

Maungatautari rodent dog research Jan-Mar 2008

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Problems with wild rodents

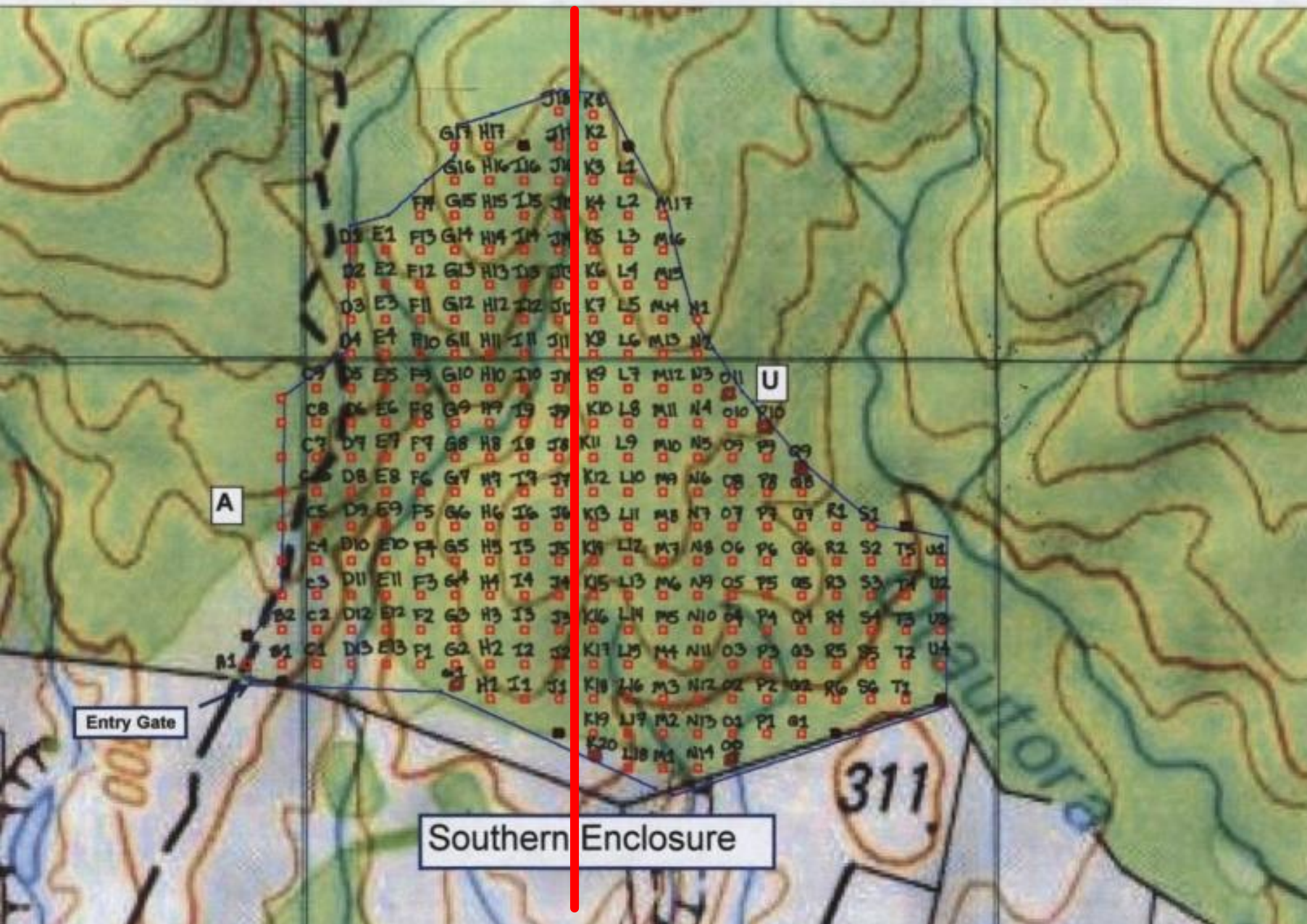
- Demand all-night radio-tracking, so we can interpret dog behaviour
- Therefore, could use 1-2 rodents max. at a time
- Greater chance of not getting animal back, delaying next release, and unsettling MEIT
- Efficient use of dog handlers requires predictably available rodents

