

National Park Service  
U.S. Department of the Interior  
Northern Great Plains I&M Network

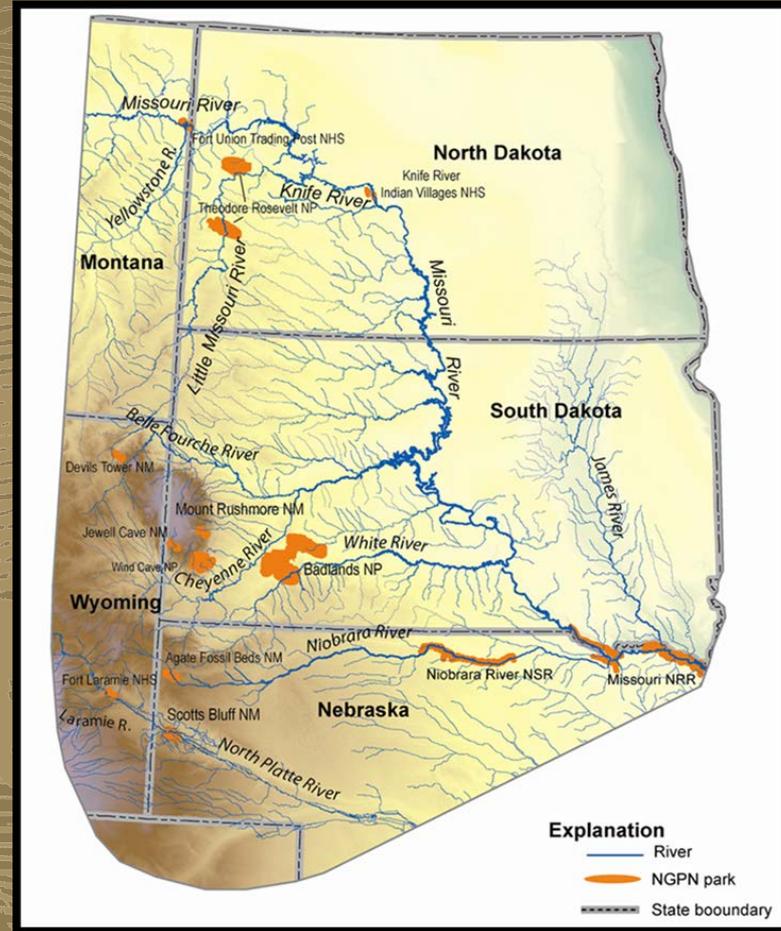


# Landbird Long-term Monitoring Protocol for NGPN

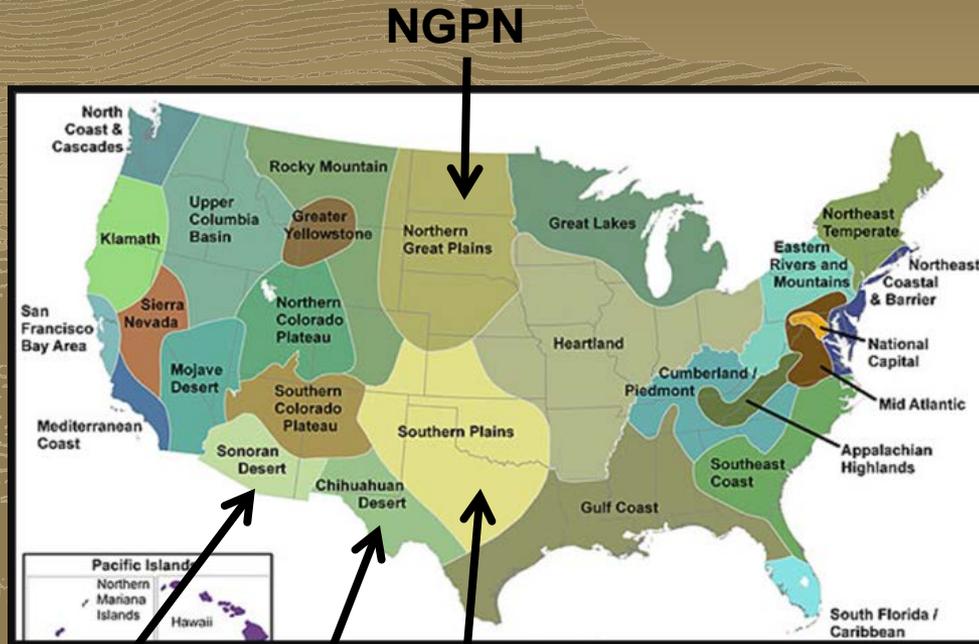
Marcia Wilson & Sarah Wakamiya  
Black Hills Area Botanist & Ecologist Workshop 2013

