

# CURRENT AND FUTURE ENERGY DEVELOPMENT IN WYOMING

AFFECTS ON  
FISH AND WILDLIFE  
AND  
THE GAME AND FISH  
DEPARTMENT

# **Today's Energy Economy: This is Not Your Father's Boom**

**Last 20 Years  
Supply > Demand**

**Next 20 Years  
Supply < Demand**

**Political Pricing**  
(i.e., Oil embargo in 1973)

**Demand Pricing**  
(i.e., 2003+; Increasingly  
Intense Worldwide Competition  
for Finite Energy Resources)

# **Global Market Demand: China and India**

**The Future World Economy will be  
characterized by Intense Competition  
for Energy Resources.**

# Market Supply: Wyoming's Role

- **Inevitable Energy Import Disruptions: Middle East, Nigeria, Venezuela**
- **Declining Mid-Continent, Gulf of Mexico and Canadian Natural Gas Supply**
- **Wyoming located in Natural Gas “Production Alley” = North American Rockies**
- **200 trillion cubic feet natural gas reserves – 10-year domestic supply**
- **250 years coal reserves**

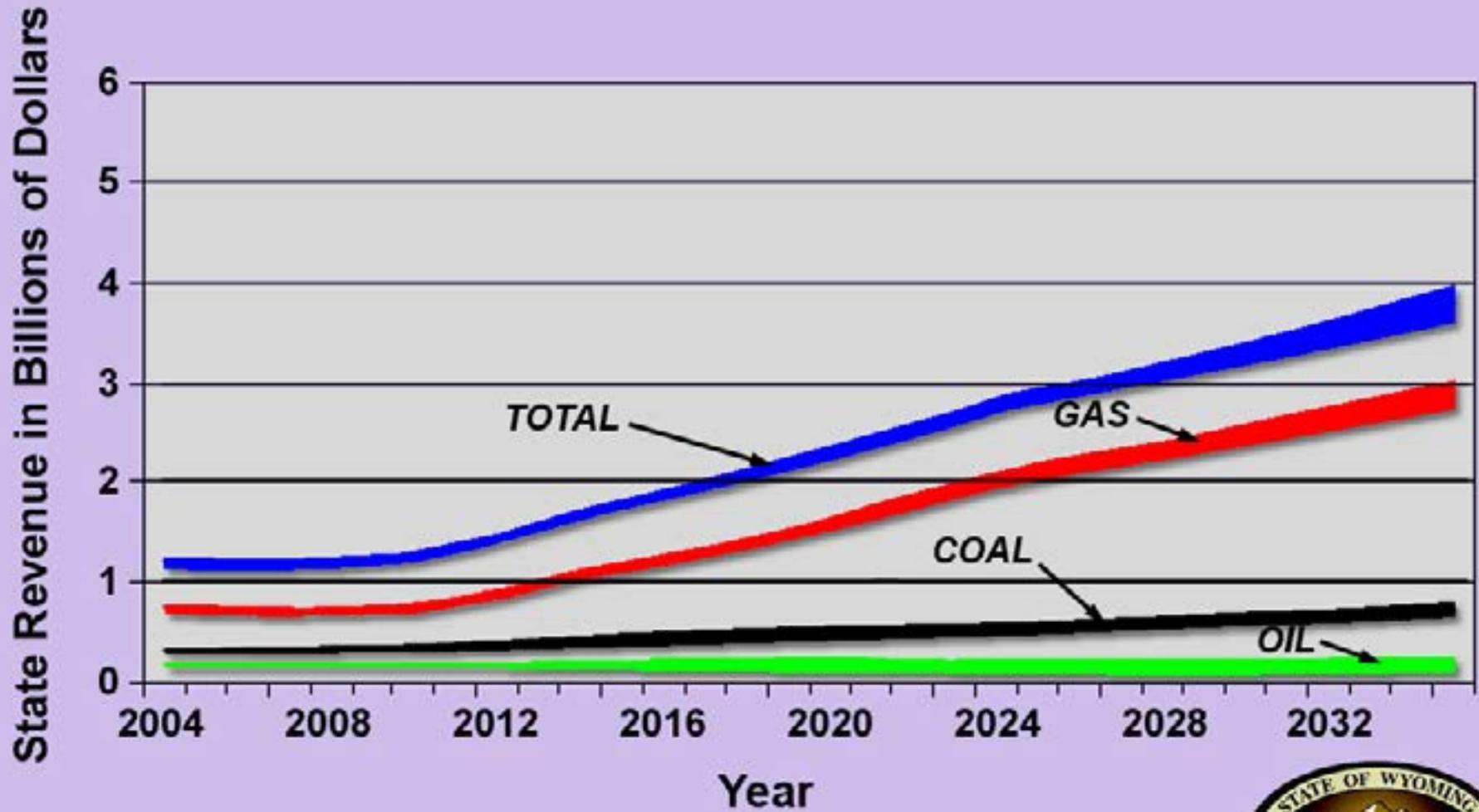


# Domestic Energy Production vs. Consumption

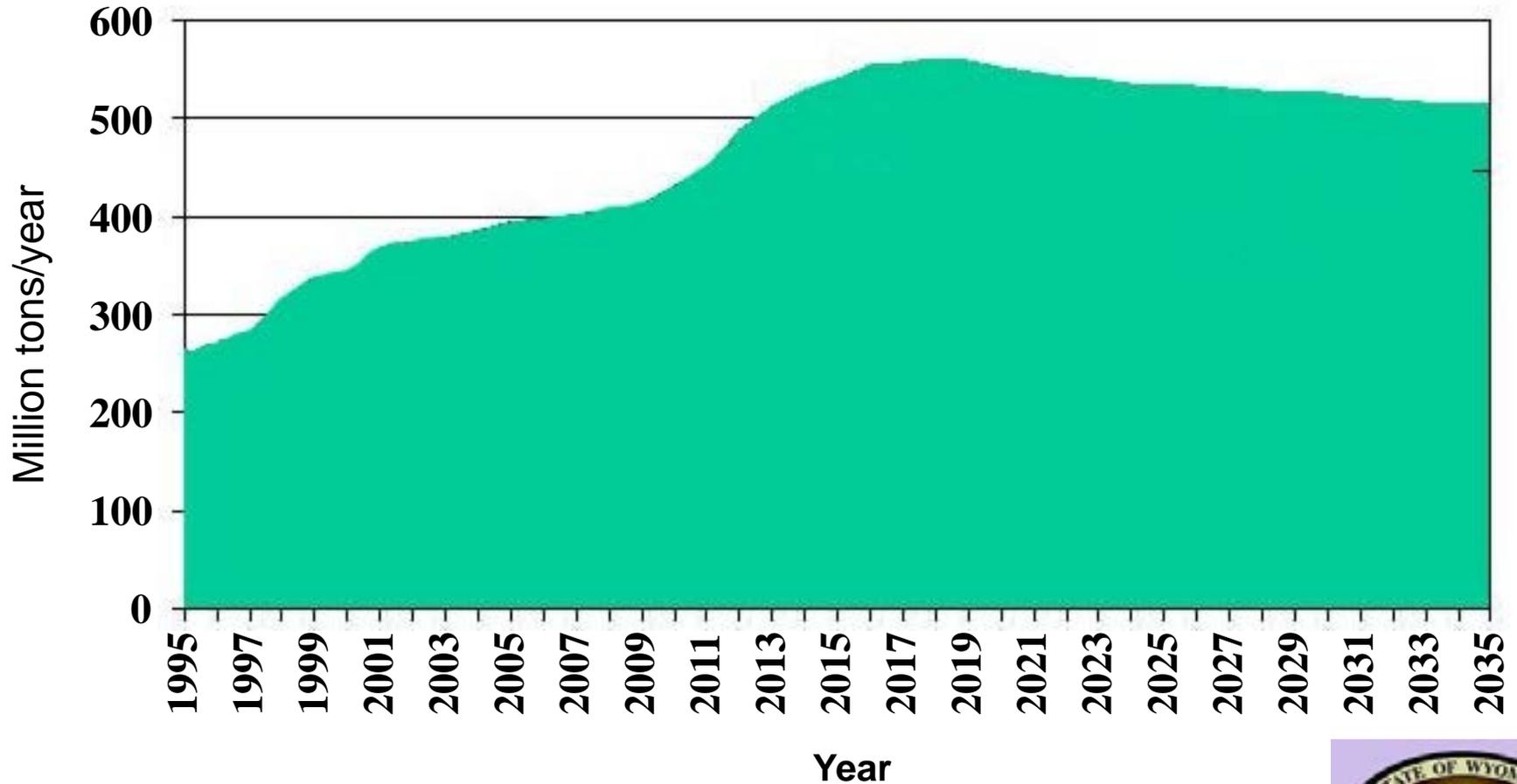
Rank	State	Crude Oil		Natural Gas		Coal		Total		delta
		Production Million Bbl/year	Quadrillion Btu	Production Billion Cubic ft/year	Quadrillion Btu	Production million tons/year	Quadrillion Btu	Production Quadrillion Btu	Consumption Quadrillion Btu	
1	Wyoming	54.8	0.29	1.51	1.52	373.2	6.65	8.46	0.4	8.06
2	W. Virginia	1.5	0.01			150.1	3.85	3.86	0.7	3.16
4	Alaska	359.2	1.89	0.48	0.48	1.1	0.02	2.38	0.6	1.78
38	Louisiana	93.4	0.49	1.37	1.39	3.8	0.05	1.93	4.0	-2.07
45	Texas	412.1	2.16	5.28	5.34	45.2	0.67	8.17	11.6	-3.43
50	California	258.1	1.35	0.34	0.34			1.70	8.5	-6.80
	Total	1,499.6	7.87	14.70	14.88	1,093.2	23.11	45.90	98.1	-52.24



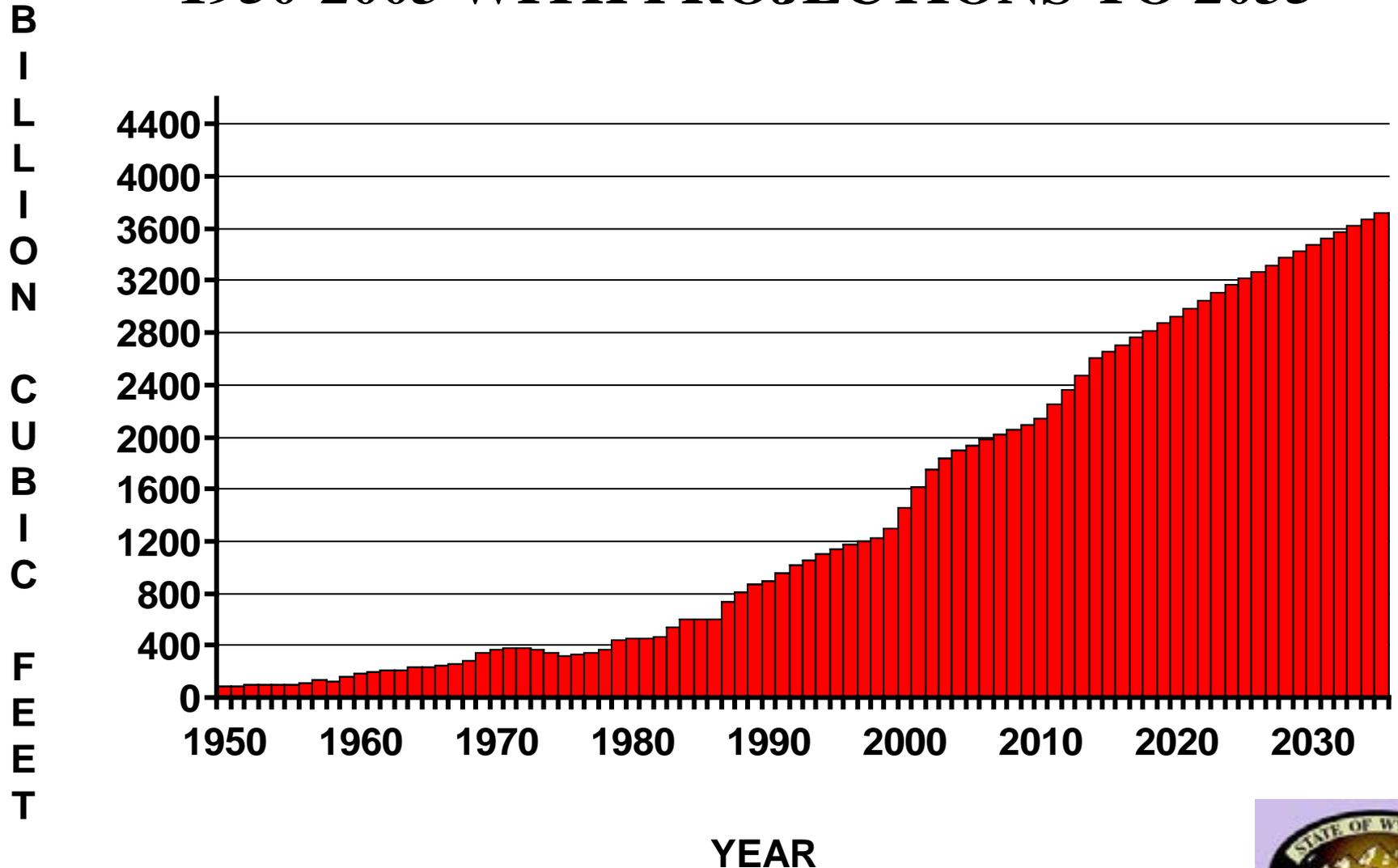
# Projected Revenue from Gas, Coal and Oil (2004-2035)



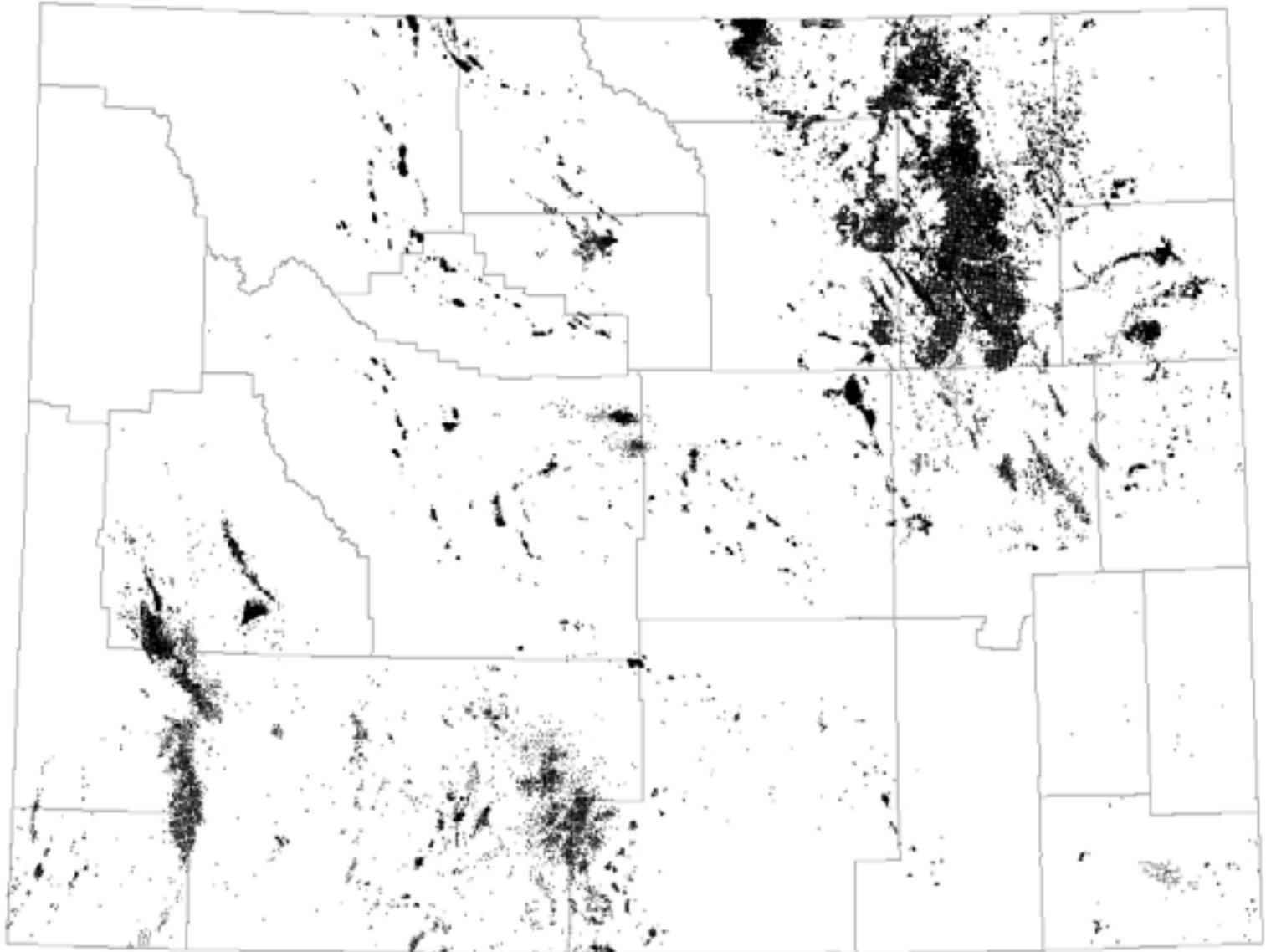
# Wyoming Annual Coal Production Actual 1995 to 2003 and Projected for Period 2004 to 2035



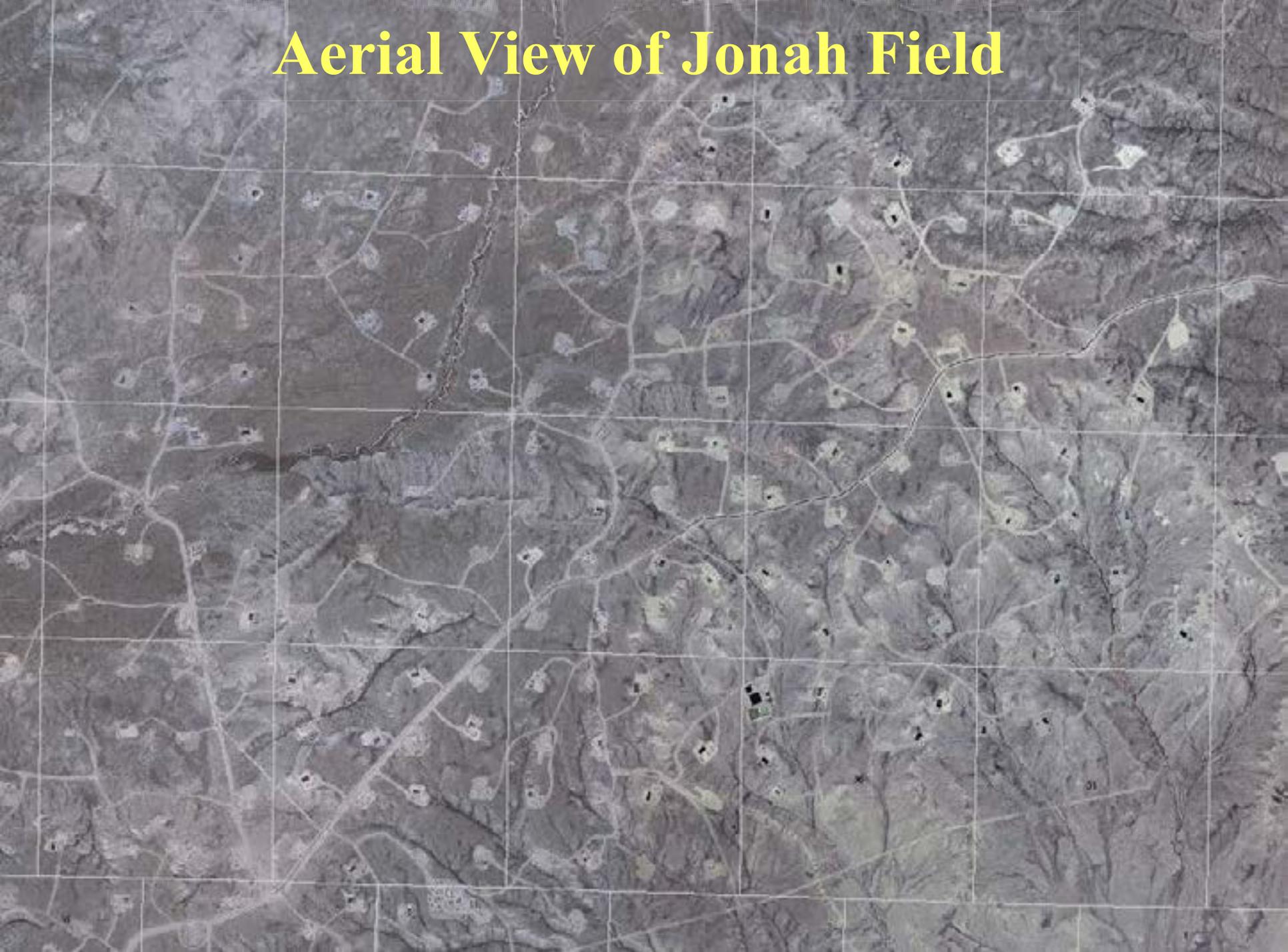
# POTENTIAL WYOMING GAS PRODUCTION 1950-2003 WITH PROJECTIONS TO 2035



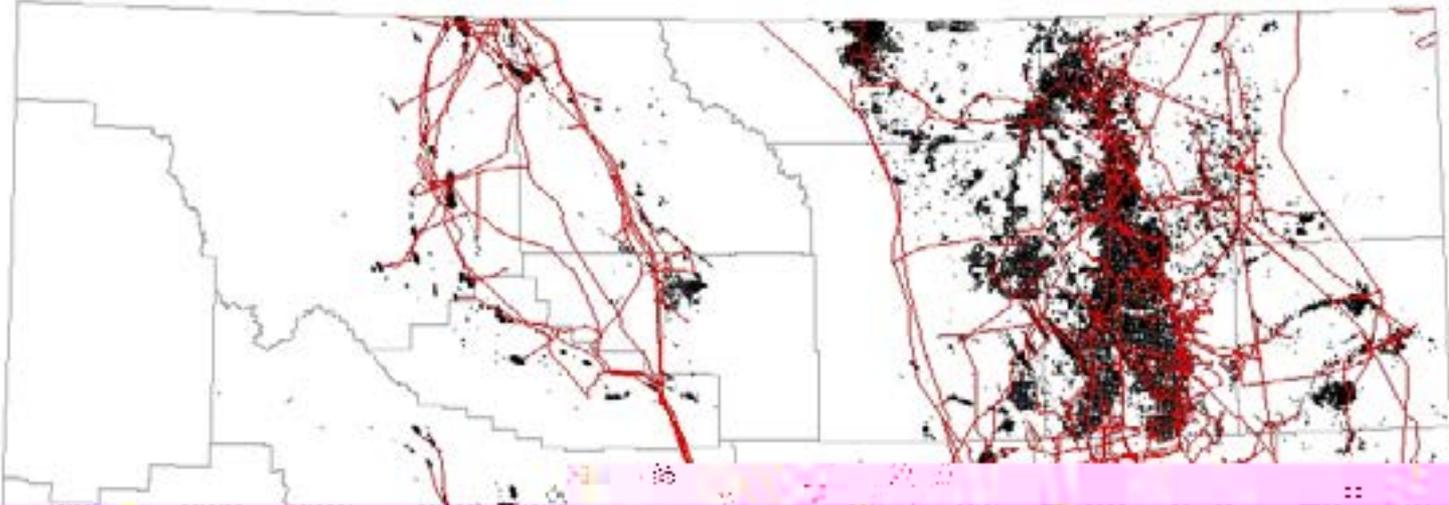
# Current Statewide Active Oil and Gas Wells



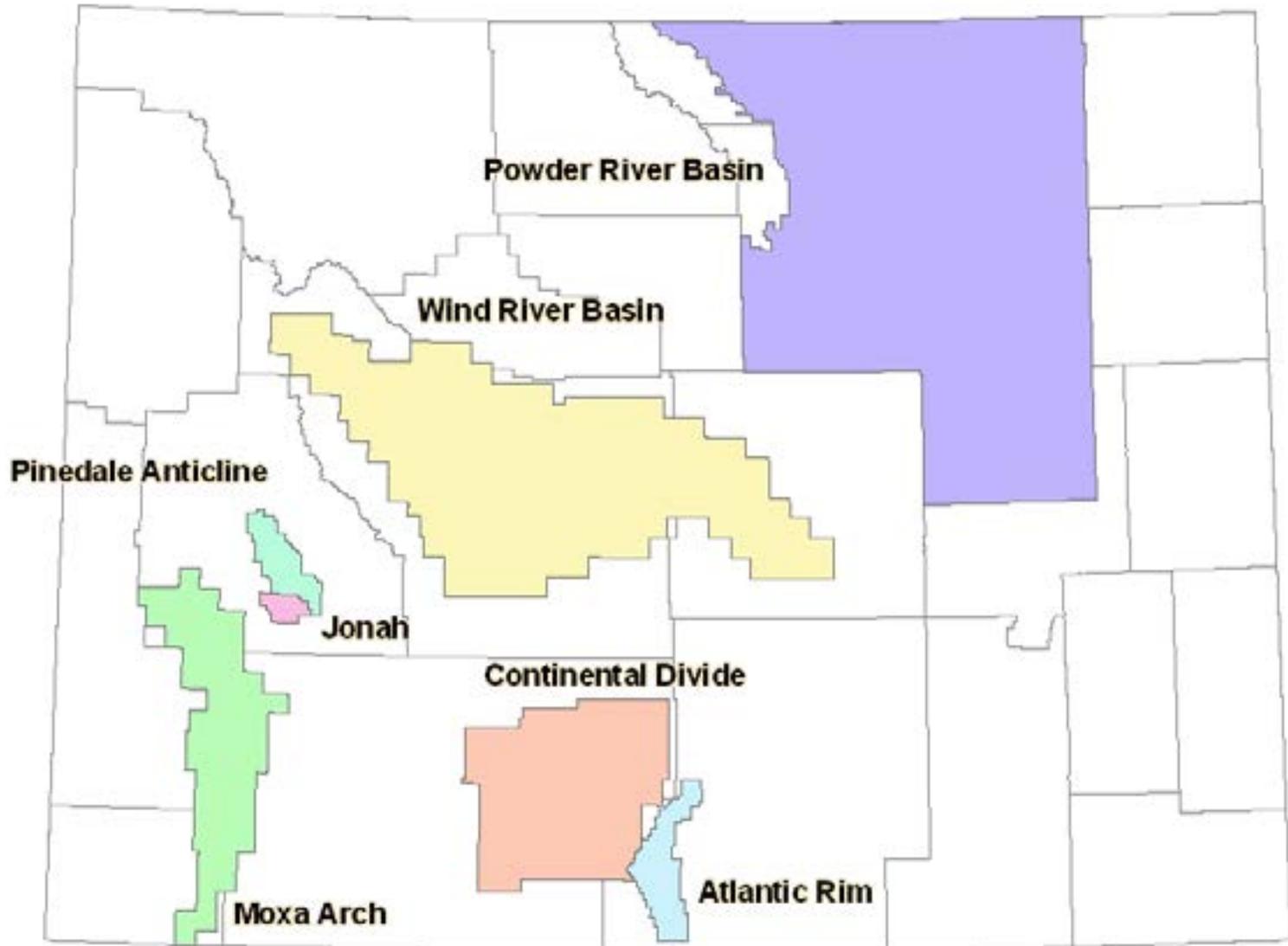
# Aerial View of Jonah Field



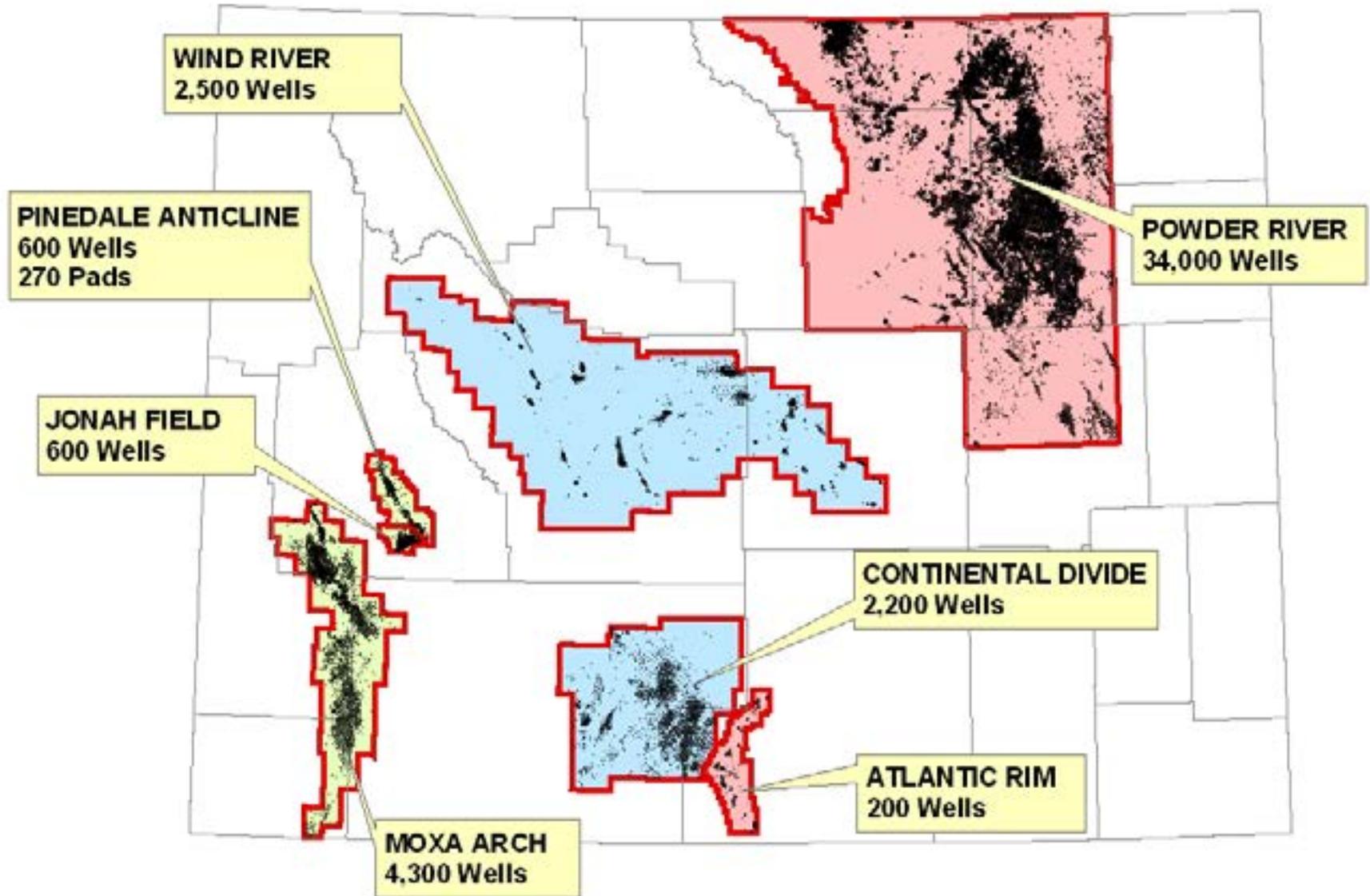
# Current Statewide Well and Major Pipeline System



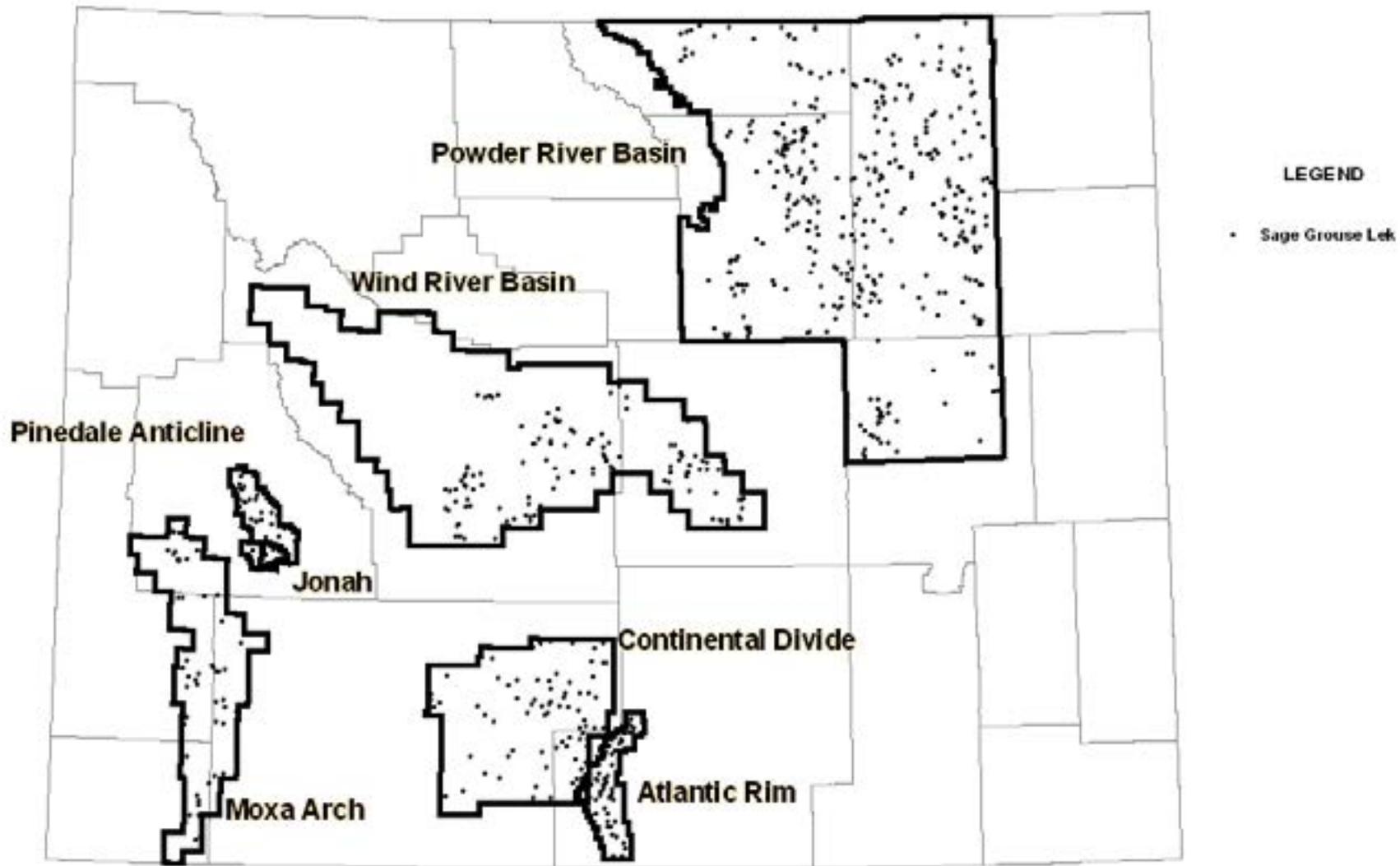
# Major Natural Gas Production Areas



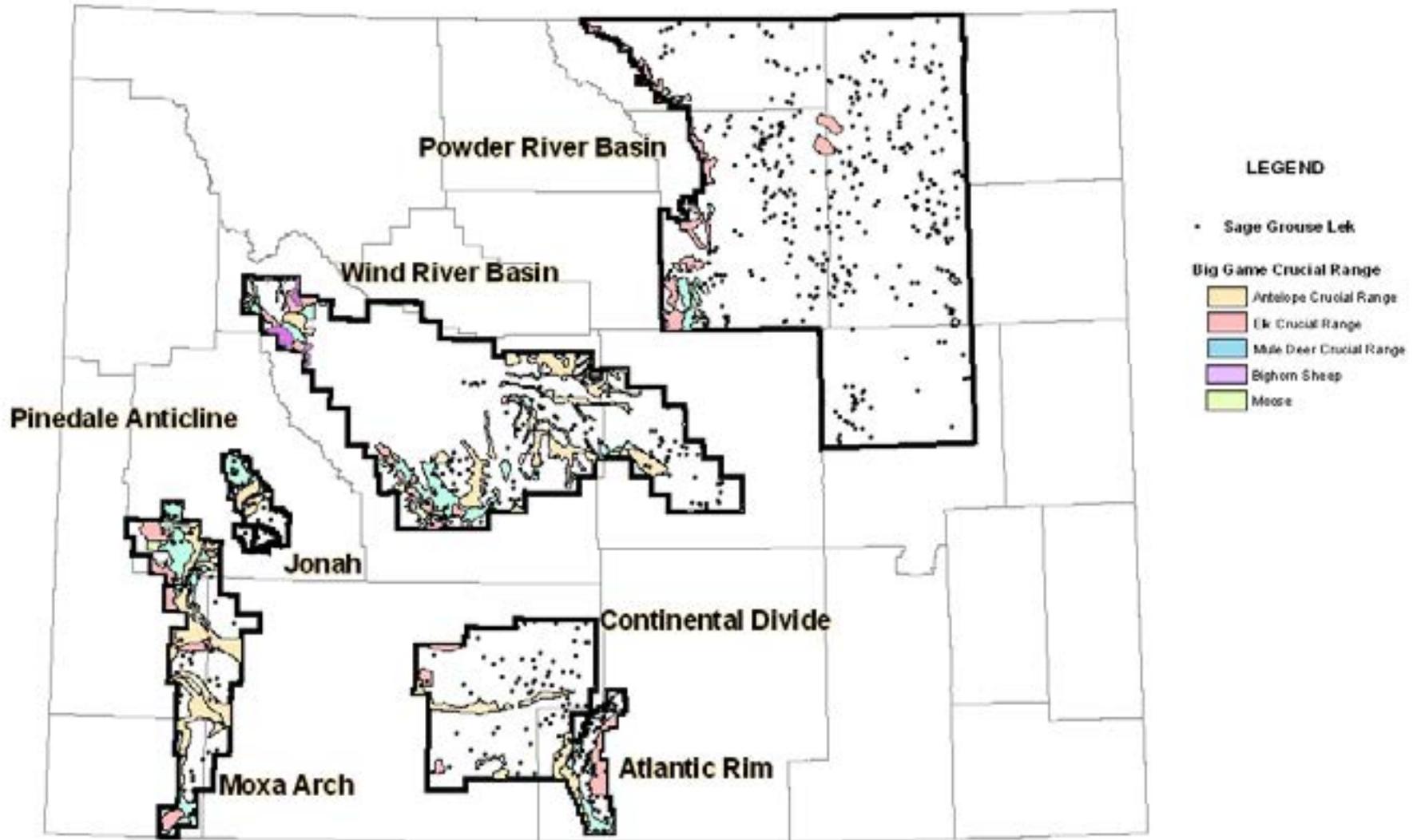
# Current Oil & Gas Production



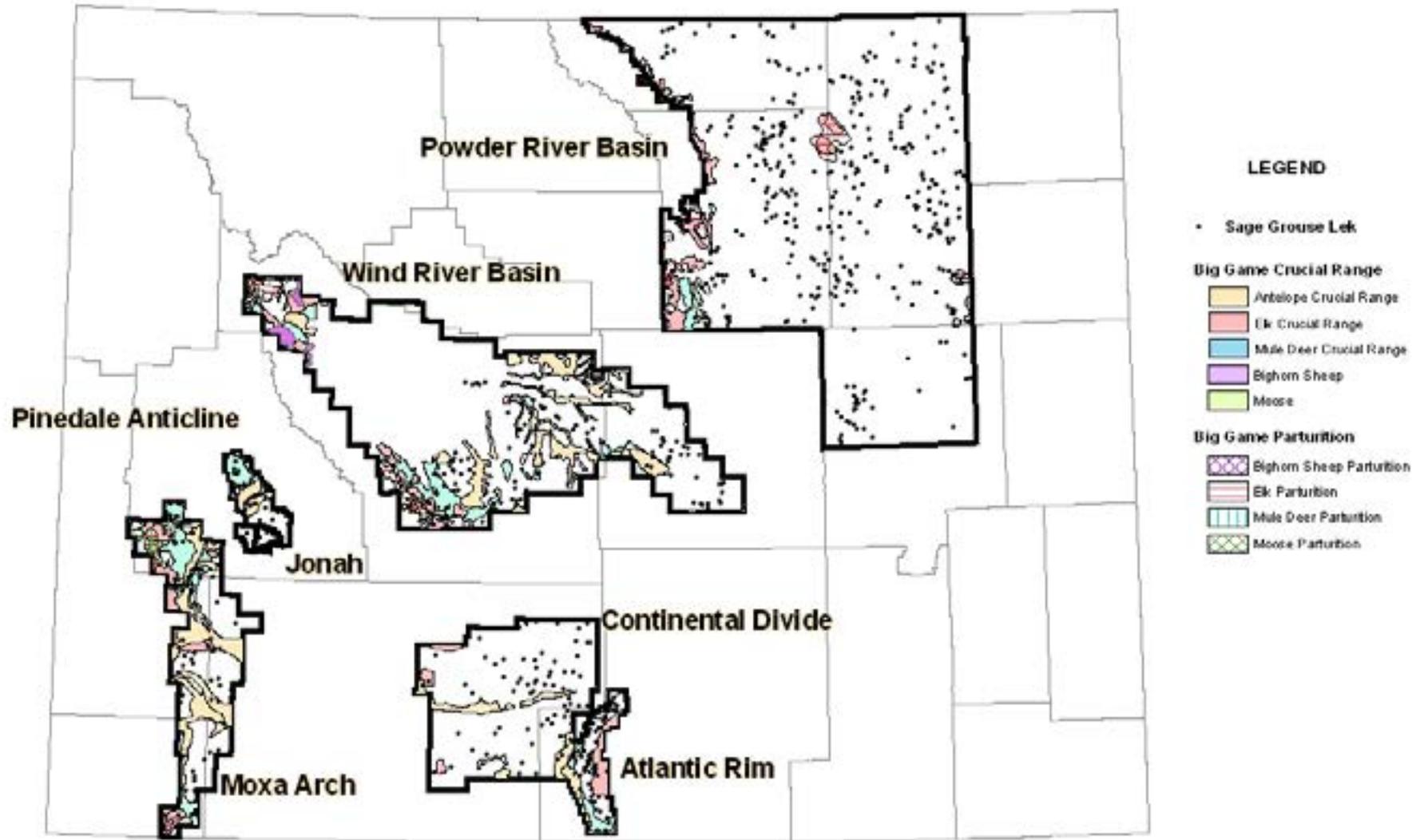
# Sage Grouse Leks



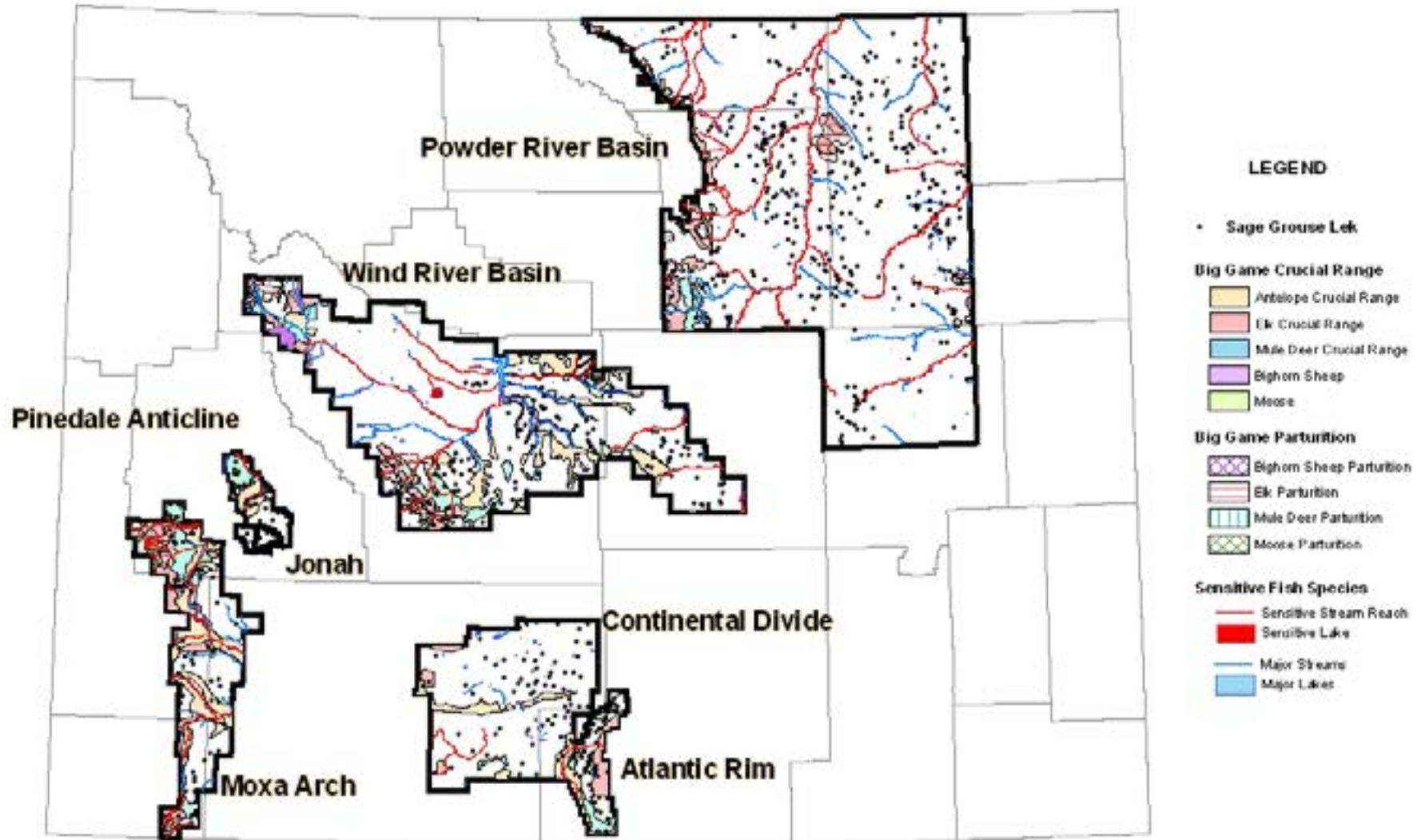
# Sage Grouse Leks And Big Game Crucial Range



