A close-up photograph of a Pallid Sturgeon's head, showing its eye, nostril, and the bony scutes on its head. The fish is being held by a person's hand, which is visible in the foreground.

Addressing Pallid Sturgeon as a PRRIP Target Species

Summary of Proposed Research by Malinda Henry – PRRIP Science Lead

Mark Pegg, Jon Spurgeon – UNL

Kirk Steffensen – NGPC

Ed Heist - SIU

A close-up photograph of a fish's head, likely a pallid sturgeon, being held gently by a person's hand. The fish's eye is prominent, and its skin has a silvery, iridescent sheen. The background is a soft, out-of-focus pinkish-red.

Goals:

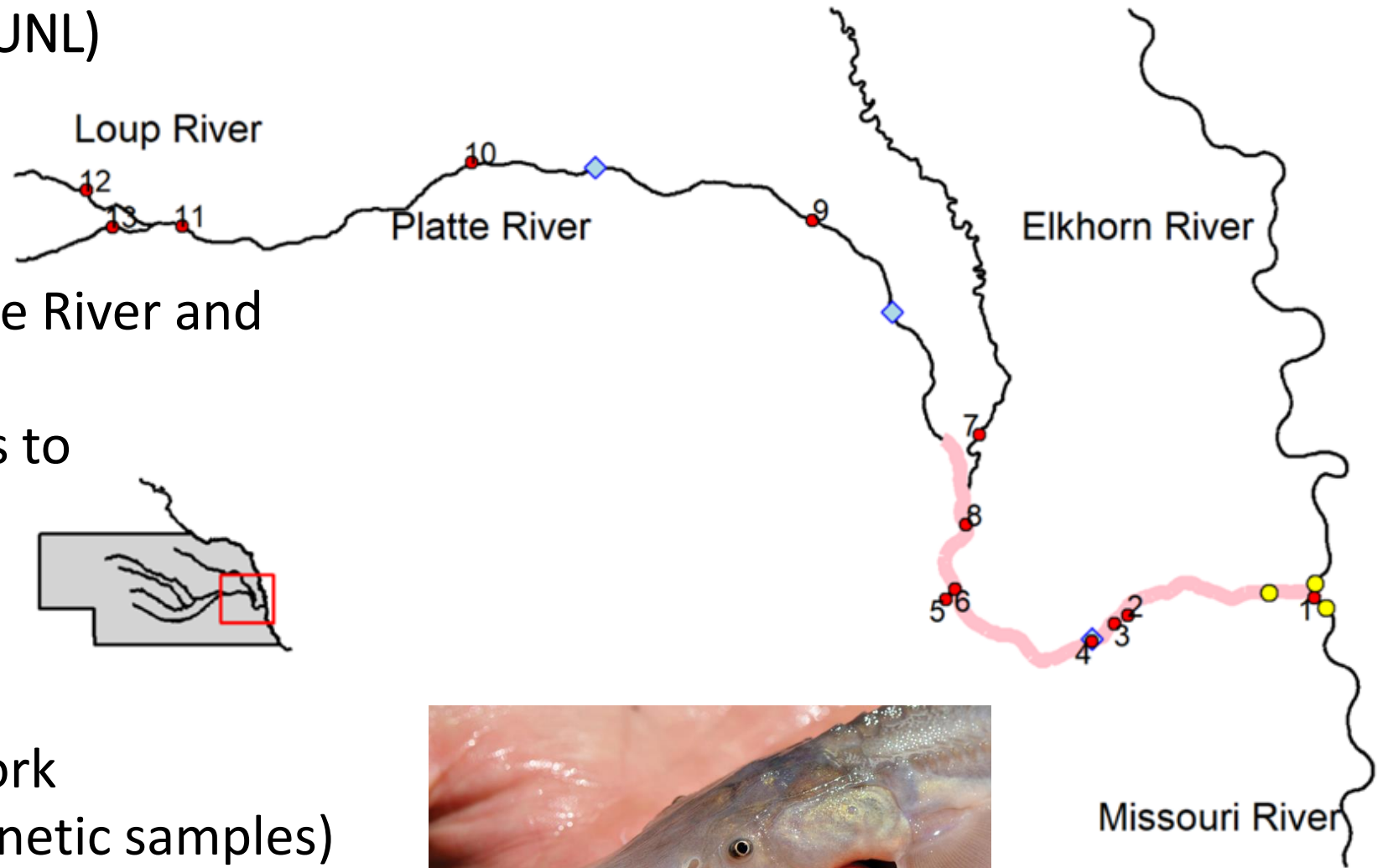
Fill knowledge gaps about lower Platte River:

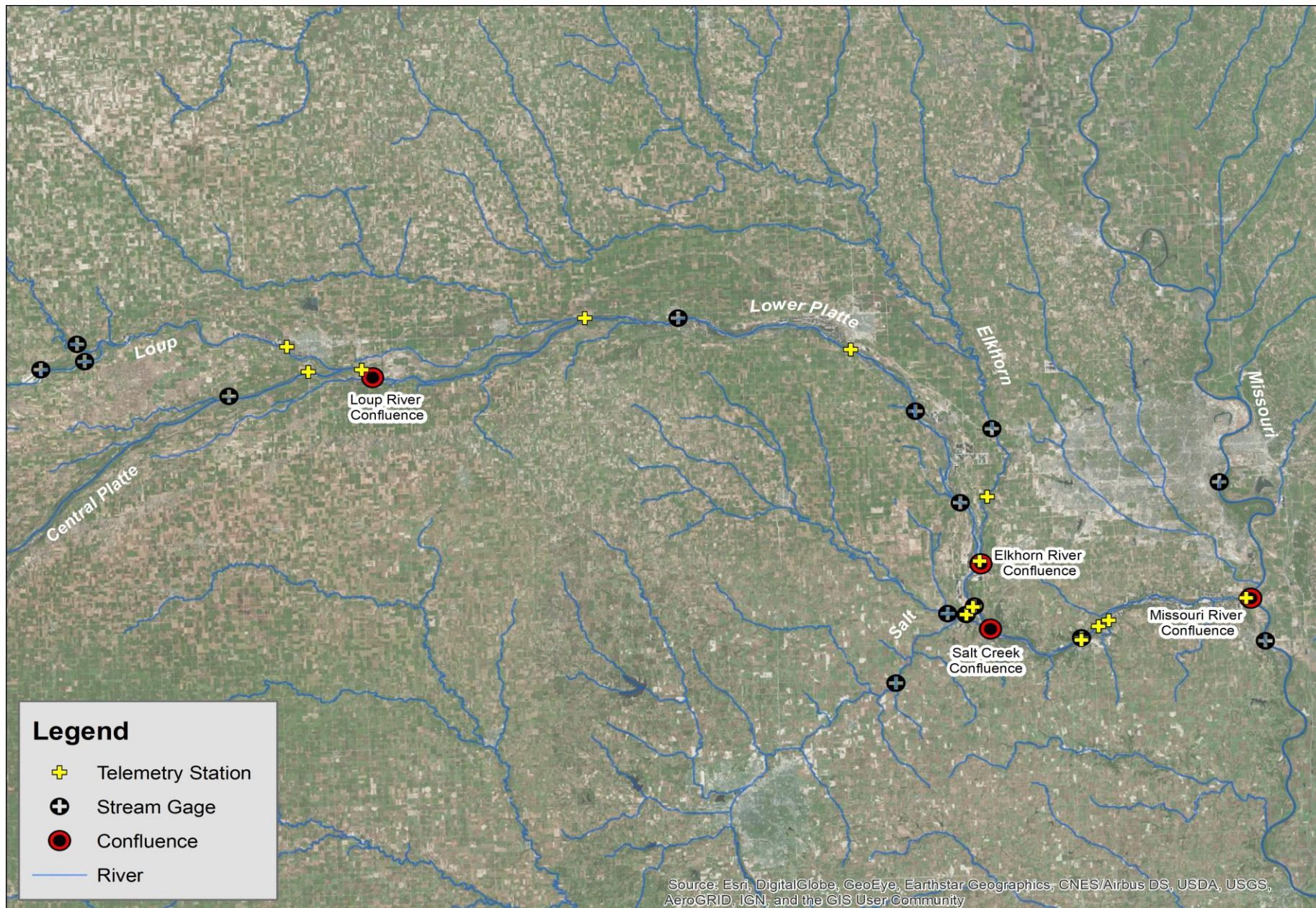
- Pallid spawning habitat
- Pallid reproduction and recruitment
- Pallid population dynamics