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# Northern Great Plains I&M Network



# Landbird Monitoring Protocol



SODN

CHDN

SOPN

National Park Service  
U.S. Department of the Interior



Natural Resource Stewardship and Science

## Landbird Monitoring Protocol and Standard Operating Procedures for the Chihuahuan Desert, Northern Great Plains, Sonoran Desert, and Southern Plains Networks

Version 1.00

Natural Resource Report NPS/SOPN/NRR—2012/XXX



<http://science.nature.nps.gov/im/units/ngpn/>

# Monitoring Objectives

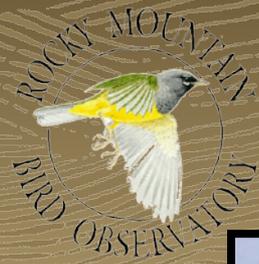
1. Species Richness & Composition
2. Estimate Occupancy
3. Estimate Density
4. Incorporate Vegetation Monitoring to Augment Bird Sampling





# Field Methods

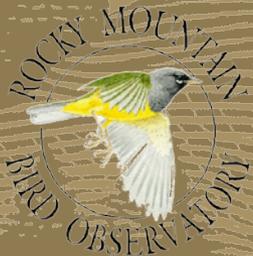




# Field Staff



# Field Sampling



# Stratification?

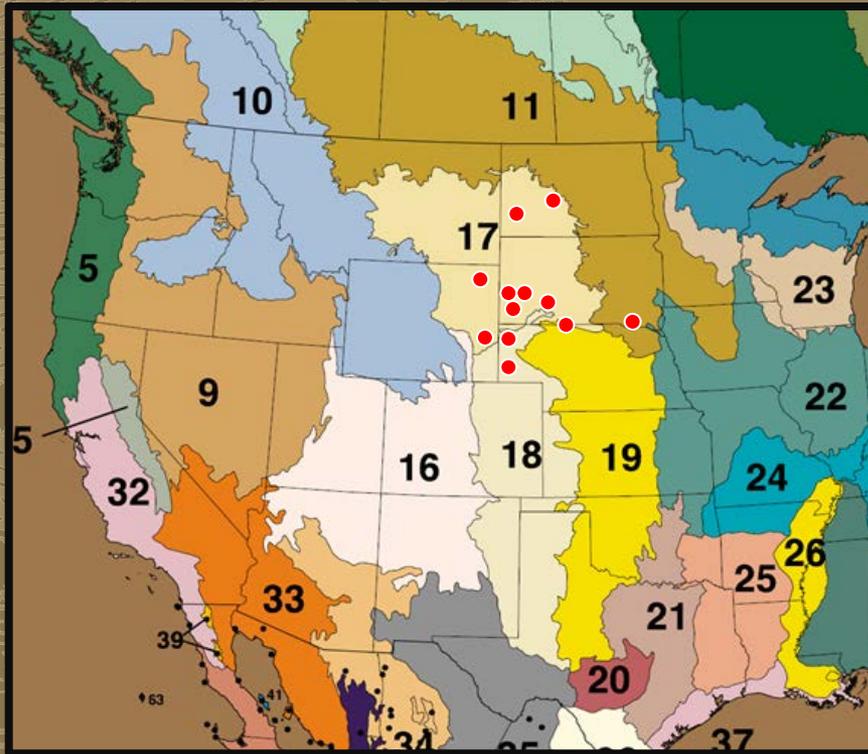
## Badlands National Park



- 2011 survey results
- Limited funding

