



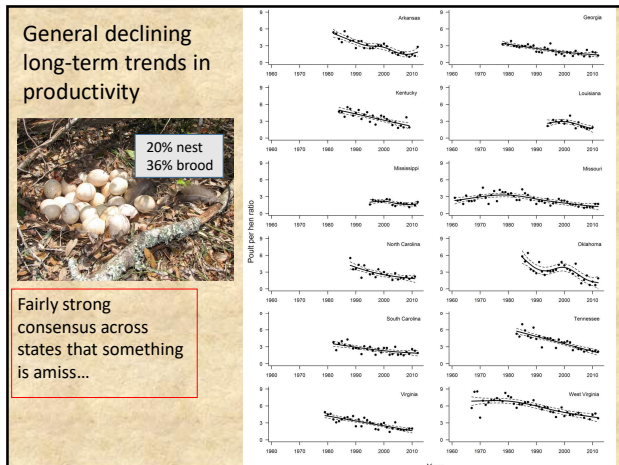
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Wild Turkey 101

- Largest Galliform in North America
- Require diverse habitats – annual cycle
- Exploded lek mating system – polygynous
- Require early successional plant communities
- Primary means of survival - vision

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This is not...



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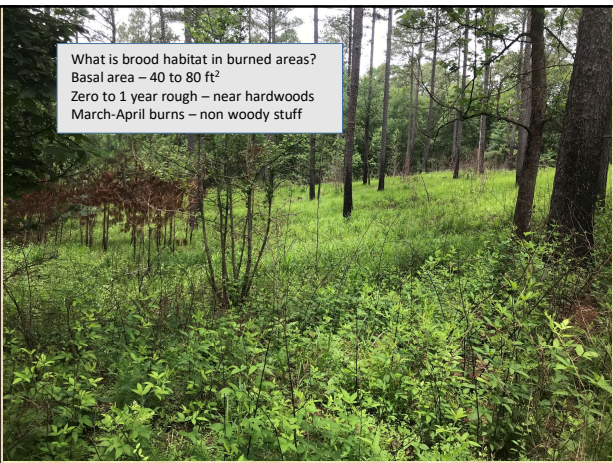
This isn't either...



But turkeys will use edges of this, when left with no other options – predation risk increases

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What is brood habitat in burned areas?
Basal area – 40 to 80 ft²
Zero to 1 year rough – near hardwoods
March-April burns – non woody stuff



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How does fire affect turkeys?

- Direct nest and brood loss?
- Avoidance of burned stands?
- Movements and behavior?
- Scale?



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Turkeys evolved with fire and disturbance

- 2-3 yr return interval widely reported to provide nesting and brood habitat – cover and ability to evade predators – select 0, 1, and 2 yr roughs



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Nests and broods

- ~1100 nests
- 9 (<1%) affected by fire
- 2 affected nests hatched
- ~210 broods – 1 lost to fire
- Most nests in stands not scheduled to be burned
- Data from sites with dormant or early (March, early April) growing-season fires



Average scale of fires ranged from 50 to 1200 acres

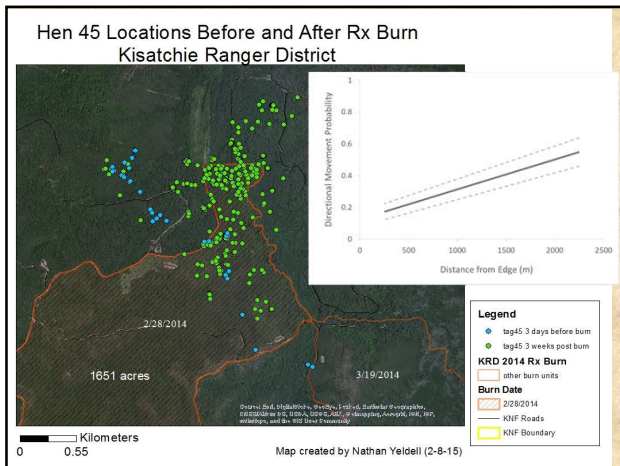
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Immediate responses to fire

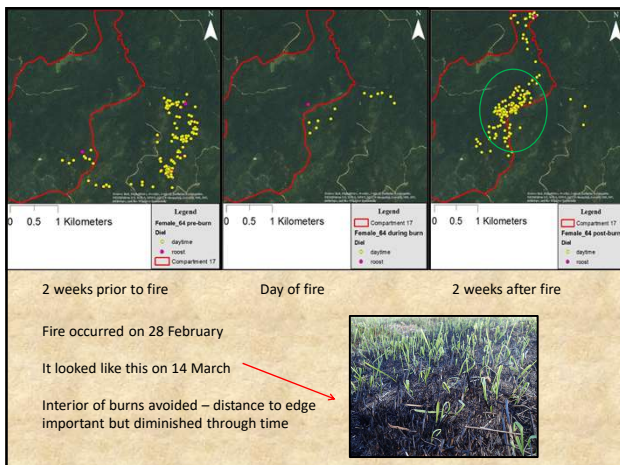
- ~80% of birds have burns available to them
- 87% use burned stands if available
- 14% use stand day of burn
- 38% use within 24 hours
- 68% use within 48 hours
- 84% use within 30 days



