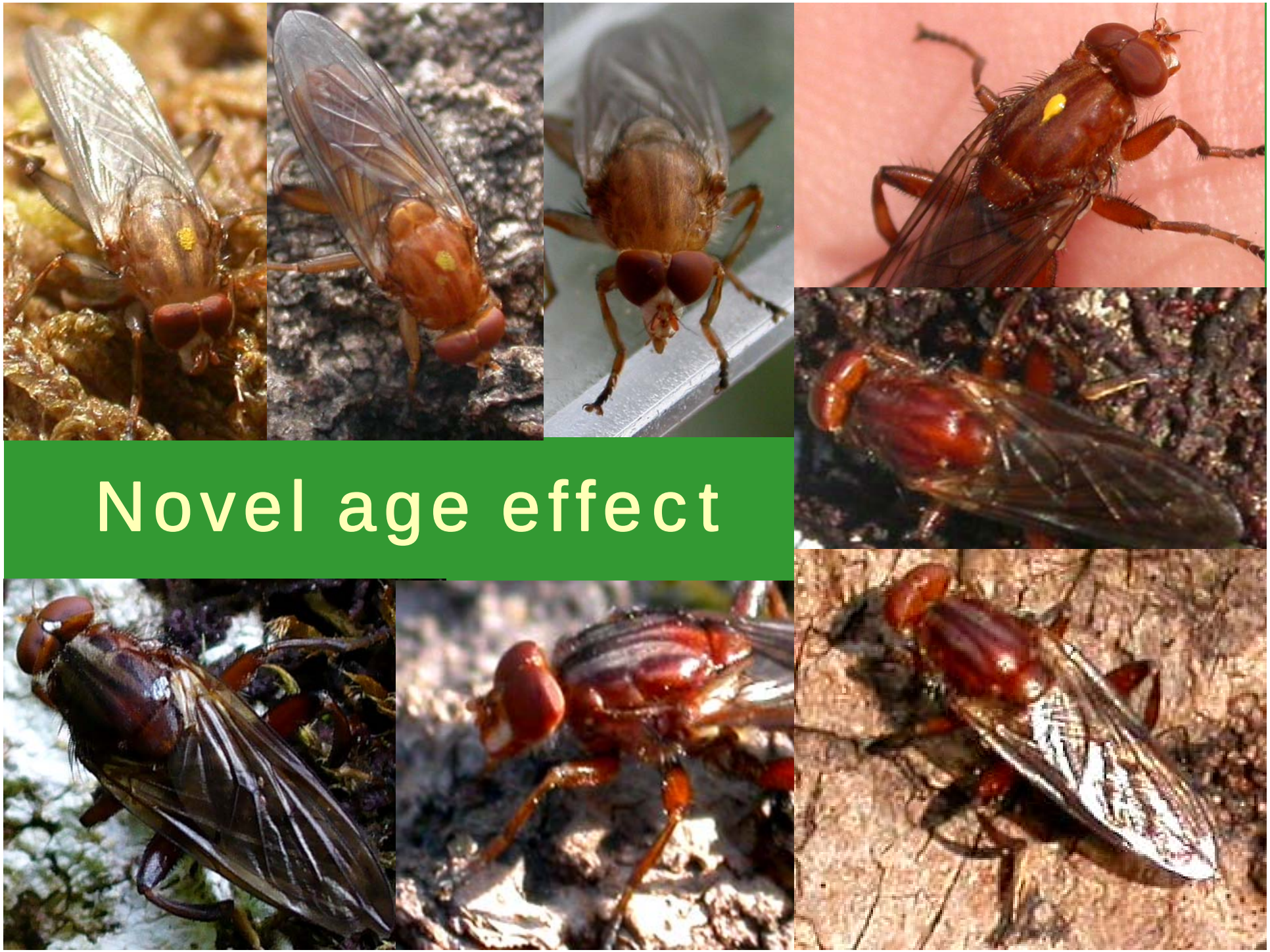
Male maximum longevity: 32 days
Female maximum longevity: 51 days

Re-sighting at decaying aspen


Territory 0
Territory
Territory 2
Territory 3


Patrolling flight behaviour:
long, tight ‘weave’


Patrolling flight behaviour:
short, wide ‘weave’