Advantages of lab animals

- Can put Norway rat/mouse ground scent precisely where we want, when we want.
- No requirement for night Tx tracking
- May not even need Txs??
- Maximise sample sizes (5 rodents, 2 dogs per day; in new places day after day; n=96)
- Larger lab mice (40g) readily carry Txs

Only males; mice vasectomised











Week 1: 29 Jan to 1 Feb (4 days)

- Up to 5 Norways
- Released at randomly selected tunnels
- Followed 50-100 m
- Left caged at trail-end
- 3 litter bags, each 20 m from cage, random bearings
- Rats placed ca 0715-0830; Handlers/dogs in 0930-1400; rats collected ca 1500

Handlers told

- ‘Up to five rodents’
- ‘May be anywhere’
- ‘Don’t discuss rodent locations’
- Record: GPS trail; Rodent location; Indication def/prob; Dog behaviour; Detection distance; Found 1st (trail, cage, litter)

They started opposite ends, traversed all lines (50 m search grid). Afterwards, told where rodents were.

Week 1 results:

- 4, 5, 2, 5 rats placed daily

Miriam:

- Found 14/16 'def', missed 2 (incl trail-only rat), 3 false 'probs'
- 1st found: cage 6, trail 5, litter 3
- Mean detection 54m (n=14), range 4-150 m

Fin:

- Found 10/12 'def', other trail-only rat 'prob', missed one, no false reports
- 1st found: Trail 3, cage 2
- Mean detection 67m (n=6), range 25-100 m

Reason for missing animals

- Two rodents close together
- Handlers by chance didn't traverse trail

Some animals found twice

Some litter bags not collected and found by handlers on later days

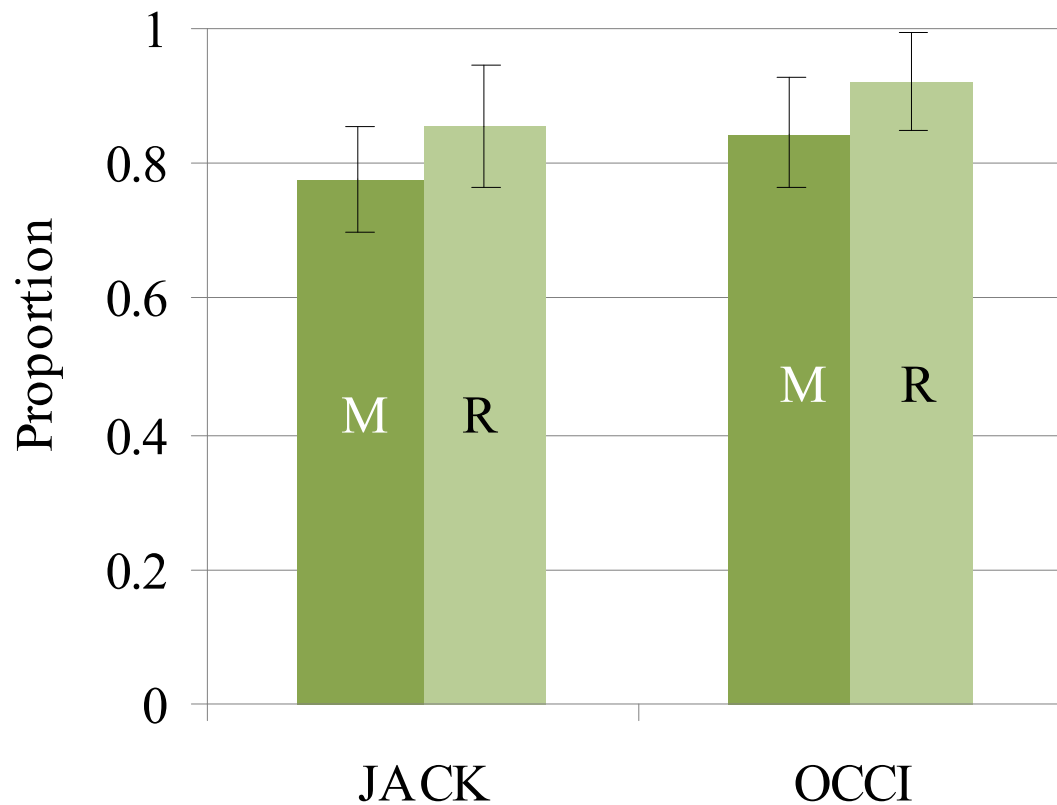
Week 2: 11-13 Feb (3 days)