# Sampling Design:

## Integrated Monitoring in Bird Conservation Regions (IMBCR)



**BCR #17 Badlands & Prairies**

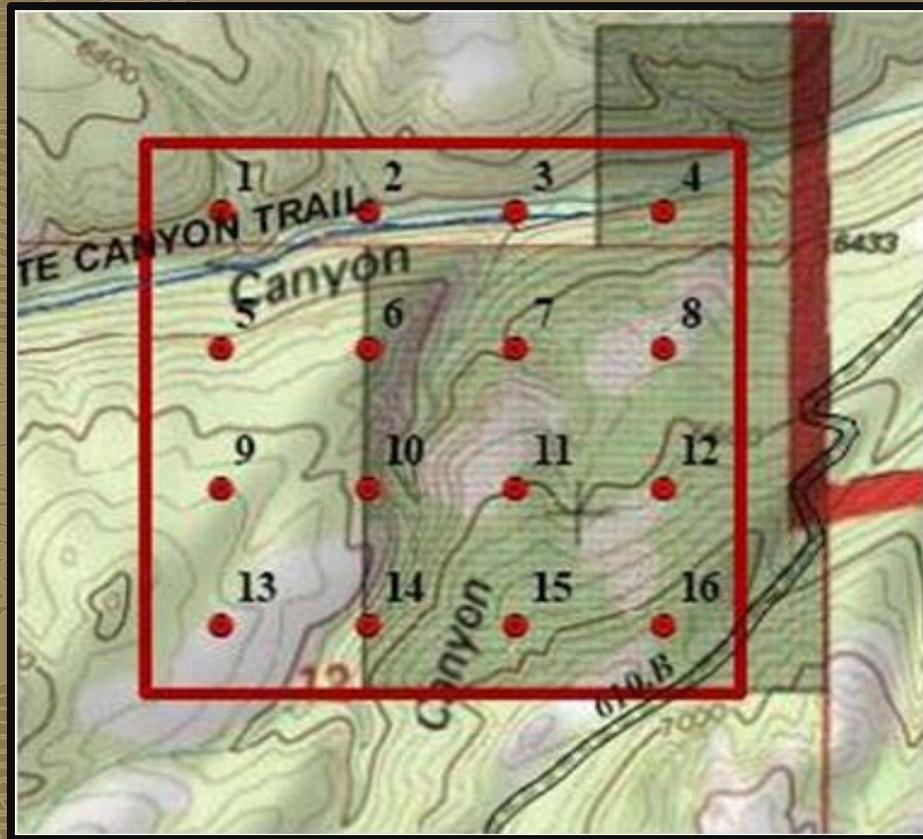
**BCR #18 Shortgrass Prairies**

**BCR #19 Central Mixedgrass Prairies**

**BCR #11 Prairie Pothole**

**BCR #22 Eastern Tallgrass Prairies**

# IMBCR Design -1 km<sup>2</sup> Grid Cell

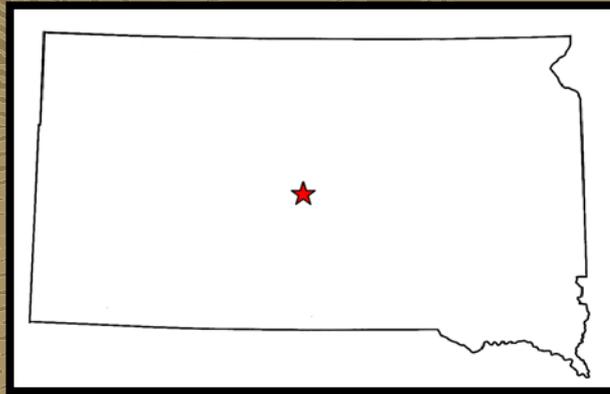


# Hierarchical Framework

Black Hills Parks



South Dakota



BCR 17



# Small Parks

**Park**

**# Grids**

Agate Fossil Beds NM

6