Novel age effect

Adult food plants

Bird cherry *Prunus padus*

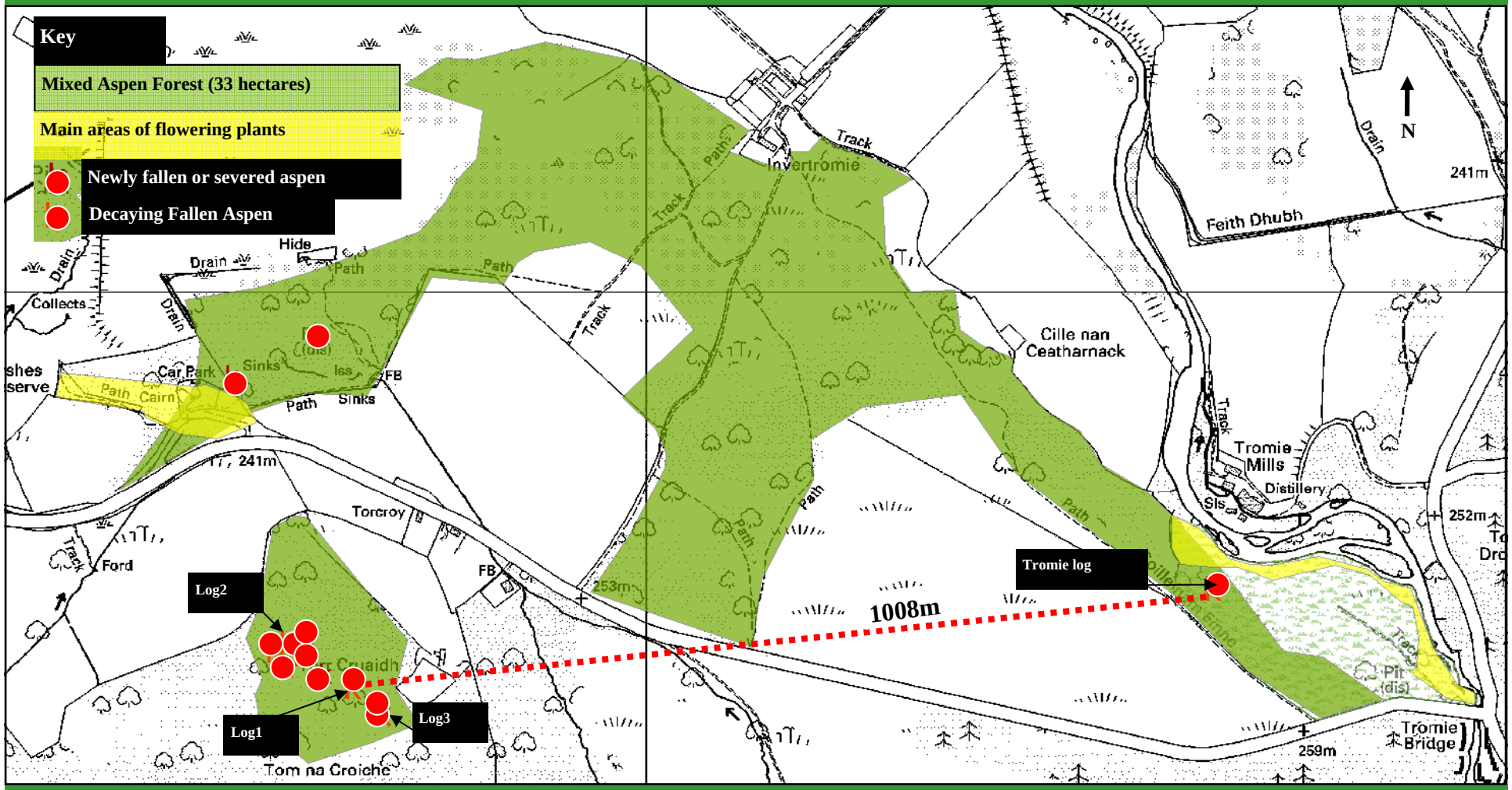
And…?

Rowan *Sorbus aucuparia*

Hawthorn *Crataegus monogyna*

Dispersal ability

How far do adults disperse?



Preliminary conclusion

- **To manage cut aspen and ensure input many fallen live trees can be used for sequential cutting but insure protection but where possible leave whole**
- **Include known adult food-plants in management prescriptions**
- **Fallen aspen may be used for future monitoring to test effects of current management**
- **Dispersal distance**

  - if findings show greater capabilities then small aspen stands may hold smaller meta-populations

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