

# Overview of U.S. Loess Hills

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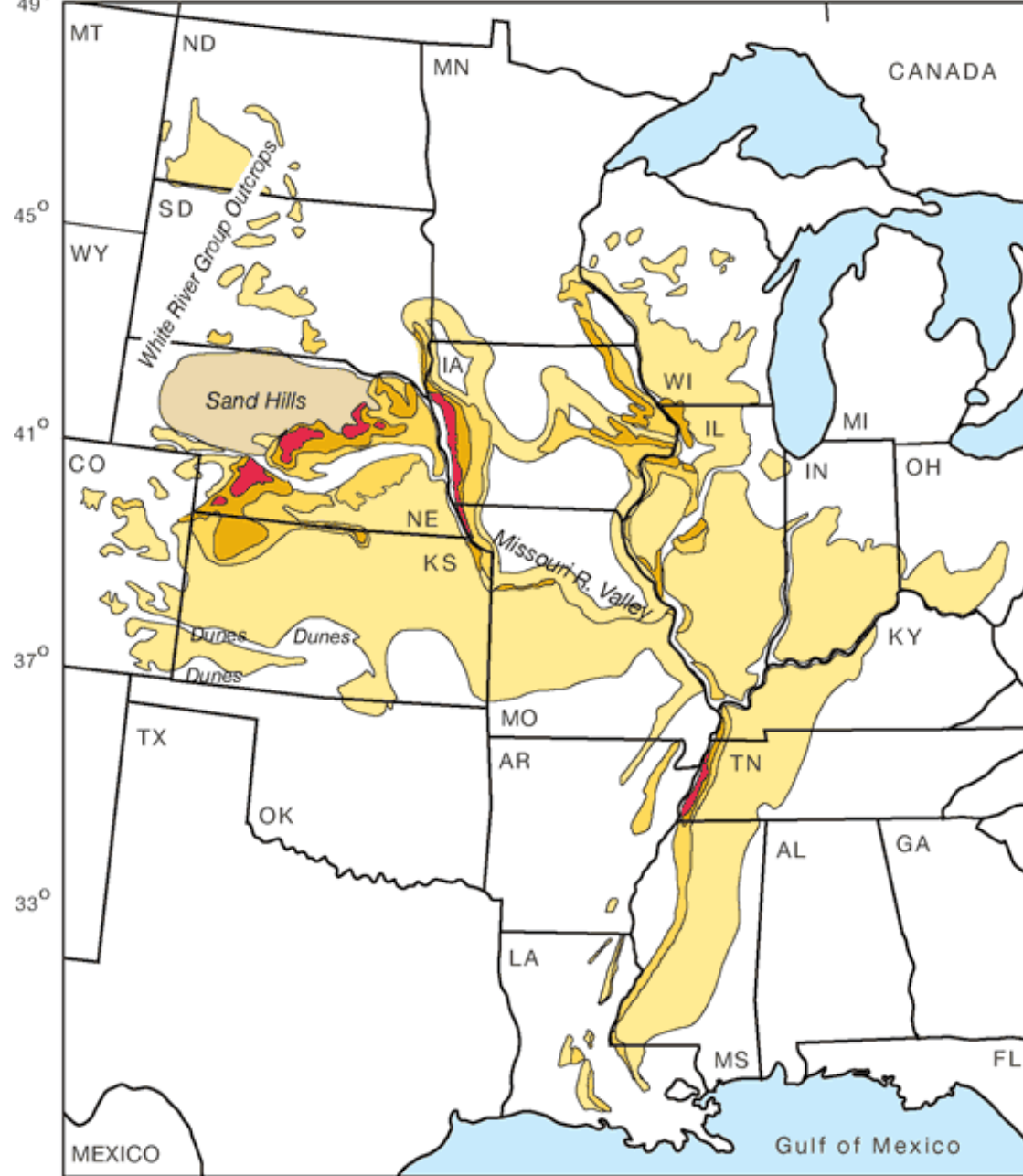
## U.S-China Exchange on Loess Landforms