Devils Tower NM

5

Fort Laramie NHS

3

Fort Union Trading Post NHS

\*

Jewel Cave NM

5

Knife River Indian Villages NHS

5

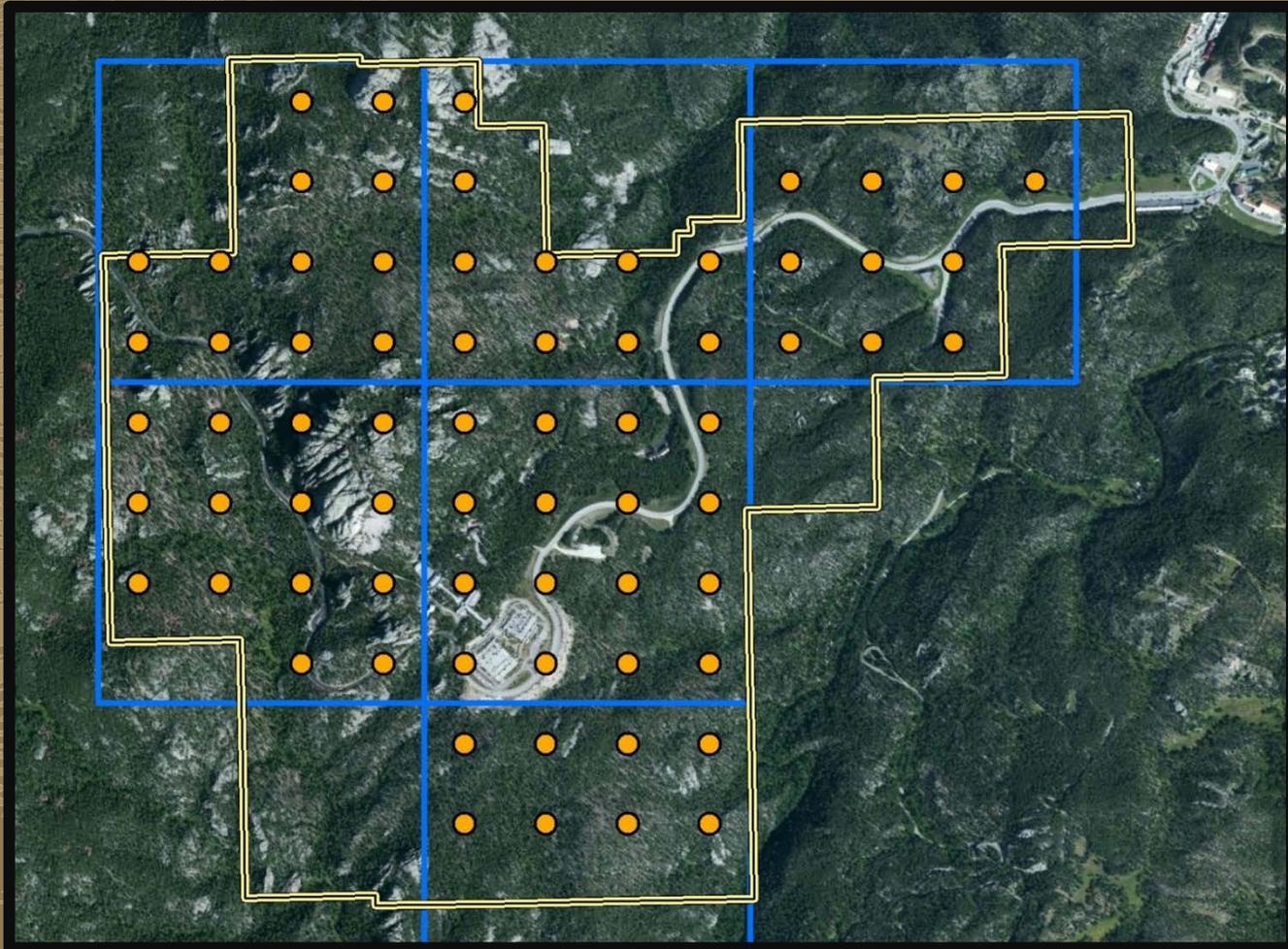
Mount Rushmore NMEM

6

Scotts Bluff NM

6

# Mount Rushmore National Memorial Sampling Design



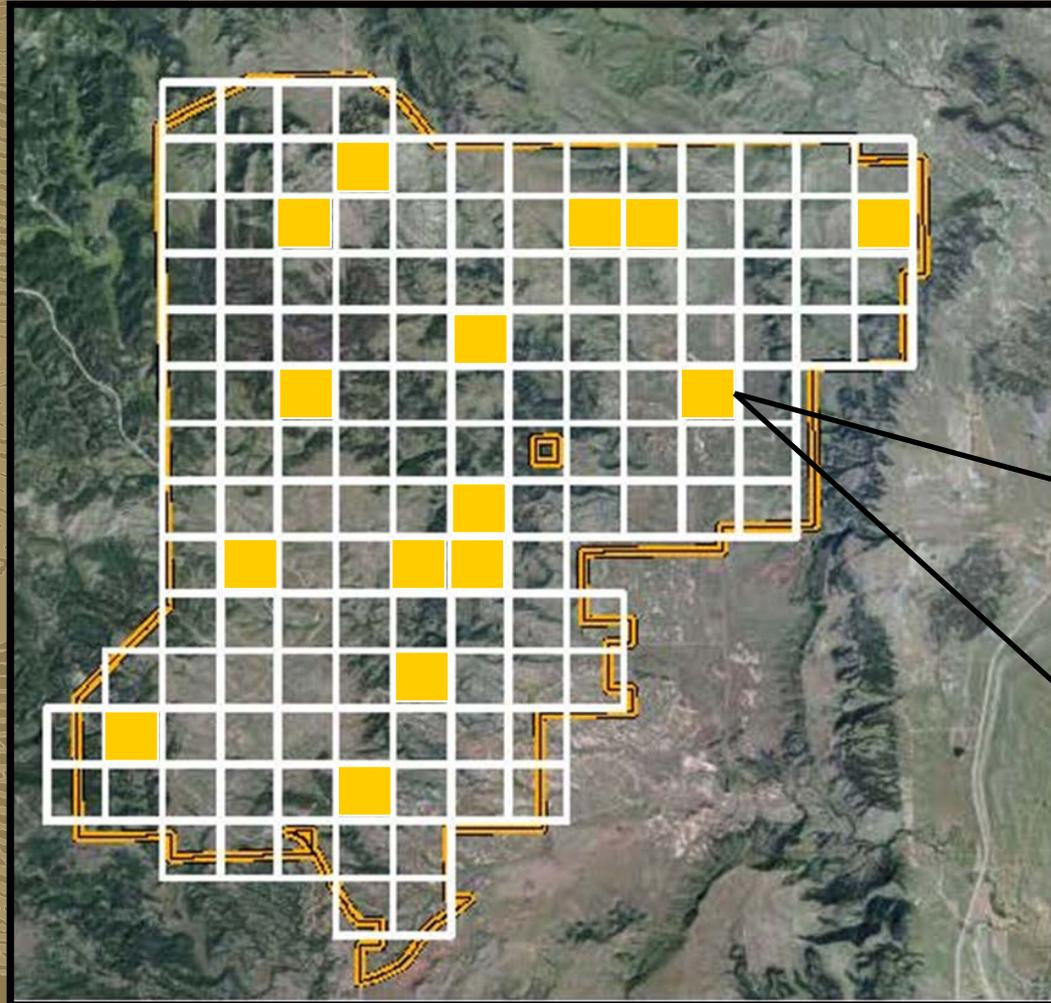
# Large Parks

Park	# Grids
Badlands National Park	15
Missouri National Recreational River	15
Niobrara National Scenic River	15
Theodore Roosevelt National Park	15
Wind Cave National Park	15

