

Lesser prairie-chicken status in Kansas

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Distribution, Trends, and Population Estimate



Over 7 Million Acres (11,300 sq.mi.) within the Kansas LPC Range

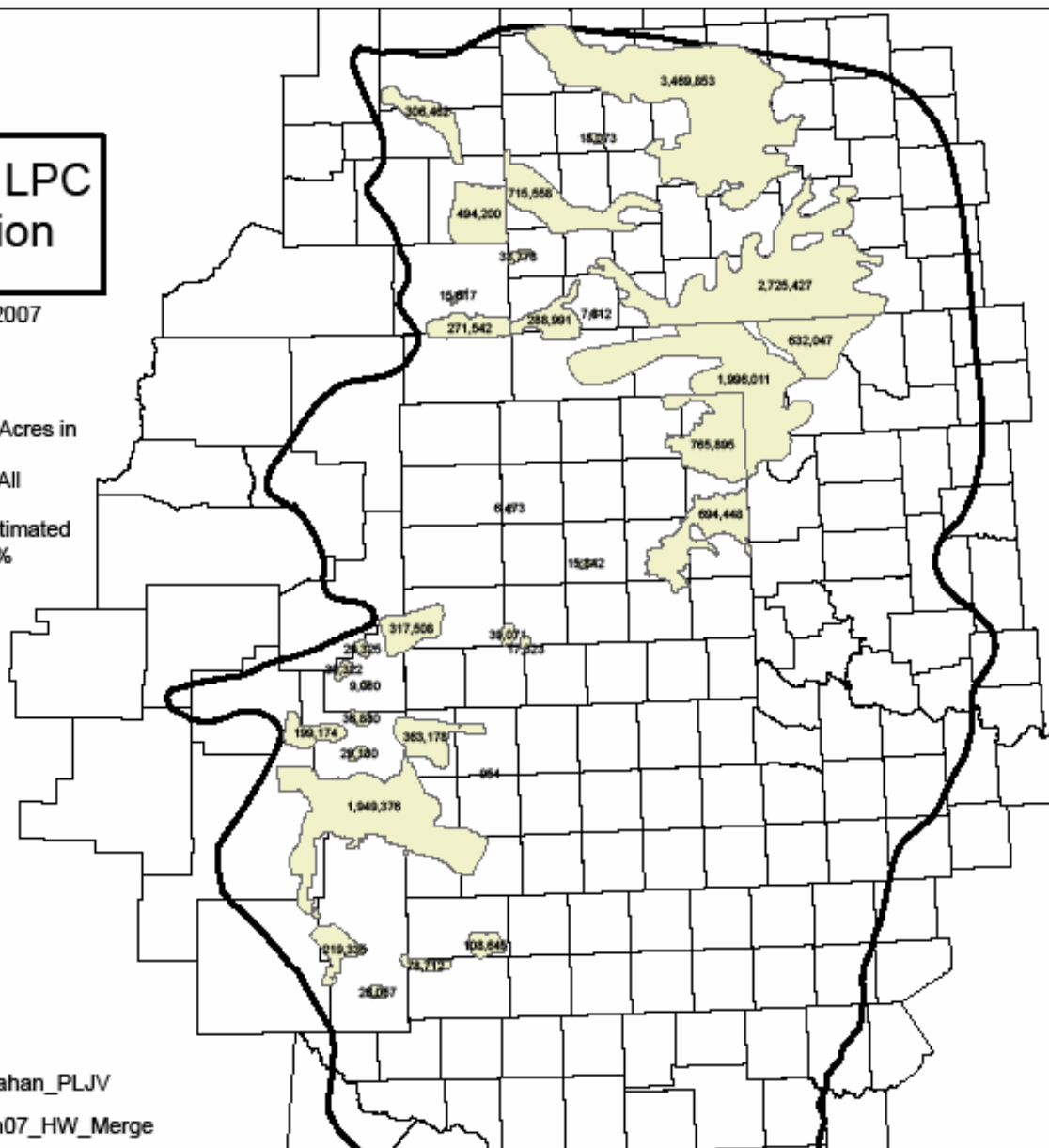
Estimated LPC Distribution

DRAFT - Jan 29, 2007

Total Current Estimated Occupied Acres in All 5 States = 15,917,128ac
Total Historic Acres from PLJV for All 5 States = 112,779,561ac
Percentage of Historic Acreage Estimated Occupied in All 5 States = 14.11%

1 inch equals 72,776,356 miles

 LEPChistRange_fromCallahan_PLJV
 All_States_Combined_Jan07_HW_Merge





Sandsage Prairie - Hamilton County, KS



Sand Prairie - Edwards County, KS



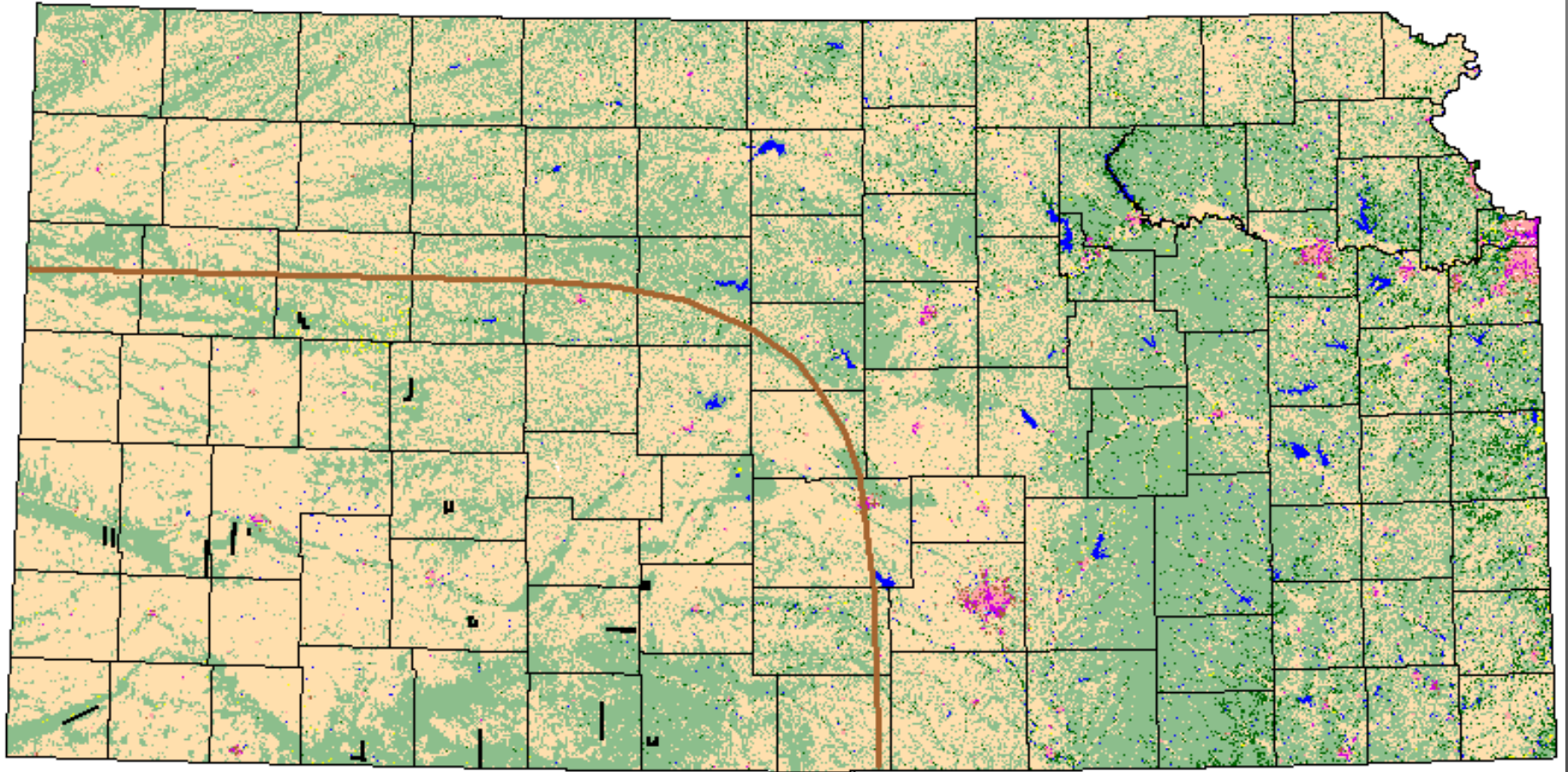
Mixed Grass Prairie - Ellis County, KS



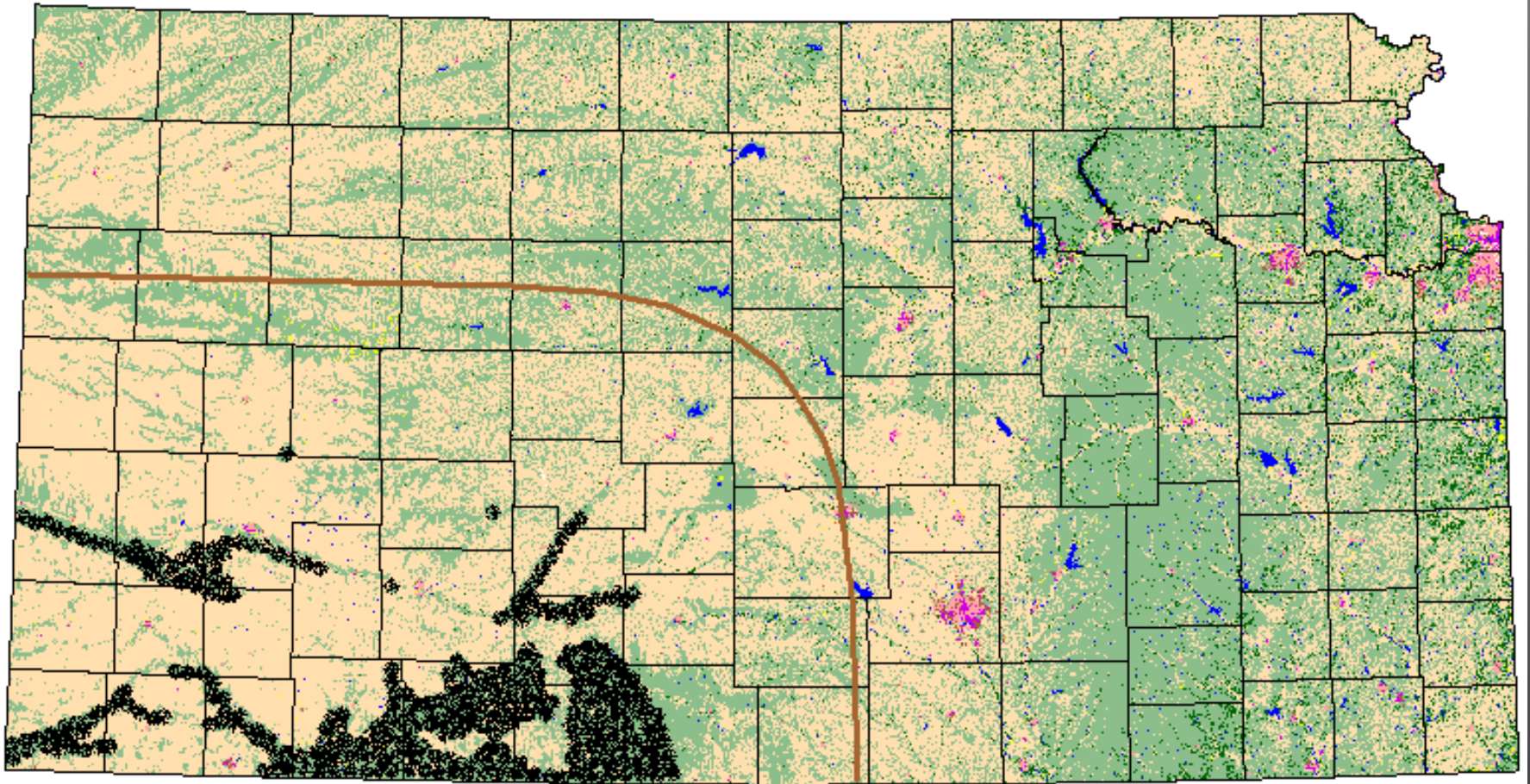
Conservation Reserve Grassland - Logan County, KS

