Whooping Crane Riverine Roost Site Selection Update

Patrick Farrell

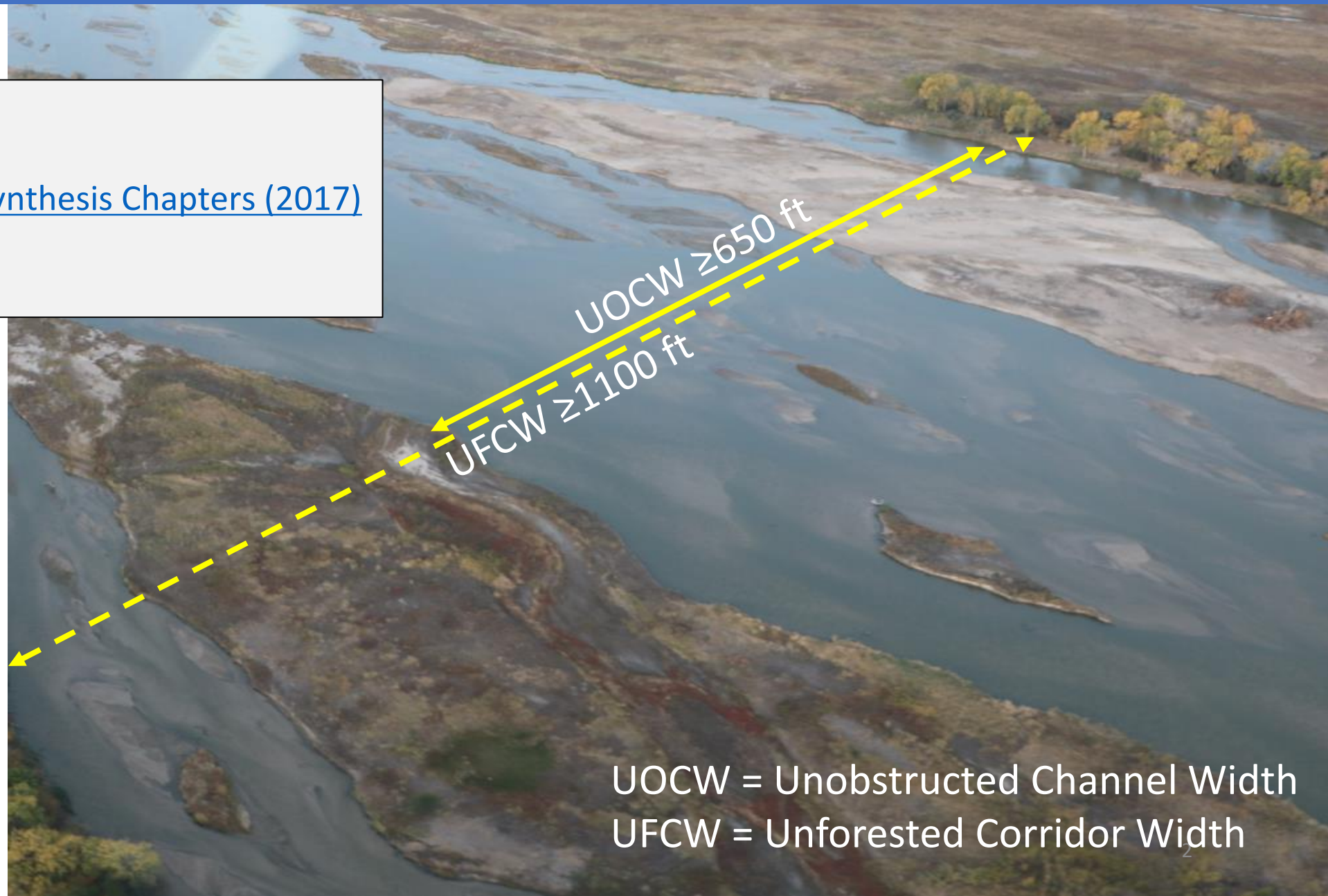
January 2024 TAC Meeting

Suitable Roosting Habitat - criteria

Howlin and Nasman (2017)

Whooping Crane Habitat Synthesis Chapters (2017)

Baasch et al. (2019)



UOCW = Unobstructed Channel Width
UFCW = Unforested Corridor Width

PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Suitable Roosting Habitat - Management

PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Objective

- Provide additional information for defining suitable roosting habitat.
  - Five more years of roost locations

- Results will guide Program management to:
  - Continue current land and water management
  - Adjust criteria for existing management characteristics and/or include new characteristics

Aerial Surveys

PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

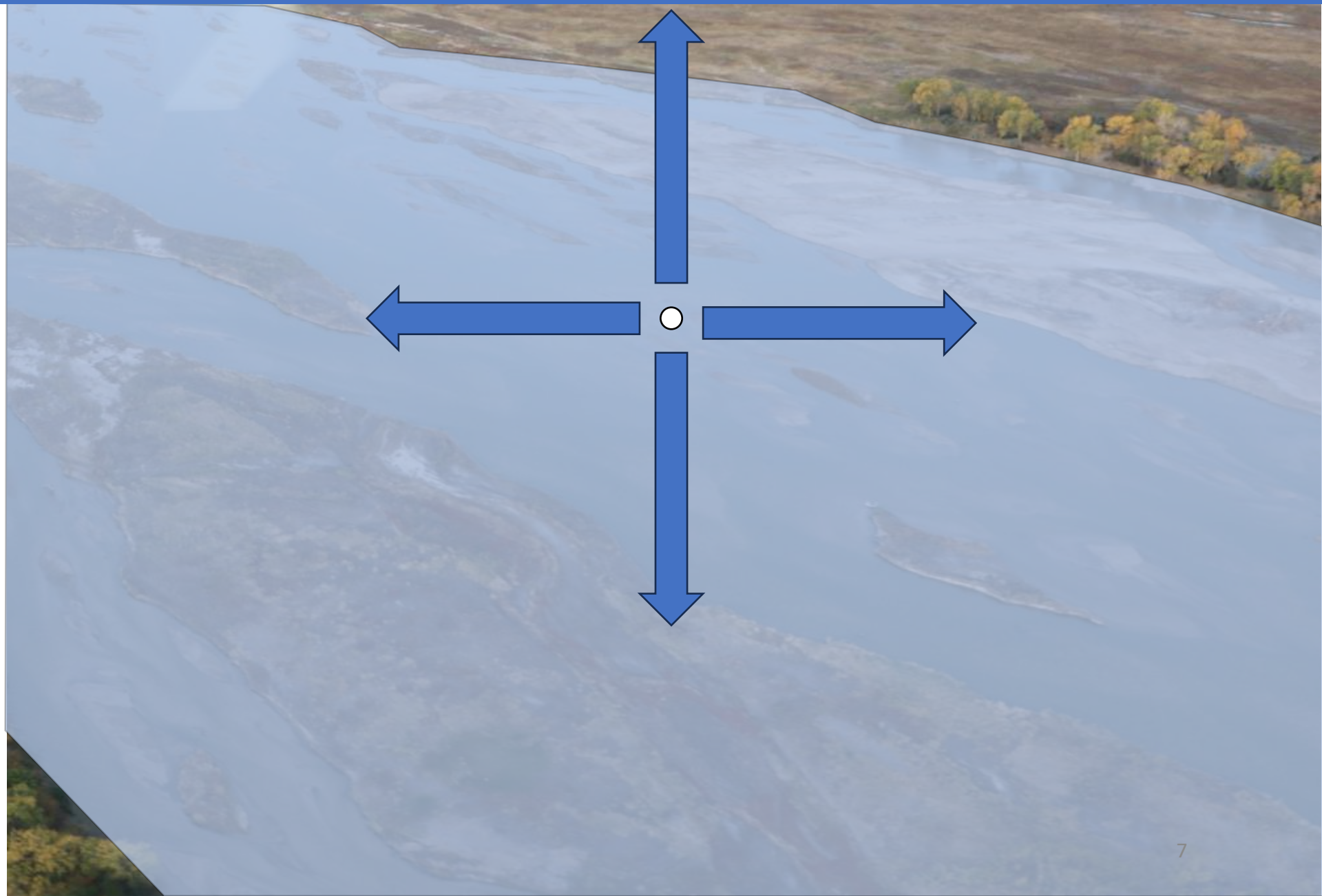
In-Channel Characteristics

- Unobstructed Channel Width (UOCW)
- Nearest Forest (NF)

PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

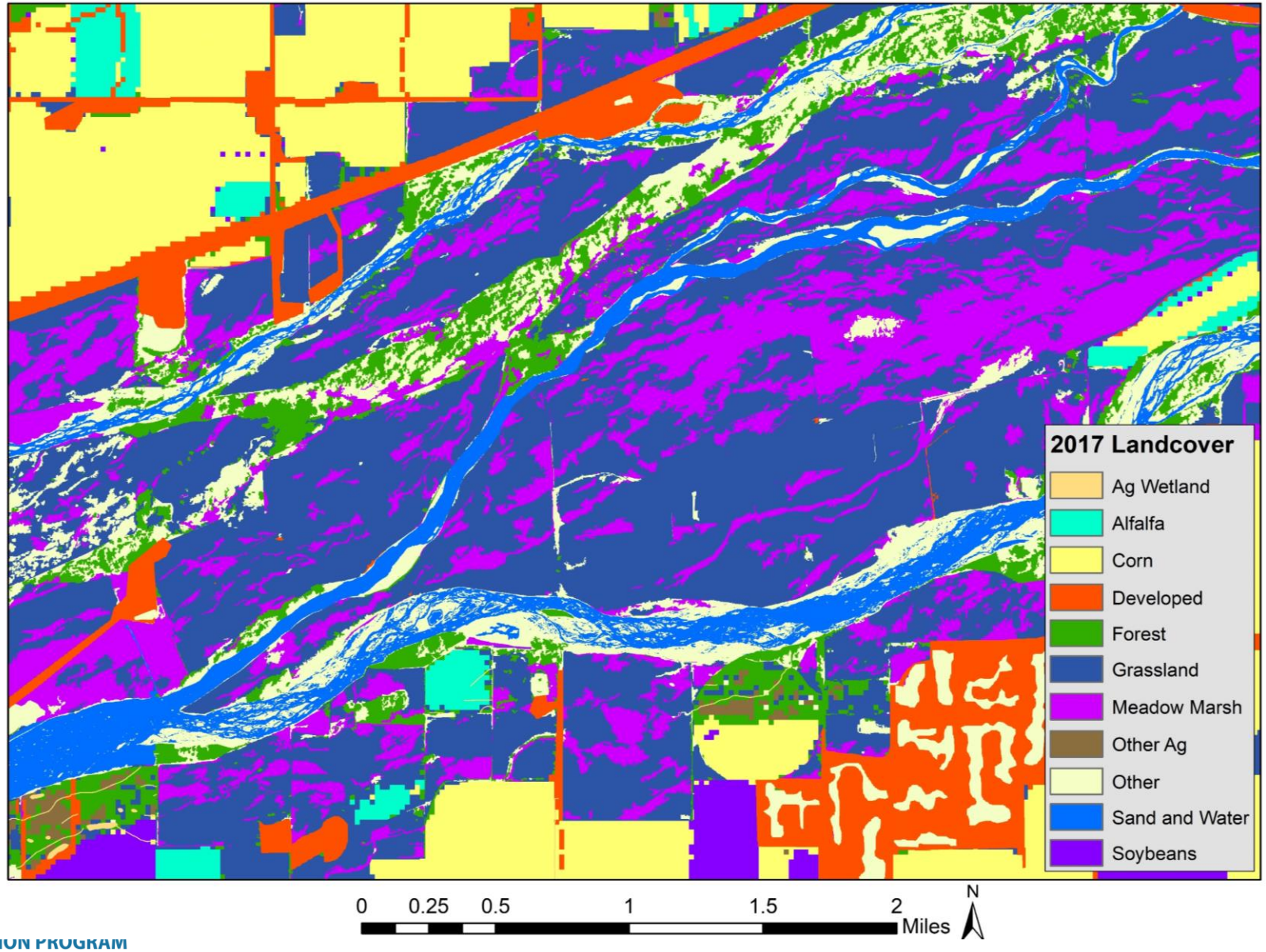
Off-Channel Characteristics

- Development (DE)
- Meadow Marsh (MM)



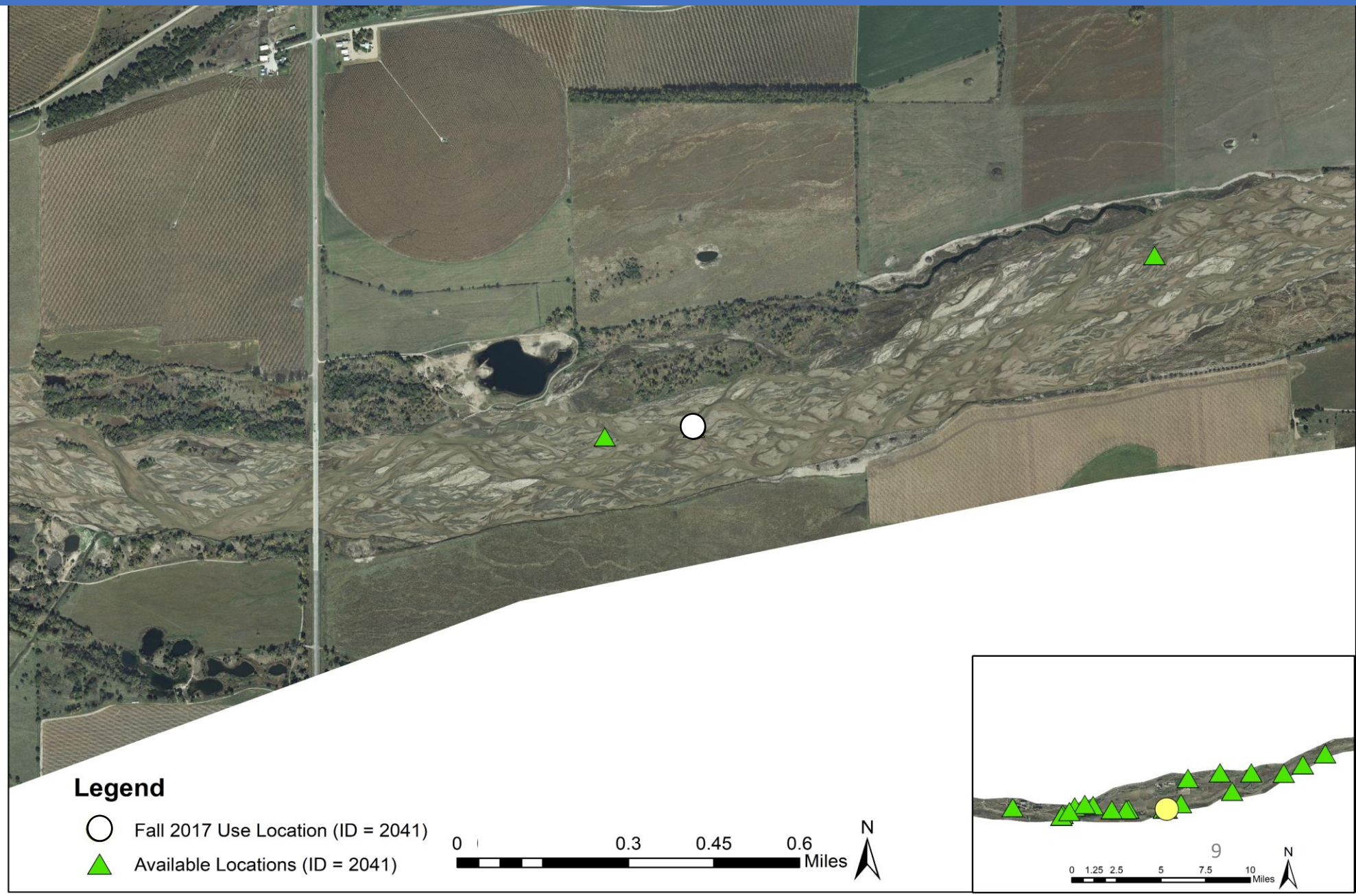
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Landcover



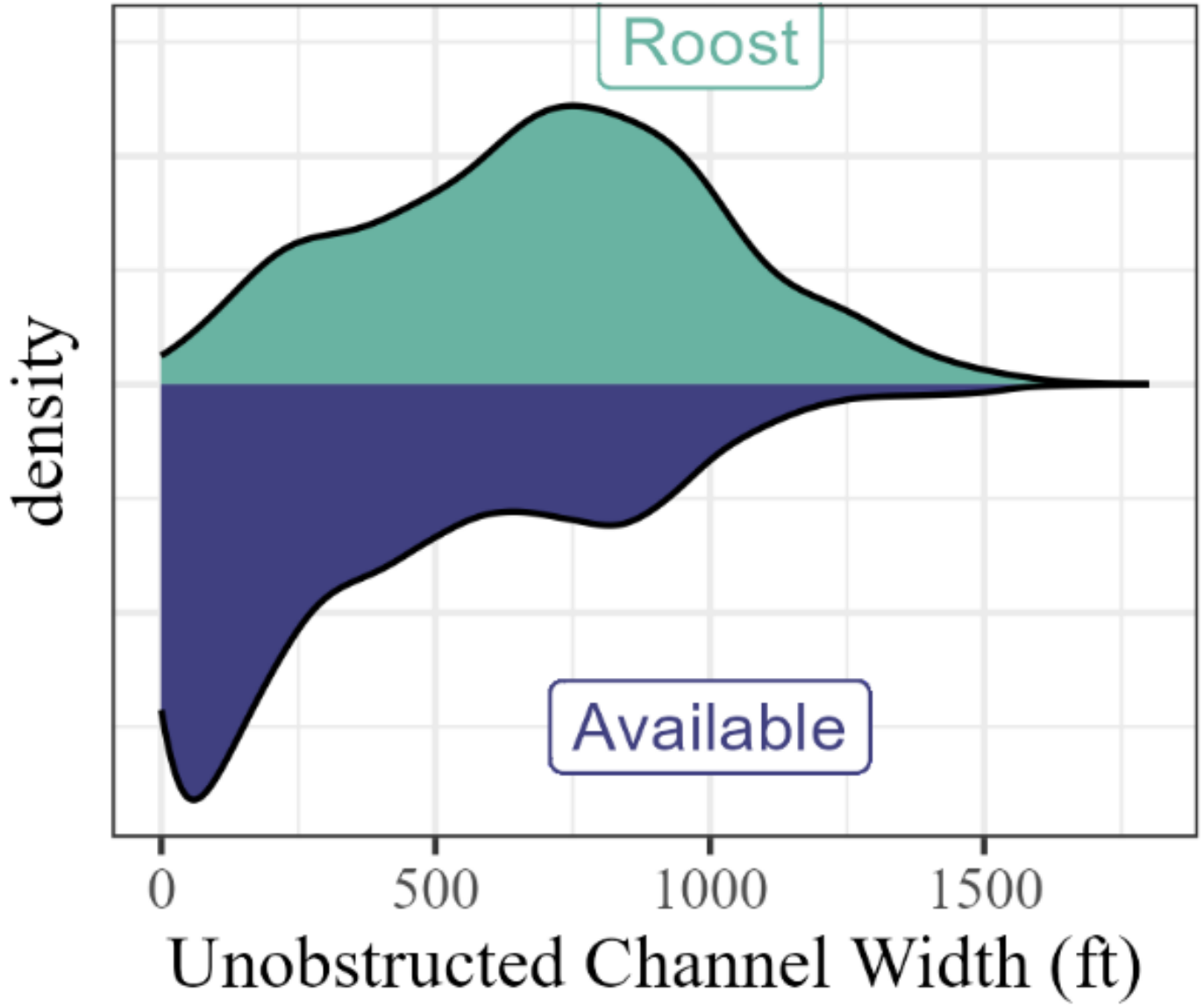
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Available Locations



