Optimizing Range Management for Gamebird Habitat: The Importance of Maintaining Structure

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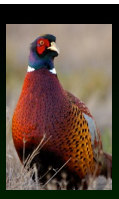
Talk Objectives



- Discuss the initial project
- Relate initial project to range management and discuss the importance of structure for ring-necked pheasant and waterfowl production

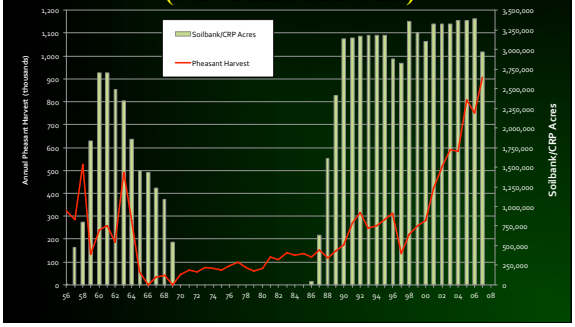
Study Objectives

- 1) Determine effect of multi-use land management systems in a BEEF CATTLE ENTERPRISE on post-CRP lands for pheasant production outputs:
  - Hen (nest) recruitment
  - Nesting success
  - Structure (VOR) preference for nest site selection
  - Brood survival and habitat selection
  - Adult survival and winter habitat use
  - Influence of hunting on annual survival and home range

Study Objectives

- 2) Provide land owners and managers concerned with wildlife and agriculture alternative options for CRP lands being removed from the program

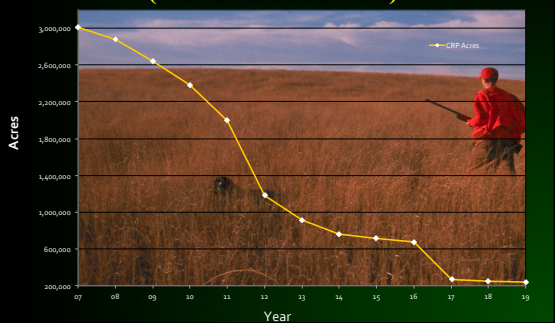
CRP and Pheasant Harvest (ND Game and Fish)



Conservation Reserve Program Enrollment: 2001-2011

YEAR	UNITED STATES	NORTH DAKOTA	MONTANA
2001	29,105,739	3,319,359	3,416,852
2002	33,949,898	3,325,386	3,411,536
2003	34,095,986	3,334,942	3,411,222
2004	34,692,481	3,334,880	3,419,064
2005	34,887,411	3,339,808	3,401,564
2006	35,987,942	3,370,145	3,481,533
2007	36,755,299	3,387,029	3,480,851
2008	34,597,927	2,975,110	3,291,198
2009	33,706,867	2,851,269	3,084,319
2010	31,110,391	2,656,581	3,078,143
2011	31,150,606	2,648,422	2,855,606

North Dakota CRP Projected Losses (ND Game and Fish)



With the projected loss of CRP lands the question is: How can we cash flow some of these lands and still maintain ring-necked pheasant and waterfowl numbers?

Study Area

Study Sites

- 2 Blocks (1280 acres CRP)
- 5 Land Uses (Treatments)

Treatments

- Hayed (HAY)
  - 80 acres swathed each year in early July
- Season Long (SL)
  - 320 acres grazed from early June - early January (until 50% disappearance)
- No-till Corn (NTC)
  - 80 acres grazed from January 1 through April 15
- No-till Barley (NTB)
  - 80 acres harvested as hay and than grazed from January 1 - April 15
- Idle (ID)
  - 80 acres

Methods

Stocking Rates for Season Long Pasture and Crop

YEAR	SEASON LONG PASTURE (AUM's/2.5 ac.)	CORN (AUM's/2.5 ac.)
2006	1.5	1.5
2007	2.4	2.4
2008	2.1	2.1
2009	2.2	2.2
2010	2.0	2.0

Visual Obstruction "Structure"

- Structure – function of the vegetation height and density
- Can be measured many ways, but often done with a Robel Pole

Why Measure Structure?

- Many studies have documented that numerous species of upland nesting birds choose areas of higher structure as nest sites; thus the importance of monitoring structure
- United States Forest Service measure structure as a management tool

When to Measure Structure?

- First attempt initiation dates of ring-necked pheasants are generally prior to heavy onset of new vegetation growth; therefor, we measure structure in April.
- Forest Service measures structure following the completion of annual grazing (Mid-October).

How May Our Treatments Influence Structure?

Idle

Hay

How May Our Treatments Influence Structure?

No-till Barley

No-till Corn

How May Our Treatments Influence Structure?