Kansas Lesser Prairie Chicken Survey Areas

15 Survey Areas Cover 279 Square Miles

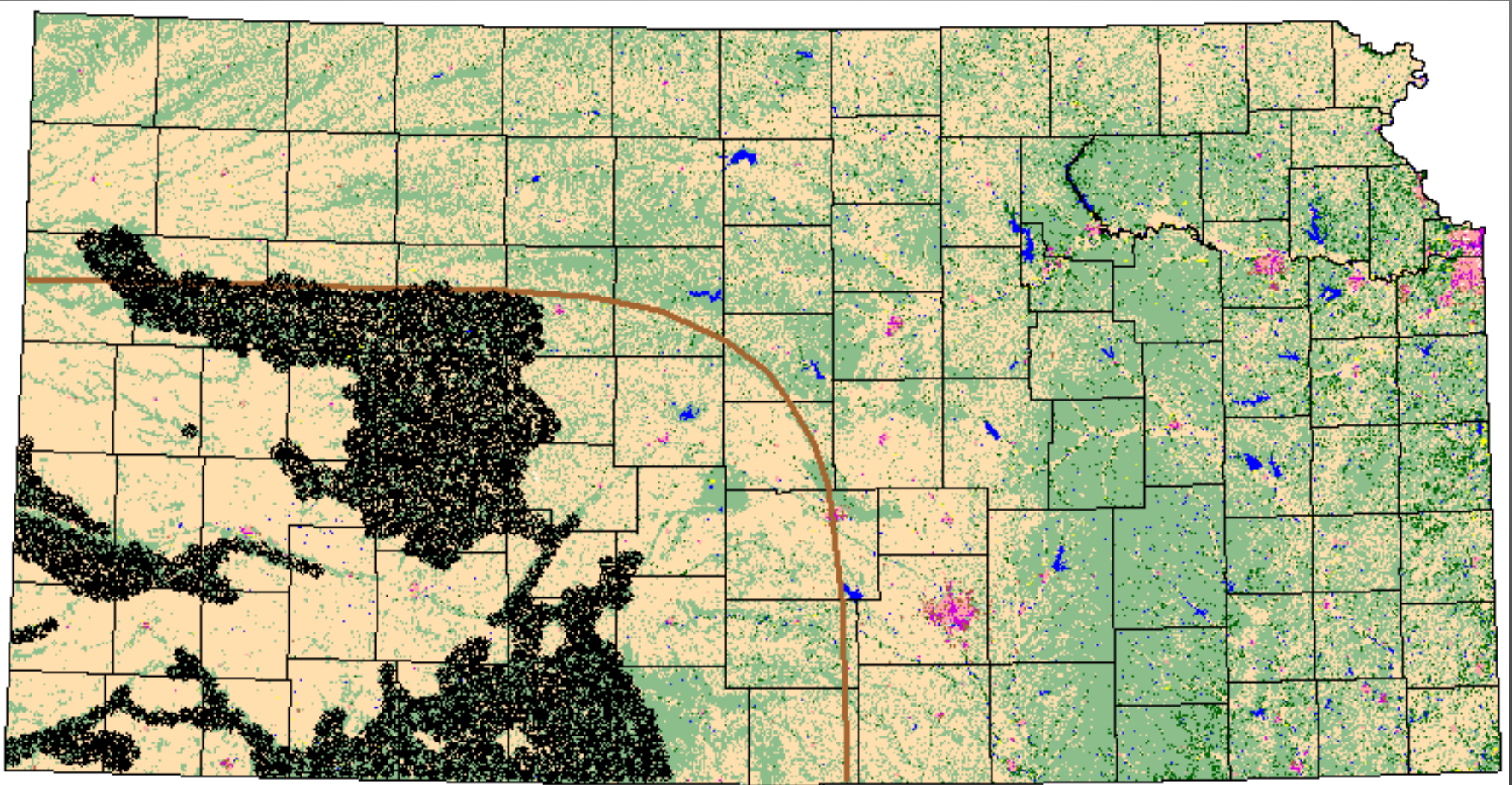


Pre-CRP Range Lesser Prairie Chicken in Kansas



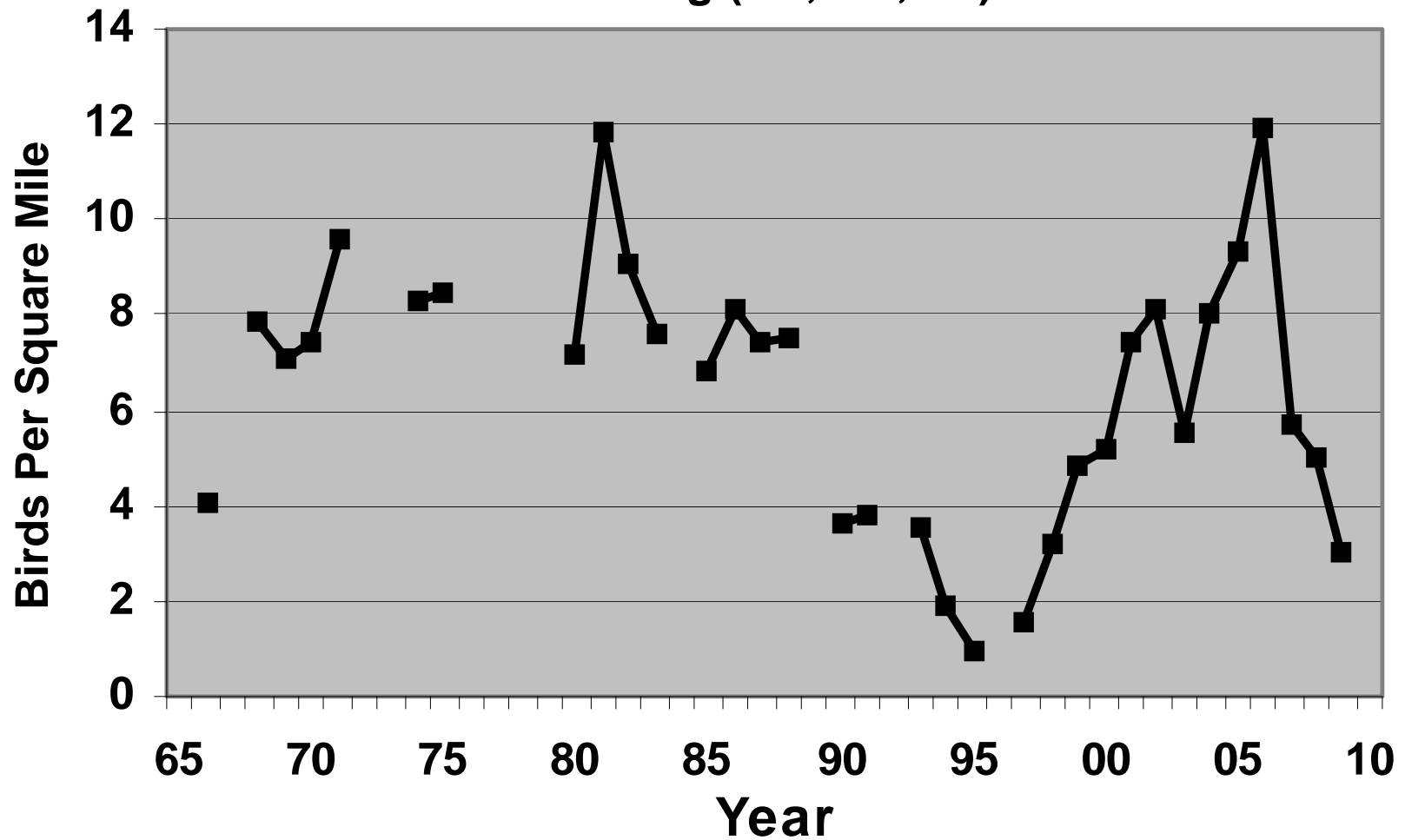
Current Range

Lesser Prairie Chicken in Kansas



Lesser Prairie-Chicken

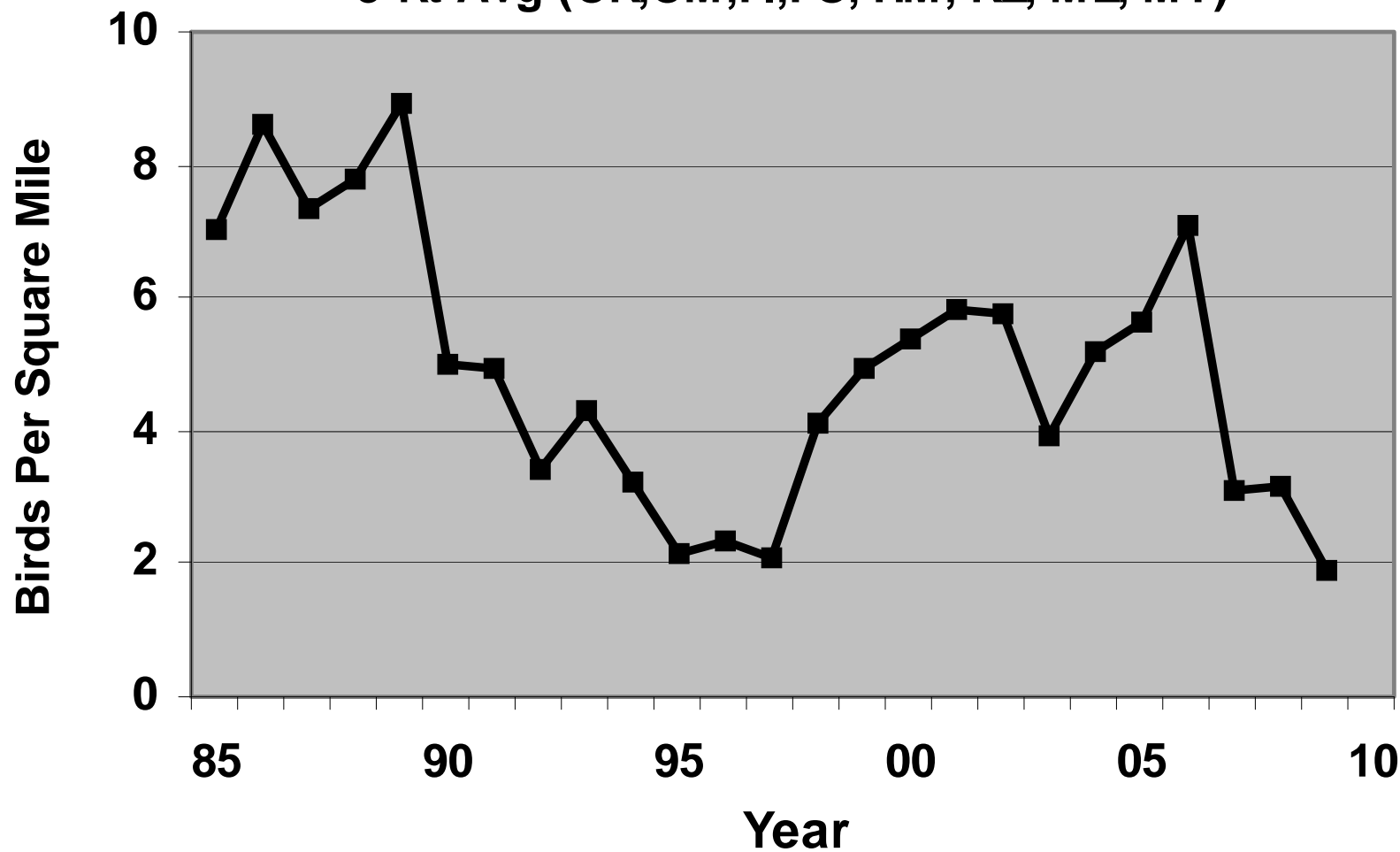
3-Rt Avg (CK, ME, MT)



Only years when all 3 routes were surveyed are shown.

Lesser Prairie-Chicken

8-Rt Avg (CK,CM,FI,FO, HM, KE, ME, MT)



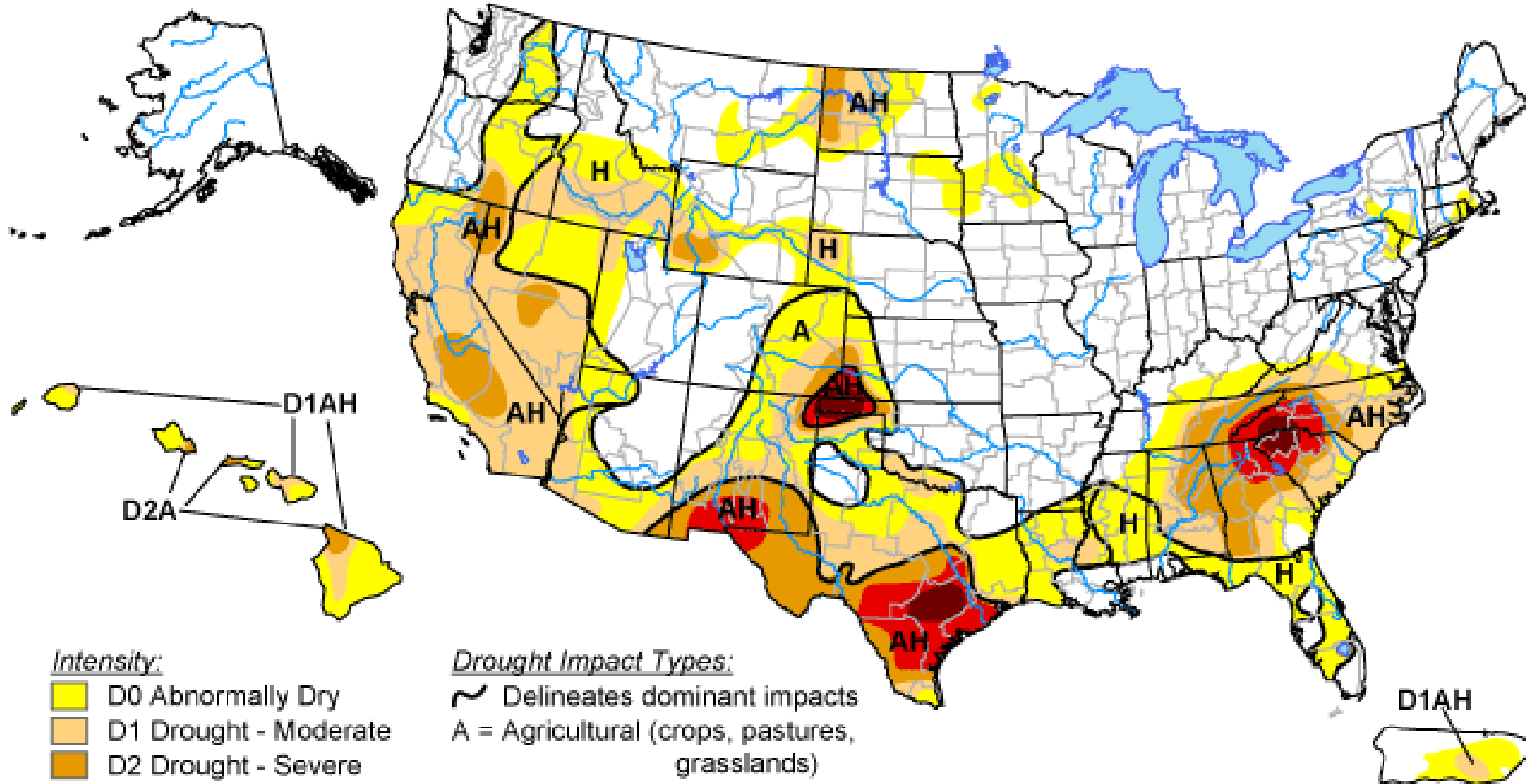
New Year's Blizzard 2007



U.S. Drought Monitor

July 8, 2008

Valid 8 a.m. EDT



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:

- Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

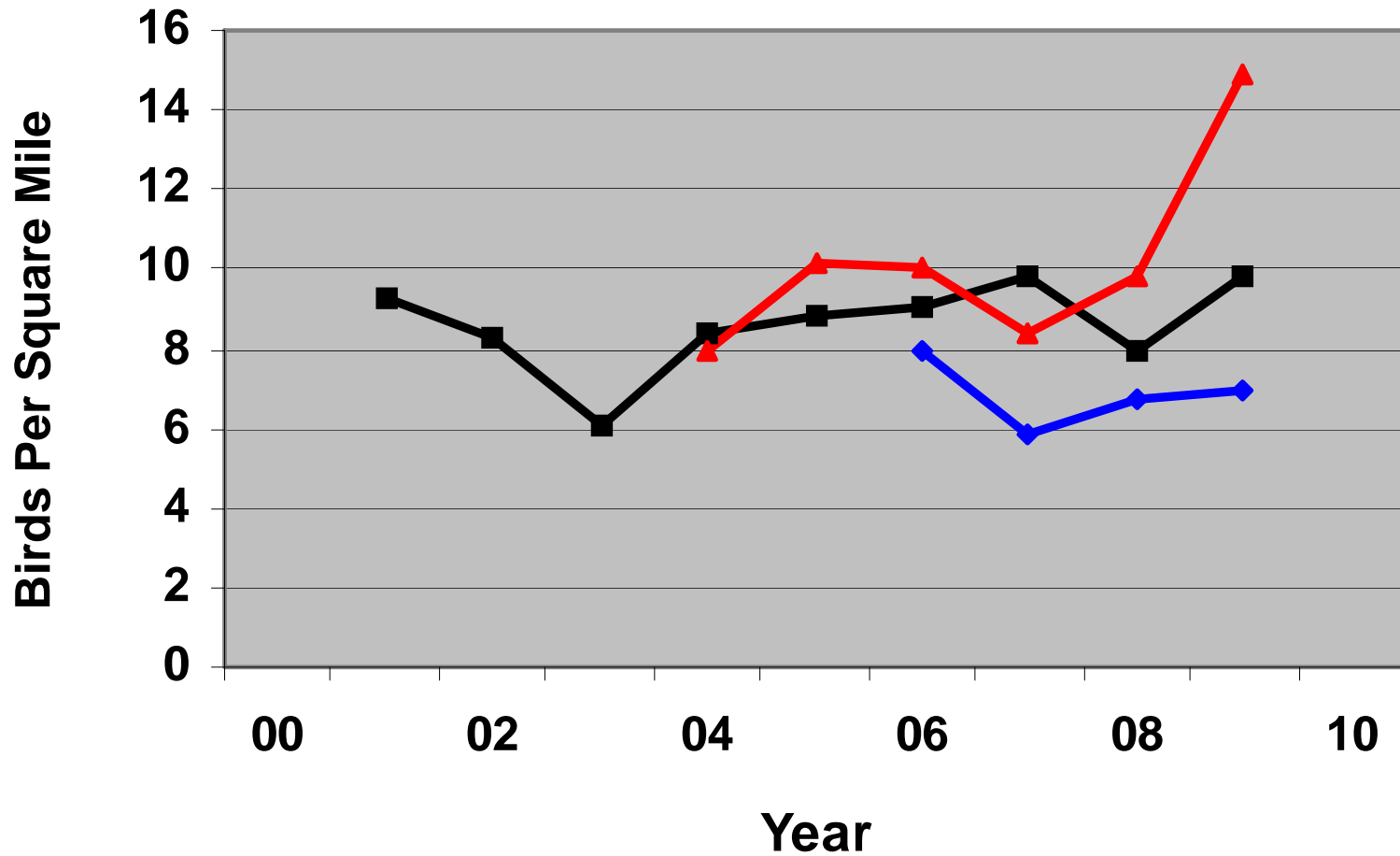
<http://drought.unl.edu/dm>



Released Thursday, July 10, 2008
Author: Rich Tinker, Climate Prediction Center/NOAA

Lesser Prairie-Chicken

North of Arkansas River (HG,GO,NS)



The Gove County survey area typically includes 15-20% greater prairie chickens and hybrids.

Calculation of Kansas LPC Range/Survey Multiplier.					
	<i>Survey Area</i>	<i>Rangewide</i>	<i>Rangewide</i>	<i>Rangewide</i>	<i>Range/Survey</i>
<i>Estimate</i>	<i>Habitat Value</i>	<i>Habitat Value</i>	<i>Usable</i>	<i>Usable HVU</i>	<i>Multiplier</i>
<i>Type</i>	<i>Units</i>	<i>Units</i>	<i>Proportion</i>	<i>(RHVU x RUP)</i>	<i>(RUHVU / SAHVU)</i>
Low	251,860	6,457,224	0.50	3,228,612	12.82
High	352,722	9,489,058	0.75	7,116,794	20.18

Estimation of Kansas Rangewide LPC Breeding Population.			
	<i>Survey Area</i>	<i>Rangewide</i>	
<i>Estimate</i>	<i>Range/Survey</i>	<i>Estimated 2009</i>	<i>Estimated 2009</i>
<i>Type</i>	<i>Multiplier</i>	<i>Breeding Pop.</i>	<i>Breeding Pop.</i>
Low	12.82	1,032	13,229
High	20.18	1,032	20,822

Waddell (1977) estimated the Kansas population at 17,409 birds in 1974.

Habitat Requirements



***What Kind of Structure does a Prairie Chicken
Need in Grassland Habitat?***

It must be able to Easily -- Hide in it

-- See out of it

-- Walk through it

Jerry Horak, Retired KDWP Biologist

Two Primary Habitat Components

Nesting and Winter Habitat

- residual grass and/or shrubs averaging 12-18" in height occupying >50% of ground cover
- variable plant heights (i.e. clumpiness)
- no vertical structures or frequent disturbances

Brood Rearing Habitat

- >30% of ground obscured by forbs >12" tall
- ground cover >30% bare
- diverse and abundance insects
- no vertical structures or frequent disturbances

Nesting Habitat



This Stand is . . .

-- the Right Height

-- a Diverse Mixture

-- Clumpy with Openings

-- and Not Too Thick



Brood Rearing Habitat



Juxtaposition of Habitat Components is Important

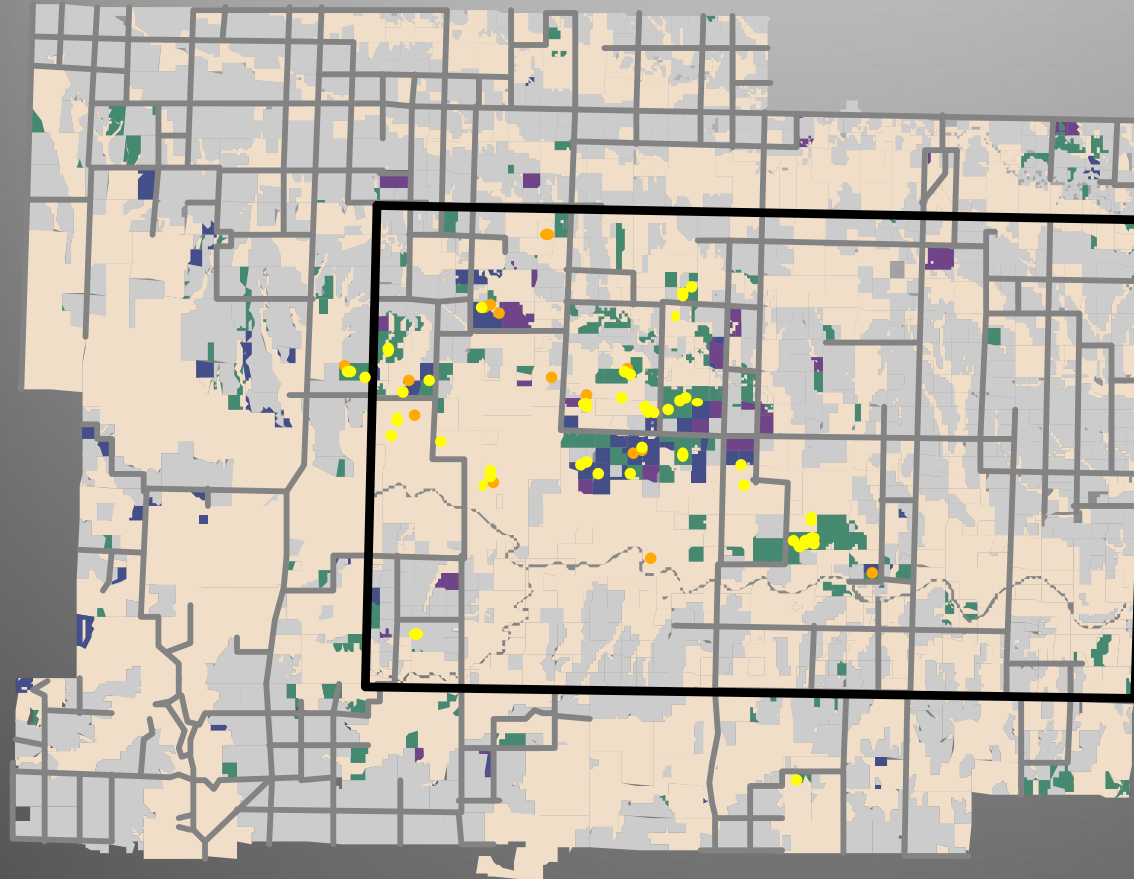
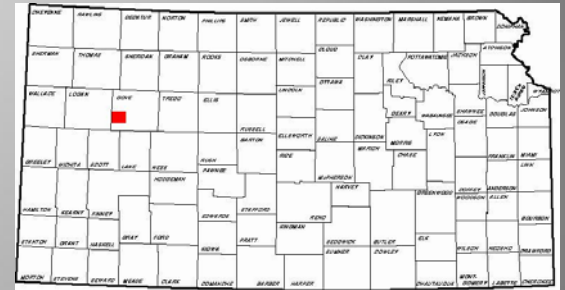


Logan County, KS



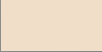
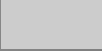
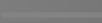