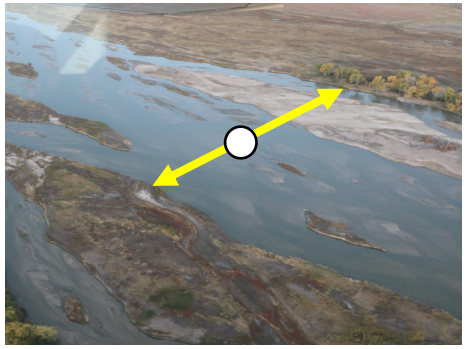
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

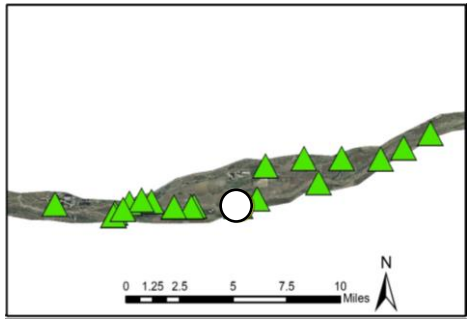
Results: Riverine Roost Data



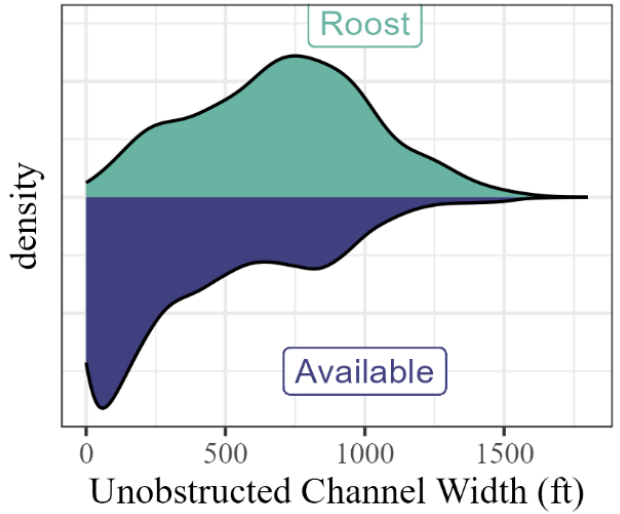
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

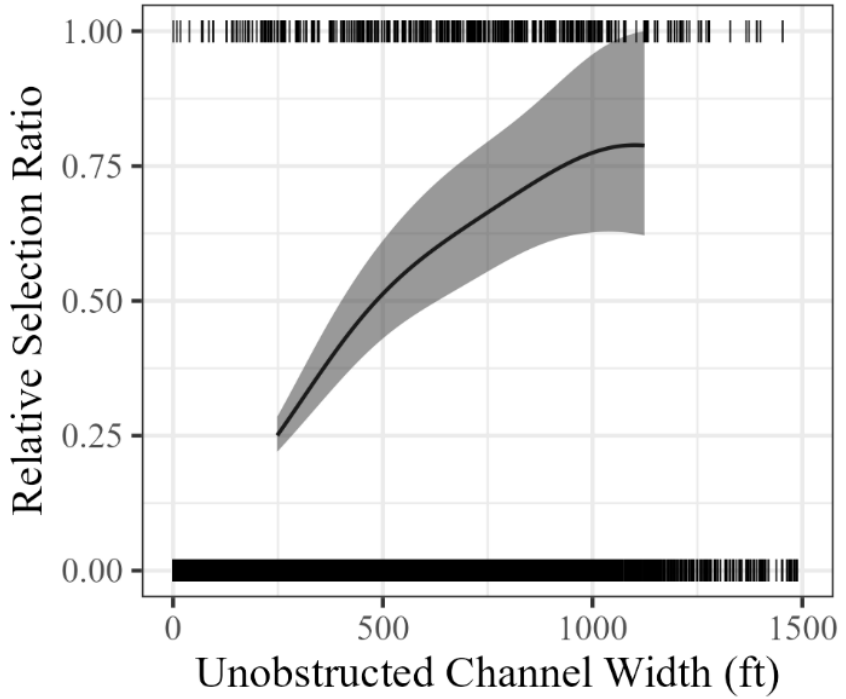
Ex. Unobstructed Channel Width





Selection within each Choice set





PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Suite of Models – Table 2

Model	Models	Interpretation
1	NULL	Habitat selection is random
2		
3		
4		
5	In-Channel	
6		
7		
8		
9		
10		
11		
12		
13	Off-Channel	
14		
15		
16		
17		
18		
19		
20		
21		
22		
23	In-channel and Off-Channel	
24		
25		
26		
27		
28		

PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

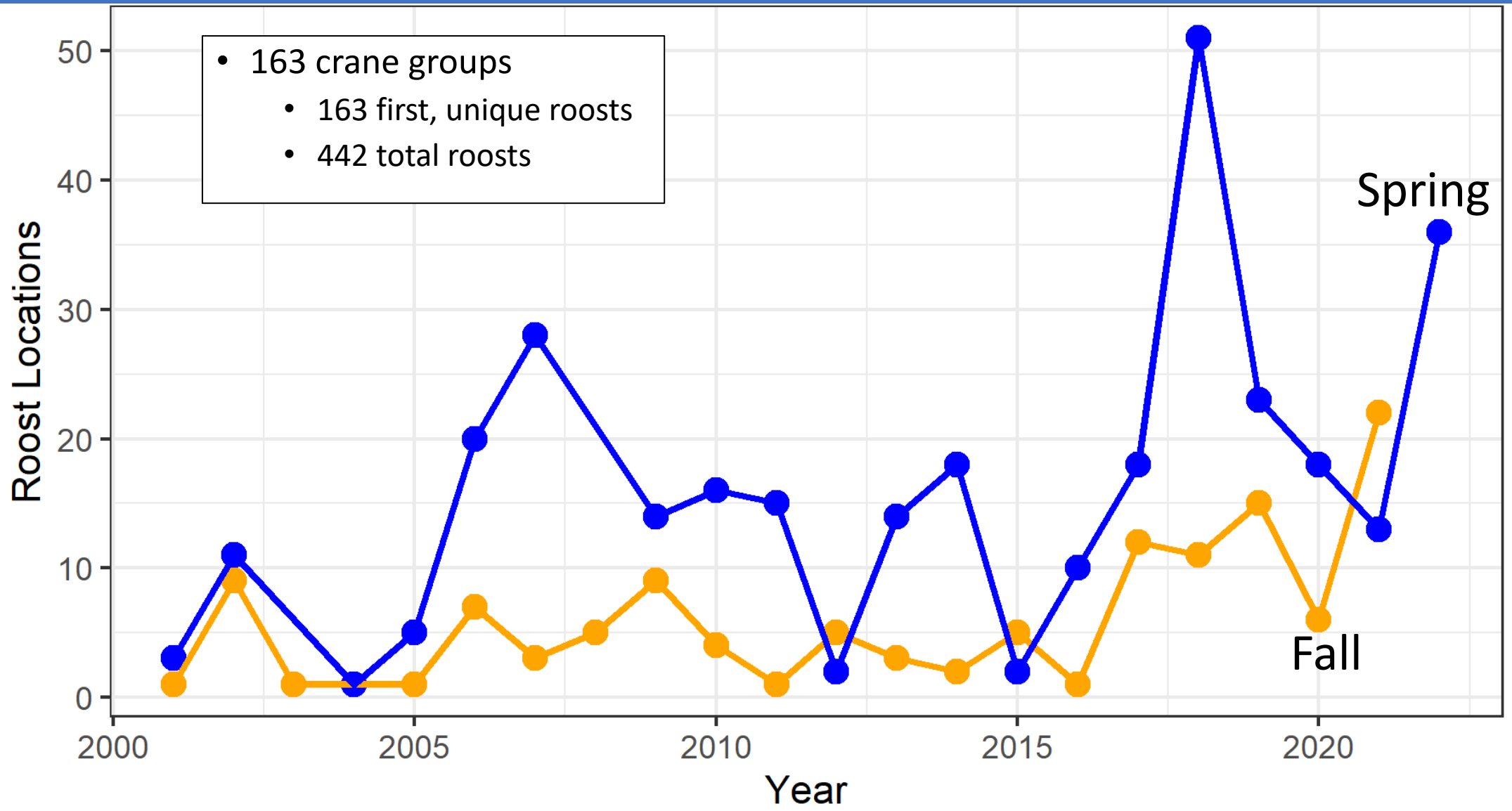
Model Selection

$$AIC = 2K - 2(\text{log-likelihood})$$

*K = number of parameters

PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Riverine Roost Data



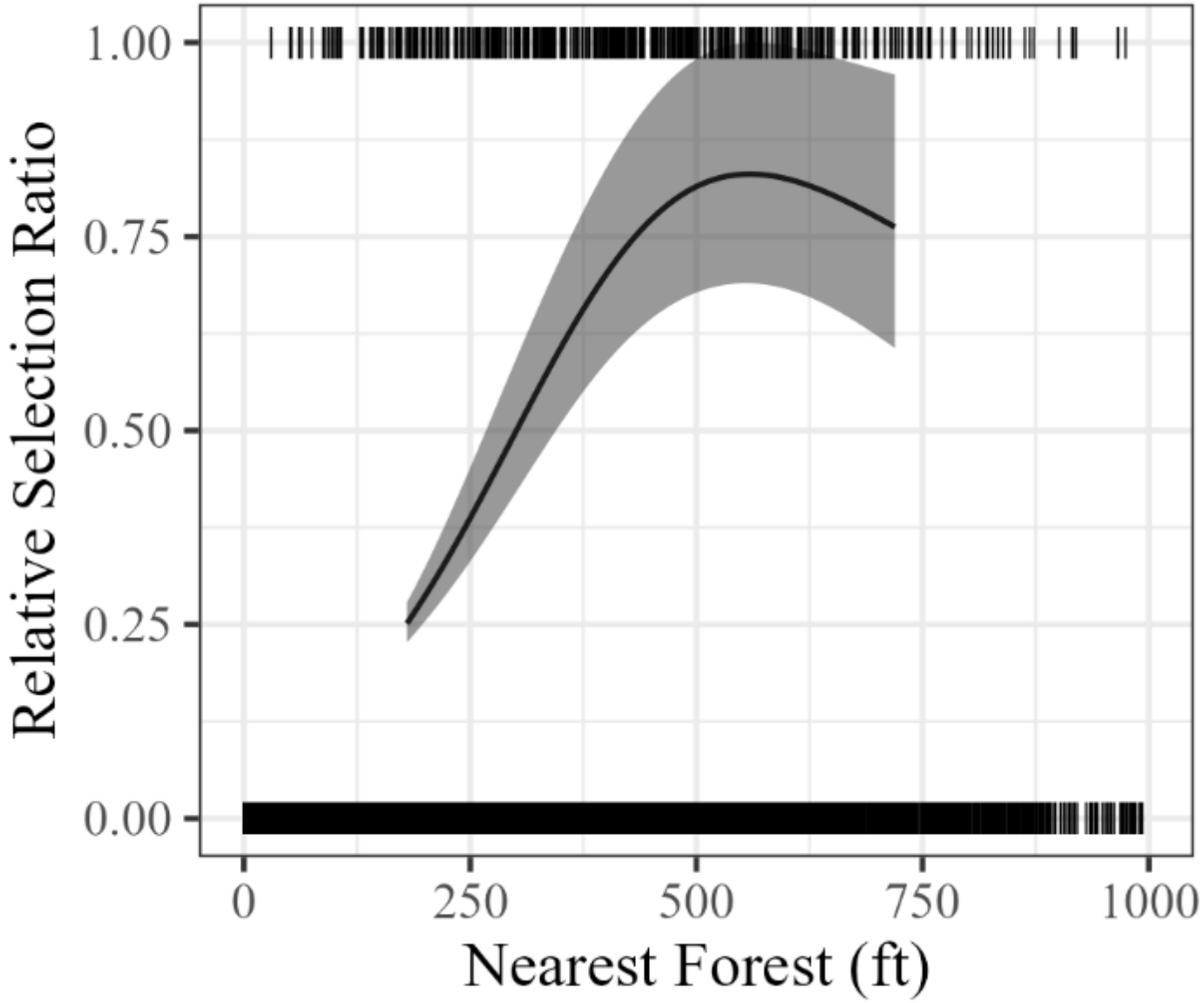
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Top Model – Table 4

Model	Variables	df	AIC	ΔAIC	Weight
27	UOCW + NF + MM + AW + DE	174.32	2784.93	0.00	0.28
28	UOCW + NF + MM + AW + DE + UOCW*DE	174.32	2784.93	0.00	0.28
22	UOCW + NF + DE + UOCW*DE	169.76	2785.19	0.26	0.25
21	**UOCW + NF + DE**	**170.02**	**2785.73**	**0.80**	**0.19**
24	UOCW + NF + MM + AW	173.56	2796.67	11.74	0.00

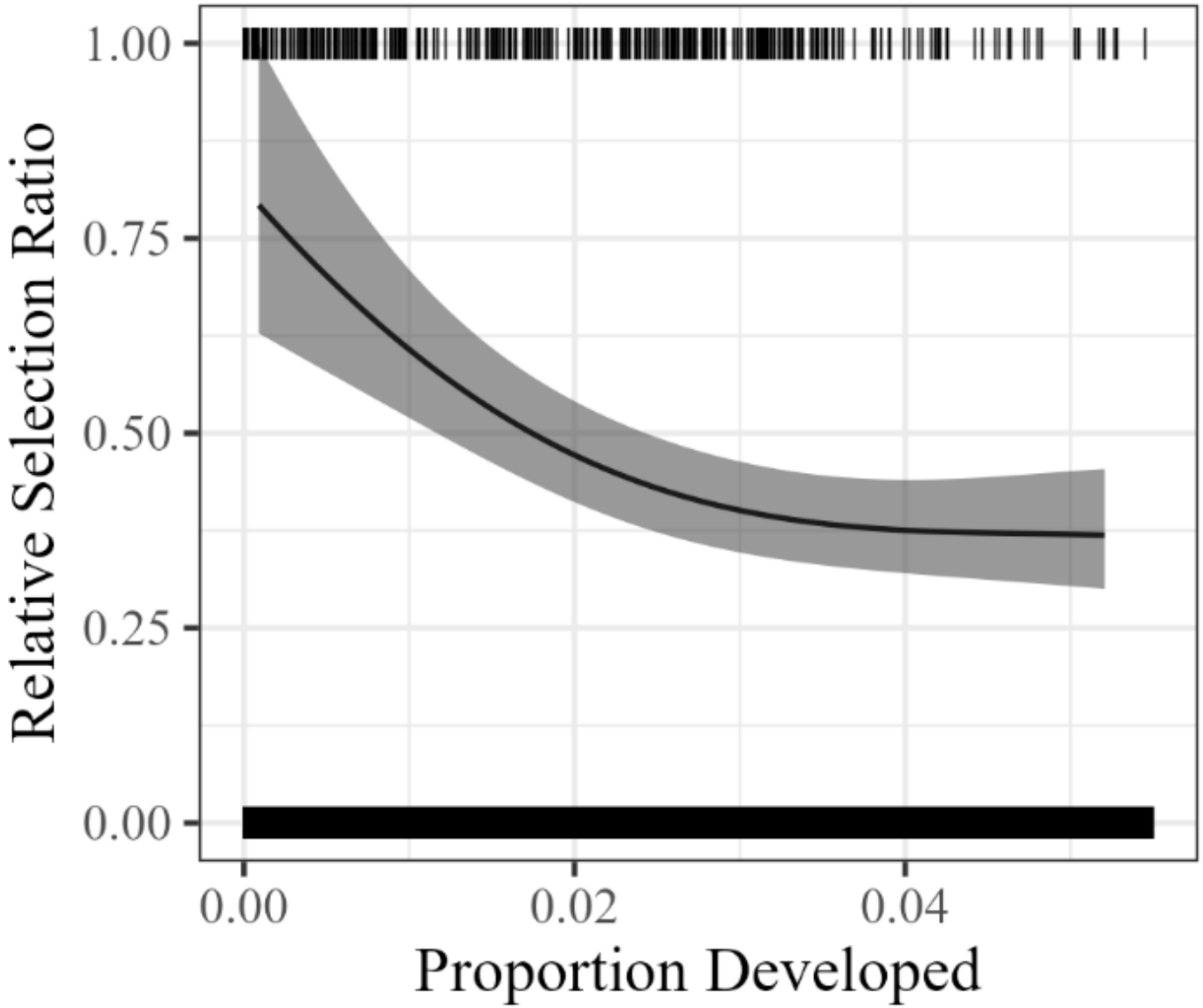
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Results: Nearest Forest



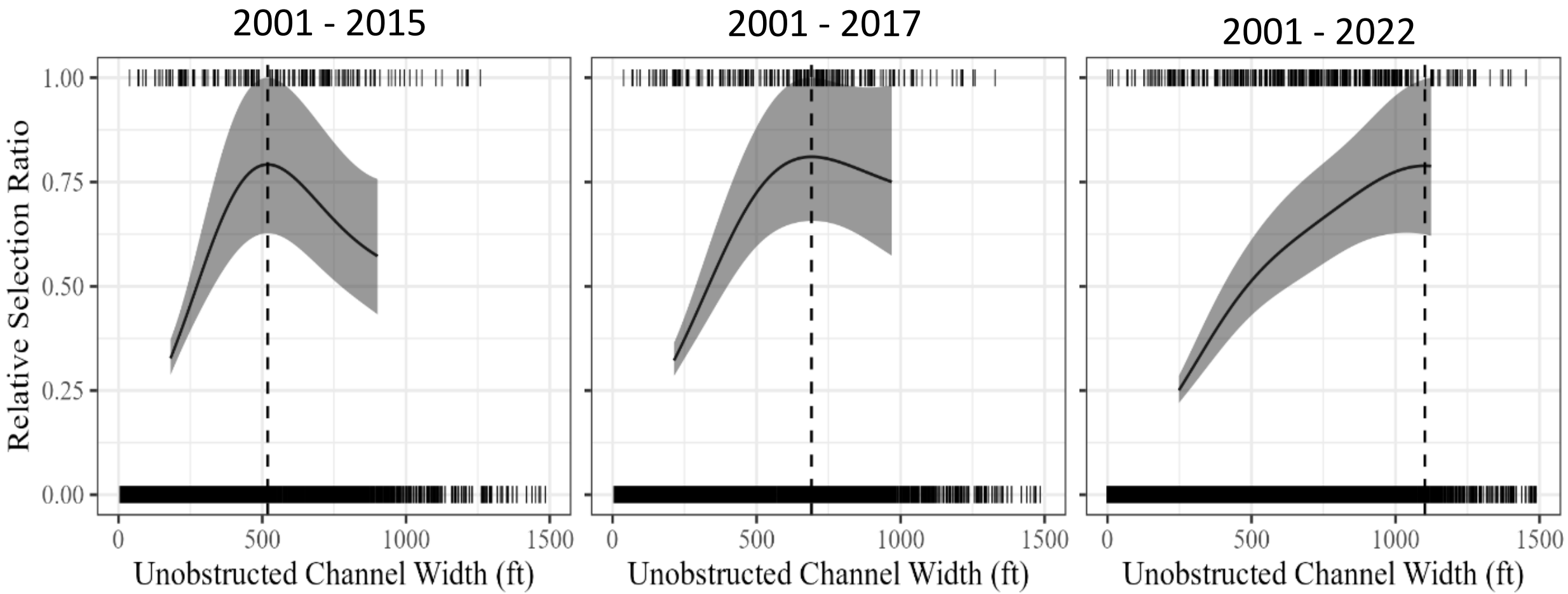
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Results: Development