Season Long Grazing

Ring-Necked Pheasant Nest Initiation Dates

YEAR	MEDIAN	10-Percentile	90-Percentile
2006 (N=31)	3 May	21 April	27 May
2007 (N=44)	4 May	23 April	4 June
2008 (N=49)	8 May	22 April	24 June
2009 (N=25)	16 May	6 May	27 May
2010 (N=24)	3 May	27 April	8 June
2011 (N=21)	18 May	28 April	13 June

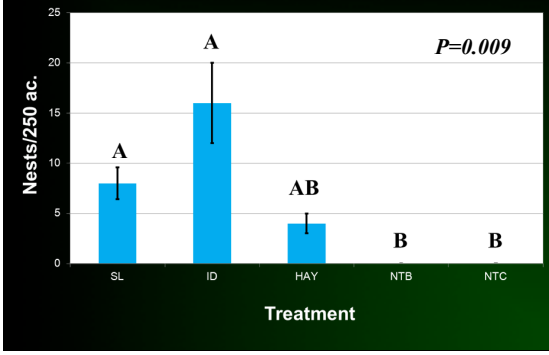
•N = Number of Nests

Duck Nest Initiation Dates

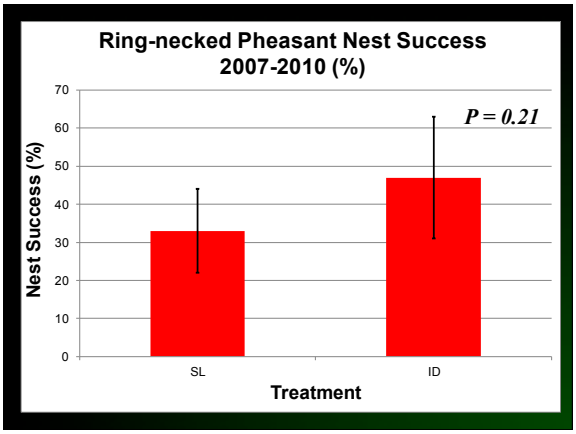
YEAR	MEDIAN	10-PERCENTIAL	90-PERCENTIAL
2006 (N=65)	16 May	21 April	6 June
2007 (N=43)	18 May	1 May	25 May
2008 (N=49)	21 May	3 May	12 June
2009 (N=77)	29 May	10 May	20 June
2010 (N=60)	19 May	6 May	9 June

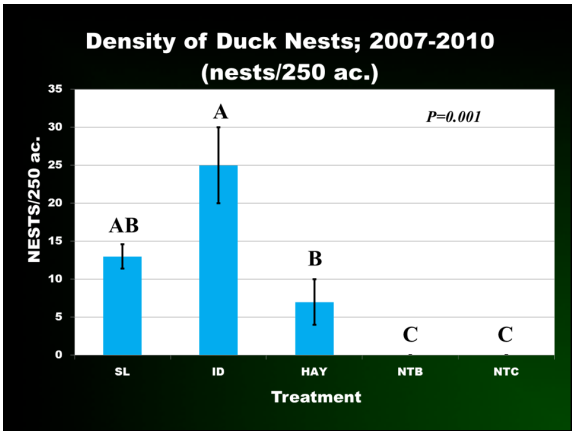
•N = Number of Nests

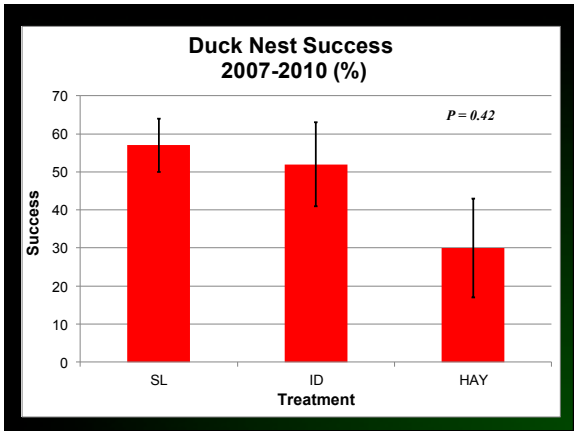
Ring-necked Pheasant Nest Density 2007-2010 (nests/250 ac.)

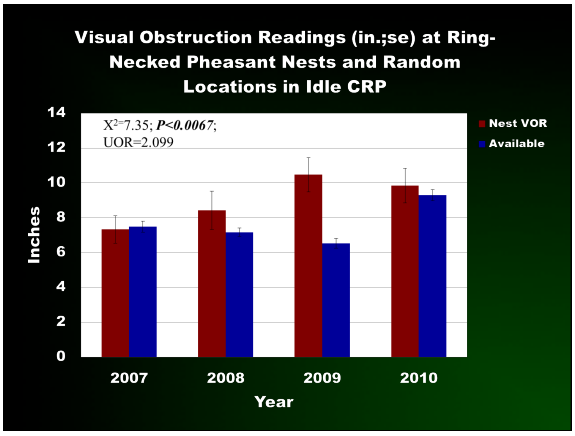


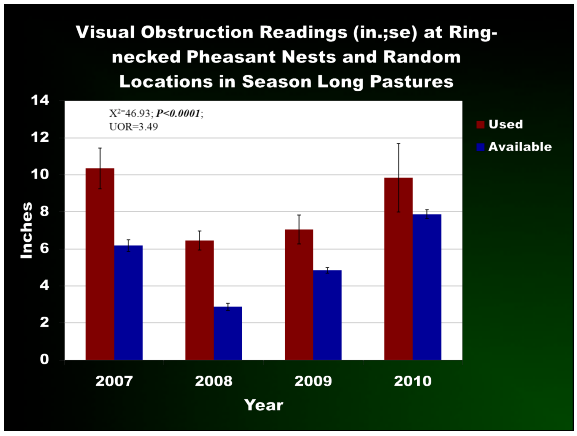
Ring-necked Pheasant Nest Success 2007-2010 (%)

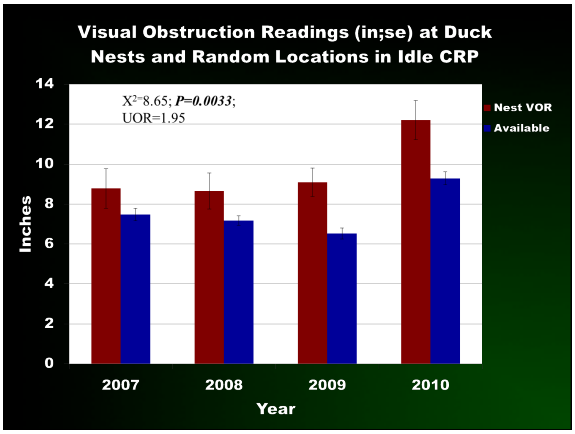


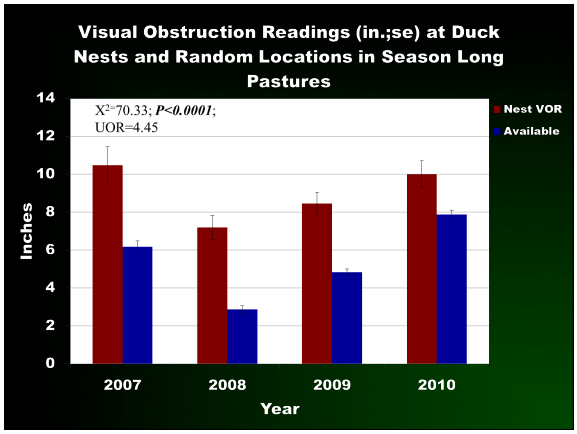

Density of Duck Nests; 2007-2010 (nests/250 ac.)
NESTS/250 ac.
35
30
25
20
15
10
5
0
A
AB
B
C
C
P=0.001
SL
ID
HAY
NTB
NTC
Treatment


Duck Nest Success 2007-2010 (%)
Success
70
60
50
40
30
20
10
0
P = 0.42
SL
ID
HAY
Treatment


Visual Obstruction Readings (in.;se) at Ring-Necked Pheasant Nests and Random Locations in Idle CRP
X²=7.35; P<0.0067; UOR=2.099
Nest VOR
Available
Inches
14
12
10
8
6
4
2
0
2007
2008
2009
2010
Year


Visual Obstruction Readings (in.;se) at Ring-necked Pheasant Nests and Random Locations in Season Long Pastures
X²=46.93; P<0.0001; UOR=3.49
Used
Available
Inches
14
12
10
8
6
4
2
0
2007
2008
2009
2010
Year


Visual Obstruction Readings (in;se) at Duck Nests and Random Locations in Idle CRP
X²=8.65; P=0.0033; UOR=1.95
Nest VOR
Available
Inches
14
12
10
8
6
4
2
0
2007
2008
2009
2010
Year


Visual Obstruction Readings (in.;se) at Duck Nests and Random Locations in Season Long Pastures
X²=70.33; P<0.0001; UOR=4.45
Nest VOR
Available
Inches
14
12
10
8
6
4
2
0
2007
2008
2009
2010
Year

Conclusions

- Ducks and ring-necked pheasant preferred areas of permanent cover as nest sites
- Ring-necked pheasant and ducks avoided areas devoted to crop production as nesting cover
- Data supports the 1 August date for management haying on CRP lands

Conclusions

- Season long grazing, targeting 50% utilization provided adequate nesting cover for pheasants and ducks
- Maintaining patches of cover with greater VORs is important for duck and pheasant recruitment in season long pastures
- Although not significant, densities of pheasant and duck nests were higher in idle lands over those grazed which may suggest a trade-off between maximizing wildlife output and cattle production

Management Implications

- The large scale conversion of CRP lands to crop production would likely have a negative impact on ring-necked pheasant and ducks
- Landowners concerned with both wildlife and agriculture may want to consider a grazing strategy targeting 50% vegetation disappearance on lands previously enrolled in CRP

Structure

- While measuring structure is one tool used by managers, other factors likely influence nest site selection and survival!

QUESTIONS

NDSU HETTINGER Research Extension Center