

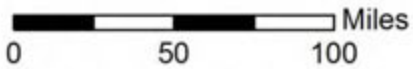
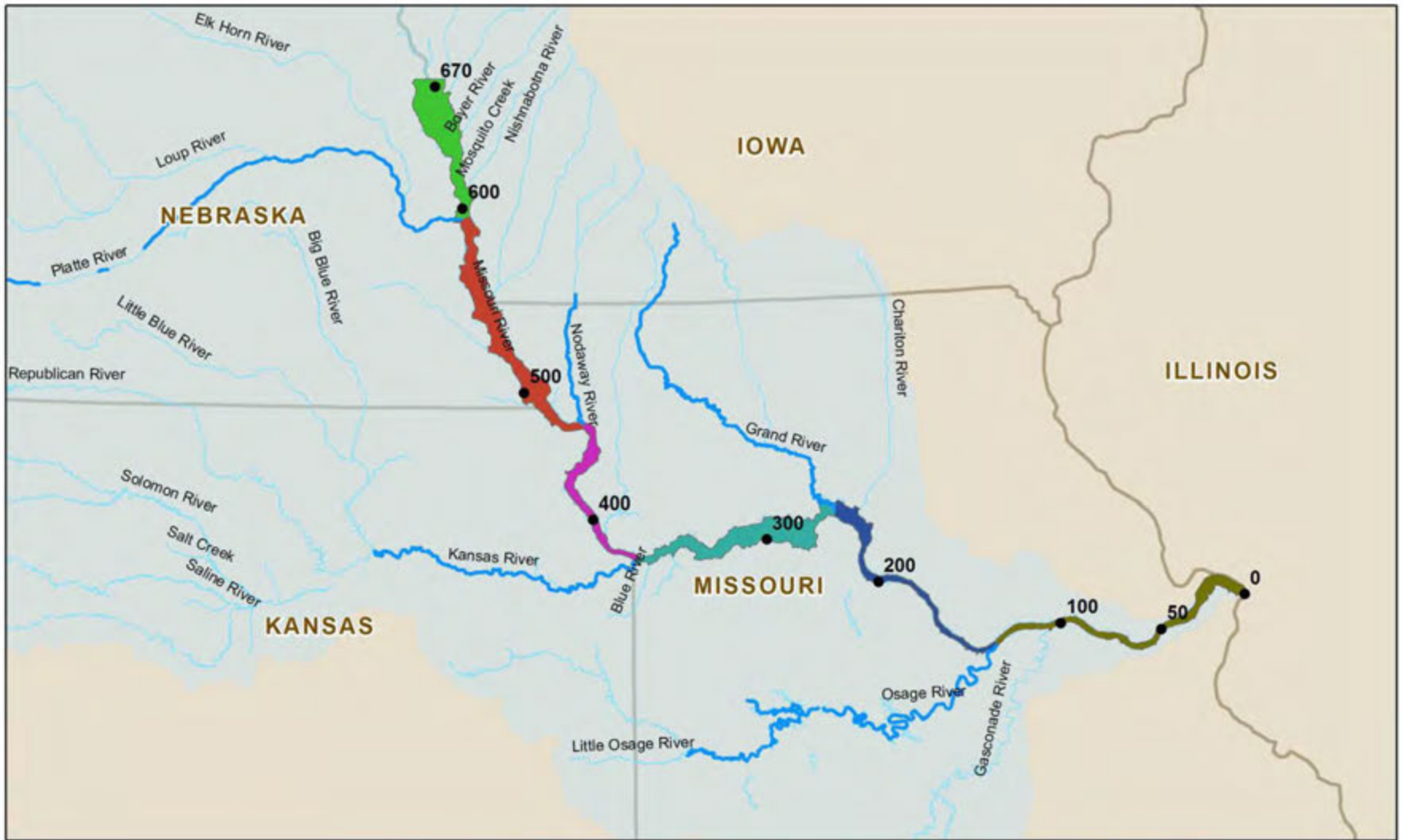
The **Hydro-Geomorphic Method (HGM)** within the *Missouri River* Floodplain Corridor



LANDSCAPE
CONSERVATION
COOPERATIVES

Presented by Verlon Barnes
NRCS Missouri River Basin Coordinator
August 19, 2015





-  Major Tributaries
-  Missouri River Watershed
-  River Miles
-  State Borders

Project Segments

-  River Mile 670 to Platte River
-  Platte River to Nodaway River
-  Nodaway River to Kansas River
-  Kansas River to Grand River
-  Grand River to Osage River
-  Osage River to Mississippi River

HGM = Hydro-Geomorphic Method

Includes data such as:

Geomorphology +

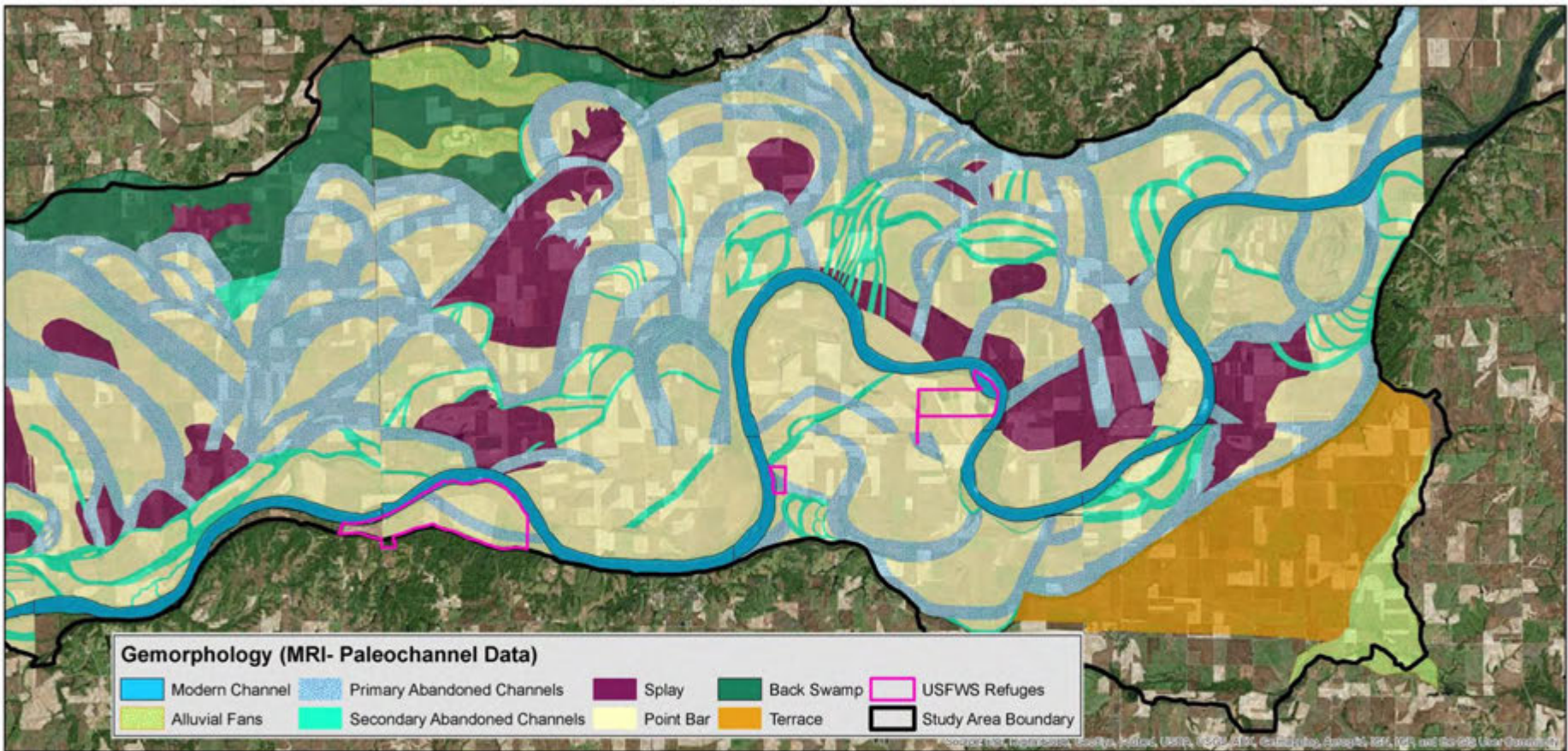
Soils +

Elevation +

Flood Frequency +

Vegetation/Habitat Community +

and/or Other Pertinent Data



**RM 264 to RM 309
Big Muddy NFWR**

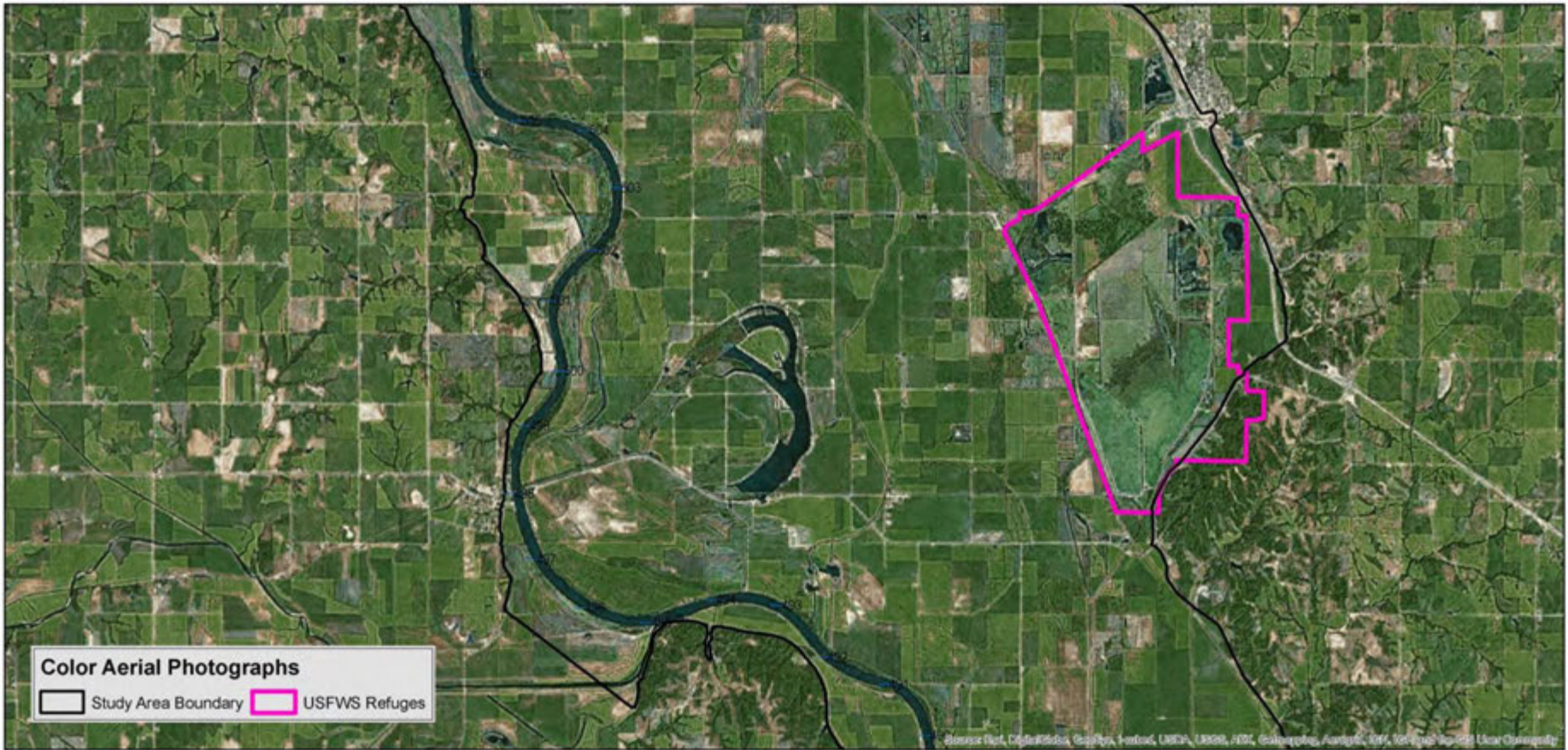


0 1.5 3 Miles

0 3 6 Kilometers



Geomorphology – Paleochannel Data from Missouri River Institute



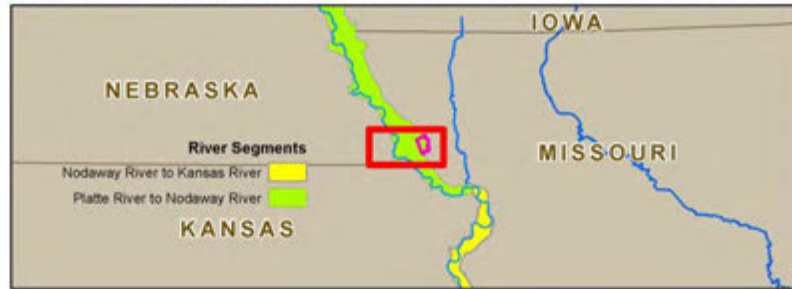
RM 490 to RM 506
Sqauw Creek NFWR



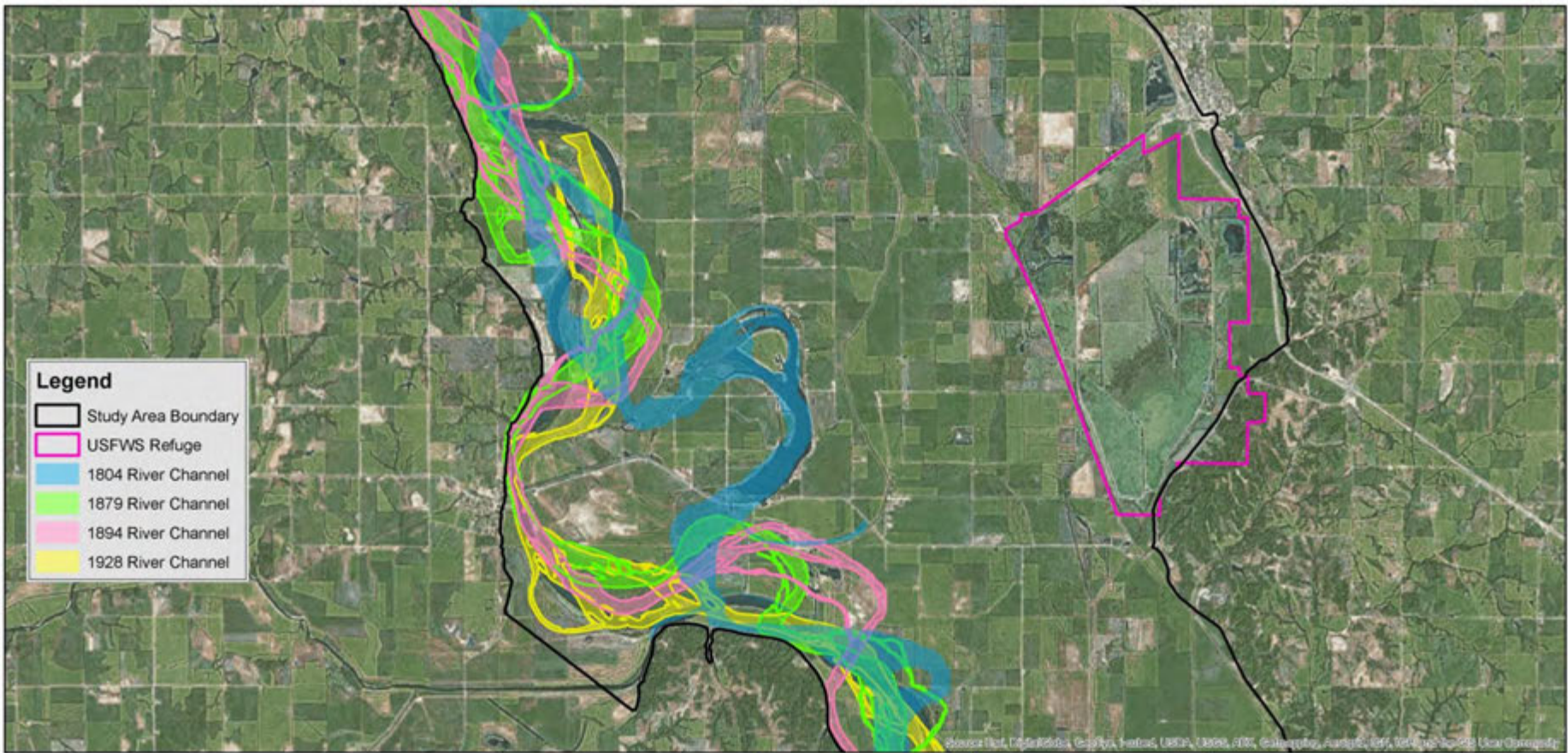
NORTH

0 1.25 2.5 Miles

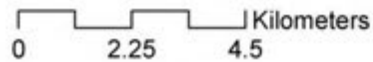
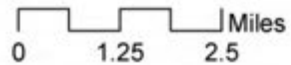
0 2.25 4.5 Kilometers