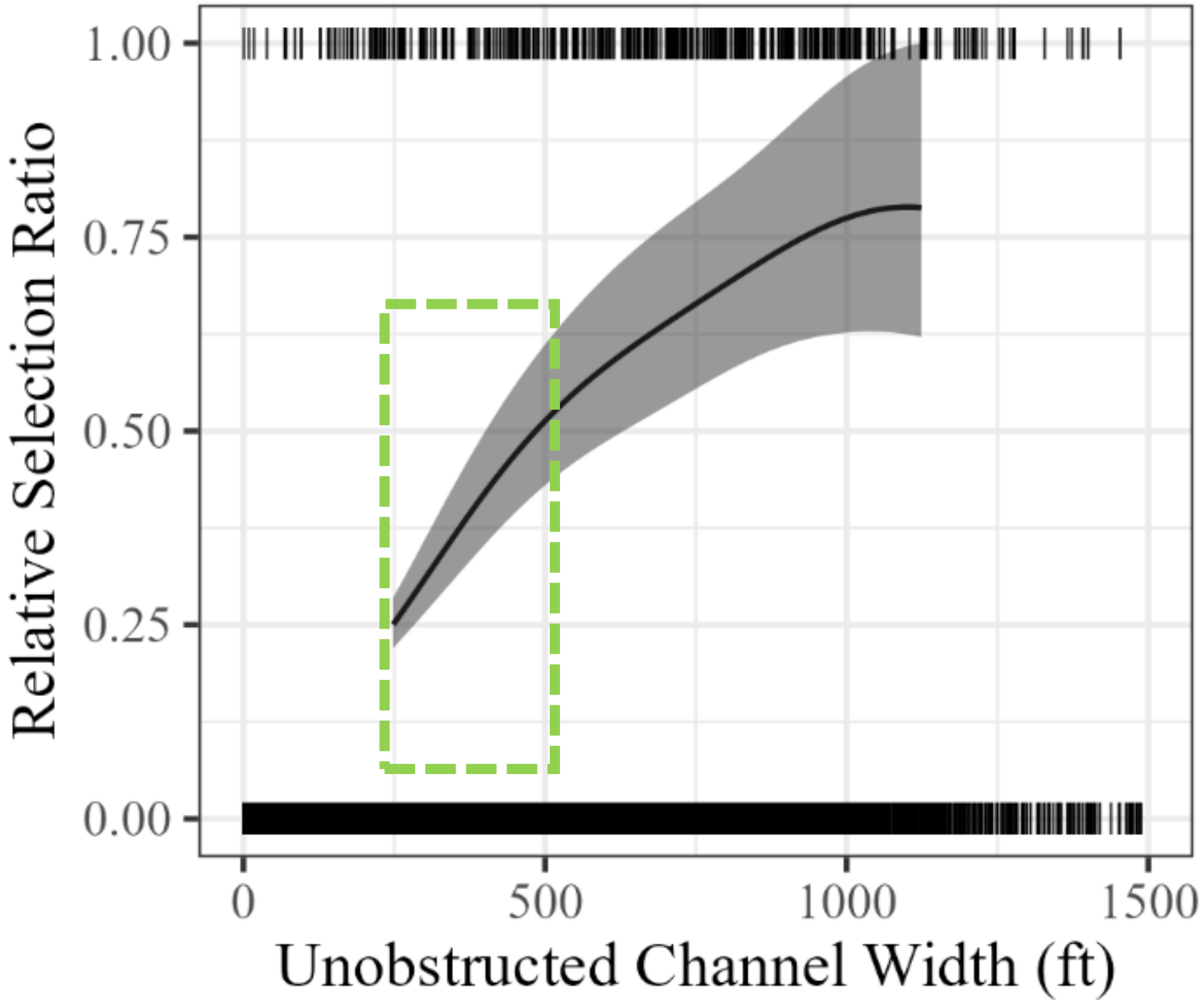
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Results: Unobstructed Channel Width



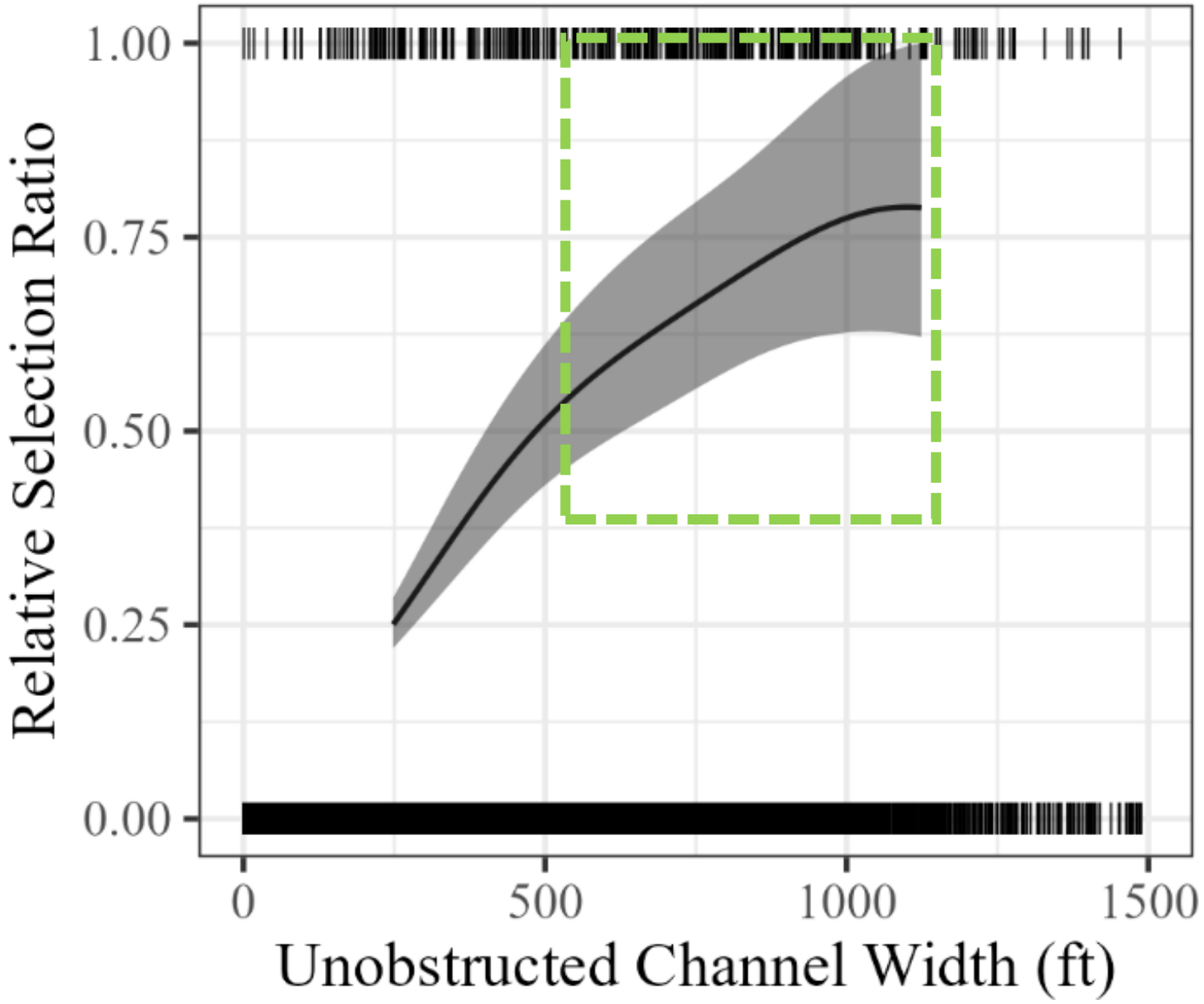
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Results: Unobstructed Channel Width