- Up to 5 mice
- Released 25 m EAST OF random tunnels
- Followed 50-100 m
- Left litter bag only at trail-end
- Mouse and cage removed (bar 1)
- Mice placed ca 0715-0830; Handlers/dogs in 0930-1400; rats collected ca 1500

Week 3: 17-20 March (4 days)

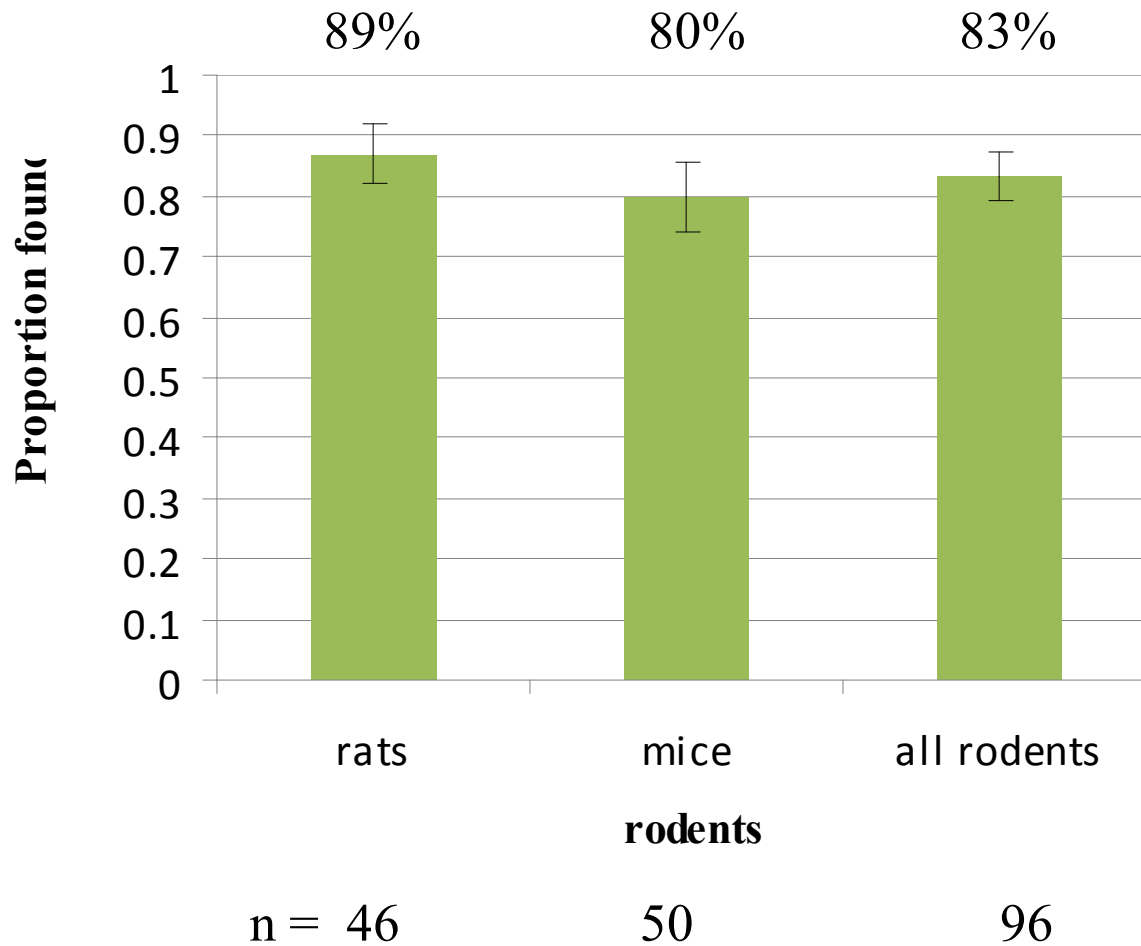
- Up to 5 rodents; Norways *and* mice
- Released 25 m east/west of random tunnels
- Followed 50-100 m
- Left rodent and cage at trail-end
- Rodents placed ca 0715-0830; Handlers/dogs in 0930-1400; rats collected ca 1500
- On 19/20 March, handlers walked each 2nd line (100 m grid)