Northwest Agricultural & Forestry University  
Yangling, Shaanxi, China

**June 18-21, 2019**

# Loess distribution in North America



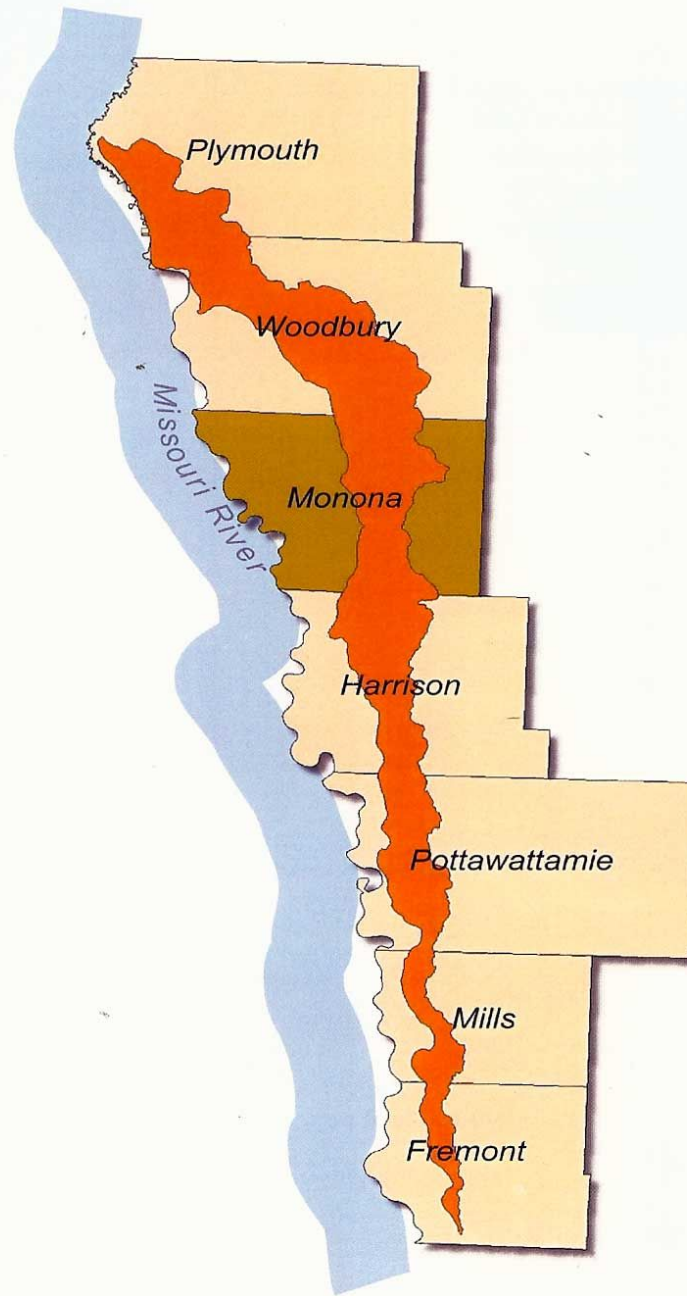