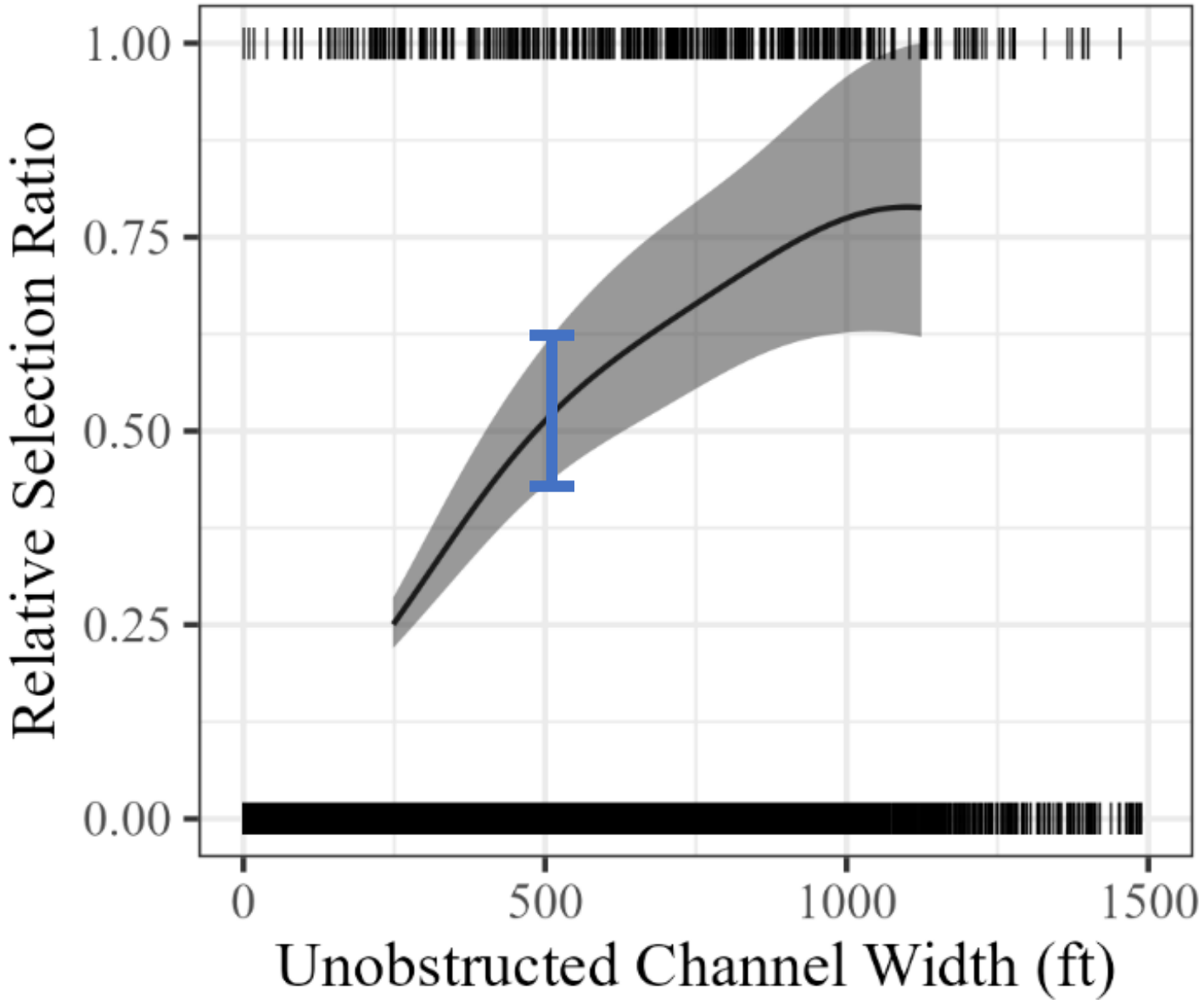
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Results: Unobstructed Channel Width



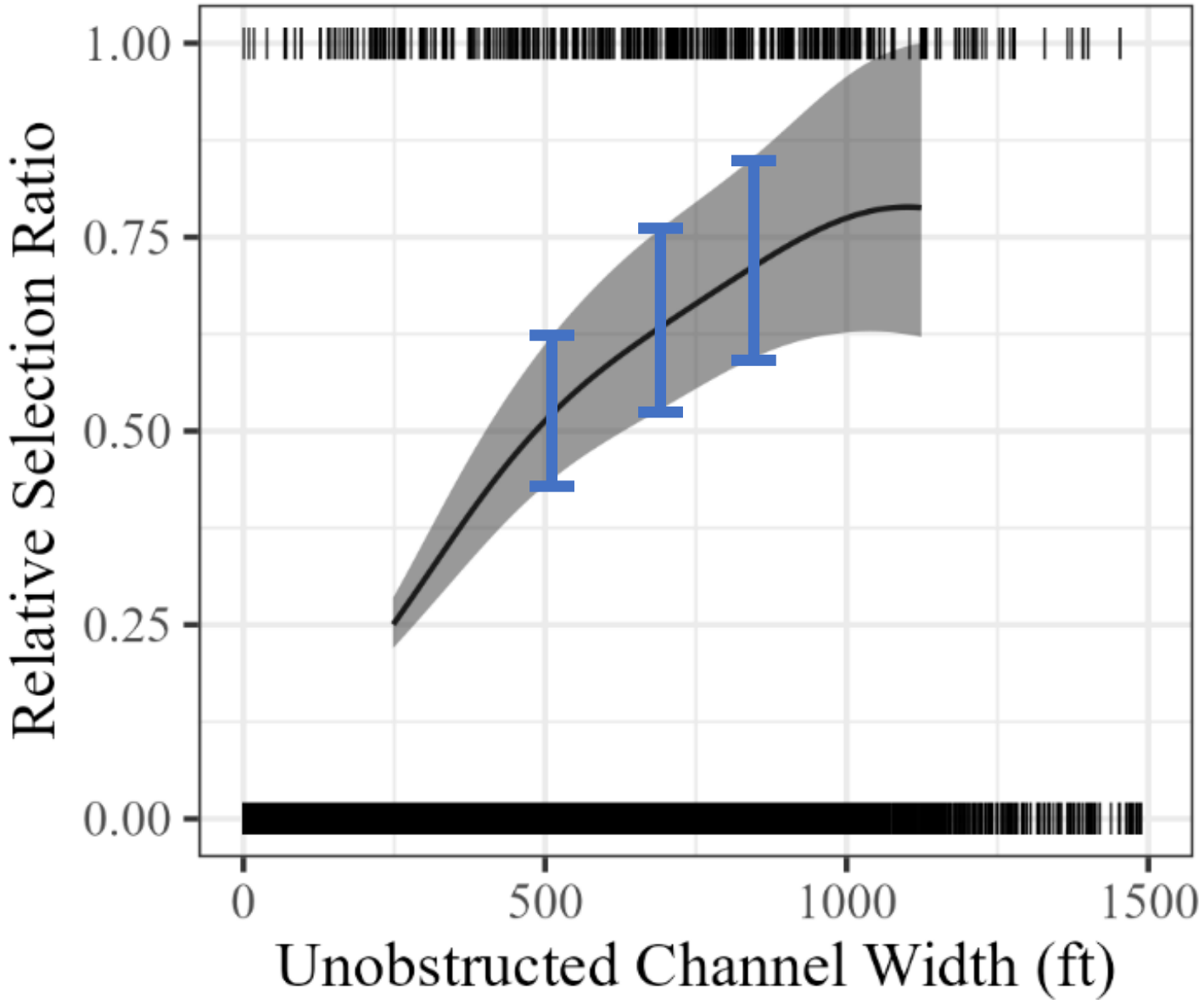
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Results: Relationship to Unobstructed Channel Width



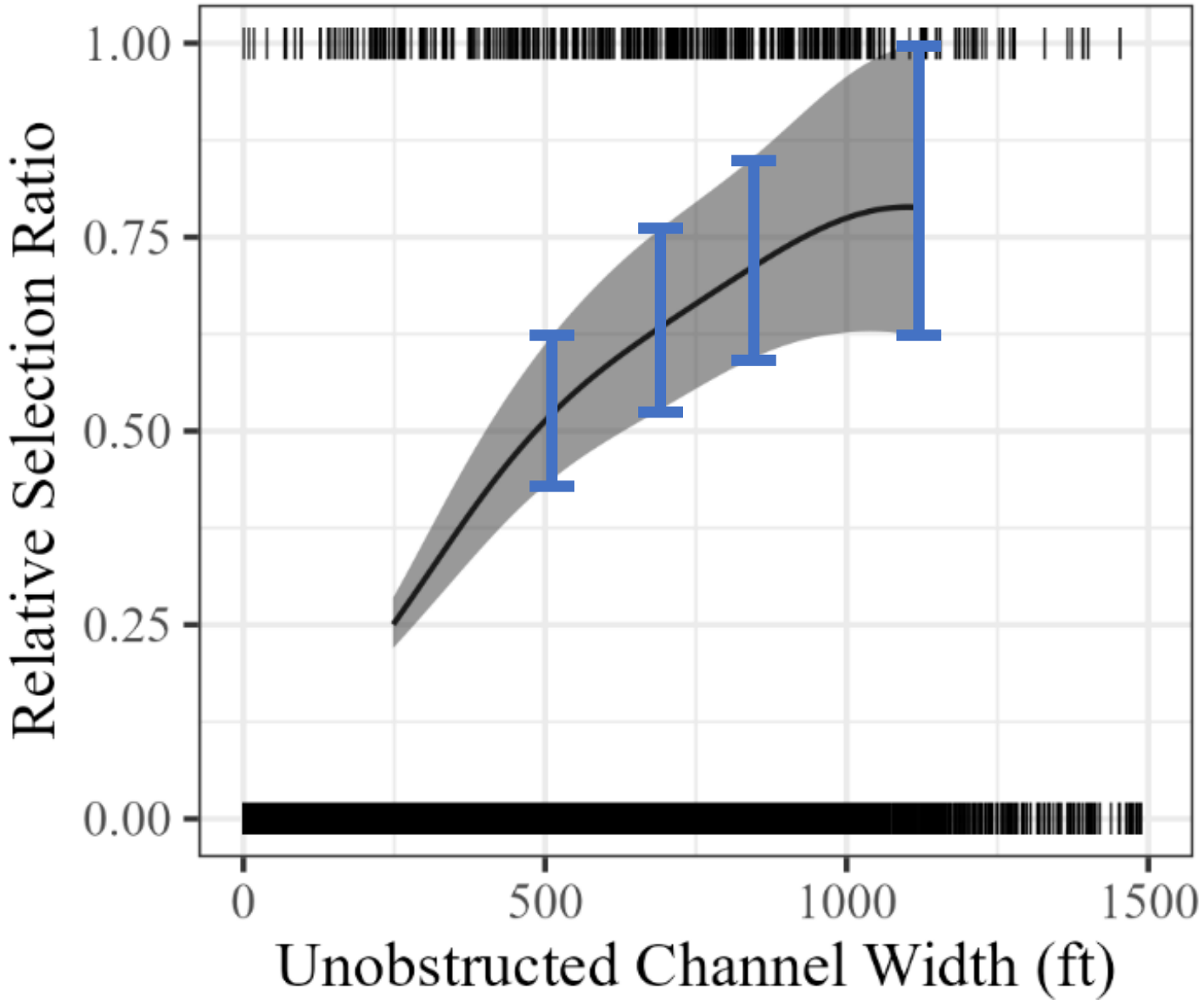
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Results: Relationship to Unobstructed Channel Width



PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Results: Relationship to Unobstructed Channel Width



PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Conclusions – What do these results mean?