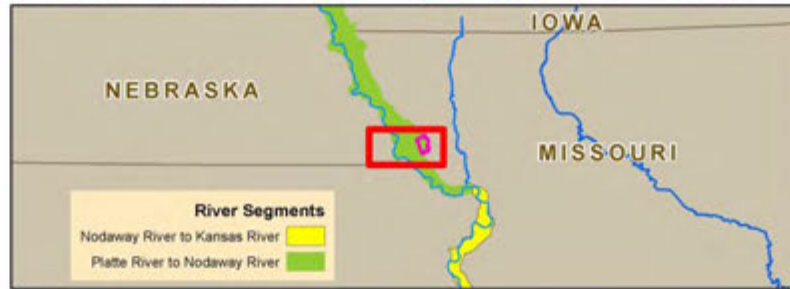
Current Aerial Photography



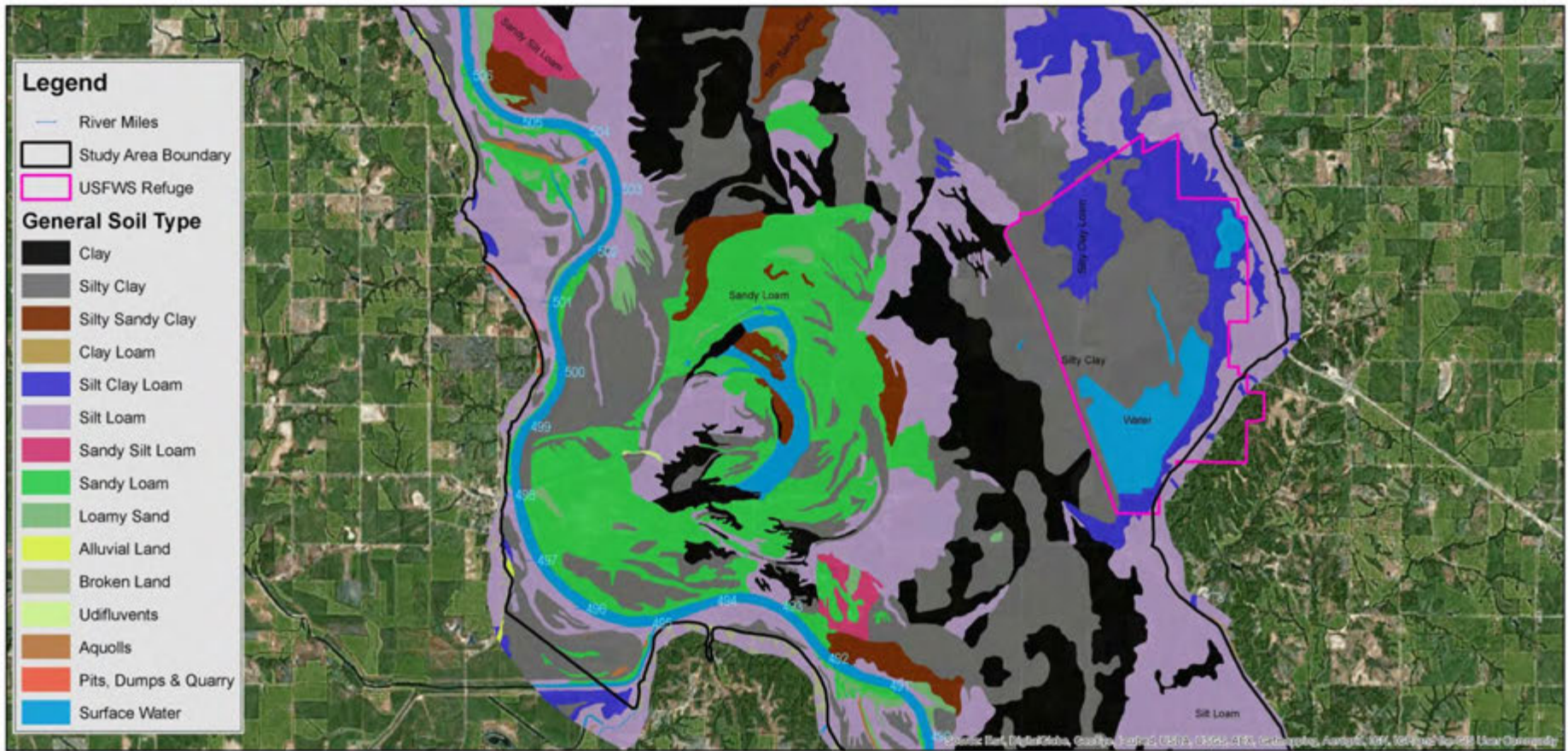
**RM 490 to RM 510
Squaw Creek NWR**



NORTH



Historic River Channel Alignments (USACE Geodatabase)