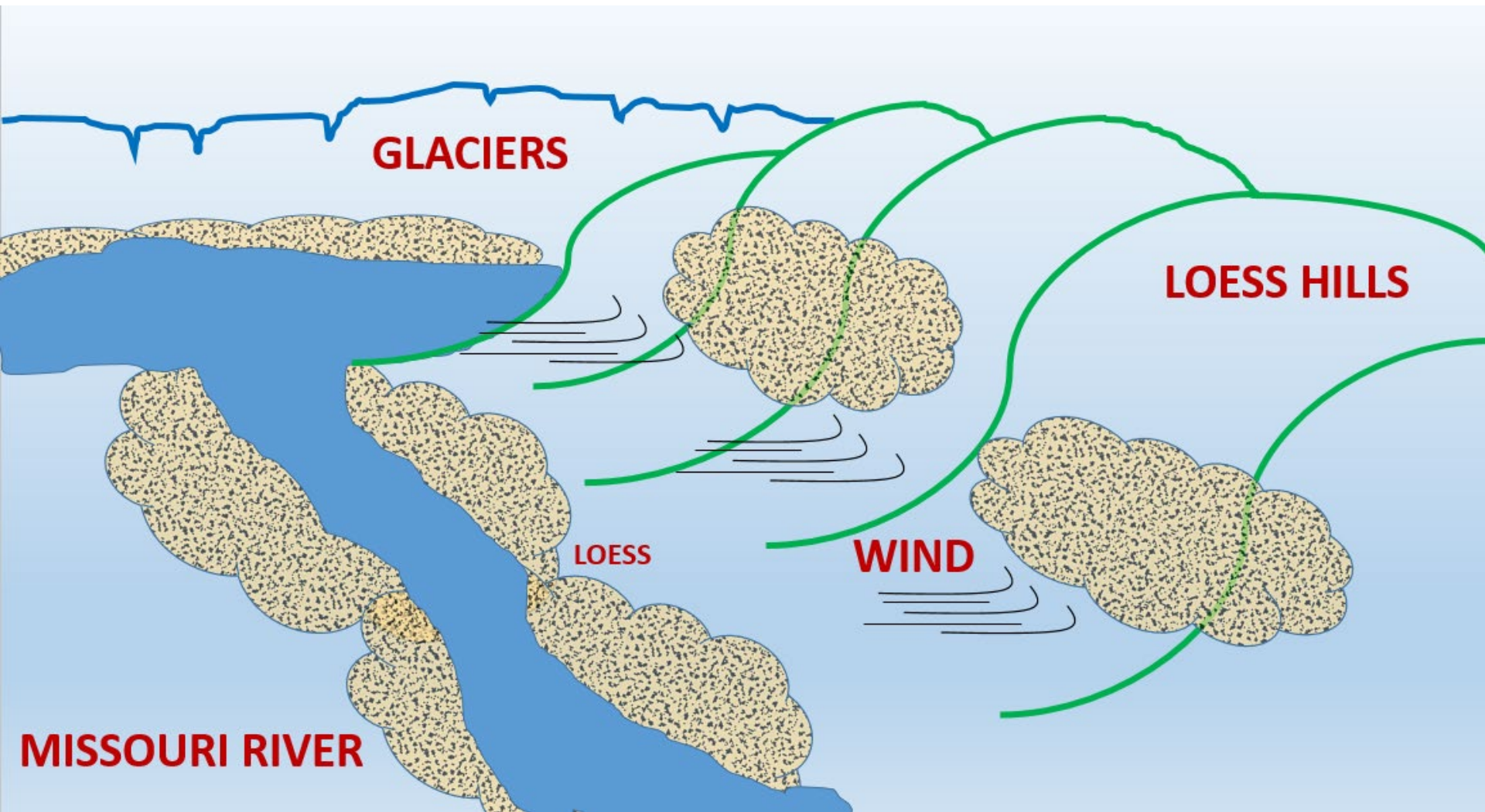
Loess thickness:

■ > 20 m   
 ■ 20- 10 m   
 ■ 10- 5 m   
 ■ 5- 1 m

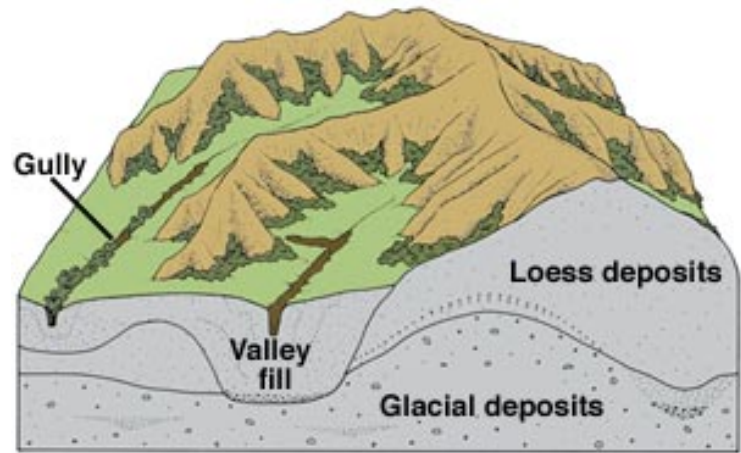
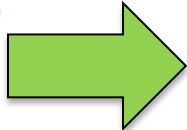
0      200 km

# Loess Hills of Western Iowa





# IOWA'S LOESS HILLS - Origin



# The Green Hollow Center

(Future: Blackburn State Park & Wildlife Management Area)



- 160 acres (65 hectares)
- 16 threatened/endangered species
- Pioneer dug-out sites



Sept. 23- Oct 1, 2017  
**Loess Hills and Heritage Week**  
Iowa State Governor's Proclamation



# Loess Hills Along Missouri River

- 39 rare plants and animals



- 220 miles (350 km.)
- 640,000 acres (2600 sq. km.)
- 2002 National Park study

© Gary Alan Nelson

# IOWA'S LOESS HILLS



# IOWA'S LOESS HILLS

*“The geologic significance of the Loess Hills has been realized for well over 100 years, and the biological significance for nearly as long. In the 1930s, three state parks were established. However, it was not until the last 30 years that local interest in permanently preserving the Loess Hills began to gather momentum.”*

- United States National Park Service, 2002



Photo credit: Ken West,  
[www.sweetlightgallery.com](http://www.sweetlightgallery.com)

# IOWA'S LOESS HILLS - History

**Home to Native Peoples  
11,500 BC to Mid-1800s  
(800 Archeological Sites)**



**Great Immigrant  
Settlement  
Mid-1800s**



# IOWA'S LOESS HILLS - Overview

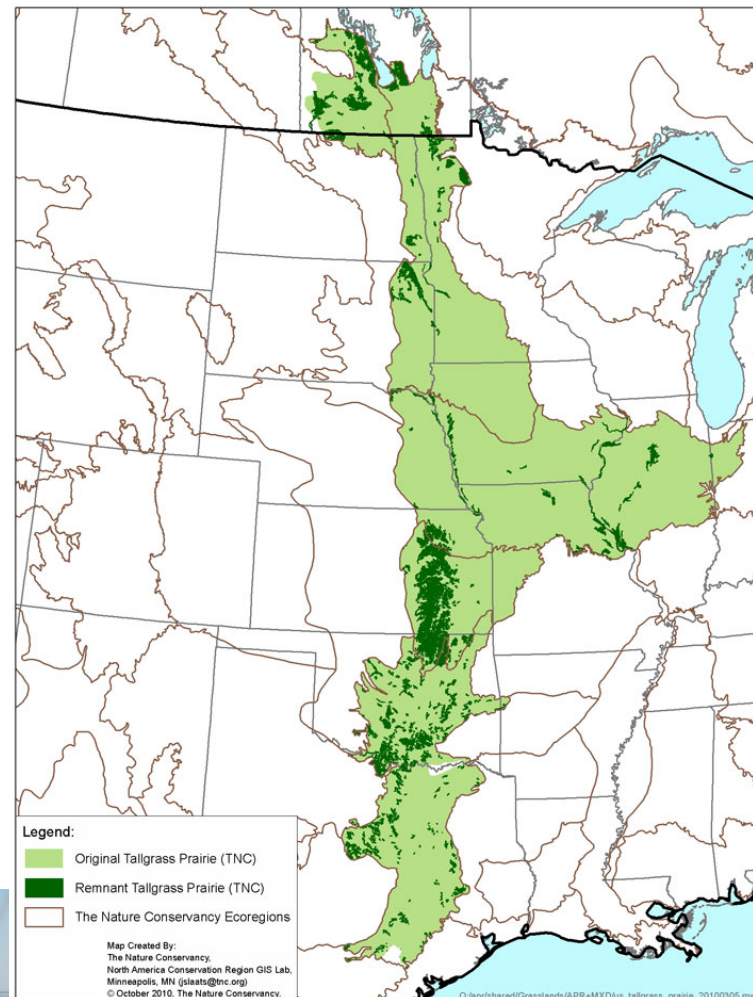
- Nationally recognized landform (geology, biodiversity, tourism)
- Relatively rural (270,000 population)
- 640,000-acre (260,000-hectare) landform
- 220 miles (354km)
- 50% grassland, 35% agriculture, 10% woodland