- What are we certain about?
- Less certain about?
- What issues remain?

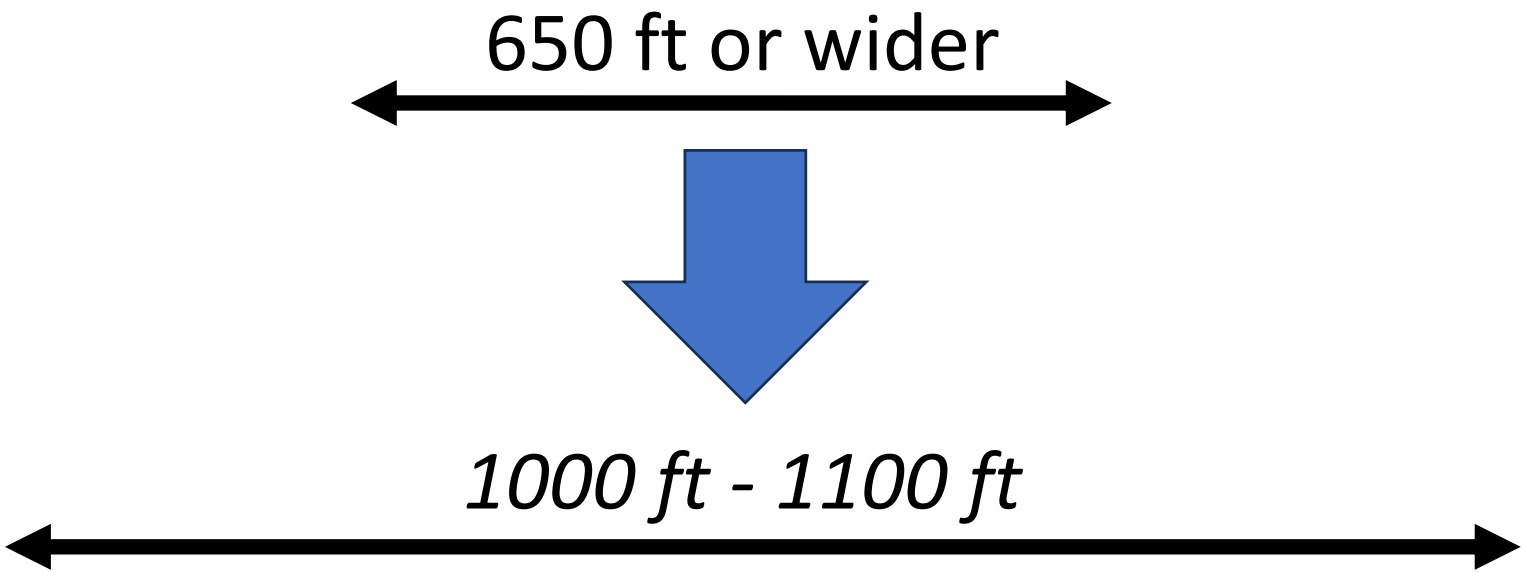
Management Implications

Continue current land and water management?

OR

Adjust criteria for management characteristics?

Management Implications: UOCW



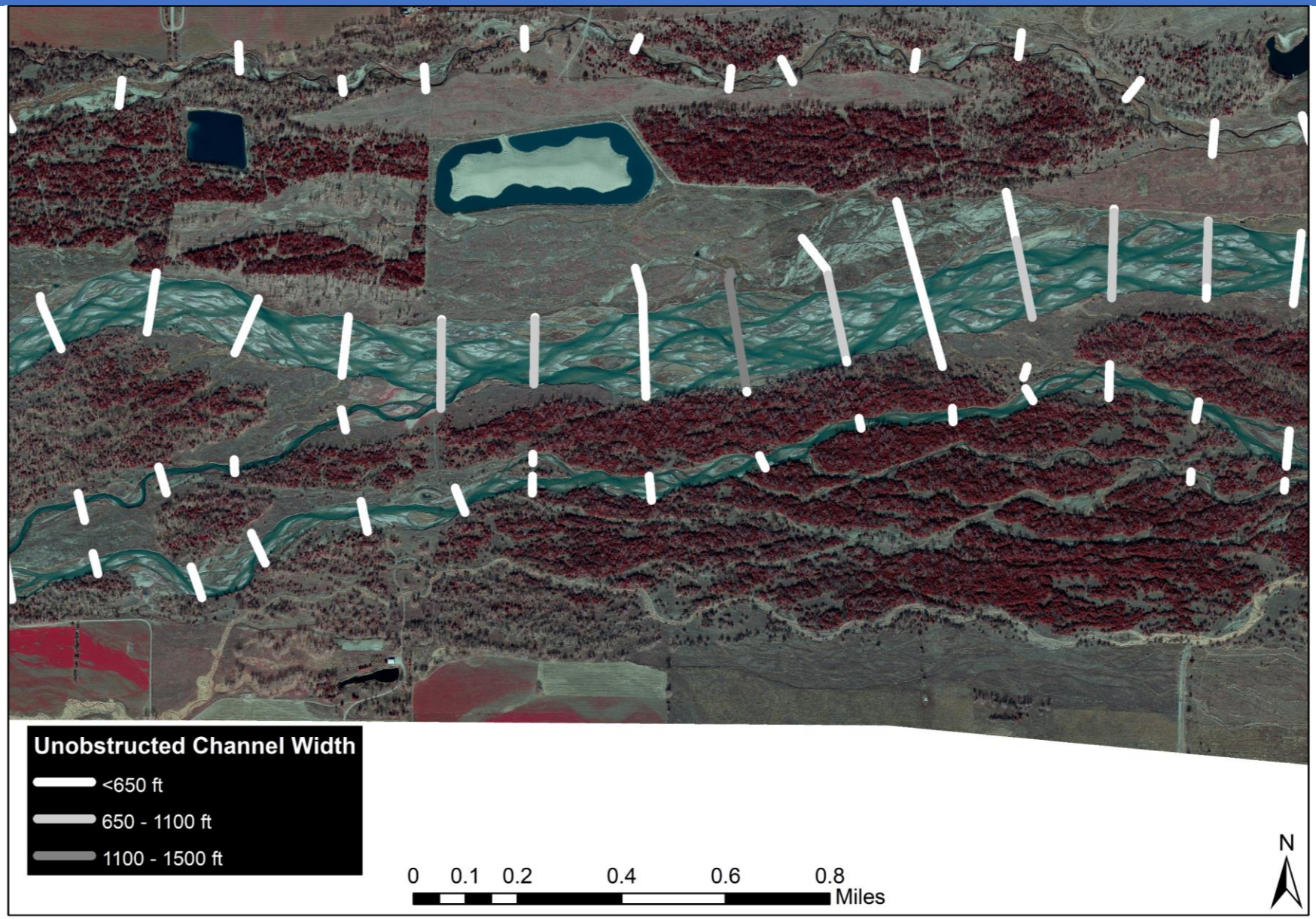
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Management Implications: UOCW