Overall proportion rodents found by each dog

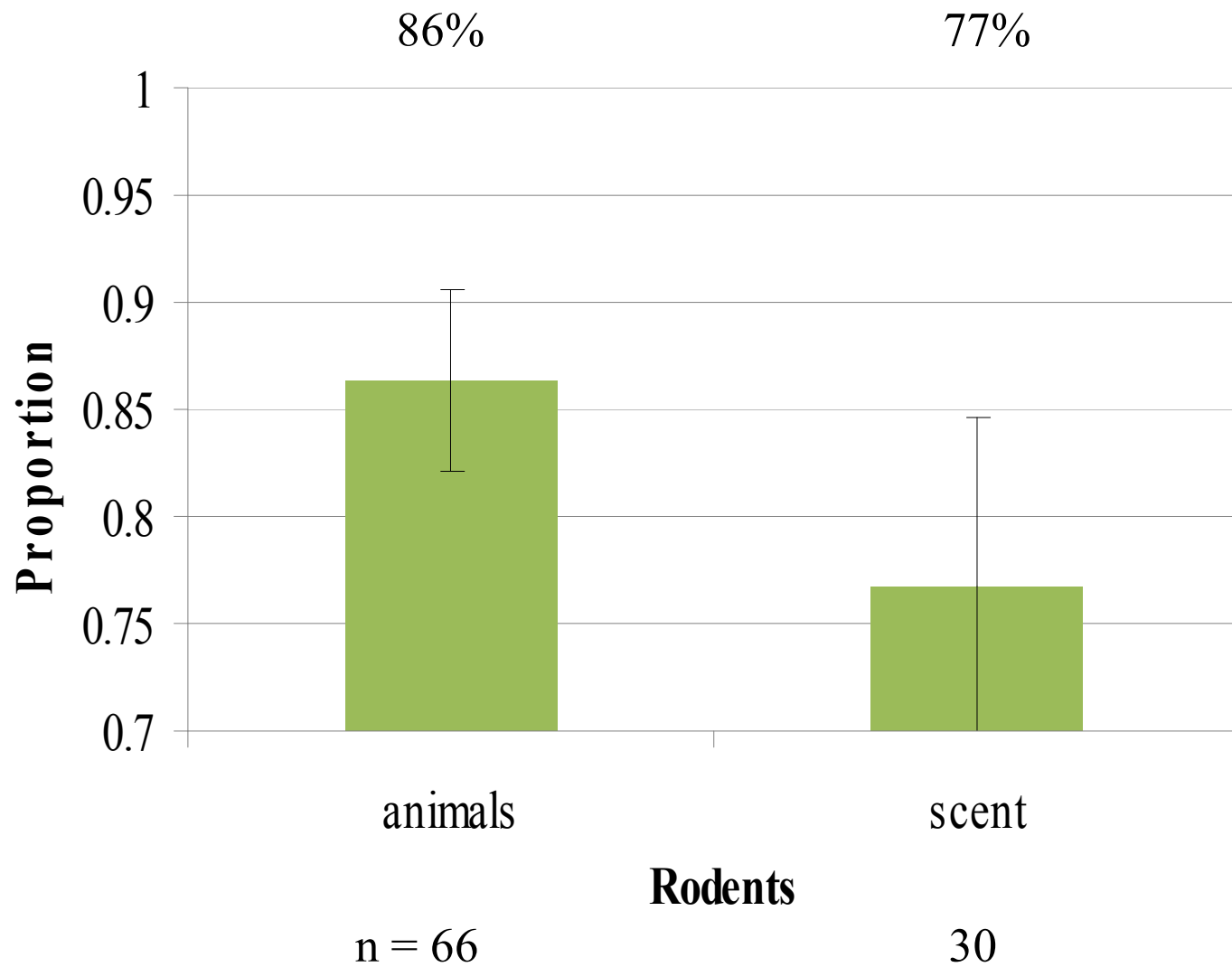


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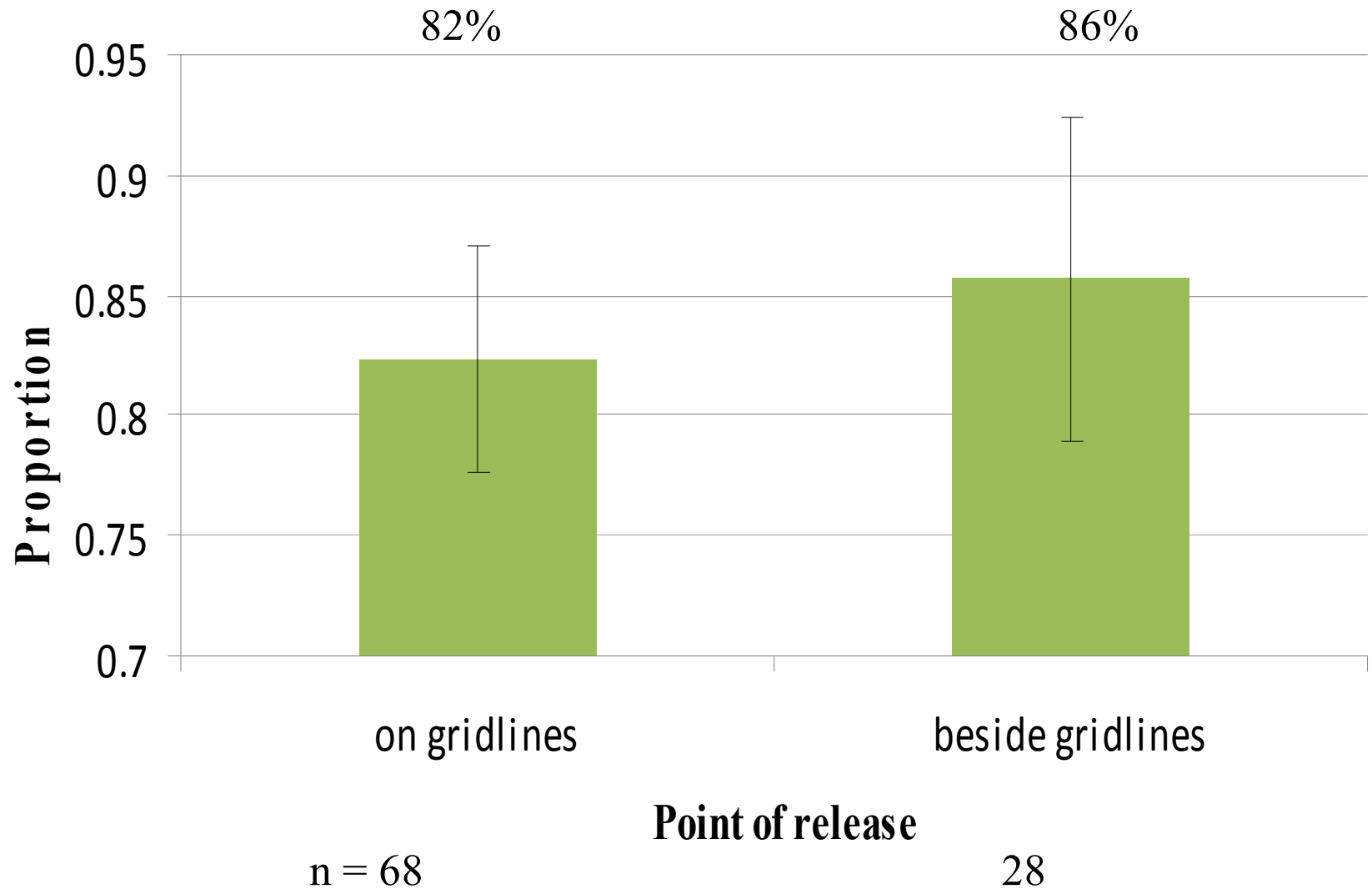
Proportion rodents found, both dogs



Proportion found by dogs, animals vs scent only



Proportion found by dogs, on vs beside gridlines



Whole trial:

- Miriam: 8 false 'prob's, 2 false 'def's
- Fin: 2 false 'prob's
- Overall mean detection distance 66 m
n = 74, sd = 51, range = 5-200 m

Rodent first found via...

- Miriam: Trail 19, cage 6, litter 5
- Fin: Trail 10, cage 2, litter 4

Total: Trail 29/78 (0.37), cage 8/49 (0.16),
litter 9/58 (0.15).

Interim conclusions

- Trained dogs can readily locate surface-caged Norway rats and mice, and their trails/litter, via both ground and air scent.
- False positives occur but are rare.
- Separating close trails/rodents is difficult
- Search pattern influences success
- Ca 35 ha per day can be searched by one handler on a 50 m marked and cut grid.
More on 100m grid???

And..

- Lab rats and mice enable large sample sizes, entirely controlled trails, and safe Tx use
- Are excellent surrogates for wild mice and brown rats for dog research.

Possible future research:

- Can dogs locate ship rats (likely invader, arboreal)?
- Repeat with wild rats and mice (no cages!)
- Effect of scent age

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