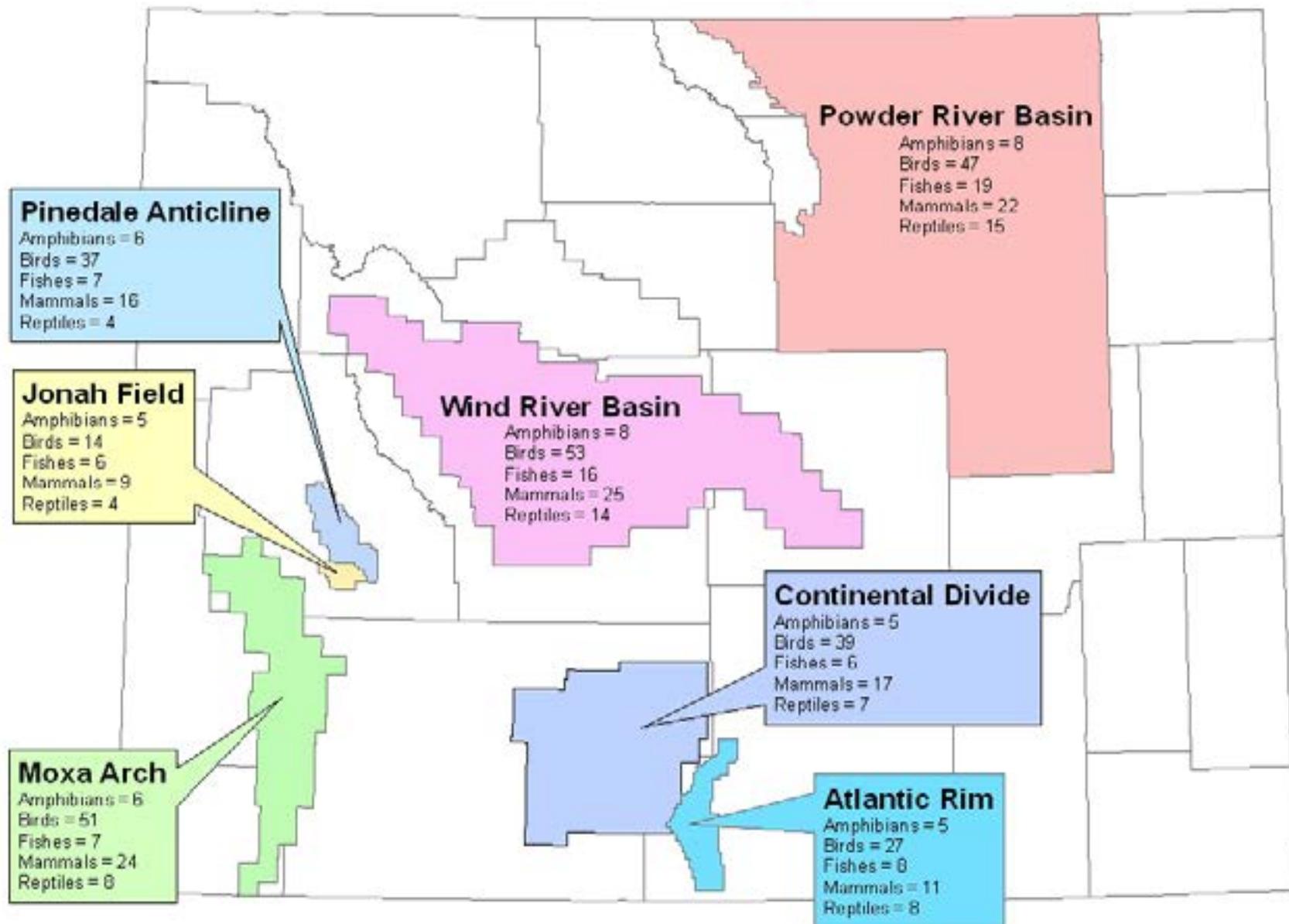
# Sage Grouse Leks, Big Game Crucial/Parturition

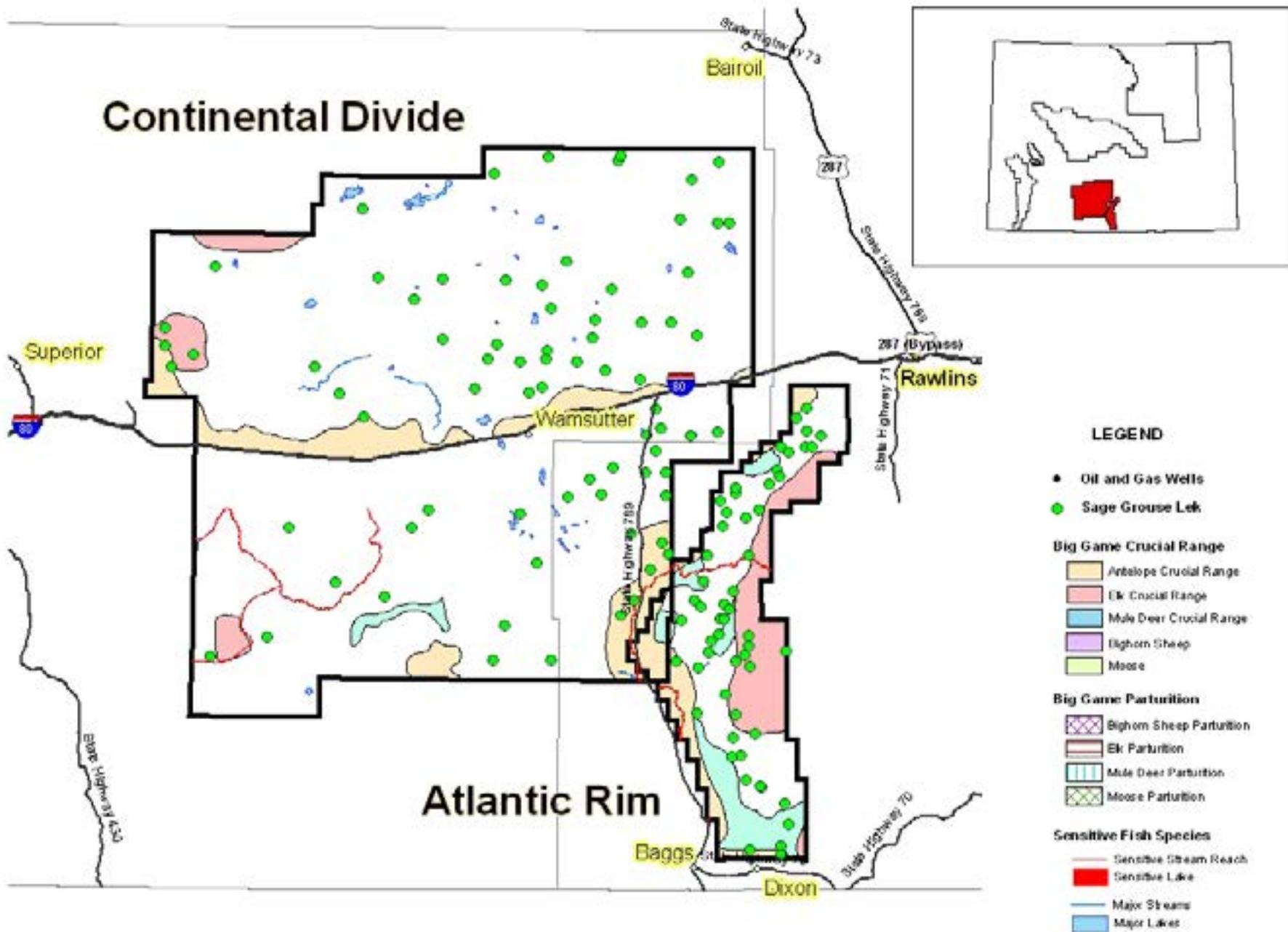


# Leks, Crucial/Parturition, Major Streams/Lakes



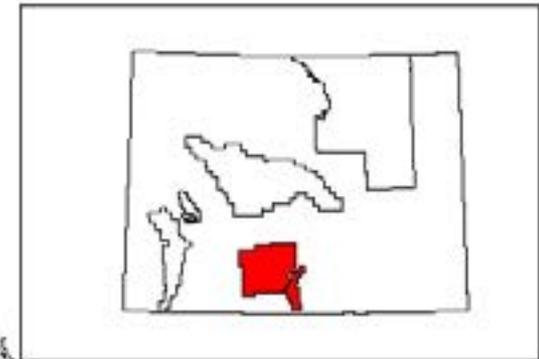
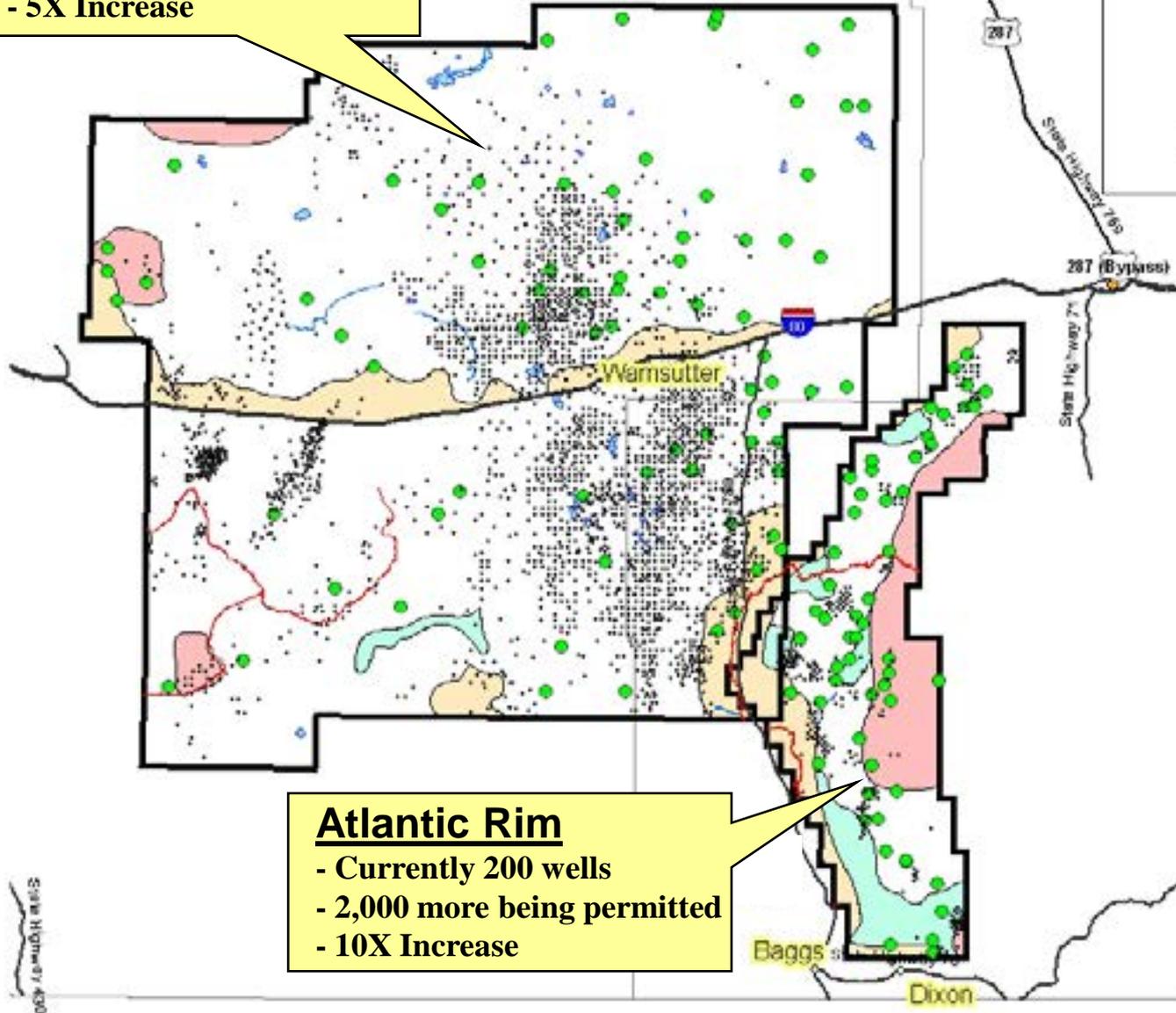
## WGFD Sensitive Species