***Why has CRP been so beneficial
to LPCH in Kansas?***



Habitat Use



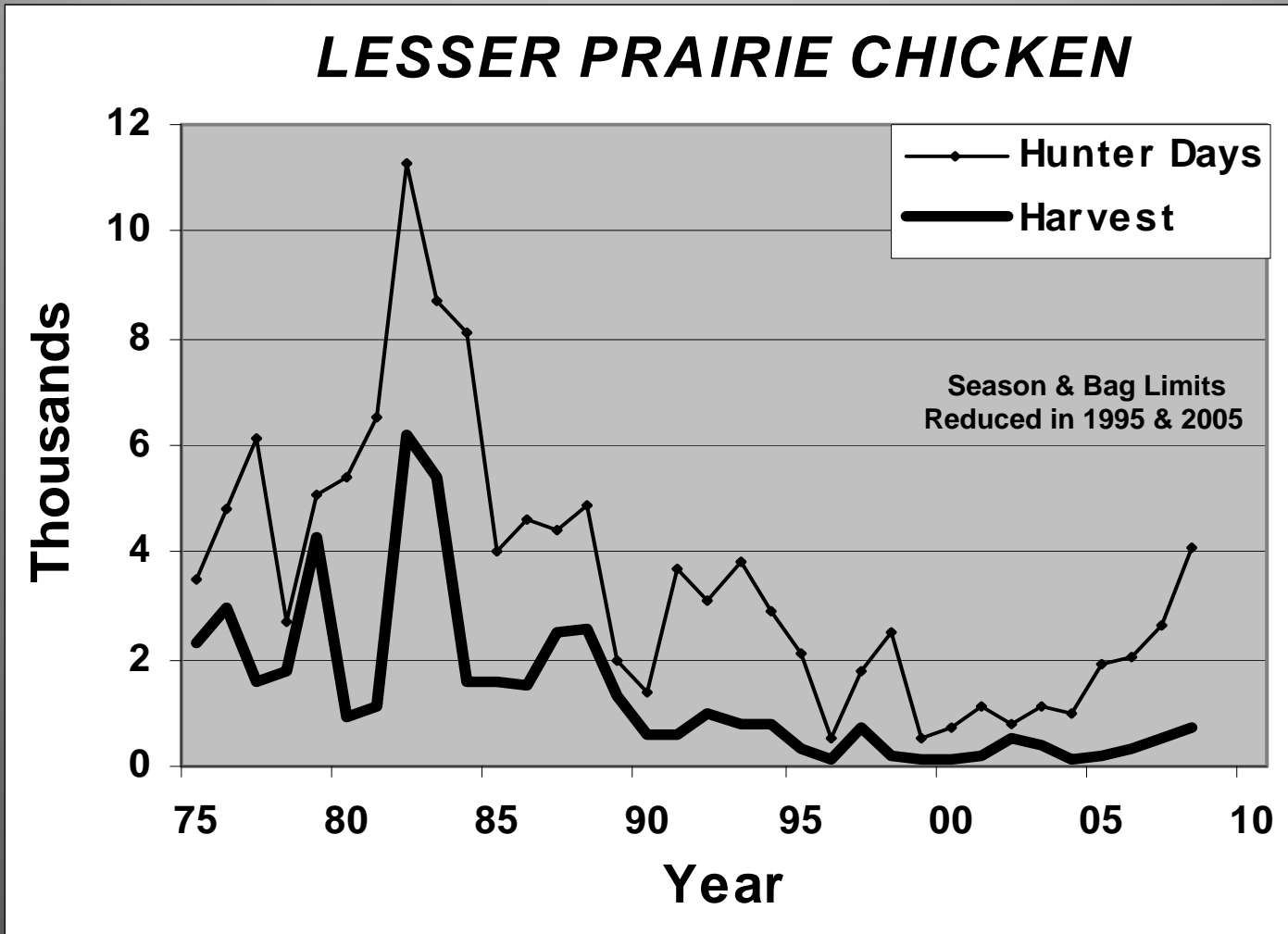
Legend

-  GCRP
-  FCRP
-  ICRP
-  Rangeland
-  Cropland
-  Roads
-  Nests (2003)
-  Nests (2002)
-  Available Habitat



Perceived Threats

Hunter Harvest



Two studies in Kansas identified hunter harvest as <2% of mortality

Nest Parasitism

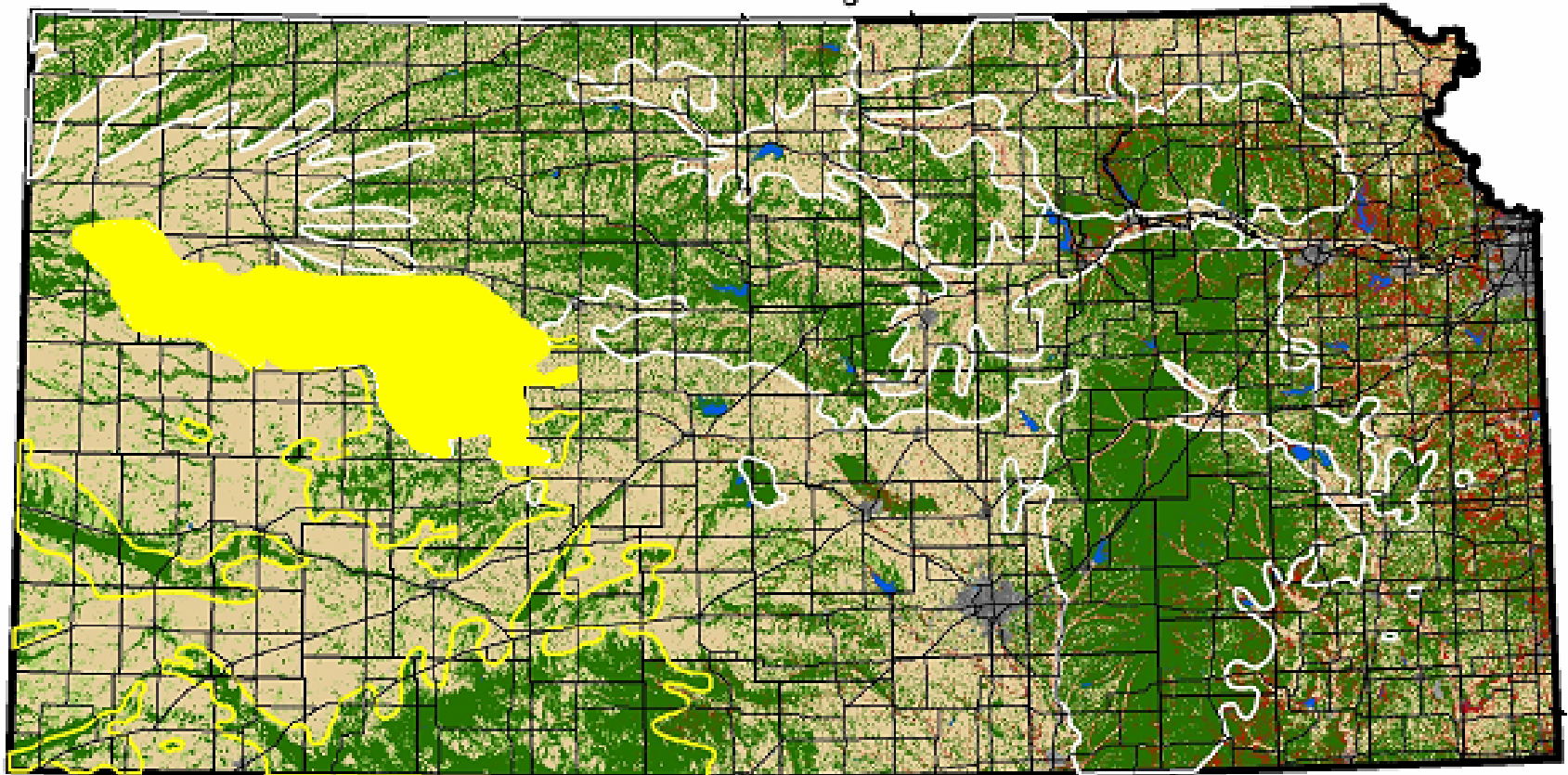
Only 6 of 209 (<3%) LPCH nests in southwest Kansas parasitized over 6 year period

- 4 by pheasant, 1 by bobwhite, and 1 by both species
- 2 of 6 (33%) nests produced LPCH chicks
- egg hatchability similar to un-parasitized nests



Hybridization of Lesser and Greater Prairie-Chickens where ranges overlap

Prairie Chicken Range in Kansas



Mapping conducted for this project was a joint project of the Kansas Department of Wildlife and Parks.

For more information, contact: mapinfo@kansas.gov or call 785-854-3300, ext. 2000 or 2001.

Due to increasing pressures on prairie chicken habitat, there is a need to better define the current range and distribution of greater and lesser prairie chickens in Kansas. The Kansas Department of Wildlife and Parks and the Kansas Biological Survey are working together to do just that.

Realizing it was not feasible to find and map every prairie chicken (or breeding area) in the state, we used the general knowledge of the state's bird distribution that exists within our agencies and other parties.

A preliminary map showing the distribution of greater and lesser prairie chickens with county-level data related to regional exams for field measurements during the early spring of 2004. The comments and notes were then used to produce this map showing the current range and distribution of prairie chickens in Kansas.

The result of this mapping effort is a current and accurate map of prairie chickens in Kansas that will be updated in the future as more information is received.

Last revised May 2009



0 5 10 20 30 40 Miles

1:1,150,000

- Greater Prairie-Chicken Range
- Lesser Prairie-Chicken Range
- Grassland
- CRP Grassland
- Cropland
- Woodland
- Water
- Urban
- Highways
- Counties

* Land cover data from 2005 Land Cover Patterns

- *LPC-GPC Hybridization Occurs in West-central Kansas*
- *Proportion of Hybrids is Stable at Less Than 5% in the Overlap zone*



Real and Potential Threats

Tree Invasion



Barber County, KS

Overgrazing



Potential CRP Expirations

in

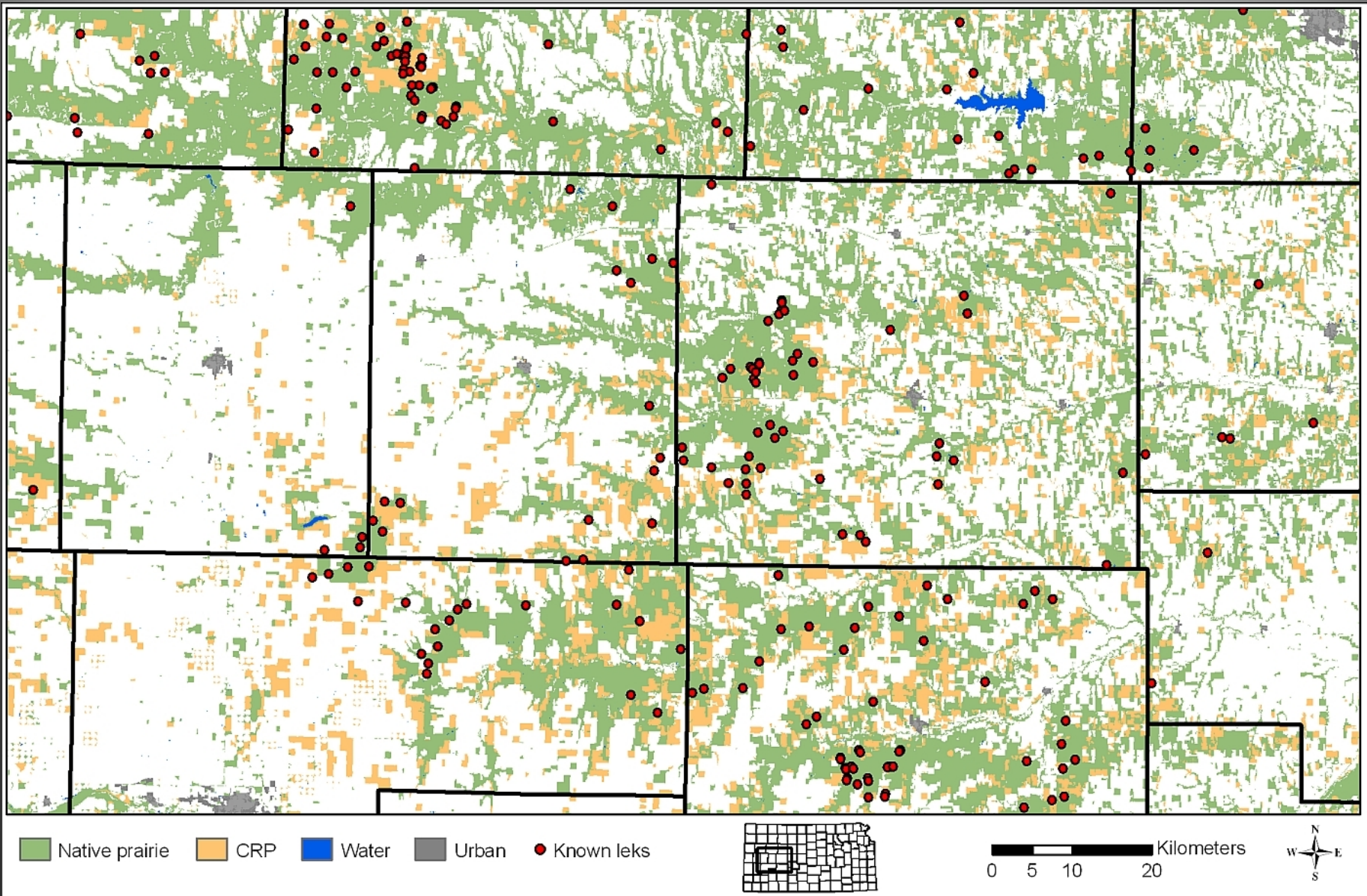
32 Kansas LPC Counties

Currently 1,900,000 Acres Enrolled

2009	234,000 Acres	12.5%
2010	366,000 Acres	19.5%
2011	331,000 Acres	17.6%
2012	289,000 Acres	15.3%
Total	1,220,000 Acres	65%

Roughly 850,000 acres actually occur within LPC range.