Photo credit: Ken West,  
[www.sweetlightgallery.com](http://www.sweetlightgallery.com)

# IOWA'S LOESS HILLS - Prairie

- Tallgrass prairie ecosystem
- Less than 5% of remnant prairie in North America (less than 1% in Iowa)
- Loess Hills > 50% of remaining Iowa prairie
- Critical habitat for pollinators and migratory birds



Map and photo credit: TNC

# IOWA'S LOESS HILLS - Recreation

- Outdoor recreation is an \$8.7 billion industry in the state
- Quality of life increasingly important in job recruitment and retention
- Loess Hills: hiking, hunting, cycling, birding, photography, etc.



# IOWA'S LOESS HILLS - Issues

- Conversion: loss of prairie to residential and commercial development, crops, “fill” dirt
- Invasive species: woody vegetation and non-native species out-competing prairie
- Erosion: excessive sedimentation in waterways; structural and agricultural challenges

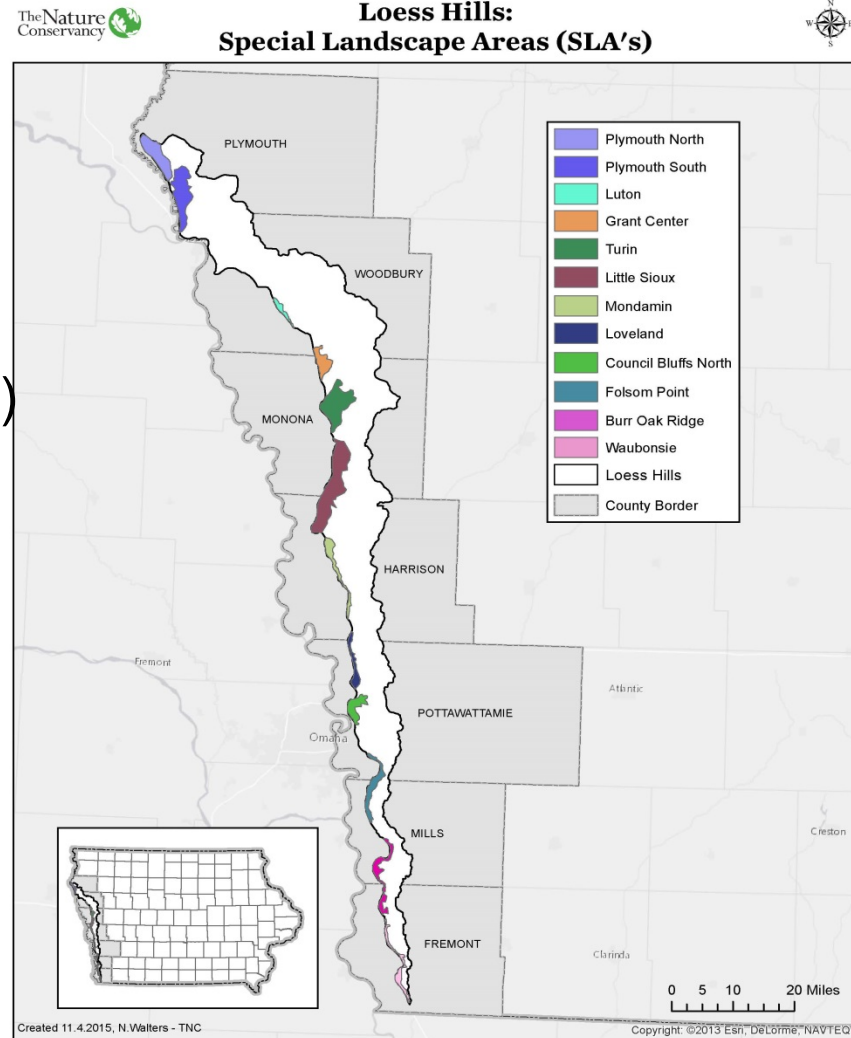




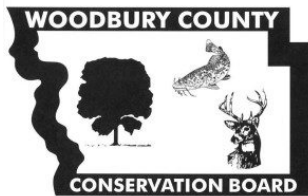
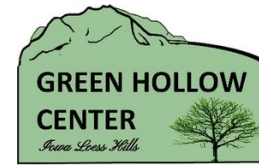
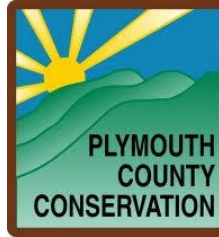
# IOWA'S LOESS HILLS - Priorities

## Special Landscape Areas

- 12 SLAs totaling 100,000 acres (40,468 hectares)
- Range in size from 1,940ac (785ha) to 23,750ac (9,611ha)
- 80% of biodiversity
- Over 35% of SLAs in permanent protection (e.g. state park, conservation easement, preserve) – most achieved within last 30 years



# IOWA'S LOESS HILLS - Partners



# Restoration and Sustainable Land Management (SLM) Helinger, Inner Mongolia

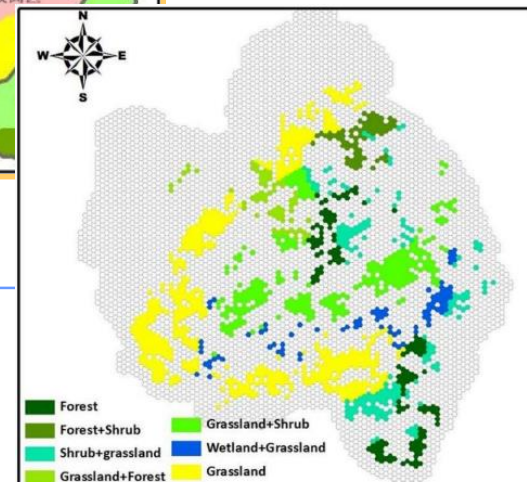
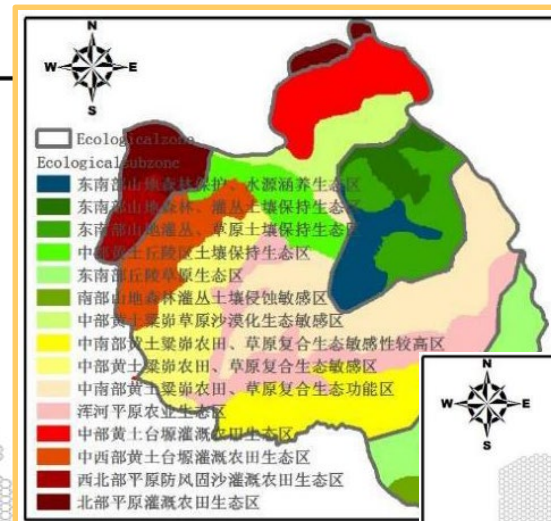
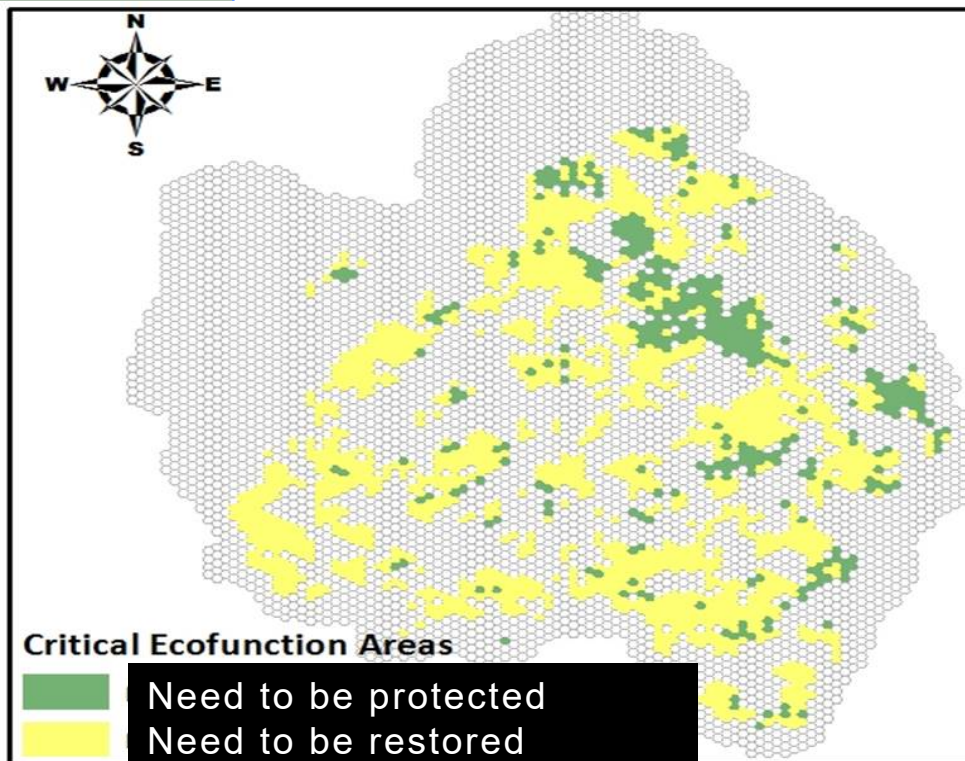
**Dr. Zhang Xiaoquan**  
**Chief Science Officer**  
**The Nature Conservancy China**  
**Program**