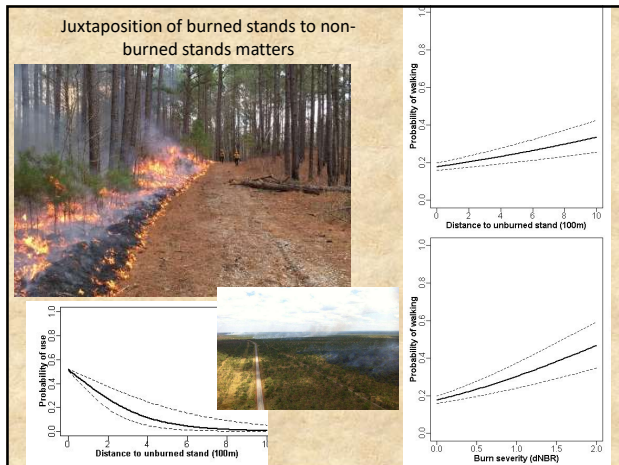
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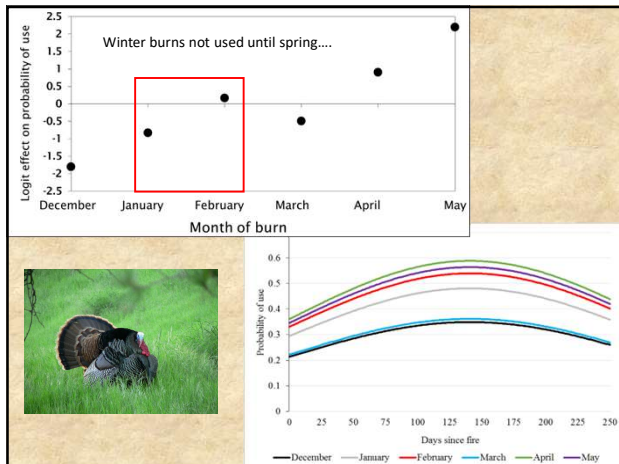
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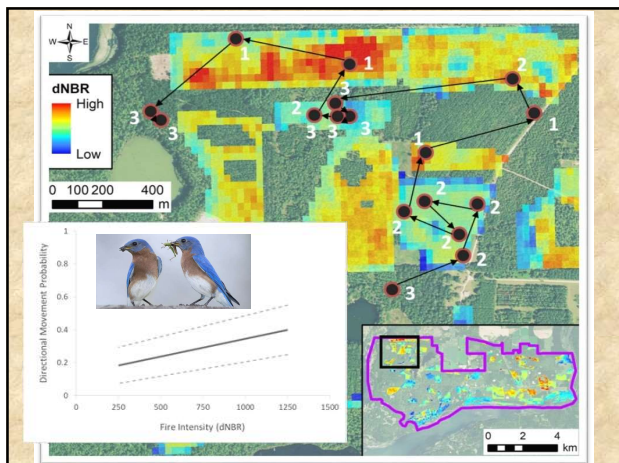
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But what about SCALE?


Public lands, primarily USFS

How can a fire that consumes 2000 acres in a day be conducive with managing for this bird?

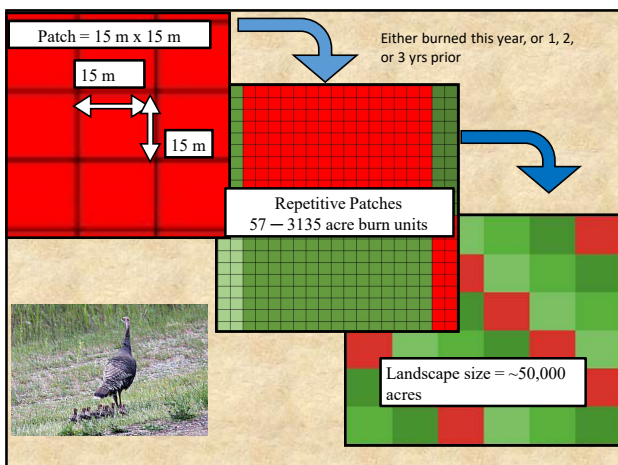
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Individual-based Model

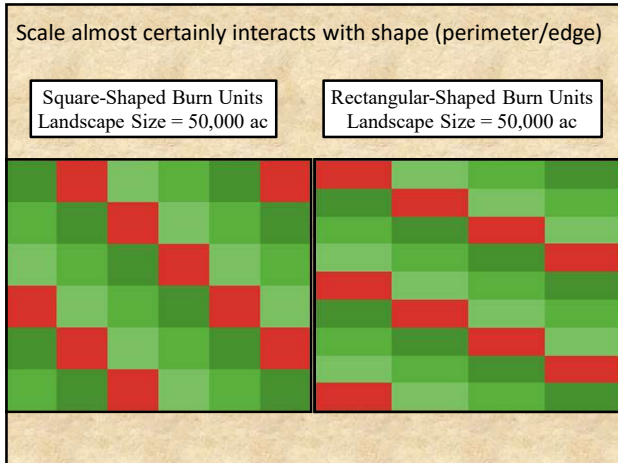
- I don't believe in models, so I'm tuning you out...
- Simulations that use individual behavior to predict system-level properties
- Can't study every fire and every turkey, so we take a model and "teach" it how a turkey behaves
- Our model is female-based



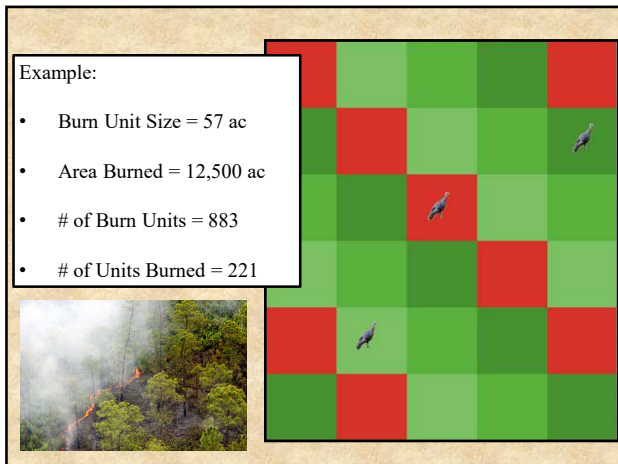
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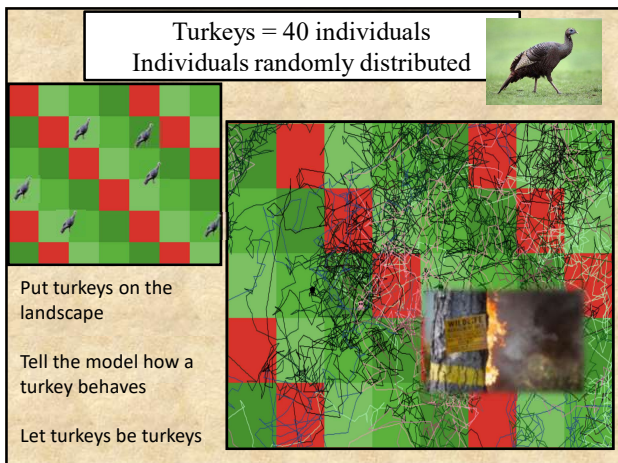
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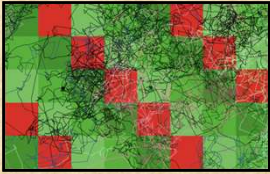
Turkey Movement:

- 14 movements per day, 365 days
 - Walking
 - Foraging-Loafing
- Walking
 - Distance: 241 m/hr
 - Turn Angle: 46°
- Foraging-Loafing
 - Distance: 76 m/hr
 - Turn Angle: 103°

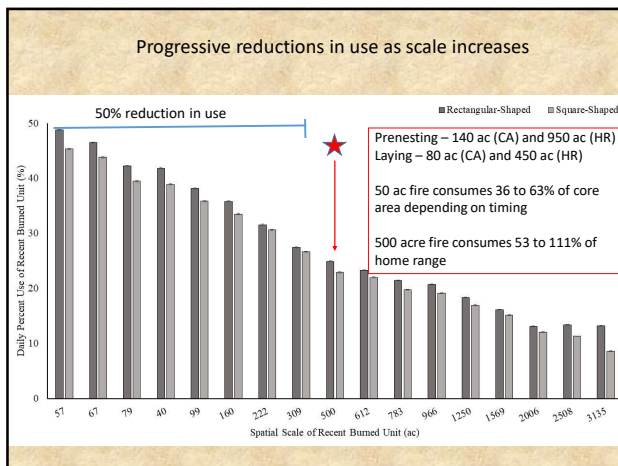
Used 153 females and their individual behaviors to “teach” model

“All science, measured against reality, is primitive and child-like – and yet it is the most precious thing we have” – Albert Einstein

“One of the most insidious and nefarious properties of scientific models is their tendency to take over, and sometimes supplant, reality” – Erwin Chargaff



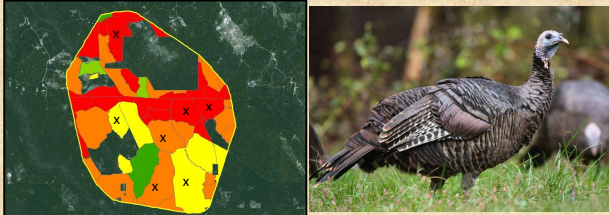
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The Take Home?

- Turkeys maintain defined home ranges, don't leave ranges under stress or disturbance
- Allometrically scaled – can only use so much space
- Basics of range use supports model results
- Does a “sweet spot” exist for fires? Unlikely...
- Do we understand indirect effects of fire? Not yet...



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Inextricably linked to fire, but...



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