Juxtaposition of Native Prairie & CRP in West-Central Kansas



***Problem: Cool Season Grasses are Invading
& Dominating Many Native Mix Stands***



Smooth Brome Encroaching from Roadside



***Western Wheatgrass Taking Over
... From Seed Mix Contamination?***

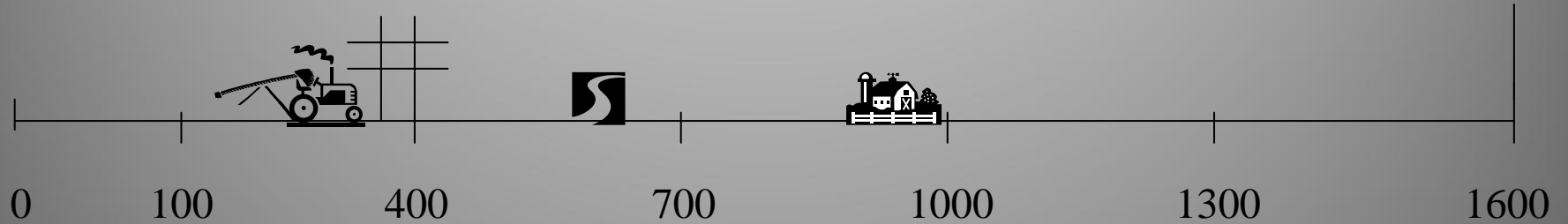
***We Need the ability to burn more frequently
and/or intensively graze (even during the
nesting season)***

Development



Avoidance Distances

Site I ($n = 111$)



Site II ($n = 76$)



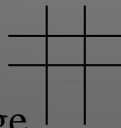
Distance (m)



Wellhead



Agriculture Edge



Power line



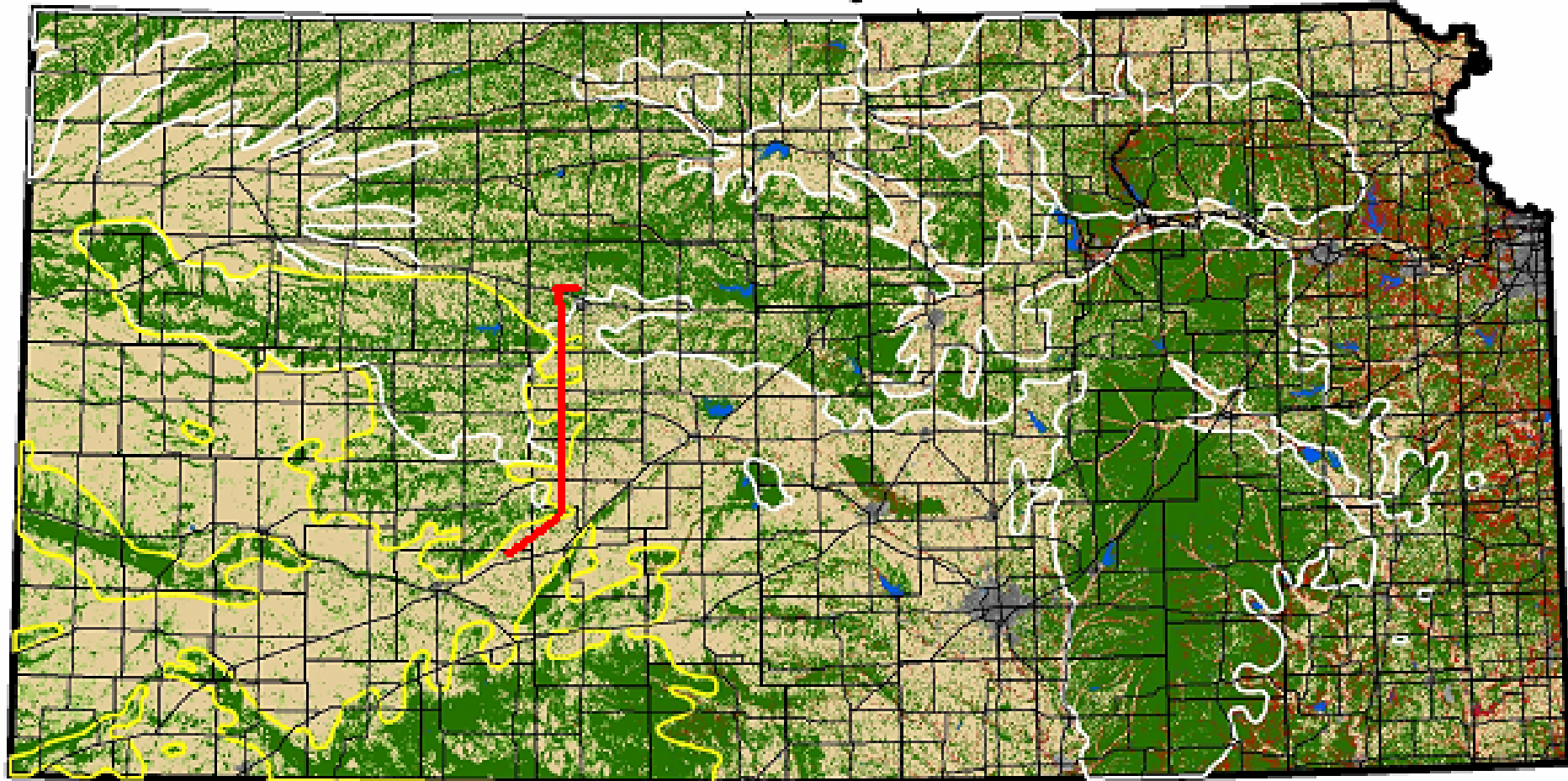
Improved road



Building

ITC 345 kV Power Line Route

Prairie Chicken Range in Kansas



Mapping conducted under the auspices of the ITC 345 project, for the Kansas Department of Wildlife and Parks.

For more information, contact:
 KANSAS DEPARTMENT OF WILDLIFE AND PARKS
 1000 W. 15th Street, Topeka, KS 66604

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Last revised May, 2005



1:1,100,000

- Outer Prairie Chicken Range
- Inner Prairie Chicken Range
- Grassland
- CRP Grassland
- Cropland
- Woodland
- Water
- Urban
- Highways
- Counties

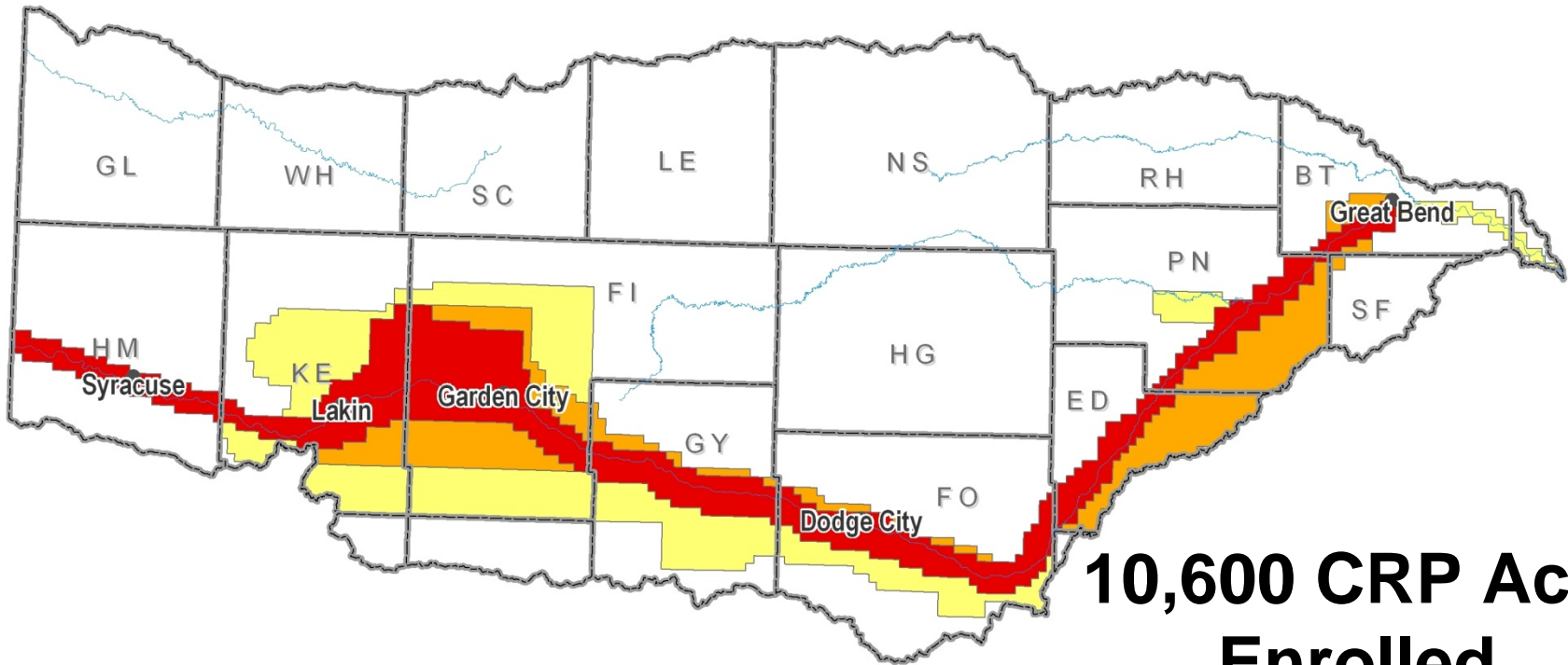
* Land cover data from 2005 Land Cover Patterns

***So far . . .* No Large-Scale
Wind Farms have been
Constructed in Kansas
LPC Habitat**

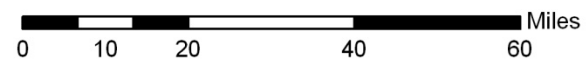
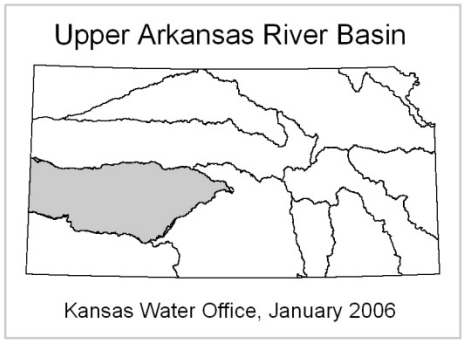







Current Conservation Efforts and Future Direction

Upper Arkansas River Valley Conservation Reserve Enhancement Program (CREP) Priority Areas