- **The north end of loess plateau, semi-arid (<400mm) with severe soil erosion and desertification**
- **Agri-Pastoral transition zone, fragile and sensitive to climate change**
- **Goal: to practice restoration and sustainable land management under climate change (CC)**



# Ecological Restoration and Conservation Planning under CC

- Eco-regional assessment (ERA) to identify critical ecosystem
- Compared historic and current status
- Climate change scenario
- Identify critical land to be protected and restored



# Ecological Land Restoration

- 2500 ha degraded critical land, combined with trees and shrubs
- 201,000 tCO<sub>2</sub>
- Registered as both CDM and CCB (Climate, Community and Biodiversity) for co-benefits



The Climate, Community & Biodiversity Alliance

HOME ABOUT THE CCBA CCB STANDARDS PROJECTS RESOURCES NEWS

## Afforestation of Degraded Shengle Ecological Zone in Helinge'er of Inner Mongolia, China, Project

### Region, Country

Helinge'er County, Hohhot, Inner Mongolia, China

### CCB Status

Validation Approved - CCB Standards Second Edition, Climate Adaptation Gold Level (Feb 1, 2013)

### CCB Auditor/Certifier

JACO CDM

### Project Documents

[pdf](#) Validation Report - 1/29/2013

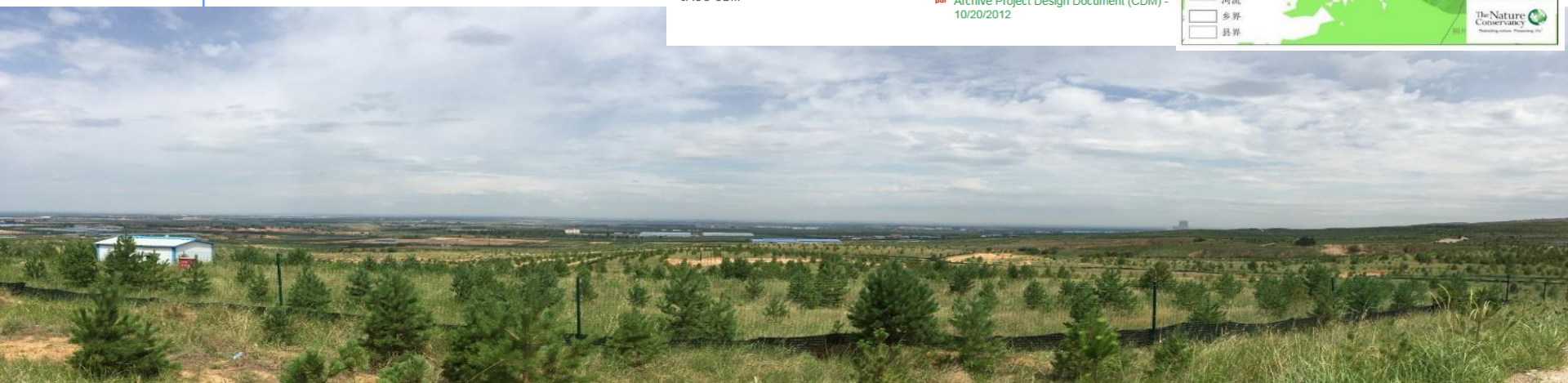
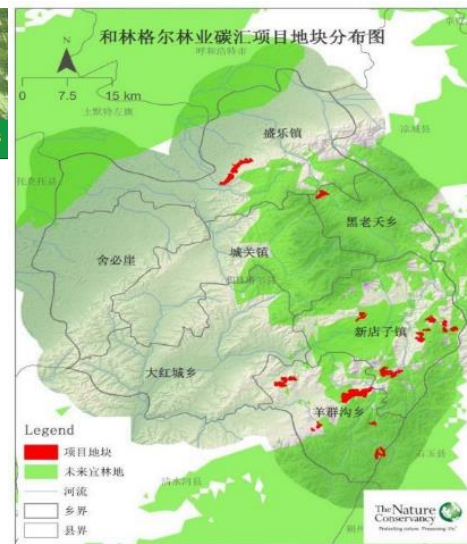
[pdf](#) Validation Statement - 2/1/2013

[pdf](#) Project Design Document - 11/13/2012

[pdf](#) Project Design Document (CDM) - 1/11/2013

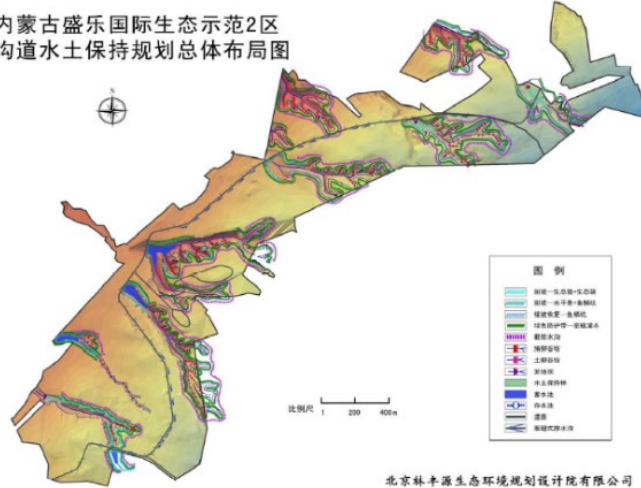
[pdf](#) Archive Project Design Document - 10/20/2012

[pdf](#) Archive Project Design Document (CDM) - 10/20/2012



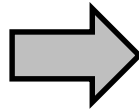
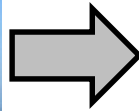
# Loess Gully Erosion Control

内蒙古盛乐国际生态示范2区  
沟道水土保持规划总体布局图



One year after restoration

# SLM Experience: Rain Feed and Efficient Chemicals Agriculture





# SLM Experience: Sustainable Grazing Management



# SLM: Under-growth Chicken Farm



# SLM Experience: Shrubs Management