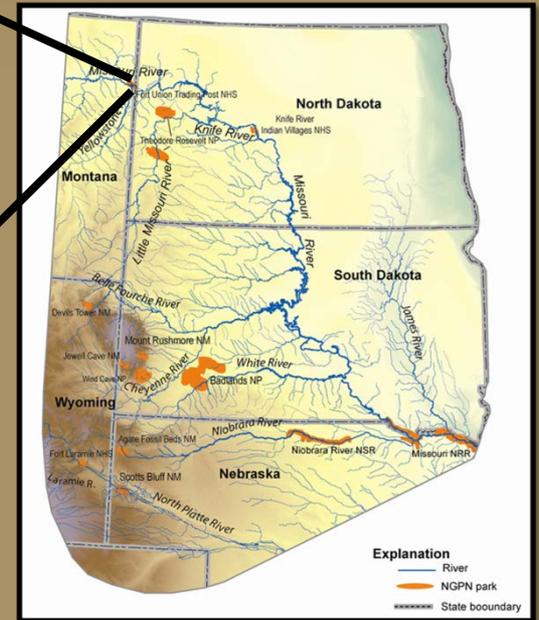
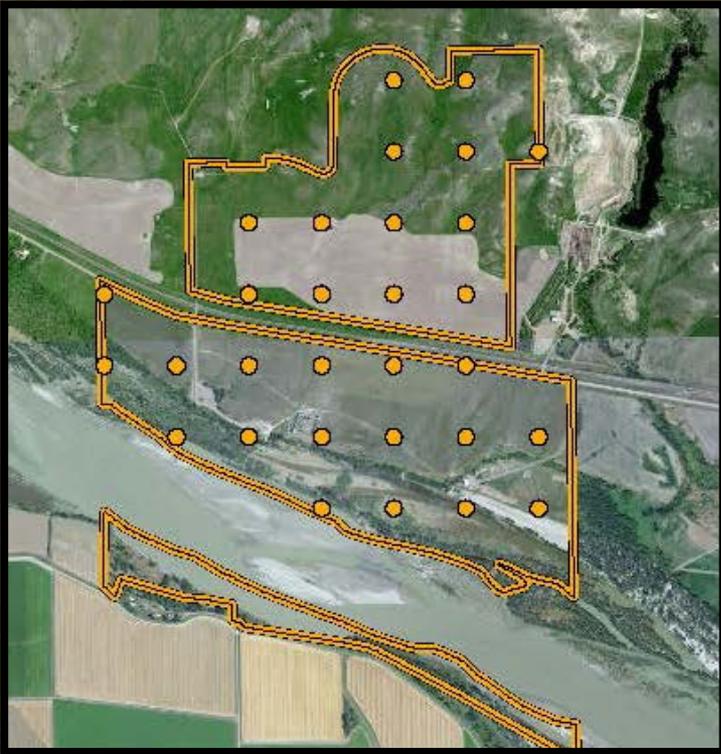
# Wind Cave National Park Sampling Design

Spatially balanced  
grid cells selected  
using GRTS

Centroid of grids  
used as sampling  
frame for GRTS  
draw



# Fort Union Trading Post NHS



# Sampling Schedule

<u>Park</u>	<u>2013</u>	<u>2014</u>
AGFO	X	X
BADL	X	X
DETO	X	X
FOLA	X	X
FOUS	X	X
JECA	X	X
KNRI	X	X
<b>MNRR</b>		<b>X</b>
MORU	X	X
<b>NIOB</b>		<b>X</b>
SCBL	X	X
THRO	X	X
WICA	X	X