## Continental Divide

- Currently 2,200 wells
- 9,000 more being permitted
- 5X Increase



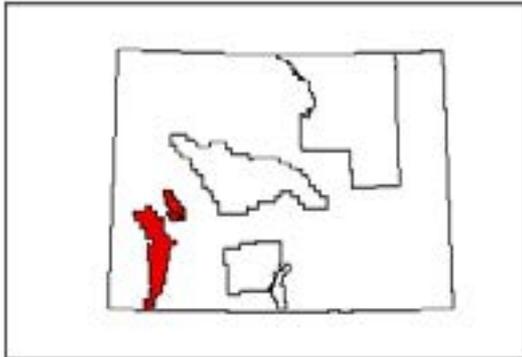
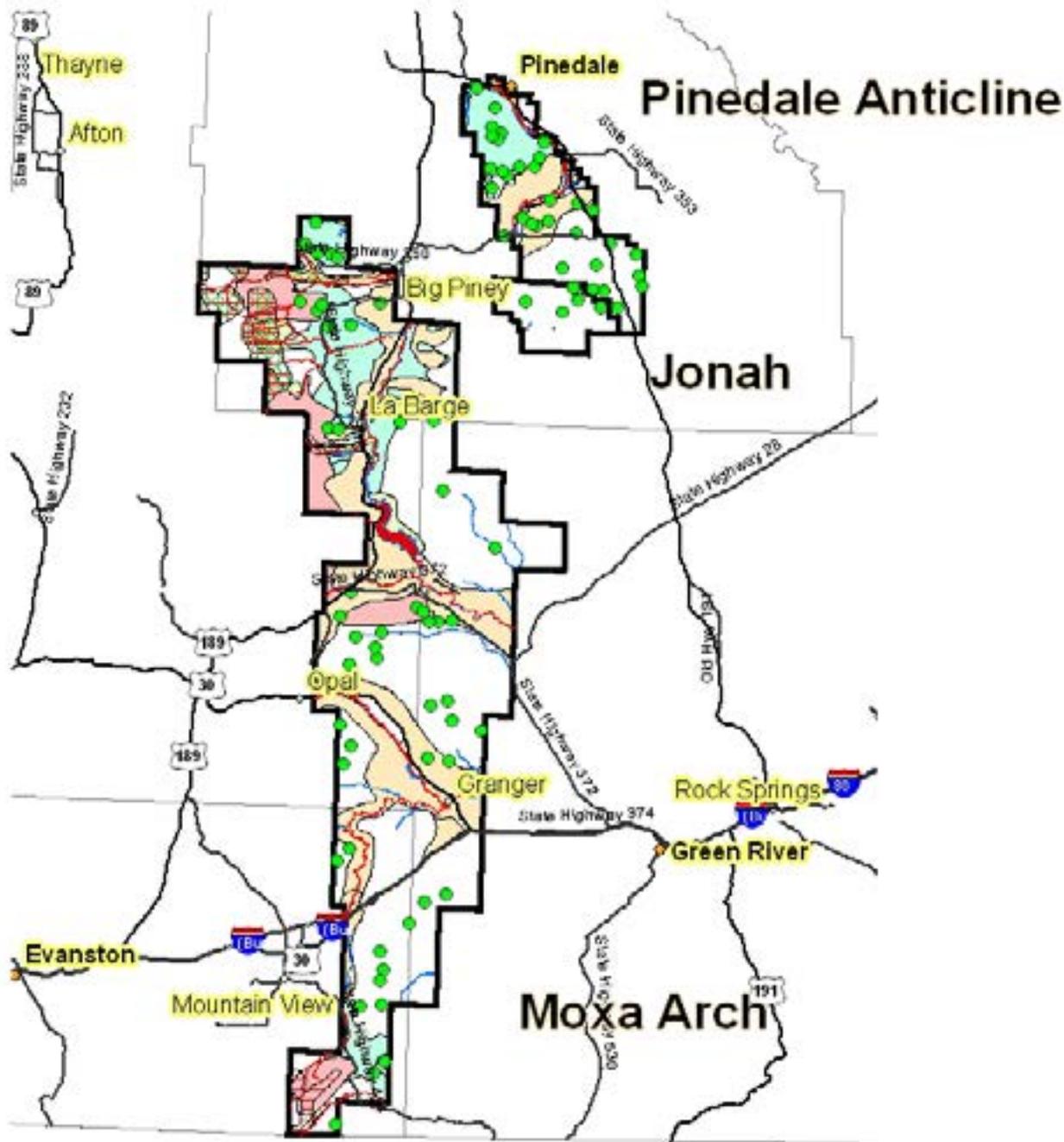
### LEGEND

- Oil and Gas Wells
  - Sage Grouse Lek
- Big Game Crucial Range**
- Antelope Crucial Range
  - Elk Crucial Range
  - Mule Deer Crucial Range
  - Bighorn Sheep
  - Moose
- Big Game Partition**
- Bighorn Sheep Partition
  - Elk Partition
  - Mule Deer Partition
  - Moose Partition
- Sensitive Fish Species**
- Sensitive Stream Reach
  - Sensitive Lake
  - Major Streams
  - Major Lakes

## Atlantic Rim

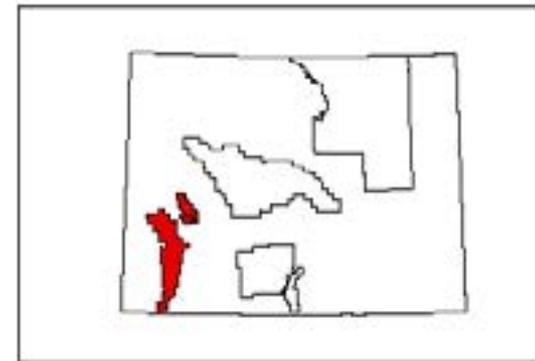
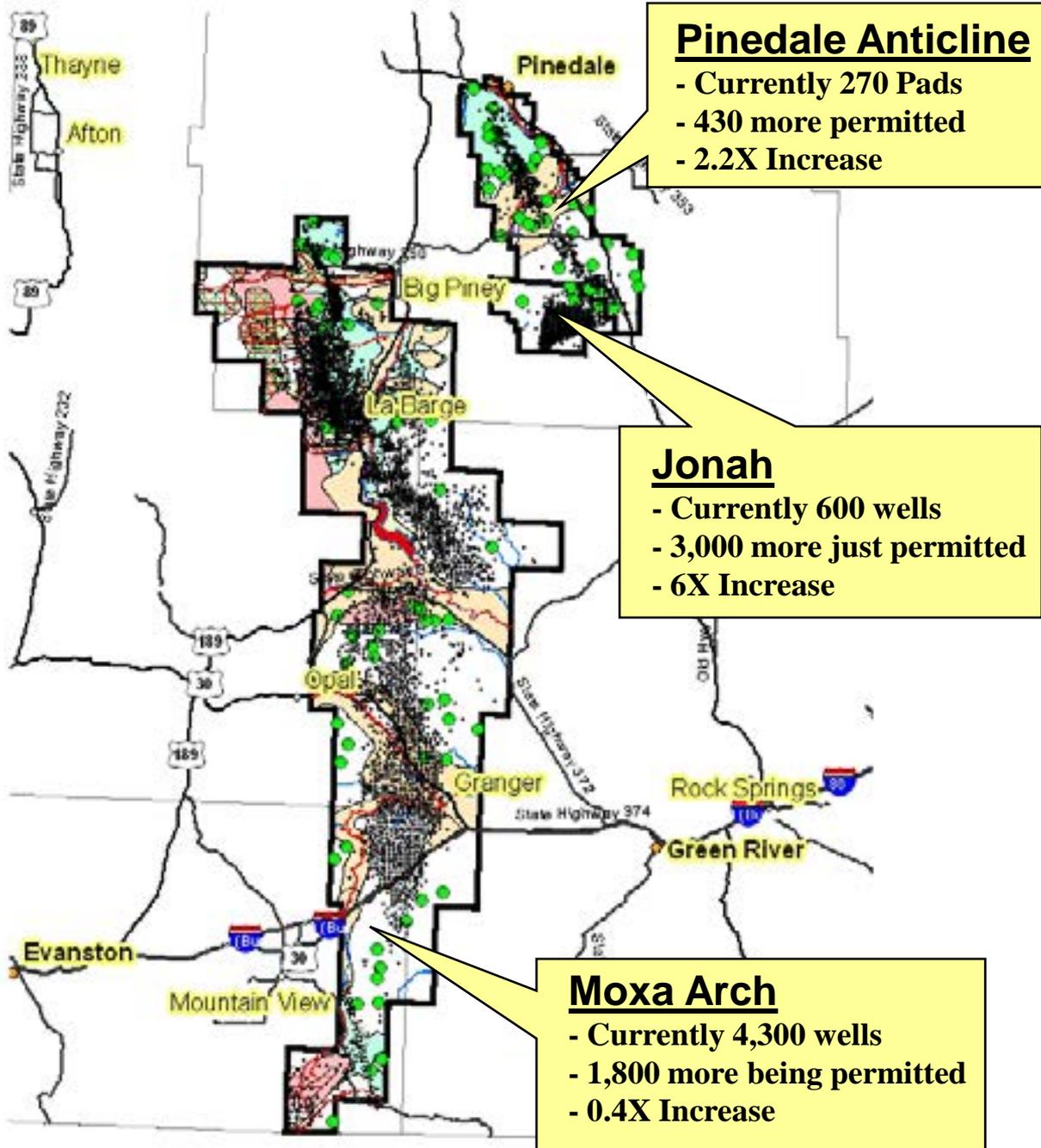
- Currently 200 wells
- 2,000 more being permitted
- 10X Increase

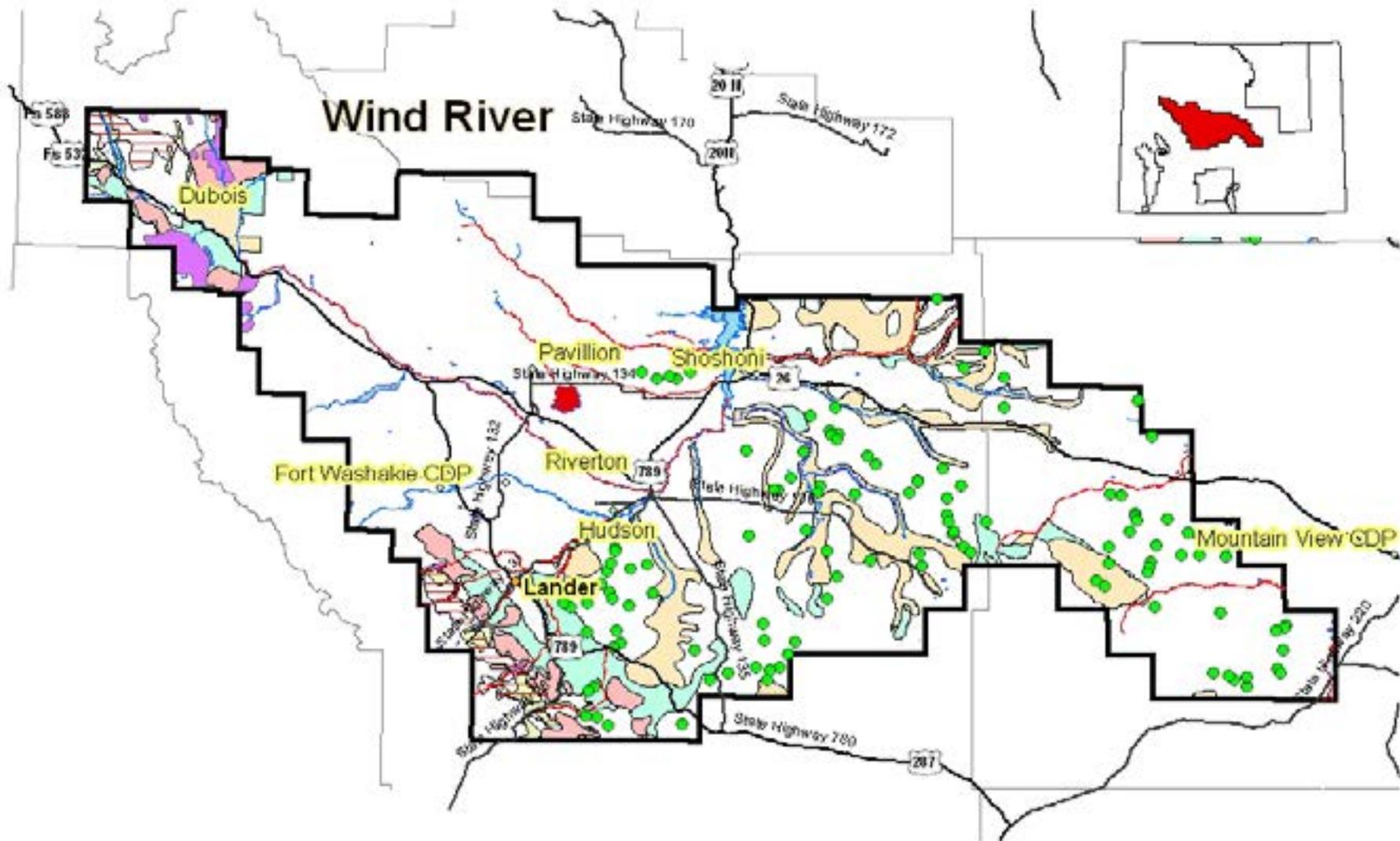
State Highway 430



**LEGEND**

- Oil and Gas Wells
  - Sage Grouse Lek
- Big Game Crucial Range**
- Antelope Crucial Range
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- Big Game Partition**
- Bighorn Sheep Partition
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  - Mule Deer Partition
  - Moose Partition
- Sensitive Fish Species**
- Sensitive Stream Reach
  - Sensitive Lake
  - Major Streams
  - Major Lakes