**10,600 CRP Acres
Enrolled**

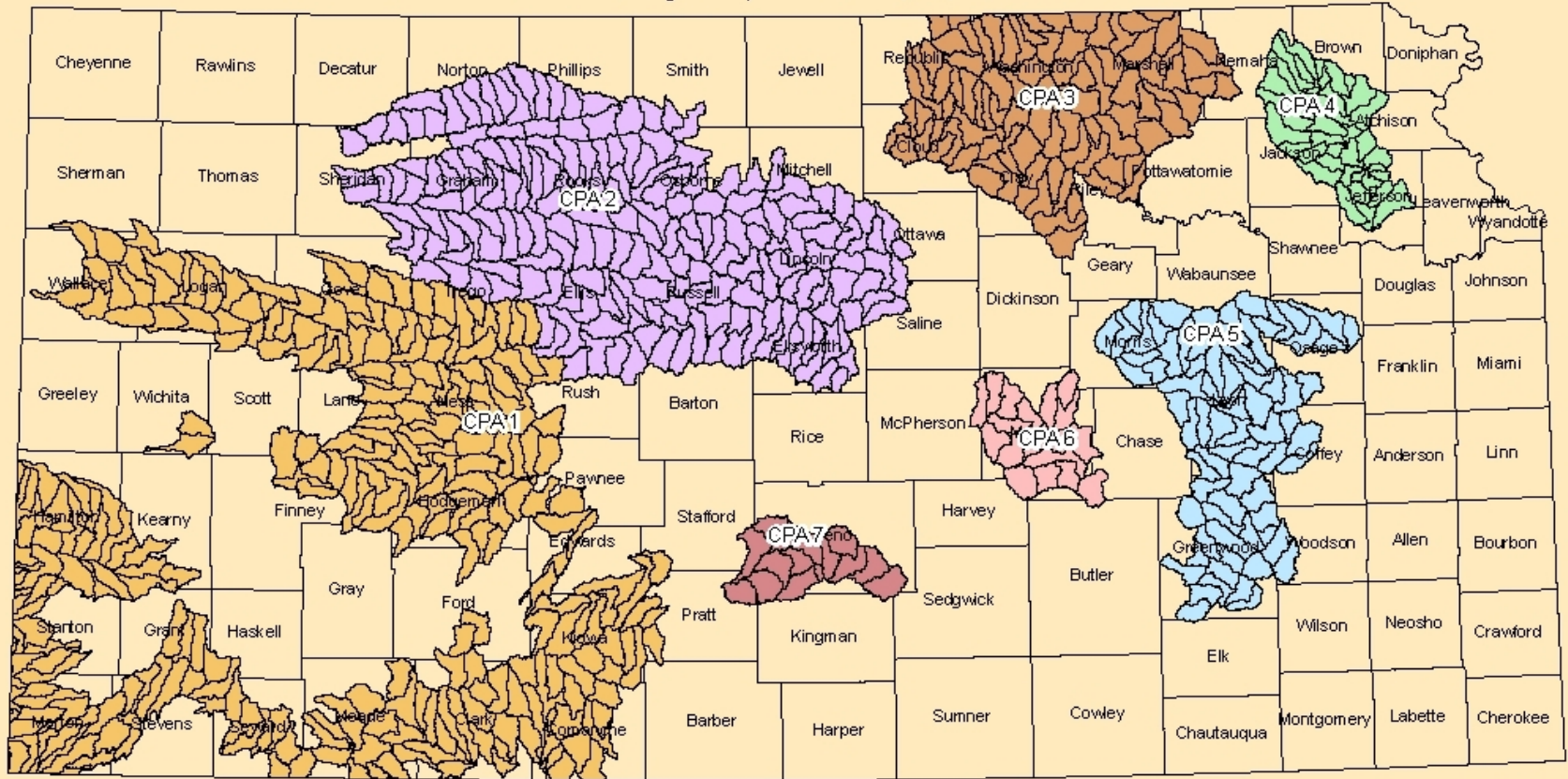


-  Tier 1
-  Tier 2
-  Tier 3
-  Streams
-  County





2010 Kansas Conservation Priority Area (CPA)

Proposed by Kansas Farm Service Agency

Total State Cropland Acres 29,374,391
 33% Target Cropland Acres 9,793,422



Proposed CPA's

	CPA-1 Lesser_Prairie_Chicken	4,307,776.12
	CPA-2 Smoky_Hill	2,698,591.64
	CPA-3 Tuttle_Creek_&_Milford	1,349,824.39
	CPA-4 Perry	327,587.02

Acres

Proposed CPA's

	CPA-5 Flint_Hills_Reservoirs	515,312.46
	CPA-6 Marion	286,357.68
	CPA-7 Cheney	307,865.41
	Remaining Available Acres	107.28

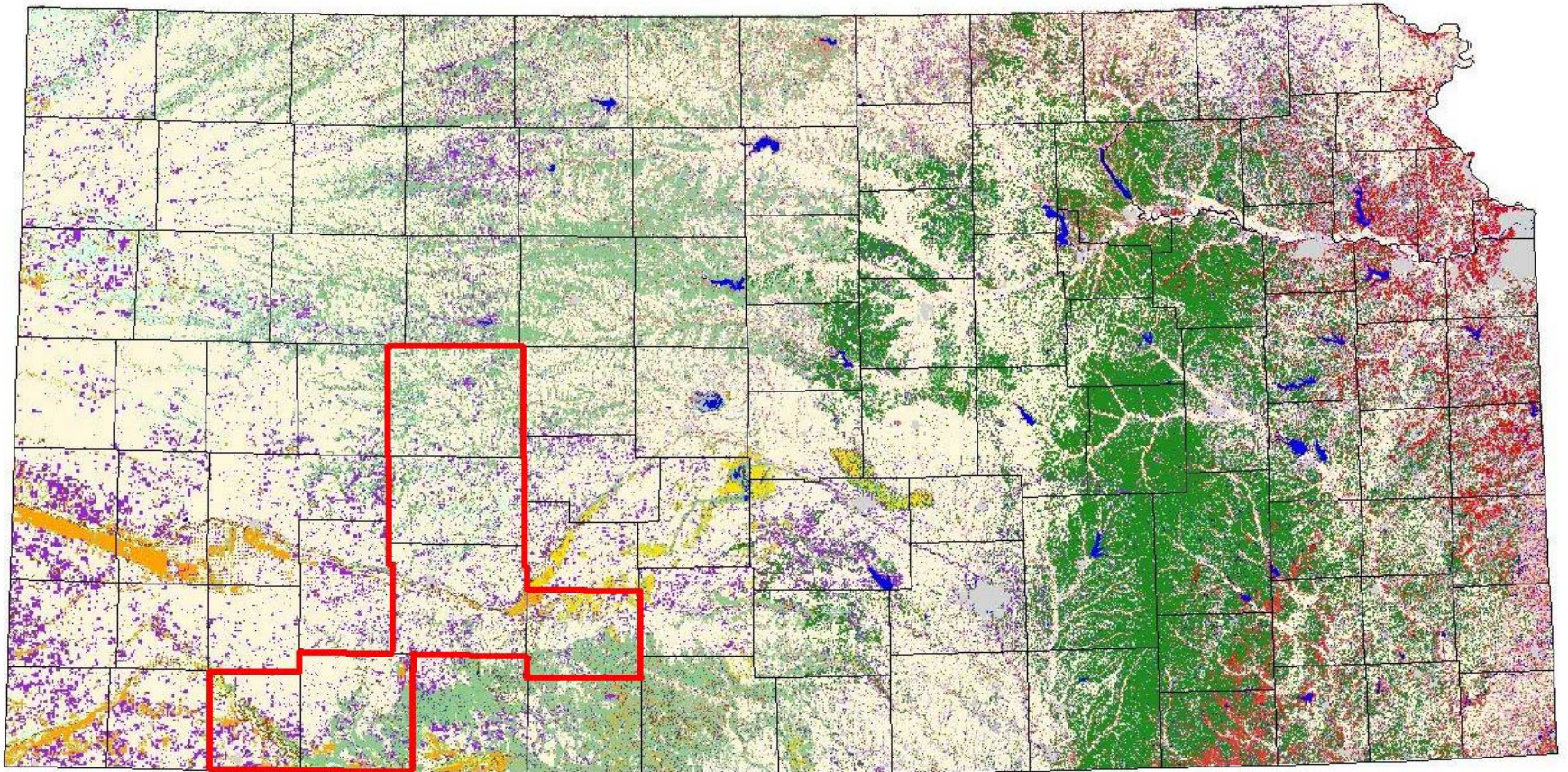
Acres



March 09, 2010

Kansas Lesser Prairie Chicken CRP Conservation Priority Area

182,000 Acres Enrolled in Signups 26 ('03), 29 ('04), and 33 ('06)



Tree Invasion of Prairie Addressed by :

- USFWS Partners for Wildlife Program**
- USDA EQIP and WHIP Funds**
- KDWP LIP and SWG Funds**

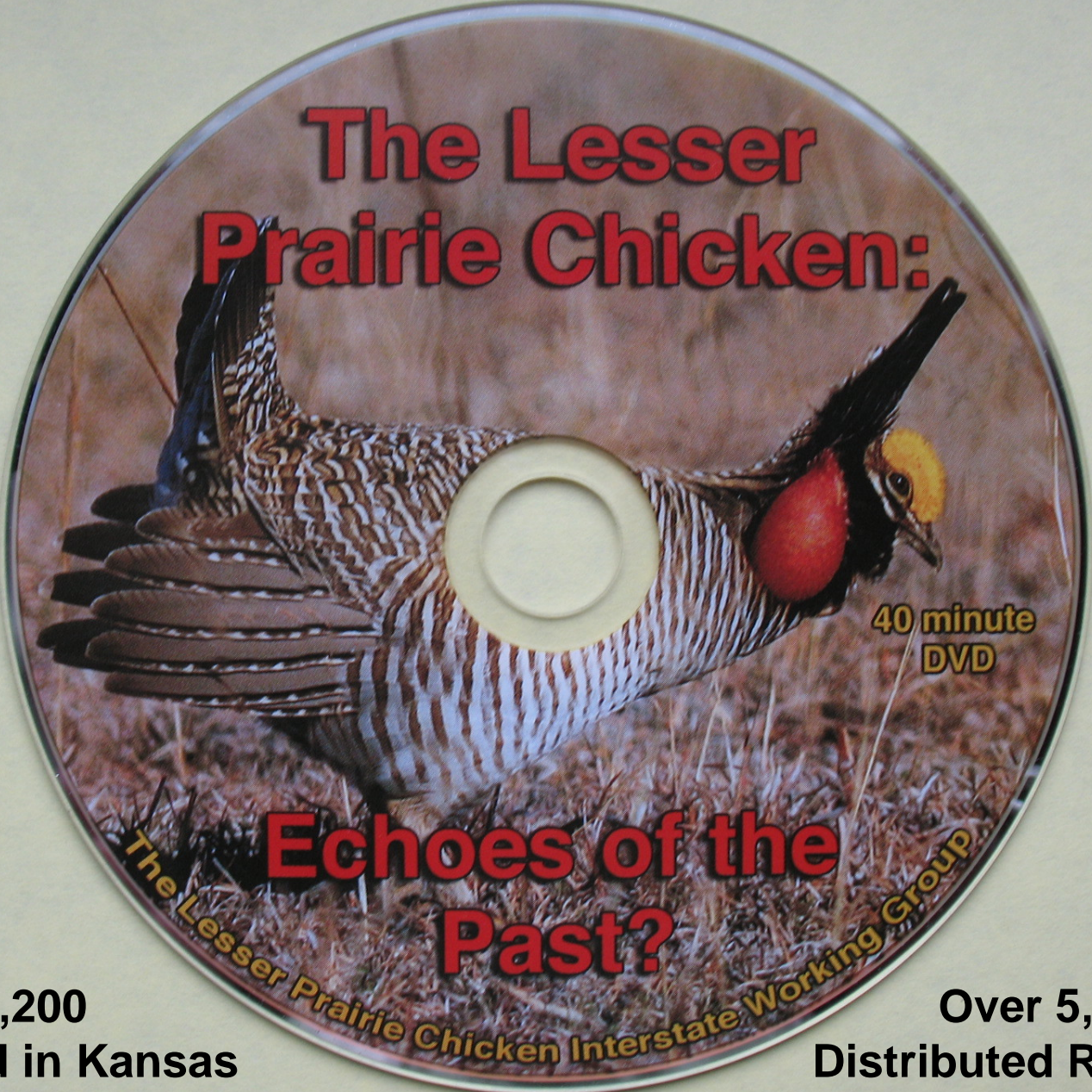
**Practices Include: Tree Cutting
Prescribed Fire
Grazing Management**

LPC Range Impacted:

Cumulatively > 100,000 Acres

**KDWP has Received \$534,000 SWG Grant
for Similar Work in 2009-2010**

DVD Educates Officials, Ranchers, & Developers about LPC Conservation



Over 1,200
Distributed in Kansas

Over 5,000
Distributed Rangewide

Additional Funding Opportunities

USDA State Acres for Wildlife Enhancement (SAFE)

- addresses expiring CRP

USDA Multi-state Cooperative Conservation Partnership Initiative (CCPI)

- addresses expiring CRP, woody encroachment, and overgrazing

USDA Special Wildlife Habitat Incentive Program (WHIP)

- would encourage landowners to graze expiring CRP rather than break it out for crop production



Extra Slides

Land Cover Composition of 15 Kansas Lesser Prairie Chicken Survey Areas

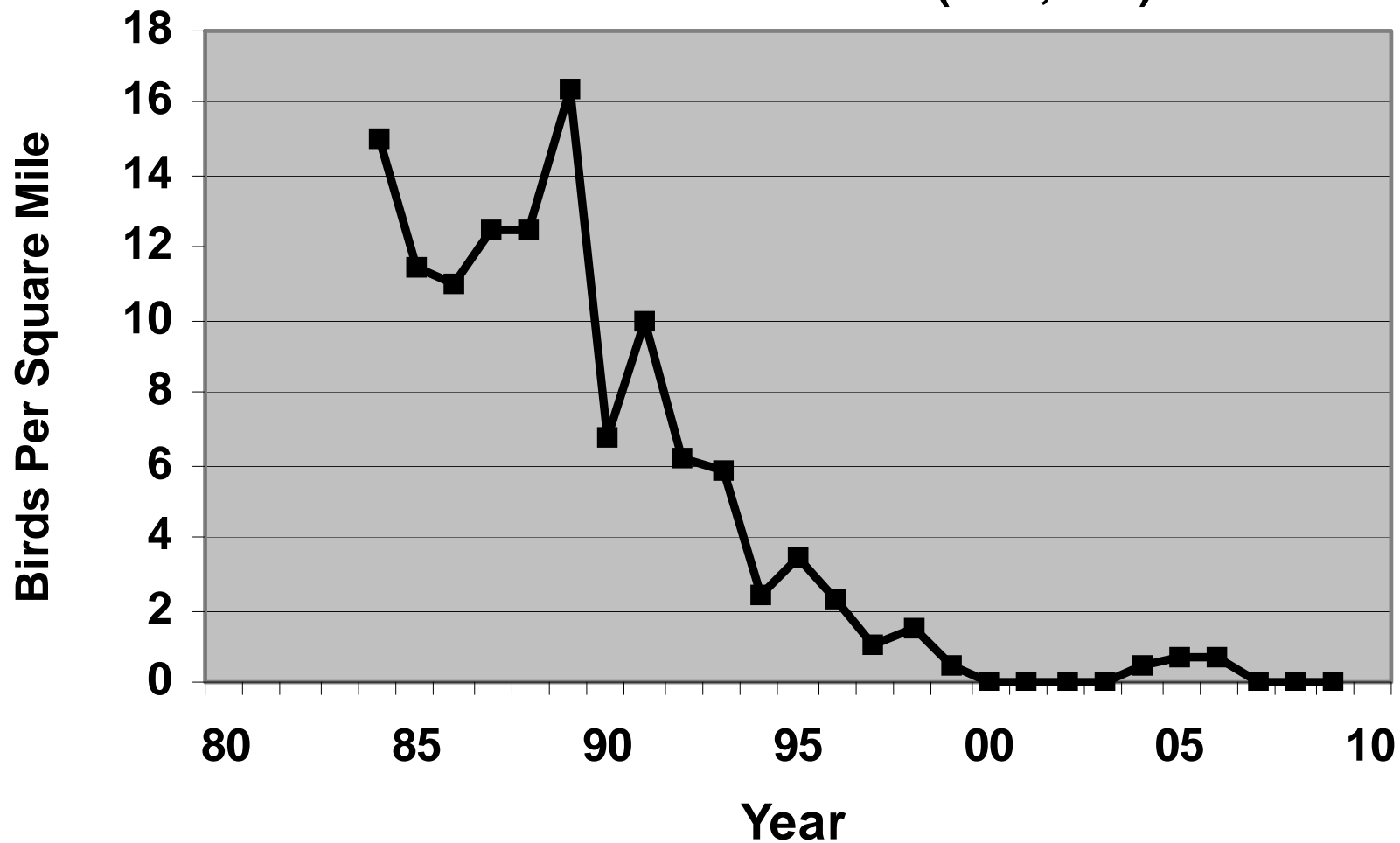
	Percent in Land Cover Type																
GAP	20 mi² Survey Areas														SS	PR	TOTAL
Land Cover Type	BA	CK	CM	FI	FO	GO	HM	HG	KE	KW	ME	MT	NS	5 m ²	14 m ²	Survey Areas	
Sandsage Shrubland	6	16		31			73	<1	24	<1	30	80		93	1	20	
Sand Prairie		3								13	<1			2	54	4	
Western Wheatgrass Prairie		8			6	1		3			2		19			3	
Mixed Prairie	69	23	69	26	26	26		6		45	17		24		18	23	
Mixed Prairie - Disturbed	<1						12		2			<1		1	2	3	
Shortgrass Prairie		10		1		17	2	51			21	15	15	<1		9	
Conservation Reserve	<1	12	1	1	21	36	2	5	3	7	16	2	5		4	8	
Cropland	8	17	11	36	45	19	5	29	65	32	7	1	35	<1	15	23	
Other	16	11	19	5	2	1	6	5	6	3	6	2	2	3	6	7	
2002-06 Mean No. LPC / mi²	0.8	11.3	2.8	2.3	4.2	9.4	9.1	8.1	1.1	3.2	9.0	5.5	7.9	1.4	0.0		

Comparison of KS LPC Survey Areas to KS LPC Range

		Percent in LC Type	
		TOTAL	TOTAL
GAP		Survey	KS LPC
Land Cover Type		Areas	Range
Sandsage Shrubland		20	7
Sand Prairie		4	2
Western Wheatgrass Prairie		3	5
Mixed Prairie		23	23
Mixed Prairie - Disturbed		3	1
Shortgrass Prairie		9	11
Conservation Reserve		8	9
Cropland		23	38
Other		7	4

Lesser Prairie-Chicken

KDWP Public Lands (PSH,SBR)

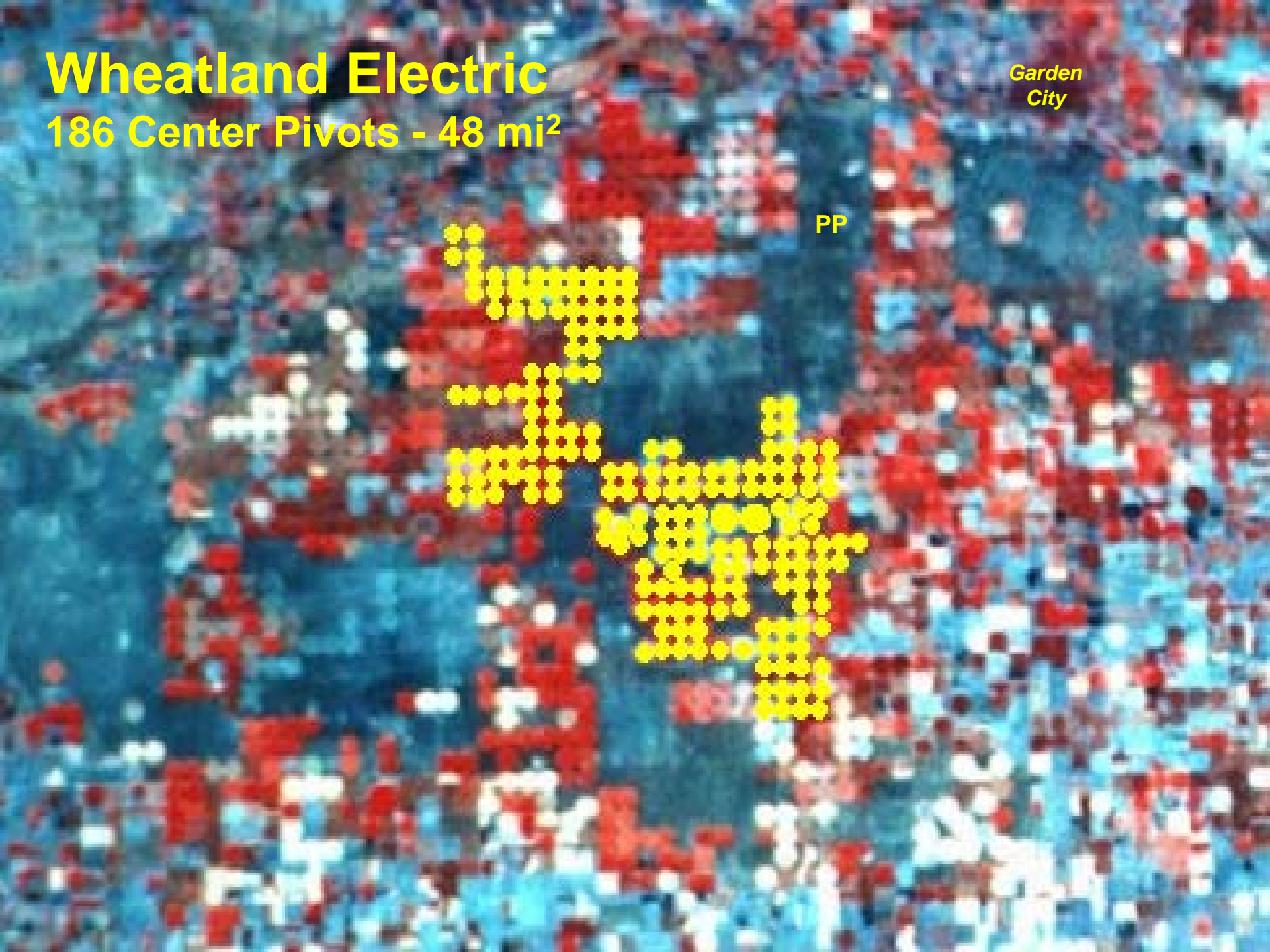


Wheatland Electric

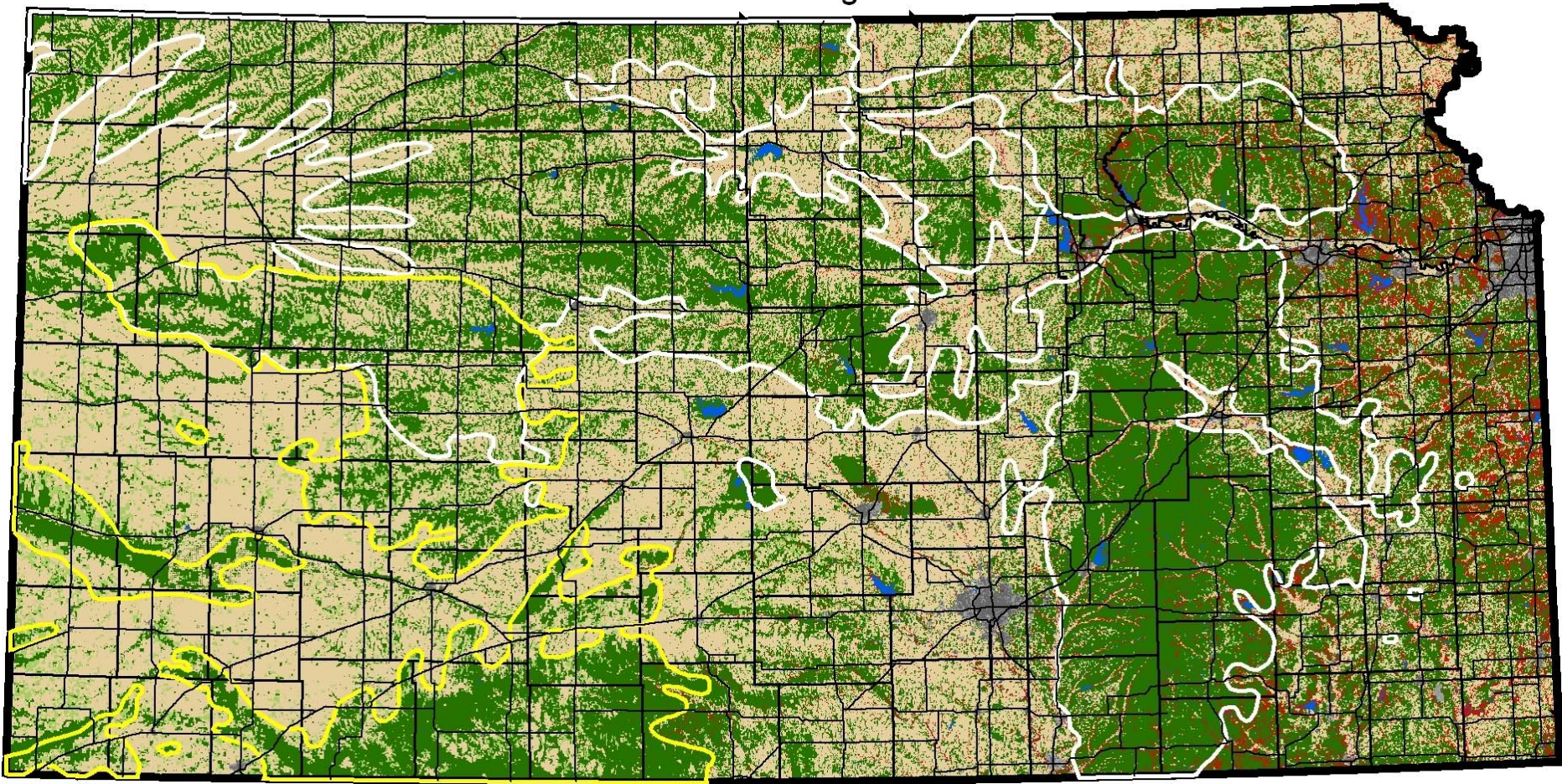
186 Center Pivots - 48 mi²

*Garden
City*

PP



Prairie Chicken Range in Kansas



Mapping conducted by Michael Houts at the KARS program, for the Kansas Department of Wildlife and Parks.