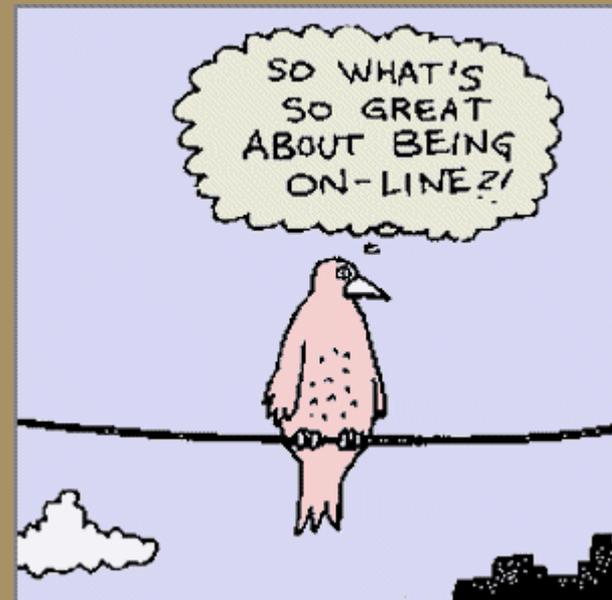


Doug Backlund

# RMBO Avian Data Center

The screenshot shows the RMBO Avian Data Center website. At the top, there is a header with the logo and the text "RMBO AVIAN DATA CENTER a partner of Avian Knowledge Network". Below the header is a navigation menu with links: Home, Projects, Data Collection, DataBases, Explore the Data, Citizen Science, Reports & Publications, and Help. A sub-header reads "Avian Data Center is designed to provide information for specific questions and therefore works best when users select multiple filters for a query. To run a query: [Read more](#) Raw Data access (password protected) #". The main content area is titled "Explore the Data" and features a search bar with "Study Design" selected, along with buttons for "Add", "Clear All Filters", "Run Query", "View Colors", "New Query Window", and "Wide Filters". Below this is a "Generate URL" section and a "Map" section with tabs for "Occupancy", "Density", and "Species Counts". The map displays the United States with various bird conservation regions highlighted. At the bottom of the page, there are links for "Terms Of Use" and "Privacy Statement".

<http://rmbo.org/v3/avian/ExploretheData.aspx>



# Products

## Resource Briefs

Northern Great Plains Network  
Inventory & Monitoring Program

National Park Service  
U.S. Department of the Interior

AGATE FOSSIL BEDS NATIONAL MONUMENT  
2012 RESOURCE BRIEF

**LANDBIRD MONITORING**

**Overview:** Groundbird species are among the most rapidly declining birds in North America. Habitat degradation and climate change are some of the major threats facing these species. Agate Fossil Beds NMA lies within the Shortgrass Prairie Bird Conservation Region 18 (BCR 18). Currently only about 52% of native shortgrass prairie remains (Simsen et al. 2006). As a result, many groundbirds have been listed as species of concern by both state/federal agencies and conservation organizations. In this shortgrass prairie stream, four species in particular have been identified as species of concern: Grasshopper Sparrow (GRSP), Lark Bunting (L.BUN), Lark Sparrow (L.ASP), and Western Meadowlark (WEML).

**Highlights:** Birds were surveyed at each point five times between 18 May and 23 June in 2010 by a RAMBO technician. These methods allowed for detection probability through

application of Distance theory (Blackhead et al. 2011) and Occupancy estimation (MacKenzie et al. 2002). In addition, RAMBO staff conducted point counts in the Pioneer National Grasslands (PNG) and Cimarron National Grasslands also located in the BCR18.

**Technical Contacts:**  
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Ecologist  
605-342-2622

FOR MORE INFORMATION PLEASE VISIT OUR WEBSITE! <http://science.nature.nps.gov/im/units/ngpn/> February 2013

## Annual Reports

National Park Service  
U.S. Department of the Interior

Natural Resource Stewardship and Science

**Landbird Monitoring in the Northern Great Plains Network**  
2013 Annual Report  
Natural Resource Technical Report NPS-NGPN/NRTR-2013-XXX



**AGATE FOSSIL BEDS NATIONAL MONUMENT**

## Synthesis Report

- Density
- Occupancy
- Trend
- Power Analysis

<http://science.nature.nps.gov/im/units/ngpn/>

# Questions?



# Northern Great Plains Inventory & Monitoring Network



National Park Service  
U.S. Department of the Interior