**LEGEND**

- Oil and Gas Wells
- Sage Grouse Lek

**Big Game Crucial Range**

- Antelope Crucial Range
- Elk Crucial Range
- Mule Deer Crucial Range
- Bighorn Sheep
- Moose

**Big Game Partition**

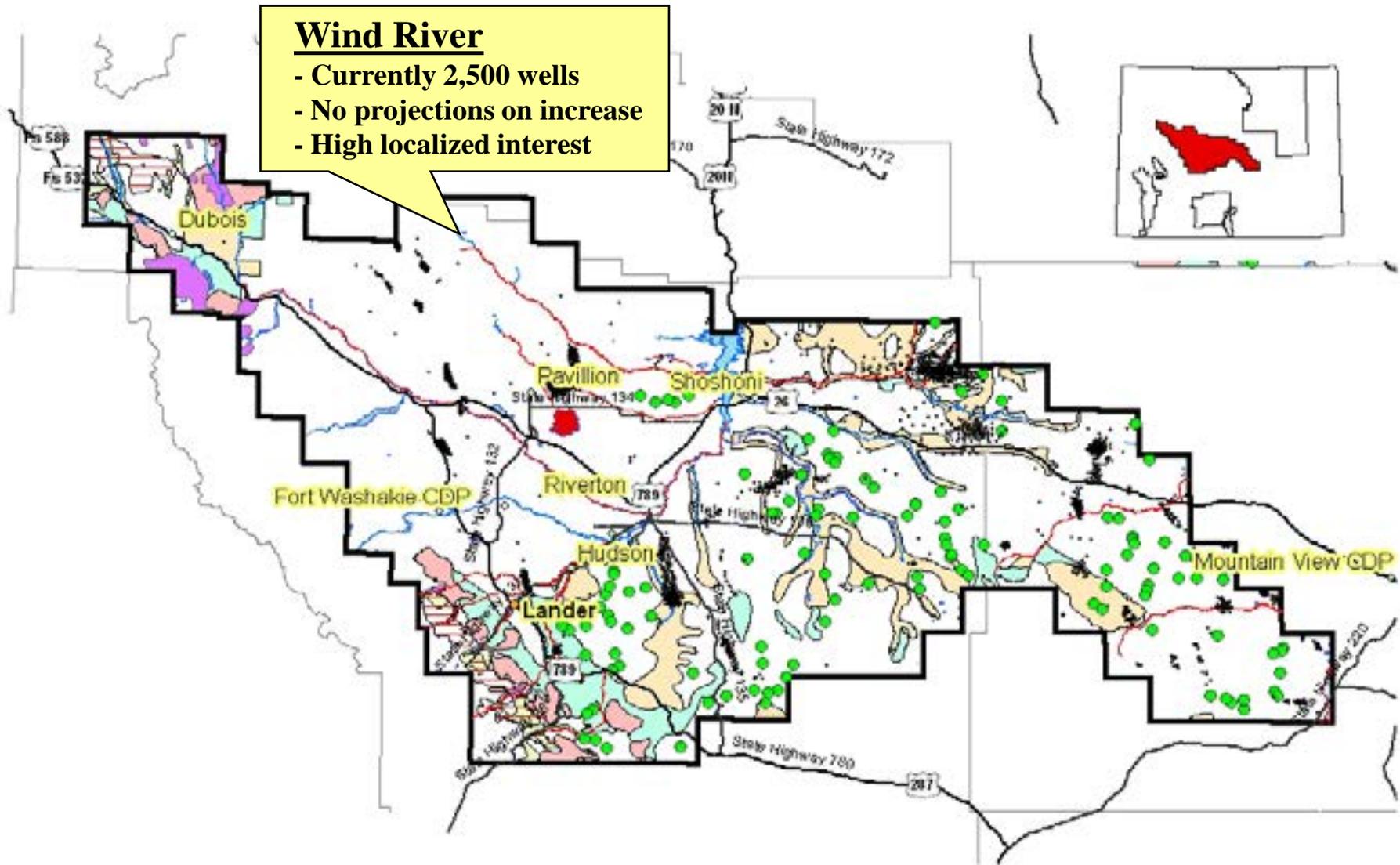
- Bighorn Sheep Partition
- Elk Partition
- Mule Deer Partition
- Moose Partition

**Sensitive Fish Species**

- Sensitive Stream Reach
- Sandbar Lake
- Major Streams
- Major Lakes

## Wind River

- Currently 2,500 wells
- No projections on increase
- High localized interest



### LEGEND

- Oil and Gas Wells
- Sage Grouse Lek

#### Big Game Crucial Range

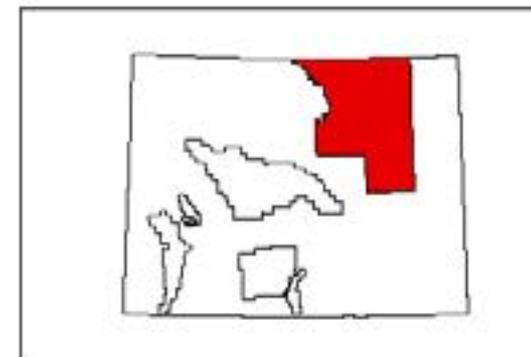
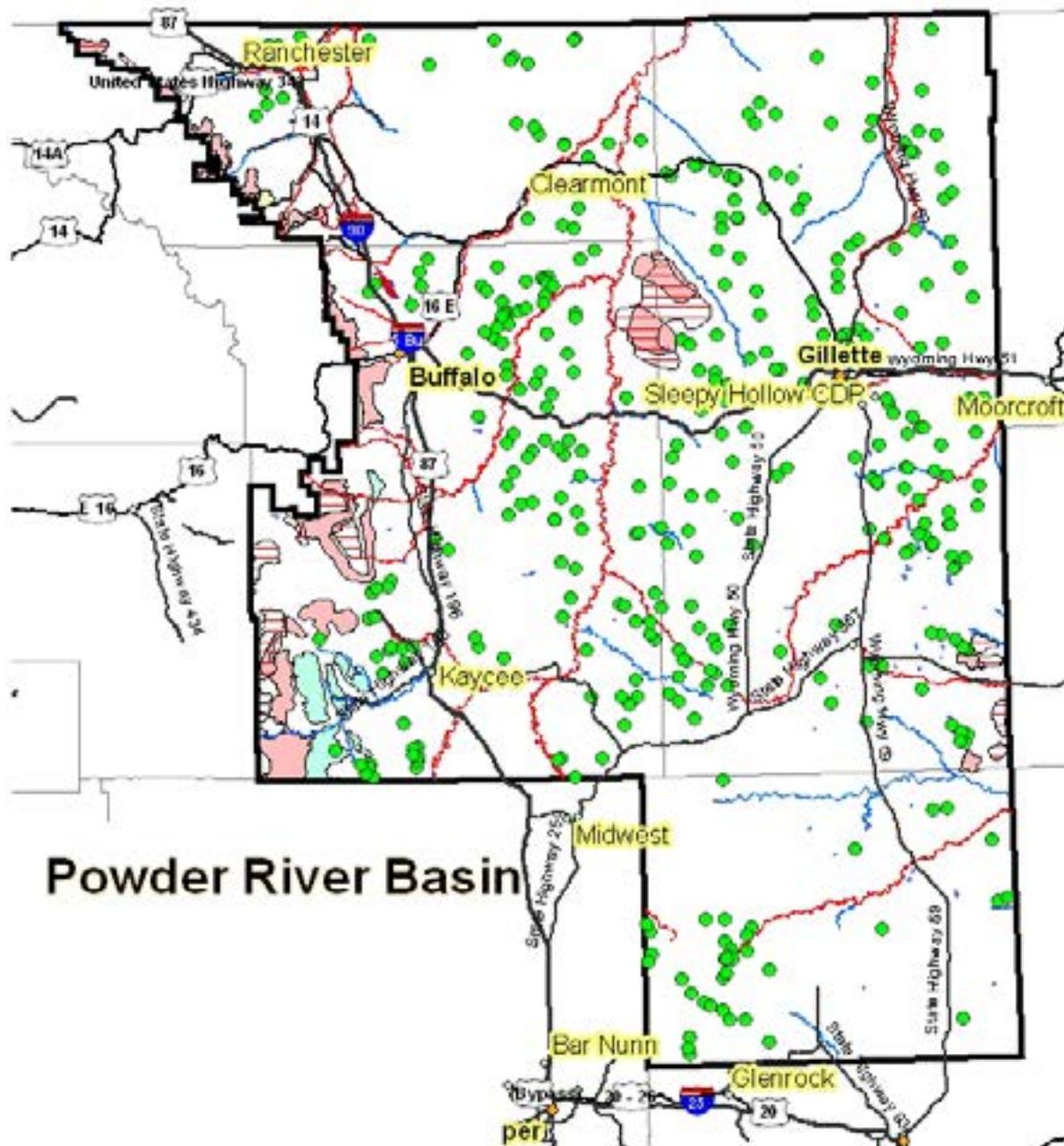
- Antelope Crucial Range
- Elk Crucial Range
- Mule Deer Crucial Range
- Bighorn Sheep
- Moose

#### Big Game Partition

- Bighorn Sheep Partition
- Elk Partition
- Mule Deer Partition
- Moose Partition

#### Sensitive Fish Species

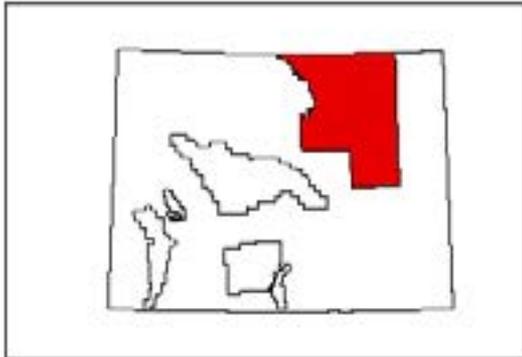
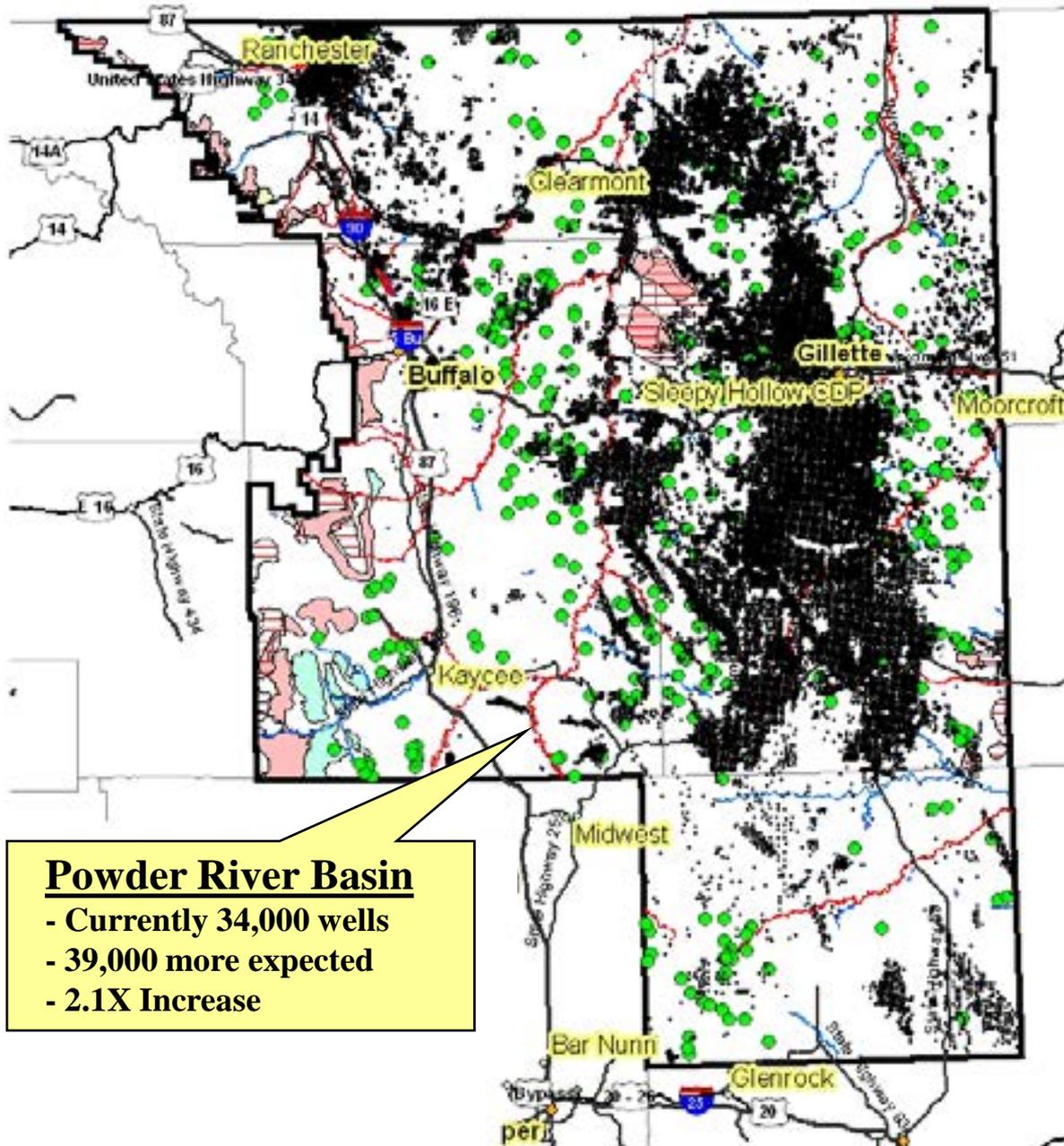
- Sensitive Stream Reach
- Sandline Lake
- Major Streams
- Major Lakes



**LEGEND**

- Oil and Gas Wells
  - Sage Grouse Leak
- Big Game Crucial Range**
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  - Elk Partition
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- Sensitive Fish Species**
- Sensitive Stream Reach
  - Sensitive Lake
  - Major Streams
  - Major Lakes

**Powder River Basin**

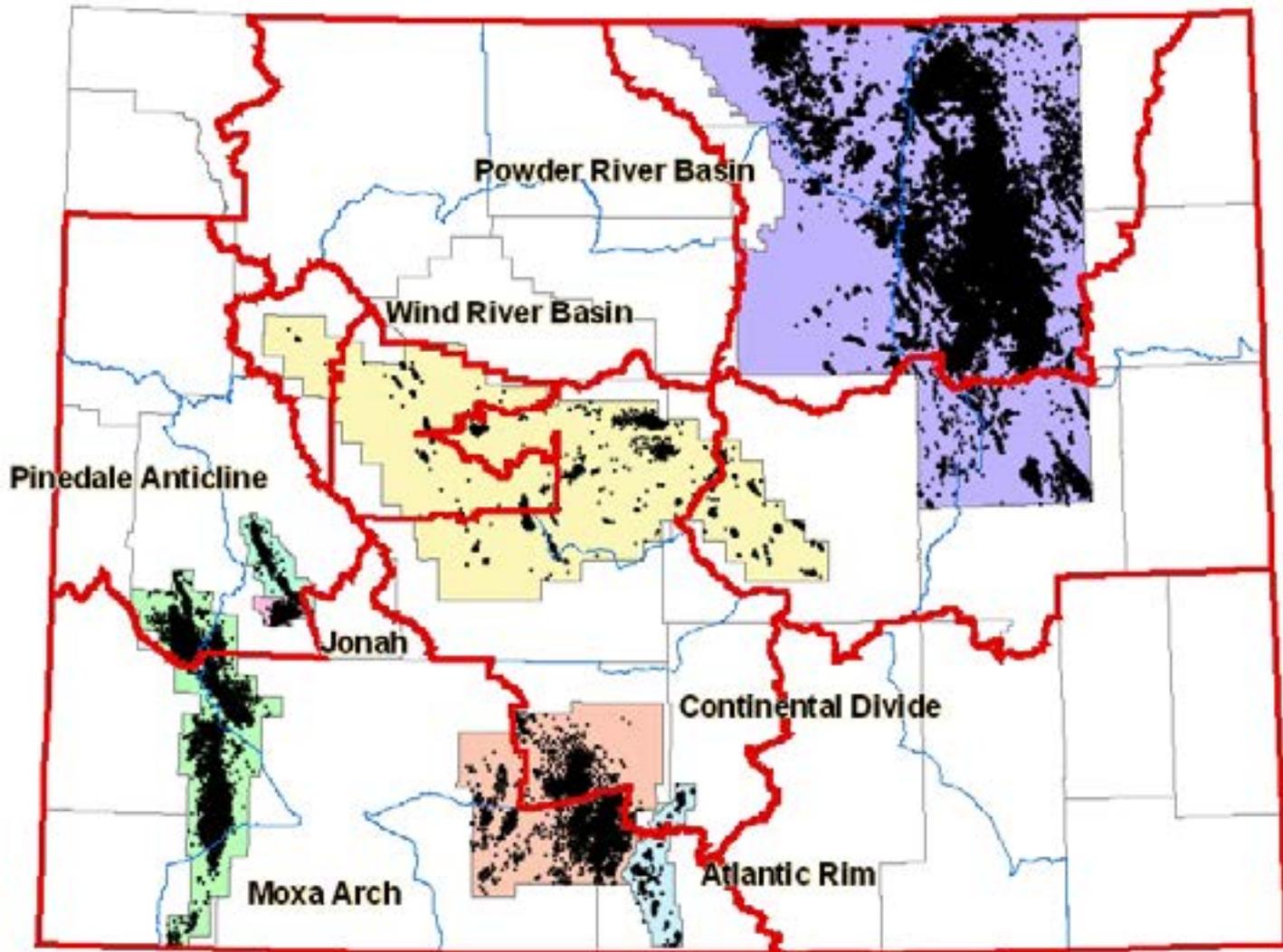


**LEGEND**

- Oil and Gas Wells
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- Big Game Partition**
- Bighorn Sheep Partition
  - Elk Partition
  - Mule Deer Partition
  - Moose Partition
- Sensitive Fish Species**
- Sensitive Stream Reach
  - Sensitive Lake
  - Major Streams
  - Major Lakes

**Powder River Basin**  
 - Currently 34,000 wells  
 - 39,000 more expected  
 - 2.1X Increase

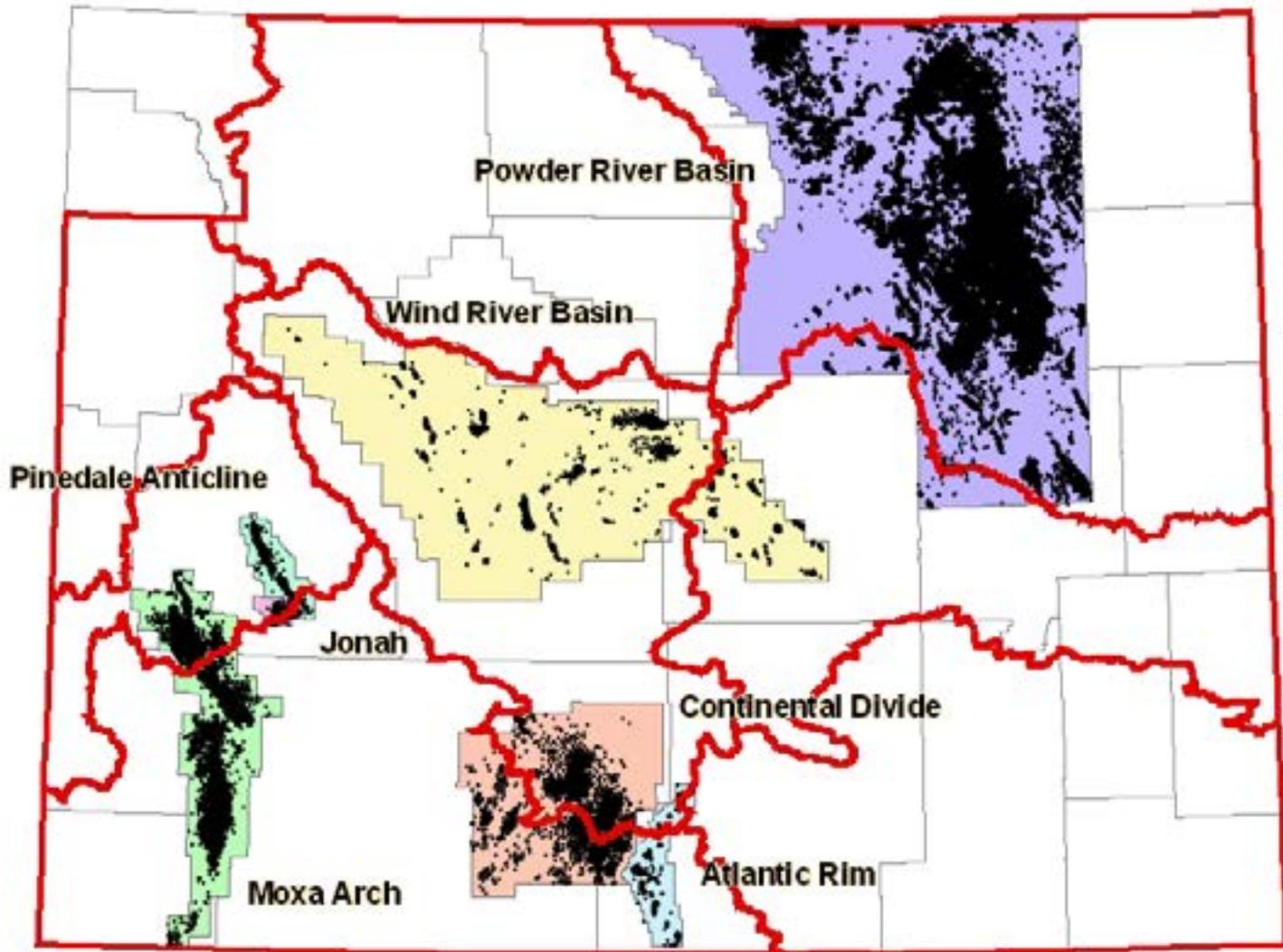
# Terrestrial Regions, Wildlife Biologist Regions



## Legend

- Game & Fish Regions
- Wildlife Biologist Regions

# Aquatic Regions



## Legend

 Aquatic Regions

# SUMMARY

The extent and intensity of energy development in Wyoming is unprecedented in Wyoming history

Development is a long-term process that also includes many short-term issues

Development will impact huge areas of key fish and wildlife habitat and many fish and wildlife populations

Our Department will obviously need to provide significant focus on this situation to adequately and effectively address it, and maintain the fish and wildlife resource

# QUESTIONS

What is our strategy to deal with this situation?

What will it mean in terms of department organization, personnel, and budget?

# **EFFORTS SO FAR**

**Working collaboratively with industry on individual plans**

**Working collaboratively with BLM on their development plans, and revisions of their Resource Management Plans which guide how they permit these operations**

**Jonah Interagency Field Office (industry funded)**

**Oil and Gas Coordinator in Pinedale (BLM/USFS funded)**

**NE WY Coal Bed Natural Gas Coordinator (Dept funded)**

**Department staff considering organizational strategies to address the issues**

**We will need additional personnel to adequately address this scale and intensity of development**