For more information, contact:
KARS, main office (785) 854-1500
KDWP, Mike Mitchener (620) 672-5911

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Last revised May, 2008



0 5 10 20 30 40 50 Miles

1:1,750,000

Greater Prairie Chicken Range
Lesser Prairie Chicken Range

Grassland
CRP Grassland
Cropland
Woodland
Water
Urban
Highways
Counties

* Land cover data from 2005 Land Cover Patterns

Areas Outlined in Yellow Indicate Lesser Prairie-Chicken Range



***We Need More
Prescribed Fire***

A landscape photograph showing a dark, charred area in the foreground, likely a firebreak, with a field of dry grass and a blue sky in the background. The text "Disked Firebreaks Have Taught Us . . ." is overlaid in yellow on the dark area.

***Disked Firebreaks Have
Taught Us . . .***

Shallow, Multi-pass Disking Can . . .

-- Produce Valuable Forbs and

-- Renovate Stands with Too Little Height & Bare Ground



2nd-Year Regrowth After Disking CRP Firebreak

***Problem: Some People Want to Plant Trees in CRP Stands
... Discouraging Good Grassland Management***



Then They Grow . . .



And Metastasize . . .



And Can Ruin Prairie-Grouse Habitat



***We Have Planted Trees on Grasslands
with a Religious Ferver . . .***

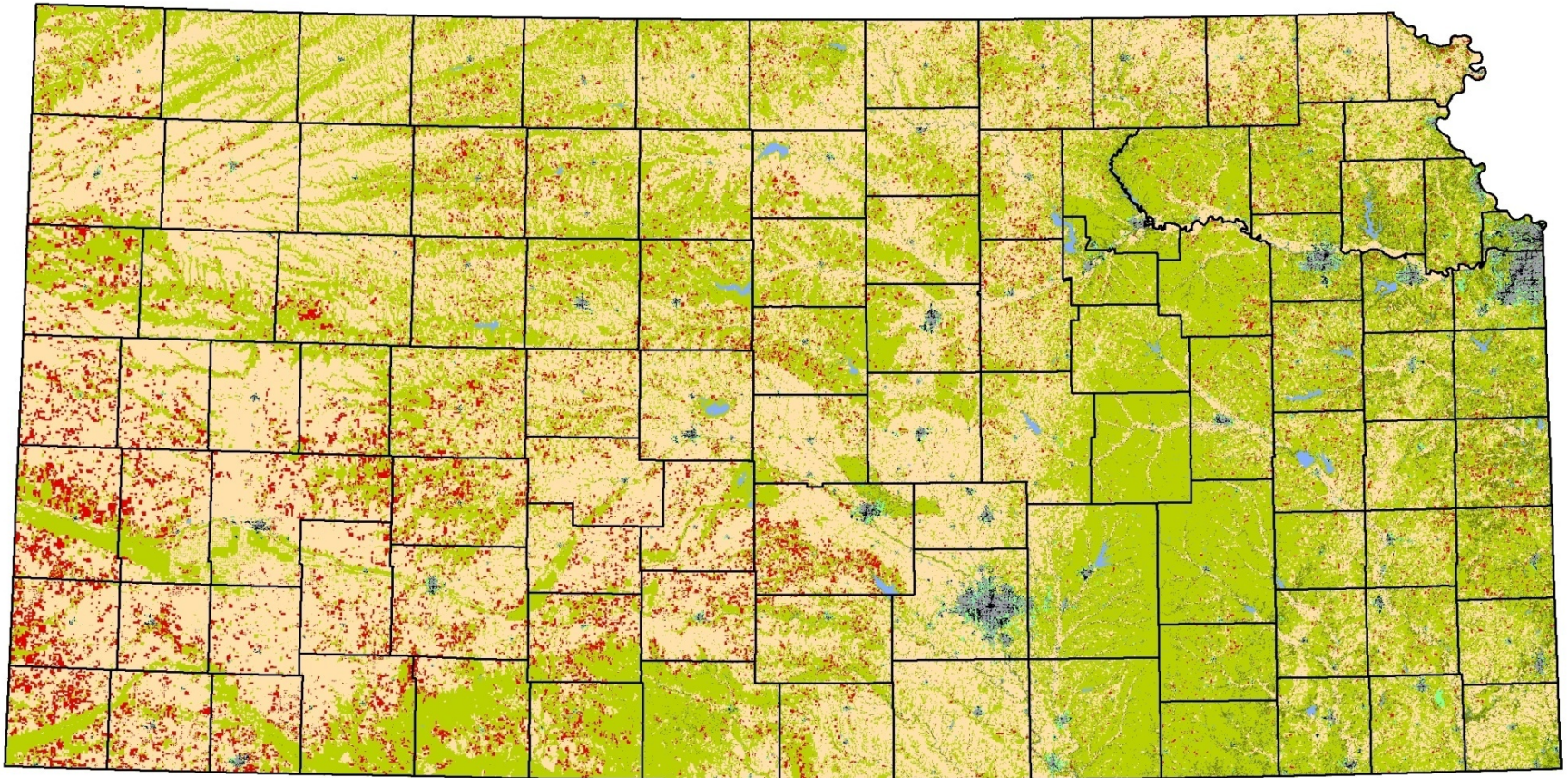


But the Damn Things Spread Like Hell!



Distribution of CRP Grasslands (Red) in Kansas

Kansas Landcover Map



- | | |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
|  Urban Industrial/Commercial |  Grassland |
|  Urban Residential |  CRP land |
|  Urban Openland |  Woodland |
|  Urban Woodland |  Water |
|  Urban Water |  Other |
|  Cropland | |



This land cover map was created using Landsat 5 satellite imagery from the spring, summer, and fall of 2005. Some imagery from 2004 was used where suitable imagery from 2005 was not available. In total, over 50 Landsat images were used in the statistical clustering of data to classify the state into 11 land cover types. Refinement of field boundaries and the addition of Conservation Reserve Program (CRP) lands were performed using data provided by the USDA.





***What Kind of Structure does a Prairie Chicken
Need in Grassland Habitat?***

- Tall Enough & Dense Enough for Concealment

- Not Too Tall or Thick -- Varying Heights & Structure

- Clumpy with Openings & Some Bare Ground

But What Does That Really Mean?



Logan County, KS



Gove County, KS



Gove County, KS



Interseeded Alfalfa - Gove County, KS

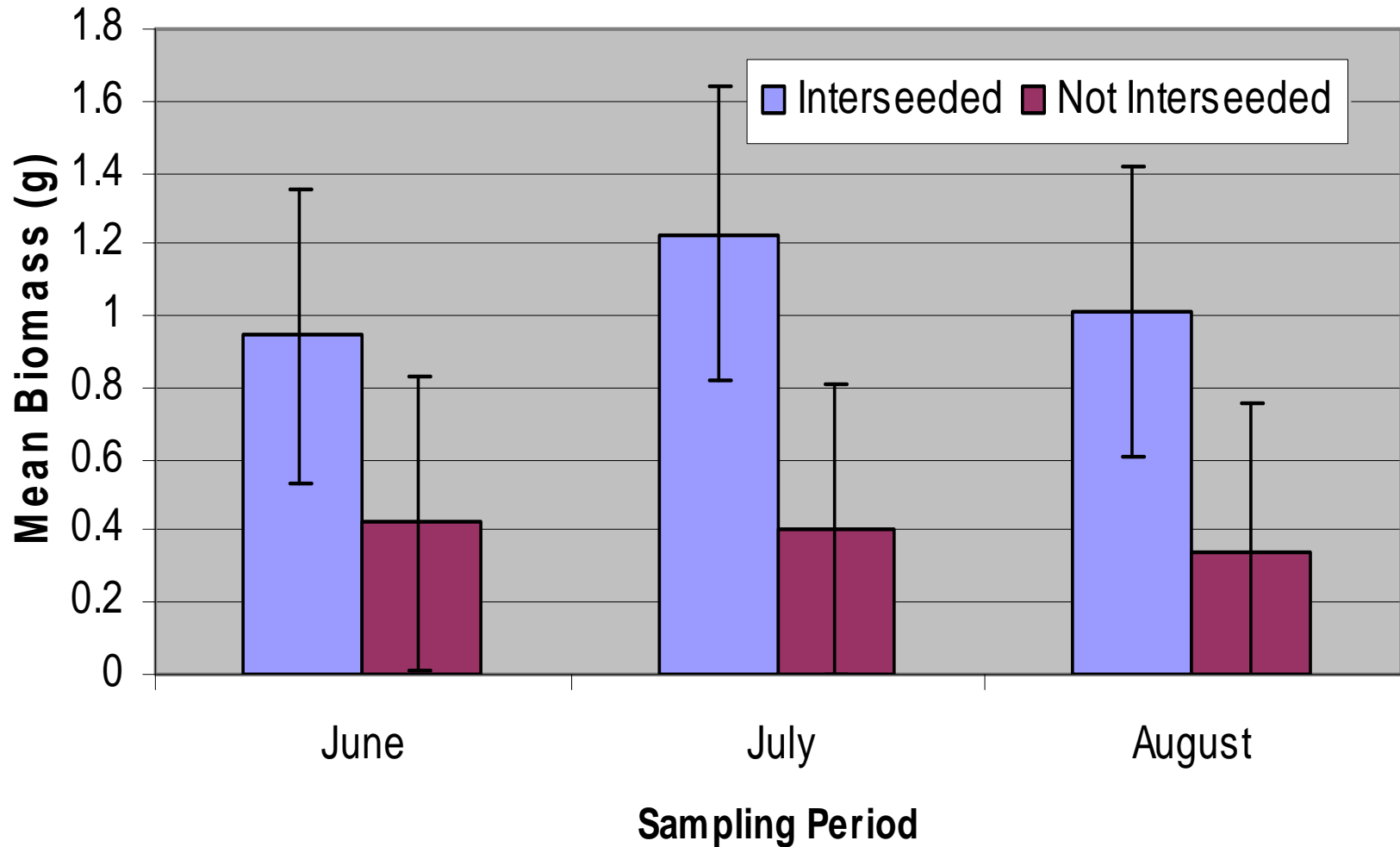


Interseeded Alfalfa - Hodgeman County, KS



Native Grass - Alfalfa CRP Mix - Ness County, KS

Mean Invertebrate Biomass (g) of Interseeded Fields vs. Fields Not Interseeded





Alfalfa

Characteristics of CRP Stands Valuable for Prairie-Grouse



What Does Lisa Like?

***Stand Should be Close to Existing Range
- Preferably Adjacent but Within 2 Miles***

***Mostly Native Species, but Can Include Non-Aggressive
Introduced Species such as . . .***

- Alfalfa -- Highly Desirable at Very Low Seeding Rates***
- Avoid Aggressive Species – Smooth Brome
-- Western Wheatgrass***

Characteristics of CRP Stands Valuable for Prairie-Grouse



What Does Lisa Like?

Stand Heights of 30-75 cm

- Shin High to Thigh High

Stand Should be Diverse

- Multiple Species of Grasses & Forbs

with Native Shrubs - Where Appropriate

- Clumpy with Open Pathways & Some Bare Ground

- Plants in Mix Should Provide Structural Variety

***For a Prairie-Chicken's
Perspective . . .***



Deci meters



Nerf

***Some Lessons from
Lisa the Lesser . . . And Friends***

***This Pasture Looks
OK from a Distance . . .***

But Leaves Lisa Exposed



Beautiful CRP . . . Yes





... But It's Too Tall

Looks Nice . . .





← *Deci*

Lisa →

Nerf



***But It's Too Thick
... Needs a Burn and/or Grazing***

***This Western
Wheatgrass
is the
Right Height***

Lisa →

Nerf
↓

***But it's Too Thick, Too Even, & Provides
No Openings, Pathways, or Bare Ground***

A photograph of a prairie landscape. In the foreground, a tall, silver ruler with black markings stands vertically. To the left of the ruler, a small, speckled bird is visible. To the right of the ruler, a white, dome-shaped object is partially visible. The background is a vast field of tall, dry, golden-brown grasses under a clear sky.

***This Sideoats-Grama
Dominated Stand is Fair***

... But Just Barely

Expired and Grazed CRP . . .



Looks Pretty Good . . .



. . . So Long as It's Not Grazed Too Short

Lisa Likes It



Perfect





Interseeded Alfalfa - Gove County