Habitat Complexes <1000 ft UOCW

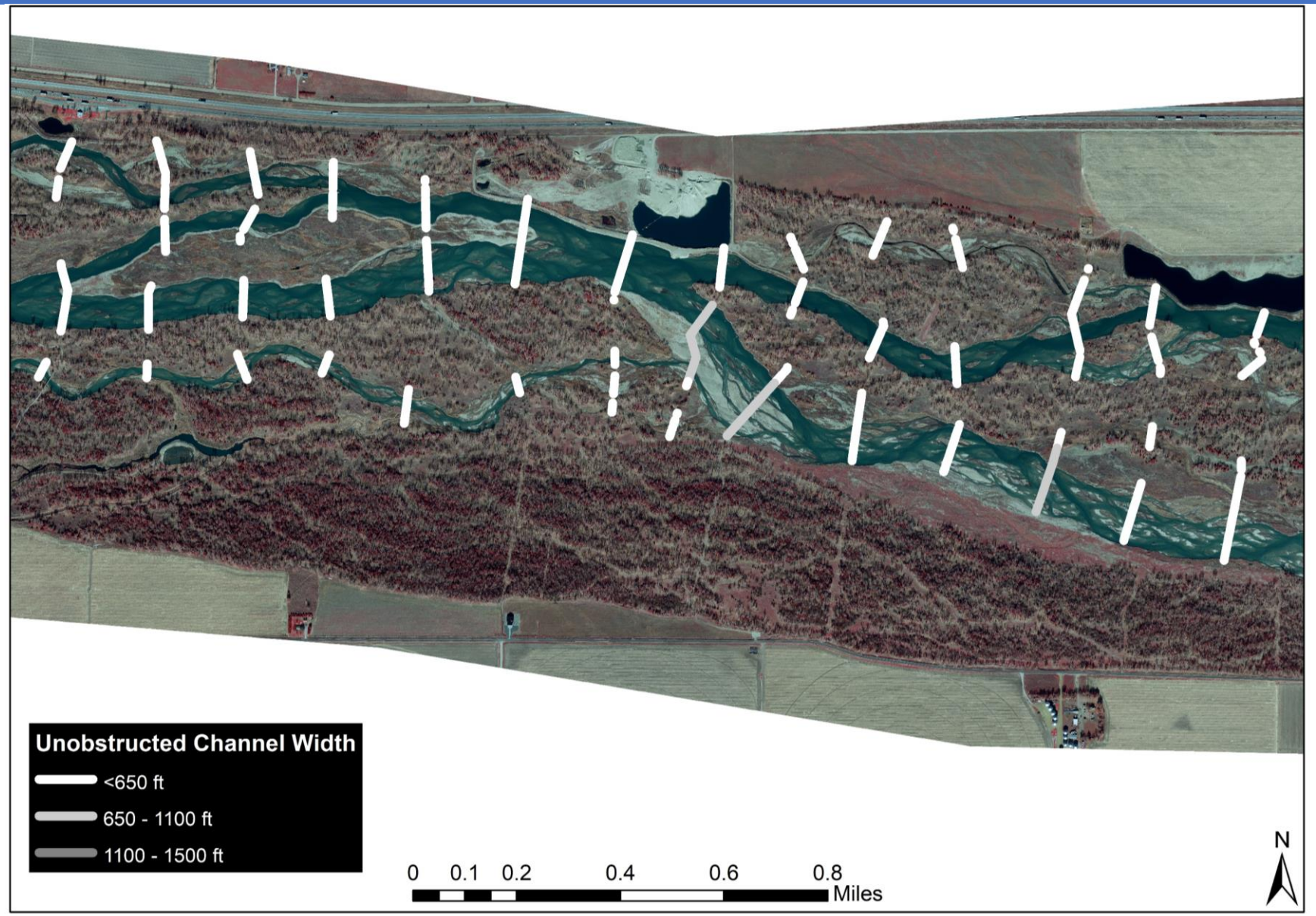
- CWR
- Pawnee
- Fort Kearny

Cottonwood Ranch



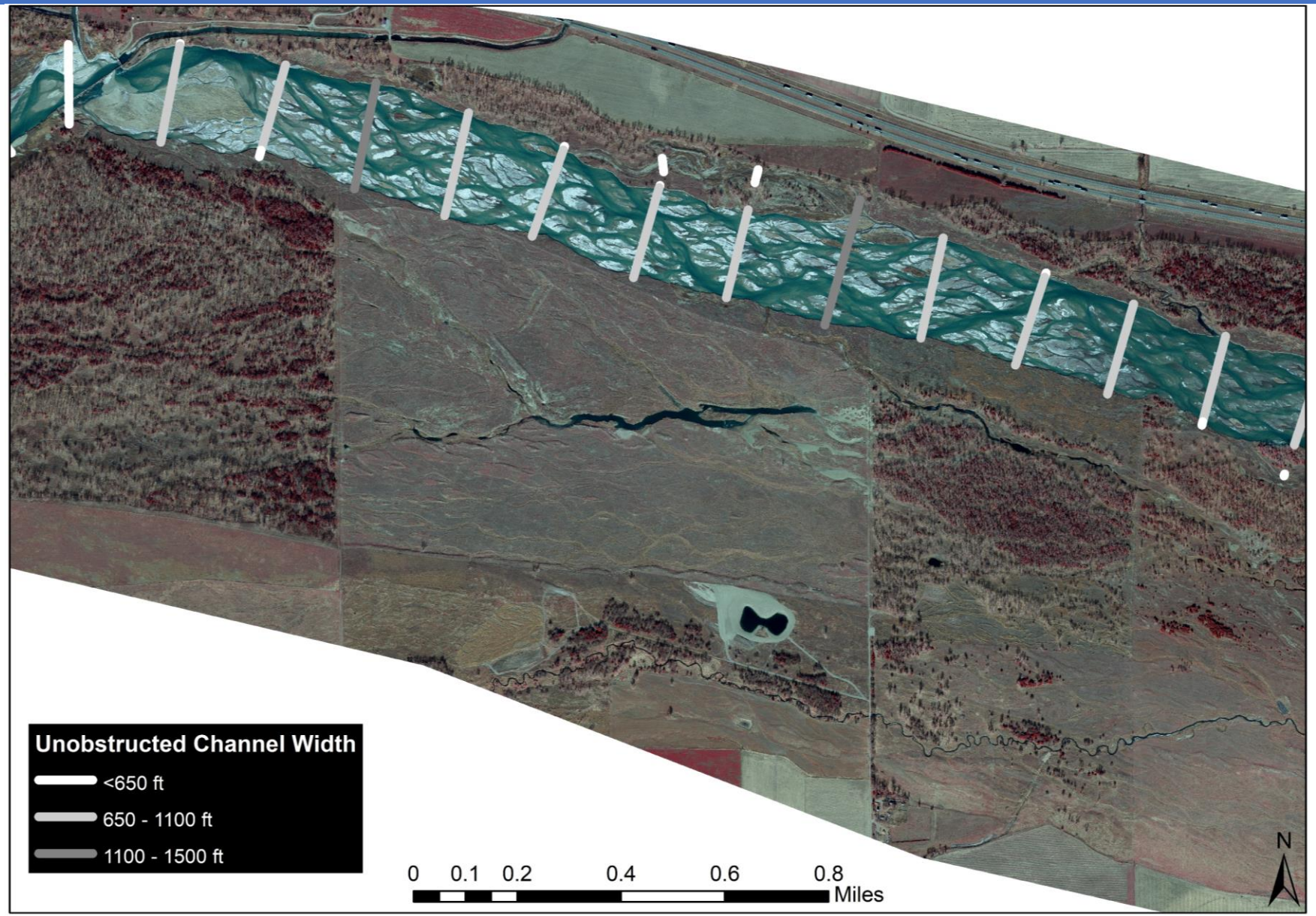
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Pawnee/Jerry Kenny Complex



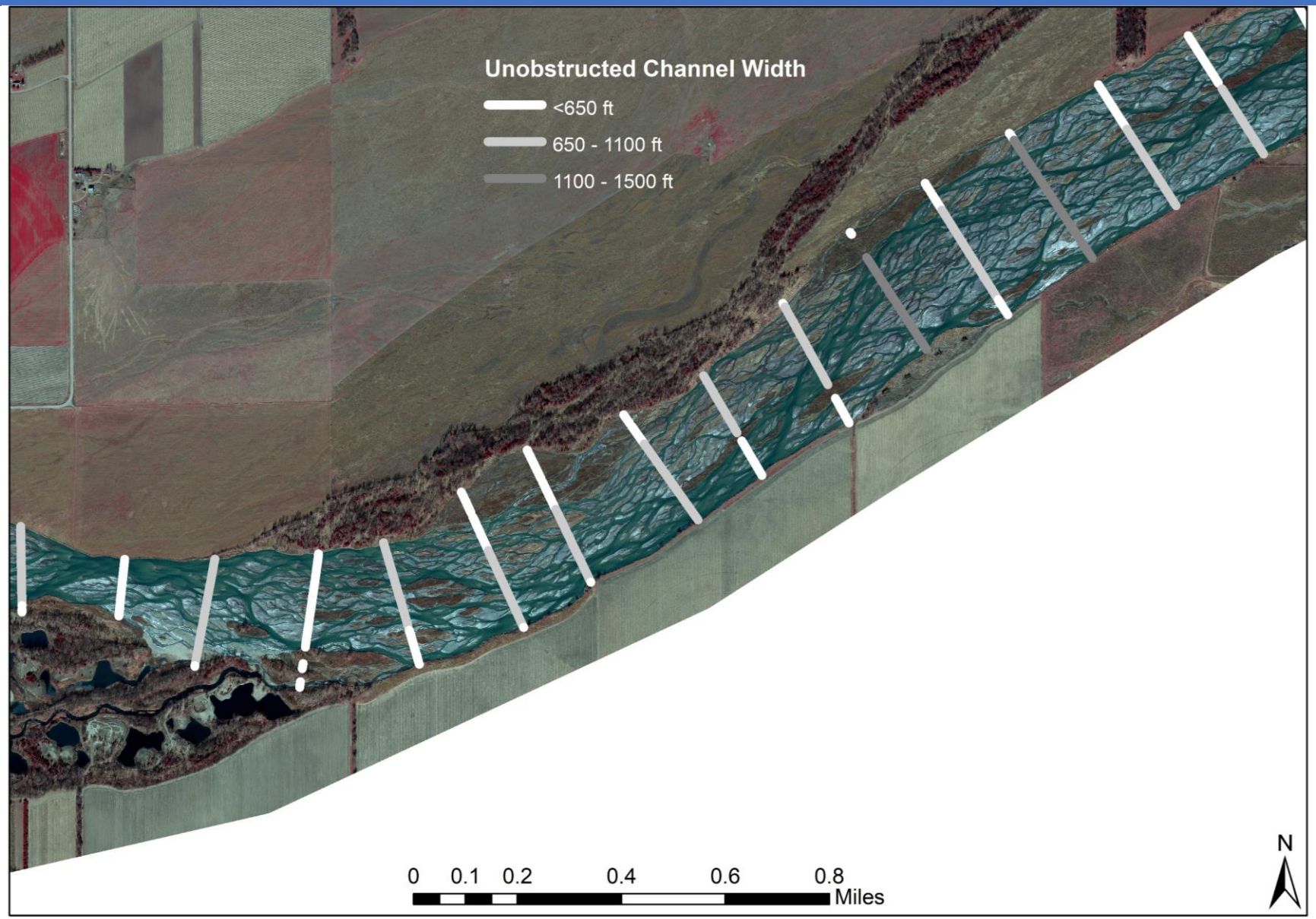
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Elm Creek



PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Binfield



PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM