



A new era of harvest on private lands in the USA: when should we manage pheasants like fish?

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Traditional fishery management

- Harvest is regulated in discrete units (lakes)
- Lake-specific monitoring: harvest regulations



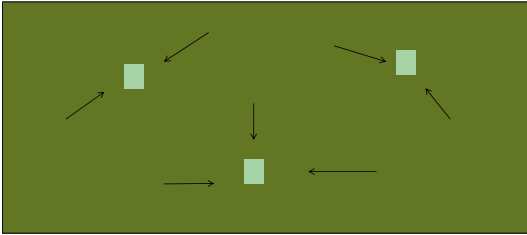
Spatially explicit wildlife harvest regulations

Namibia, private farm

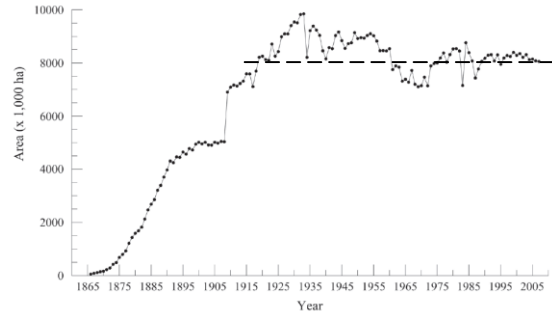


Traditional upland game scenario

- Harvest is a population-level phenomenon.
- Dispersal will 'fill in' local extirpations.



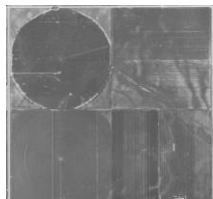
Upland habitat: loss and fragmentation



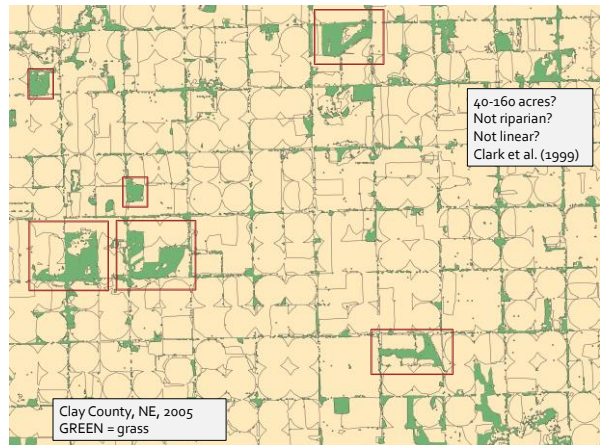
Clay County, Nebraska

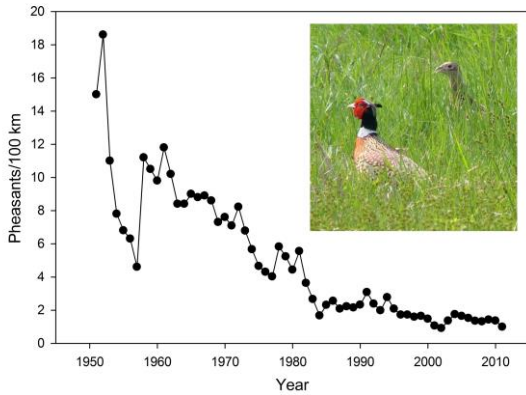


1938



2006



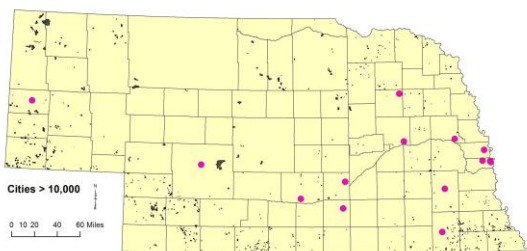


Two game-changers for harvest management

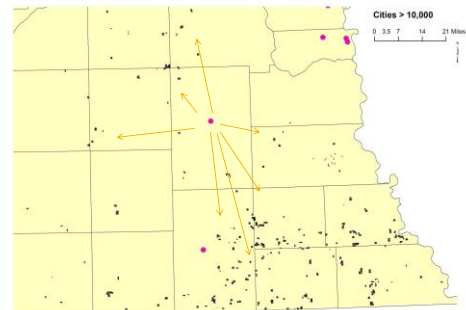
- Increase in fee hunting (hunt leases) and guided hunts on private lands: **BIG GAME**
- Expansion of state-funded programs designed to provide access to private lands ("open access"): **SMALL GAME**

BOTH have potential to **INCREASE PRESSURE** at specific local patches of habitat

Open Access land: NE

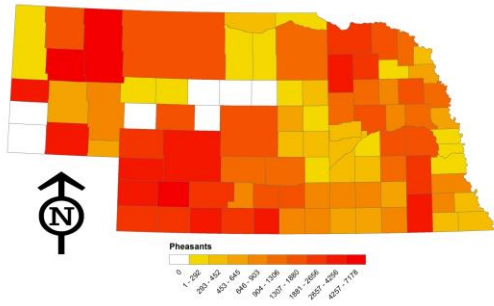


Open lands: near high population

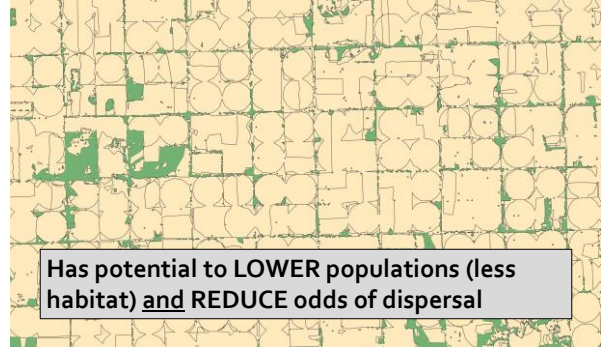


Spatial variation: pheasant harvest

Estimated Pheasant Harvest per County, 2012-2013



Synergistic impact: fragmentation



Theoretical predictions

- As fragmentation increases:
- Regional population declines (less habitat)
- Harvest pressure on remaining patches increases (even higher with Open Access status)
- Dispersal/recolonization decreases

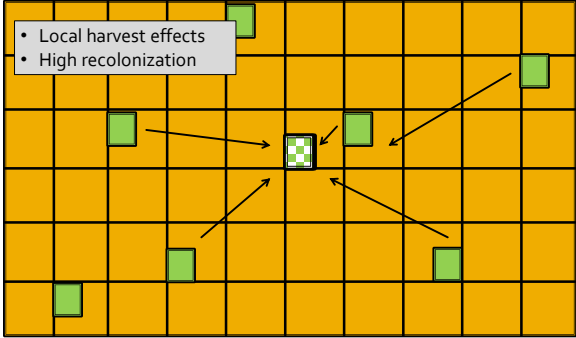
Consider the isolated patch—and its landscape

Context of this patch is important!

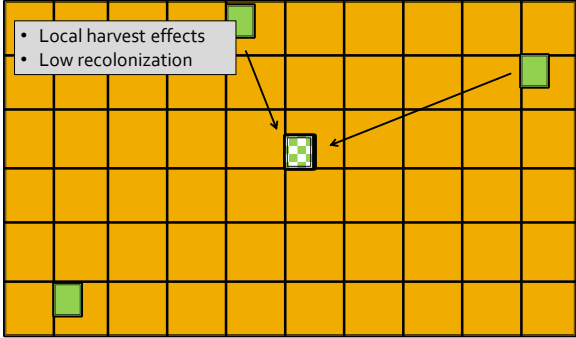
- Local harvest effects
- Recolonization