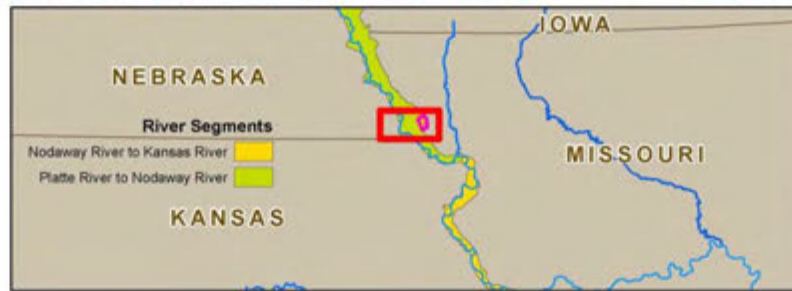


RM 490 to RM 506
Sqaauw Creek NFWR

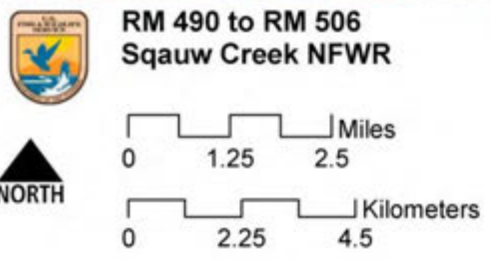
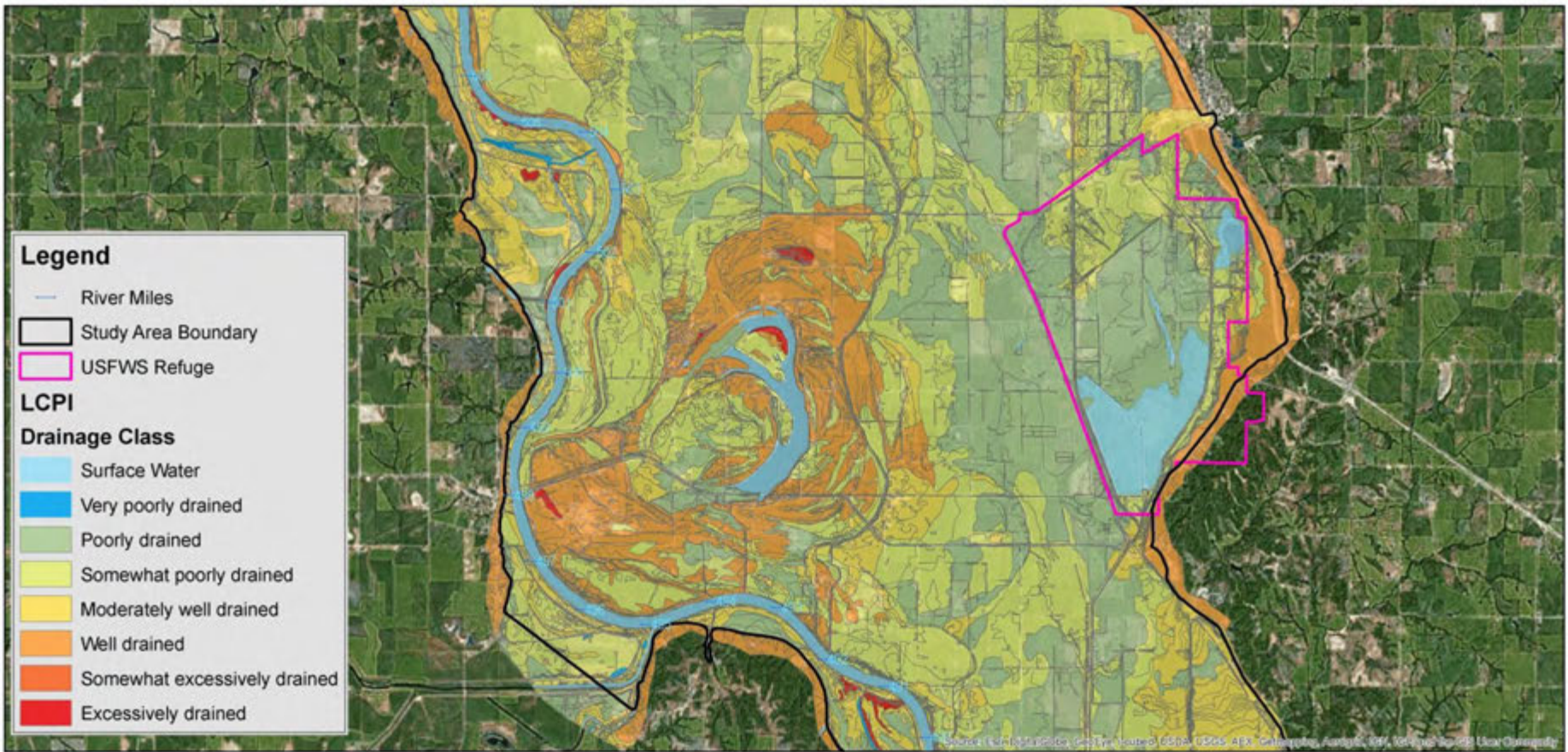


0 1.25 2.5 Miles

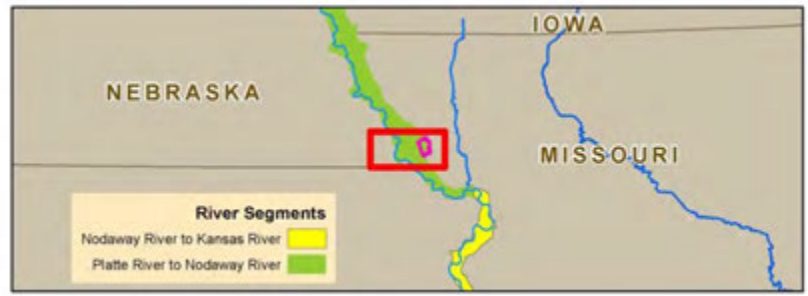
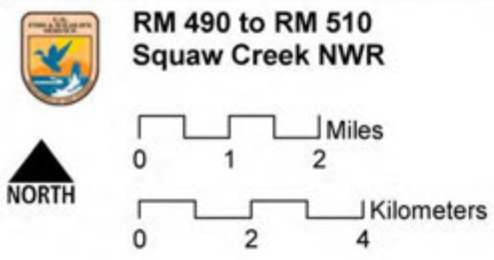
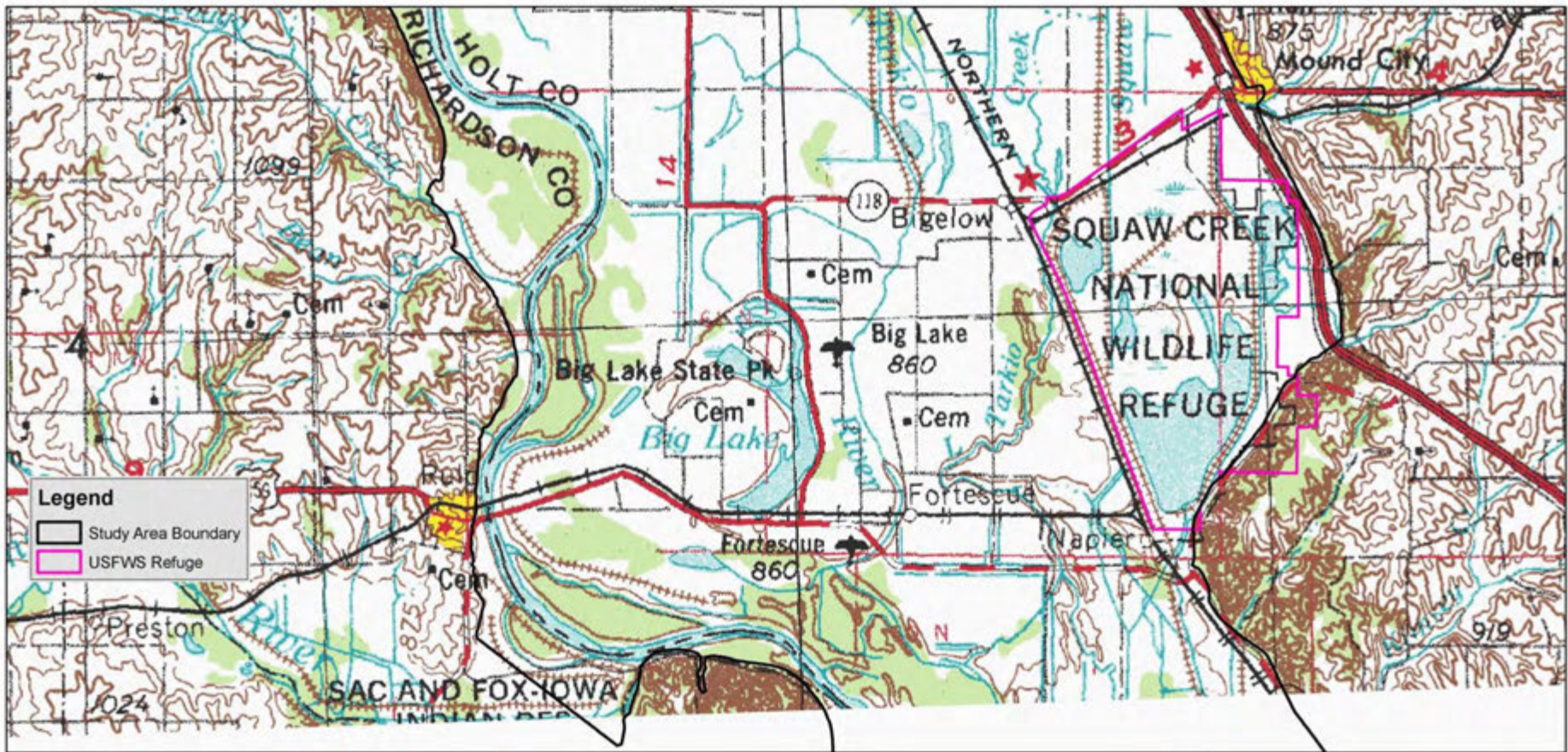
0 2.25 4.5 Kilometers



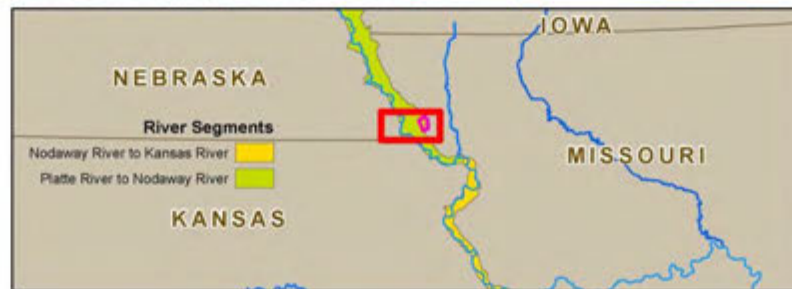
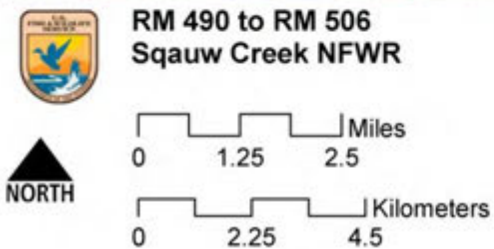
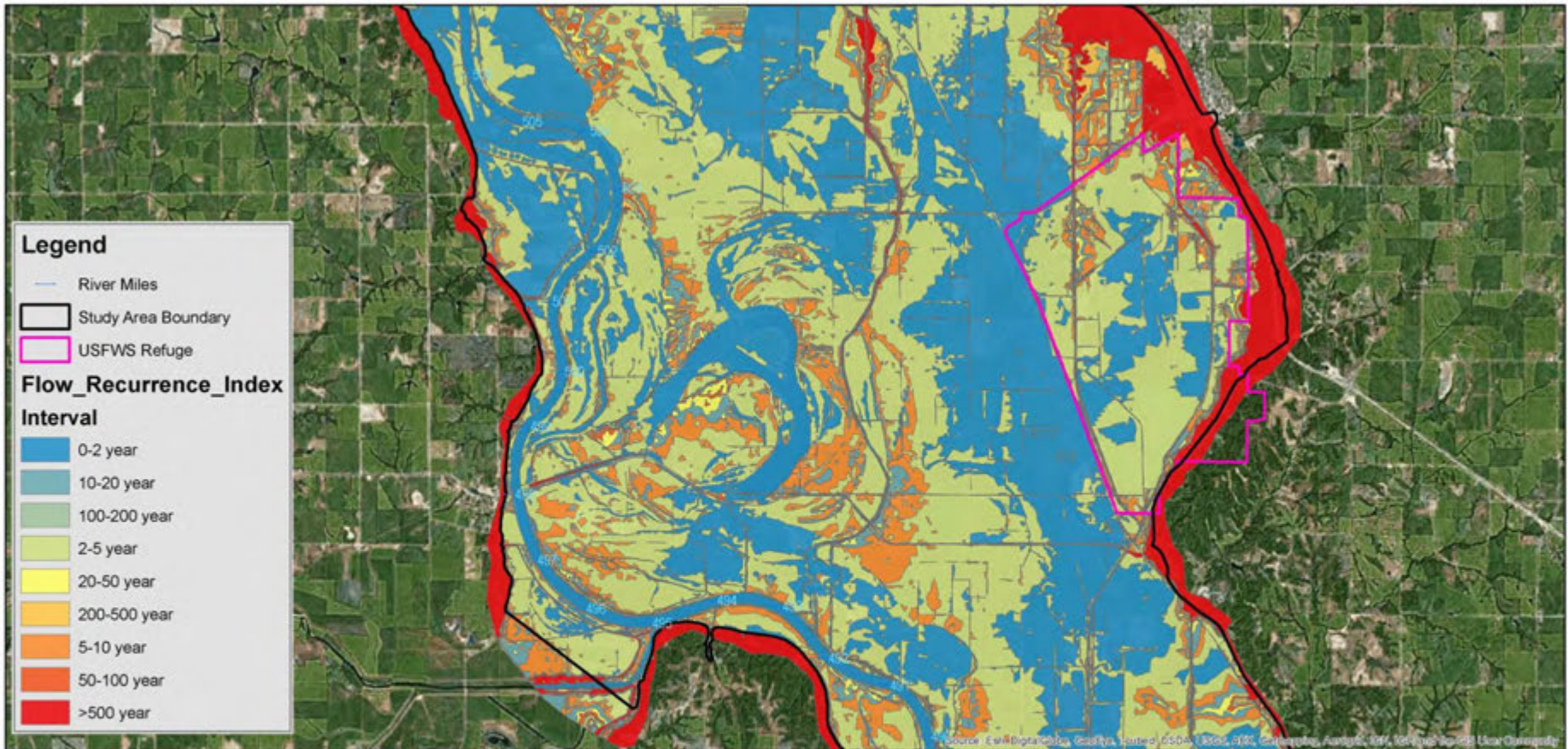
USDA SSURGO Soil Types



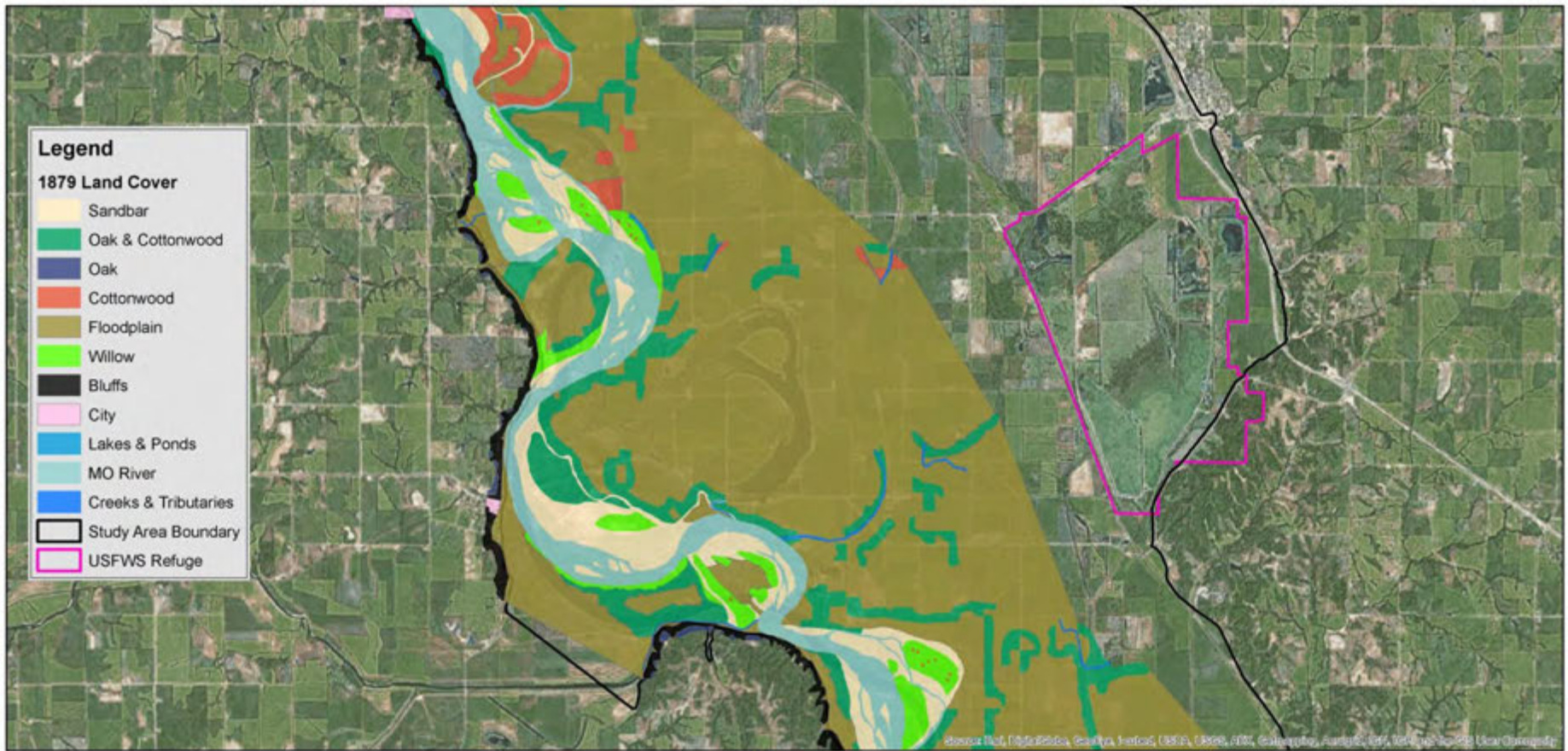
LCPI-Soil Drainage Classes



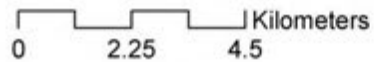
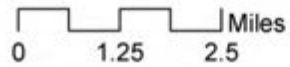
USGS 250K Topographic Map



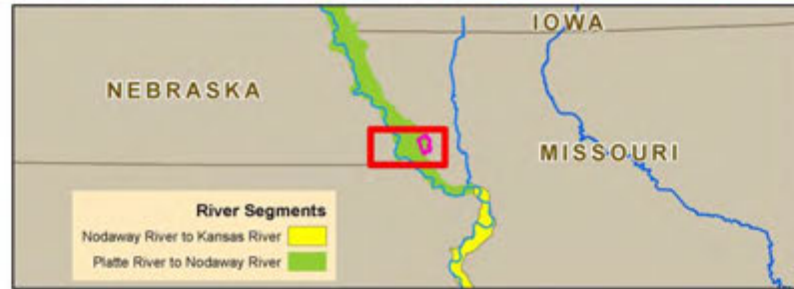
LCPI-Flow Recurrence Index



**RM 490 to RM 510
Squaw Creek NWR**

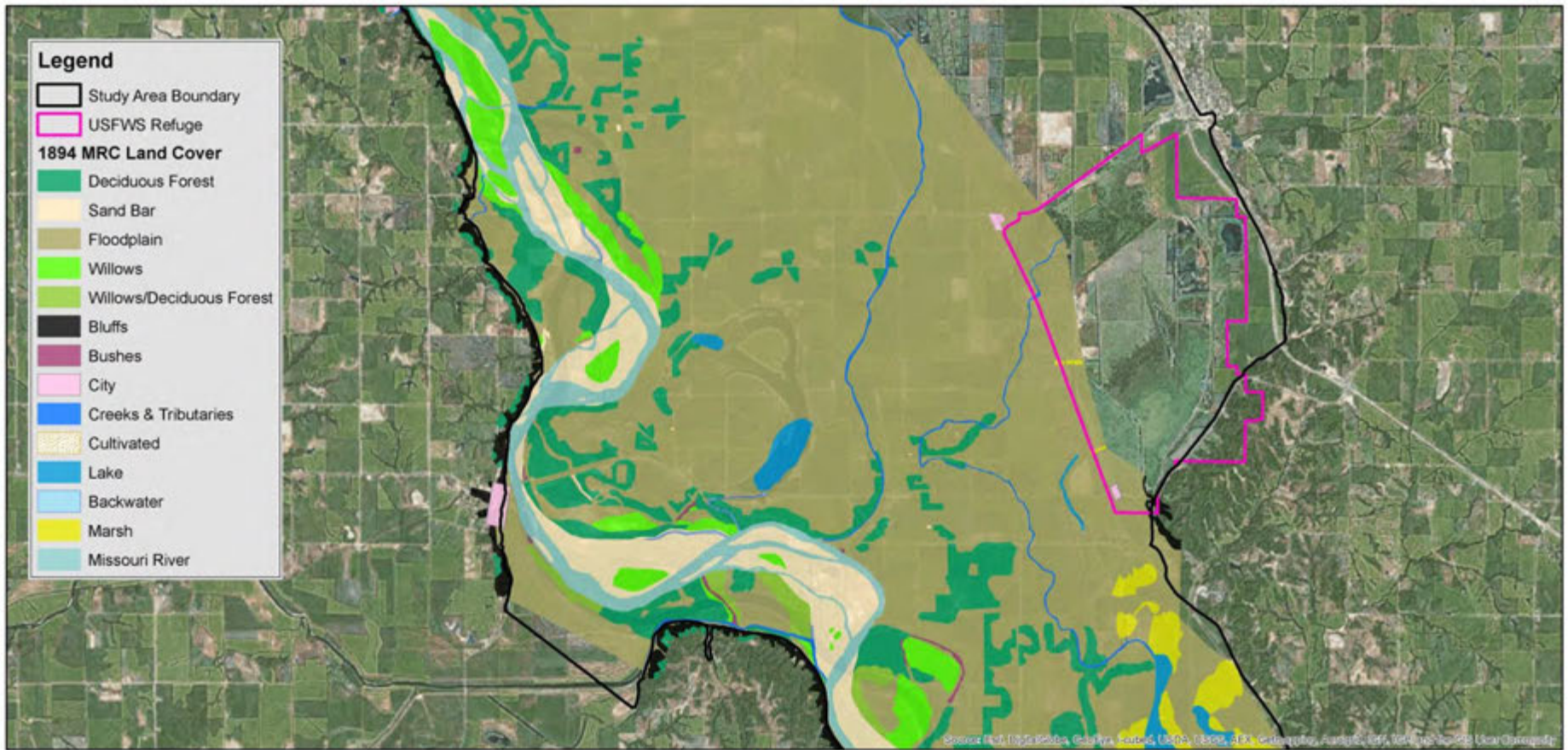


NORTH



1879 Missouri River Commission (MRC) Map





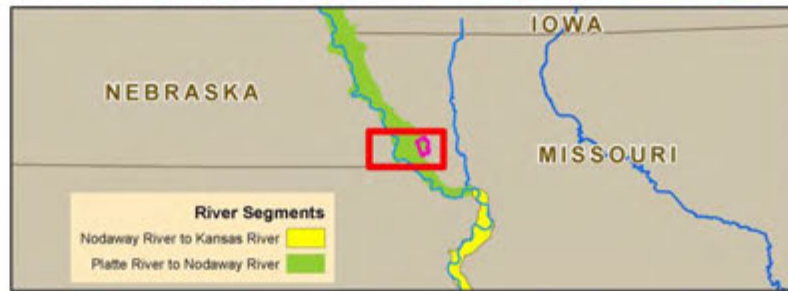
**RM 490 to RM 510
Squaw Creek NWR**

0 1.25 2.5 Miles

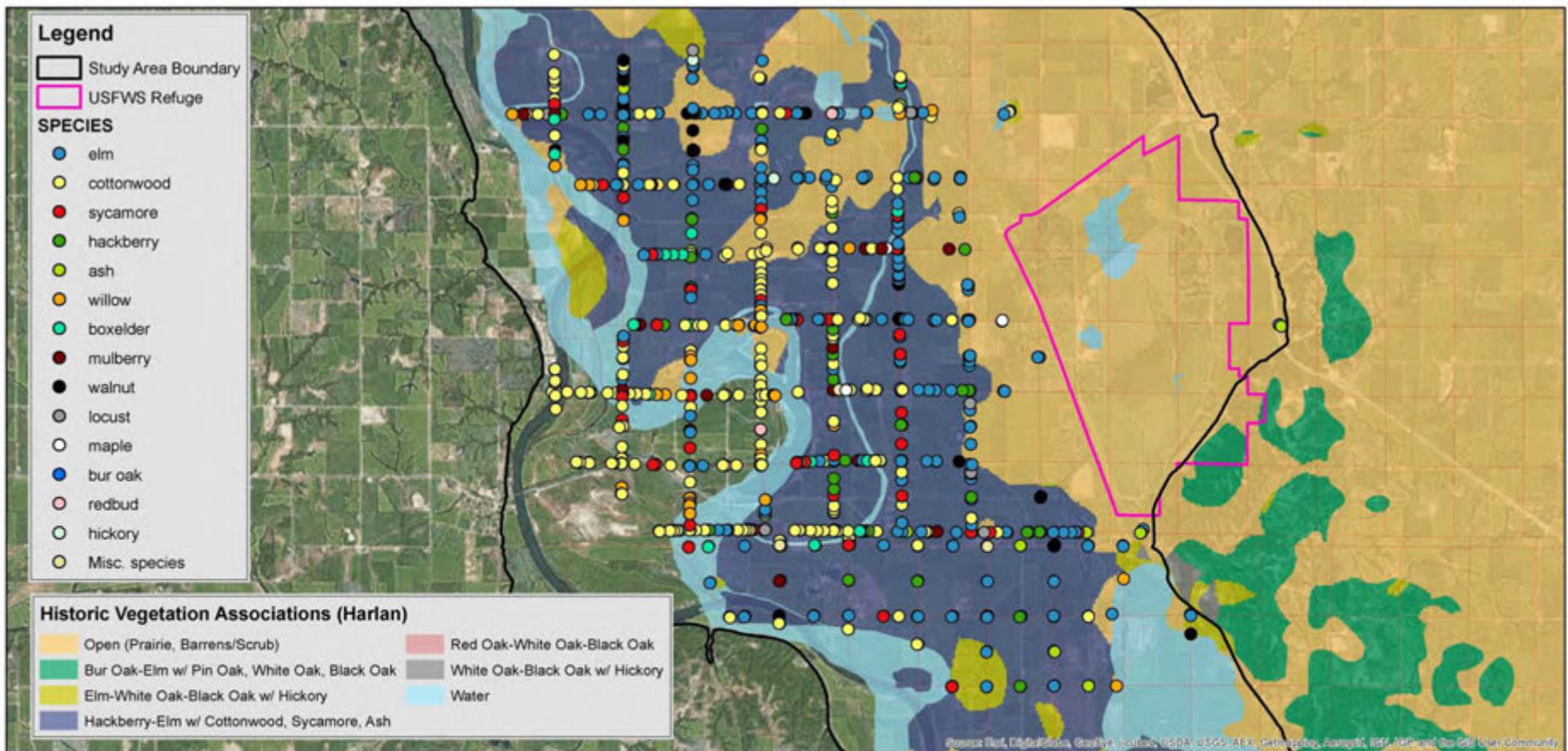
0 2.25 4.5 Kilometers



NORTH



1894 Missouri River Commission (MRC) Map



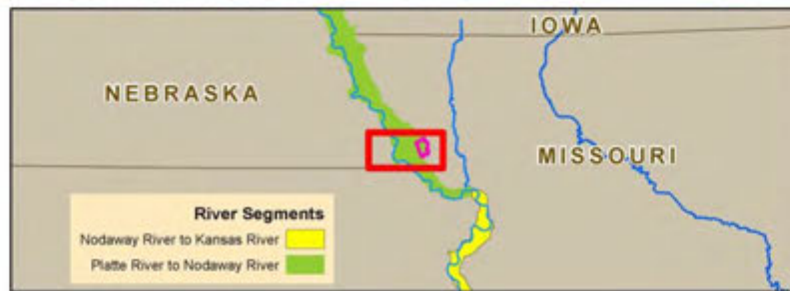
**RM 490 to RM 510
Squaw Creek NWR**

0 1.25 2.5 Miles

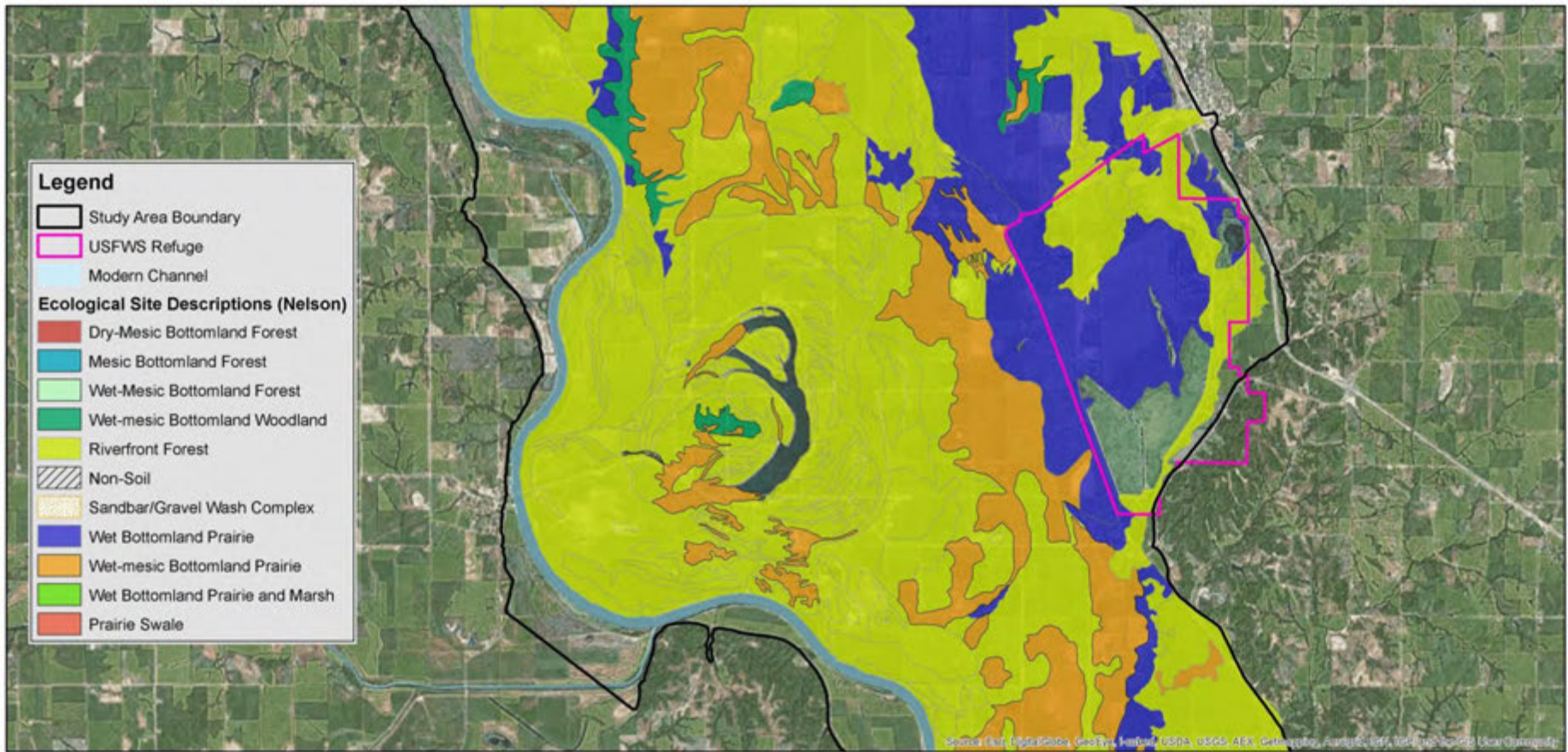
0 2.25 4.5 Kilometers



NORTH



Historic Vegetation and Witness Tree Mapping



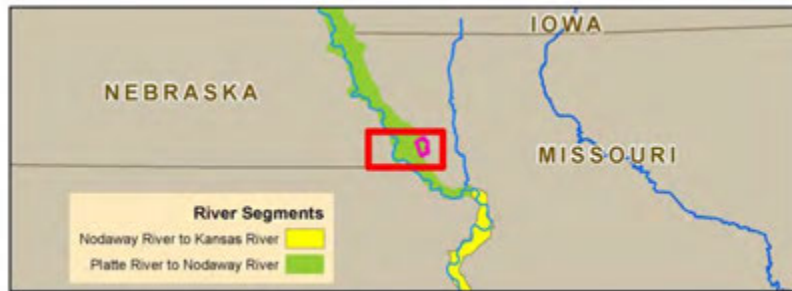
**RM 490 to RM 510
Squaw Creek NWR**



NORTH

0 1.25 2.5 Miles

0 2.25 4.5 Kilometers



Nelson Ecological Site Description (ESD) Mapping

HGM Matrix - Continued

Habitat	Geomph	Soils	Flood Freq.	Elevation
Floodpl. Forest	New ch. belt	Silt-Clay	1-2 yr	451-452.5
BLH	Trib fan, terraces	Silt-Clay	2-5 yr	> 452.5
Slope Forest	Alluvial fan	Mixed Erosional	> 5 yr	> 456
Bottom Prairie	Old channel terraces	Silt-Clay	2-5 yr	> 455

The Beauty of the HGM Matrix

- History and Science determines what belongs where – no subjectivity!
- Landscape based – places the project into proper context of its position and habitats
- Identifies the ecological processes and “drivers” needed to restore communities