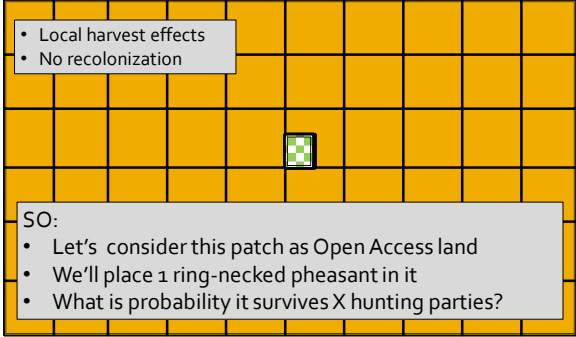
Consider the isolated patch



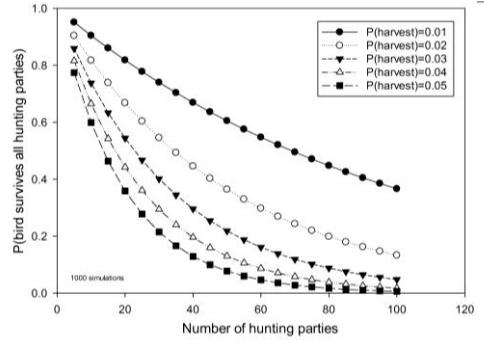
Consider the isolated patch



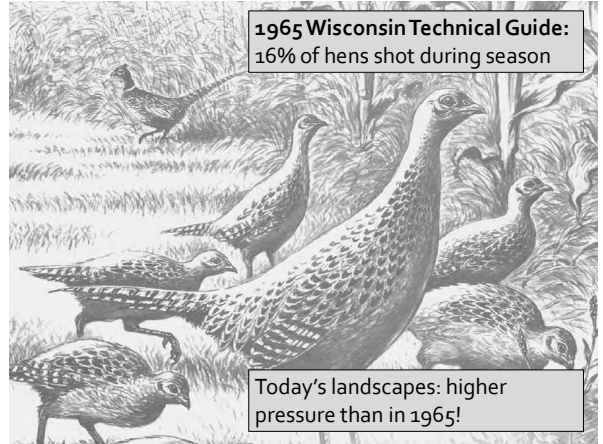
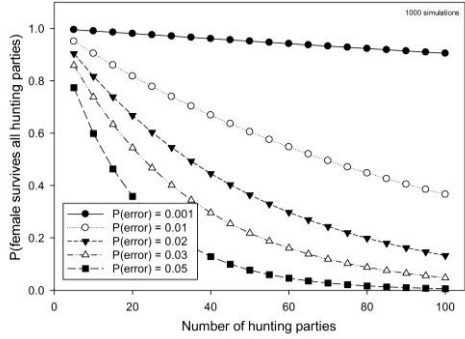
Consider the isolated patch



We can locally remove all males



It is possible to remove all hens!

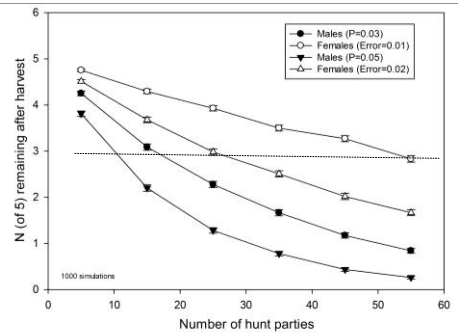


Going back to our isolated patch

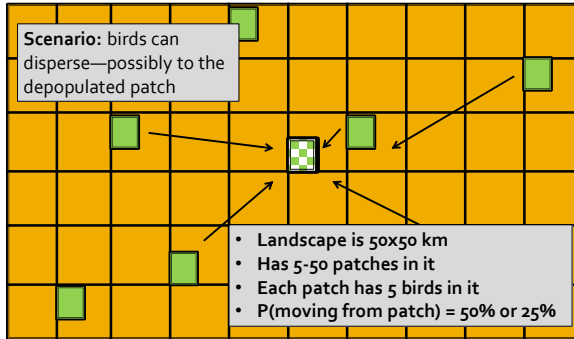
NEXT:

- Let's consider this patch as Open Access land
- We'll place 10 ring-necked pheasants in it...5 males and 5 females
- How many survive X hunting parties?

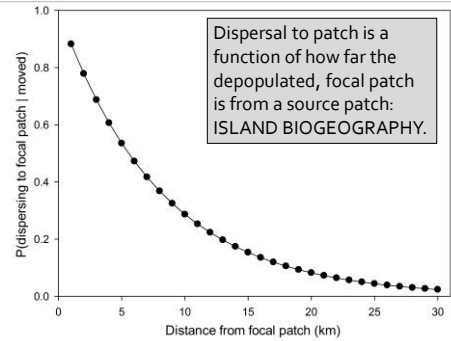
Patch with 5 males/5 females



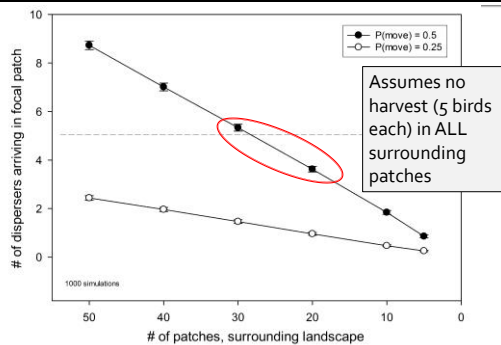
Modeling: going back to our landscape



P(dispersing to focal patch)



Can we depend on dispersal to re-populate our patch?



Ways forward

- **Problem:**
 - harvest pressure too high (?) on Open Access lands
- **Solutions:**
 - shorter hunting seasons and/or lower bag limits on Open Access
 - pay strategic landowners in landscapes to establish refuges (non-hunted)—1951 *F. Dale (JWM)*
 - state-supported monitoring should be implemented on Open Access lands that have high use potential

Ways forward

- Problem:
 - harvest pressure too high (?) on fee hunted lands or lands used by outfitters
- Solutions:
 - states could assist landowners with monitoring schemes
 - states could assist landowners with management plans to support suggested harvest levels

A pity this hasn't worked...

October 9, 1937 *Nebraska Farmer* magazine:

Pheasant Hunting

This year you don't have to trek off across the state to some "open county"--you can hunt pheasants anywhere in the state. The State Game Forestation and Parks Commission has thrown the entire state open this season, believing that this action will spread the hunters over a larger territory and will not necessarily result in the killing of more birds.

The commission hopes that hunters will be good sports and not shoot birds in counties where they are scarce. Farmers in those counties will be helping if they post "No Hunting" signs.