The Final Product

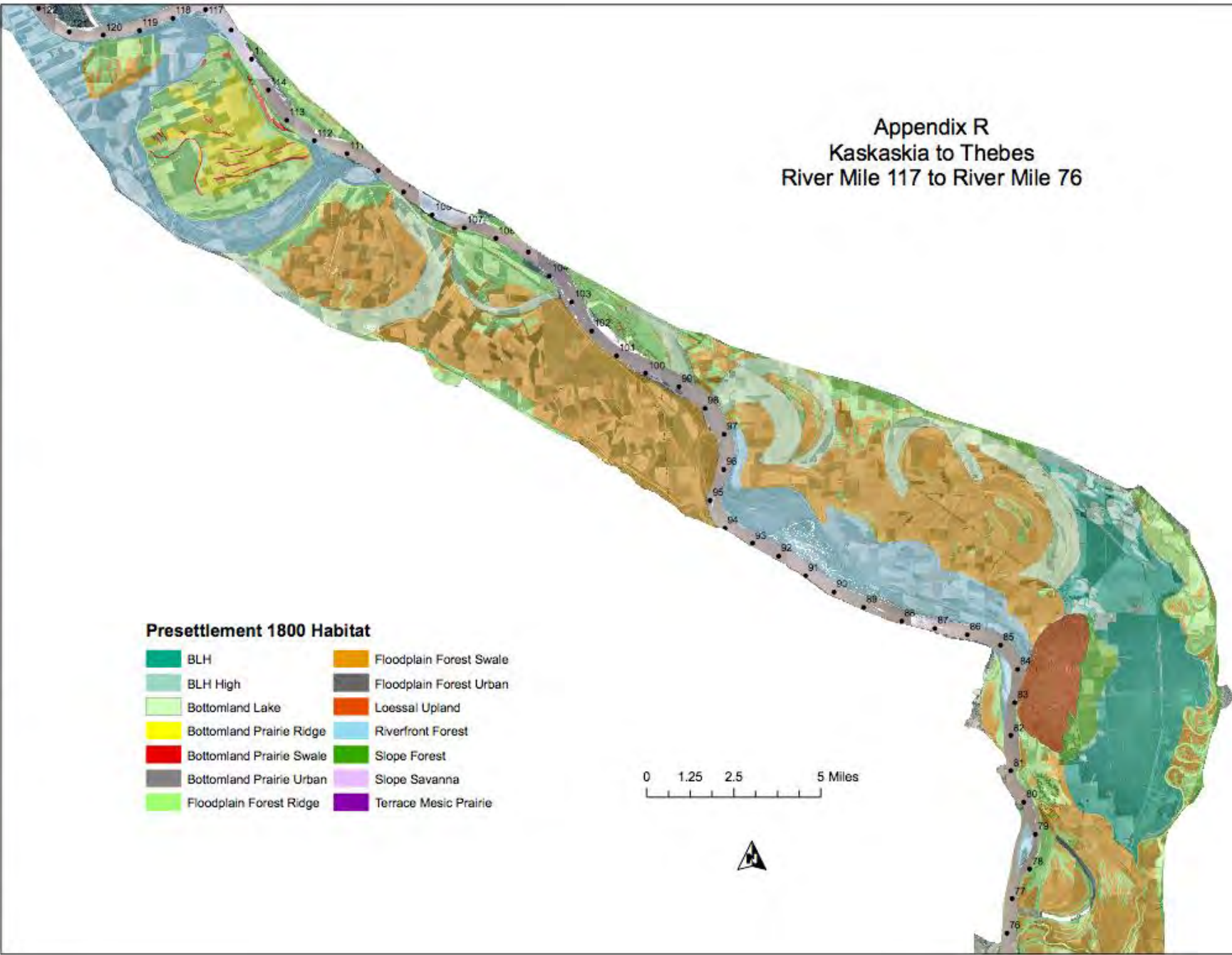
- A “true” biological plan that:
 - Identifies restoration and management options for various resource objectives
 - Serves as a basis for decisions about development, modification, and operation of infrastructure

Appendix R
Kaskaskia to Thebes
River Mile 117 to River Mile 76

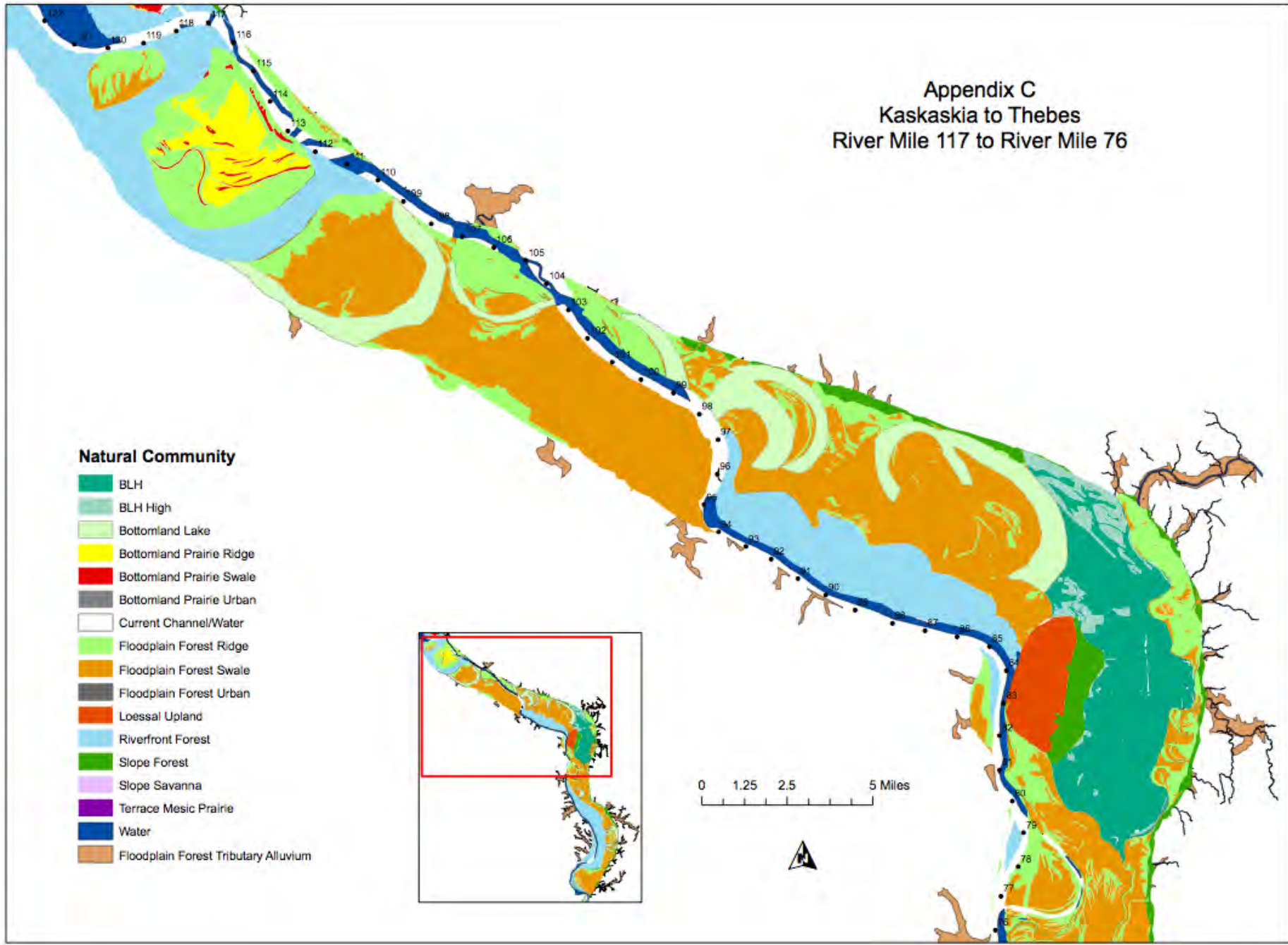
Presettlement 1800 Habitat

- | | |
|--|---|
|  BLH |  Floodplain Forest Swale |
|  BLH High |  Floodplain Forest Urban |
|  Bottomland Lake |  Loessal Upland |
|  Bottomland Prairie Ridge |  Riverfront Forest |
|  Bottomland Prairie Swale |  Slope Forest |
|  Bottomland Prairie Urban |  Slope Savanna |
|  Floodplain Forest Ridge |  Terrace Mesic Prairie |

0 1.25 2.5 5 Miles



Appendix C
Kaskaskia to Thebes
River Mile 117 to River Mile 76



First Phase

- Lower 670 miles of Missouri River
- FWS Region 3 National Wildlife Refuge System
- Plains and Prairie Pothole LCC
- Eastern Tallgrass Prairie and Big Rivers LCC
- December 2015

Second Phase

- Miles 670-~810 (up to Gavins Point) of Missouri River
- Nebraska NRCS
- December 2016

Questions?



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