Habitat & Spawning Research

Mark Pegg, Jon Spurgeon (UNL)
Kirk Steffensen (NGPC)

- Assess PS use of lower Platte River and tributaries
- Relate seasonal movements to environmental patterns
- Identify and describe spawning habitat
 - Passive telemetry network
 - Capture and tagging (genetic samples)
 - Active telemetry
 - Environmental variables

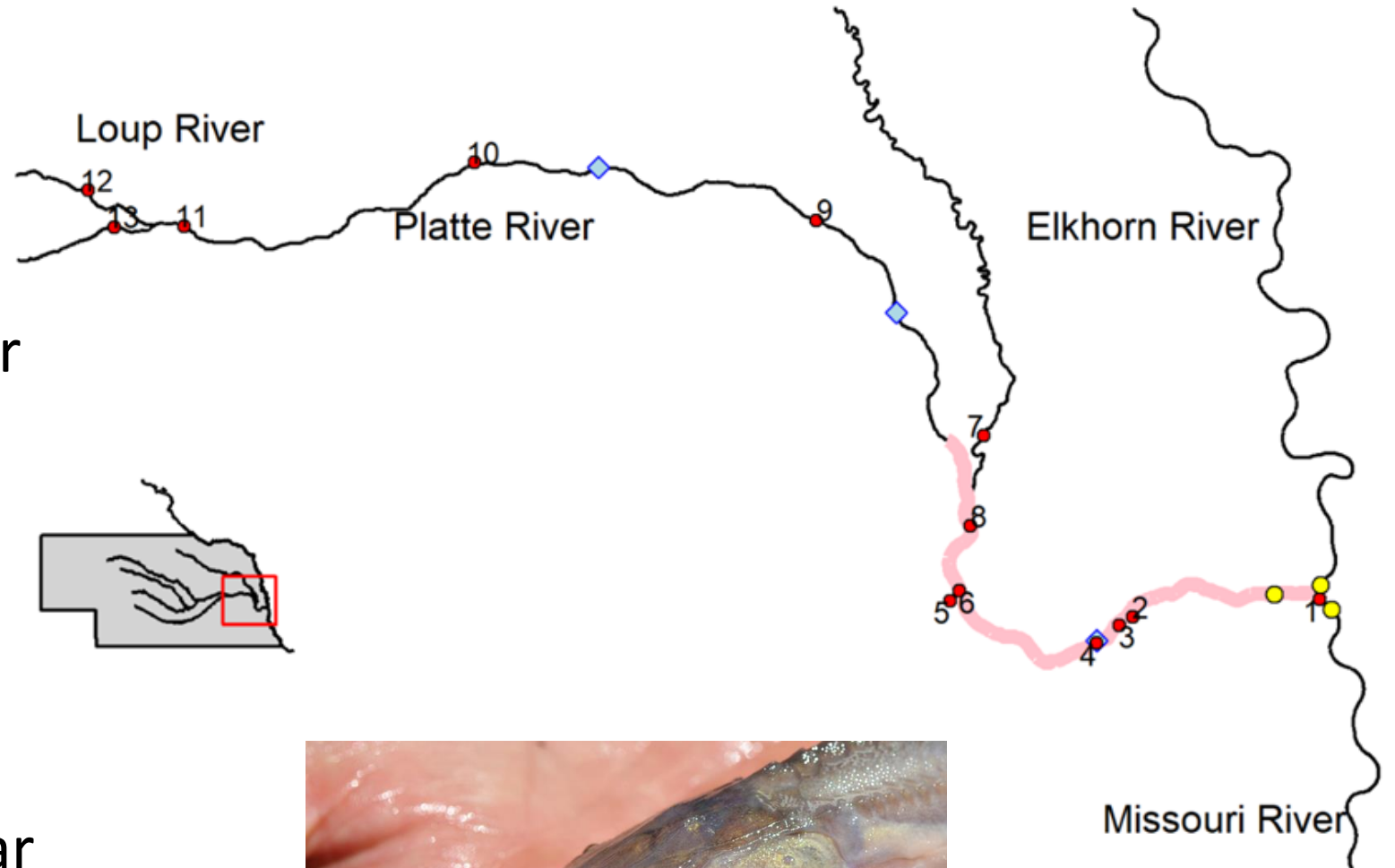




Habitat & Spawning Research

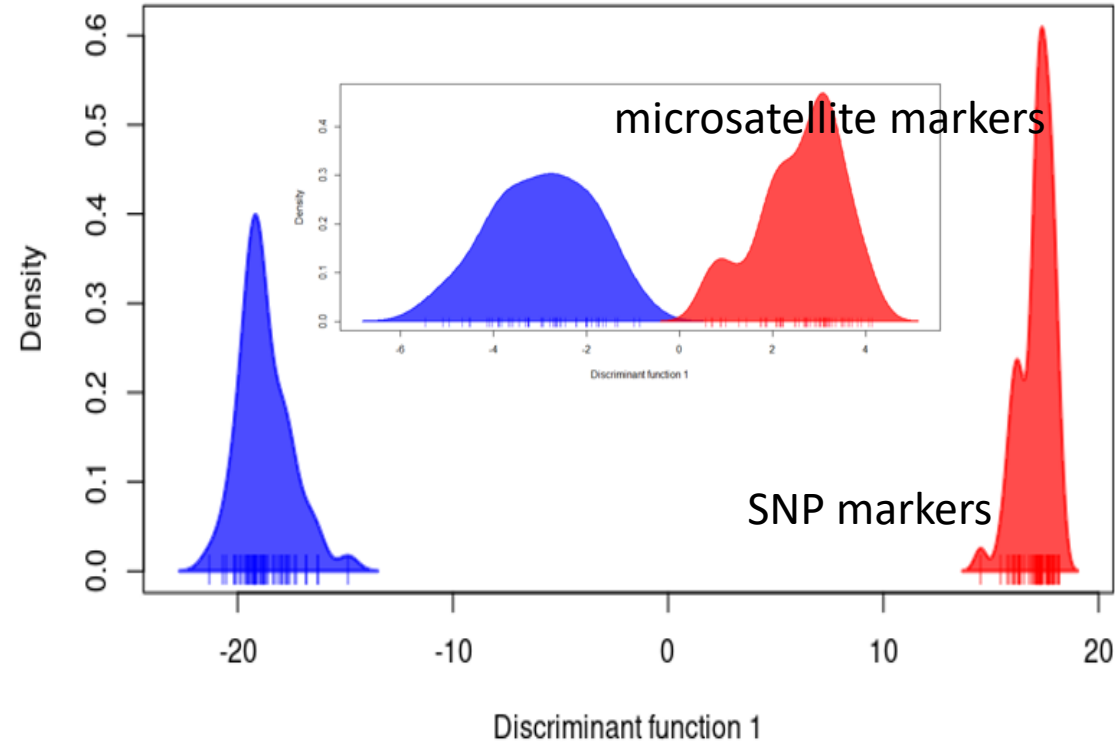
Mark Pegg, Jon Spurgeon (UNL)
Kirk Steffensen (NGPC)

- Verify successful spawning and recruitment in the lower Platte
 - Weekly sampling at confluence
 - *Ad lib* sampling at spawning locations
- Numbers of pallids, hybrids, shovelnose young of the year from the Platte
 - *Genetic testing*



Genetic Research Ed Heist (SIU)

- Establish new baselines for species identification.
- Addresses hybridization
 - SNP markers
 - GT-seq

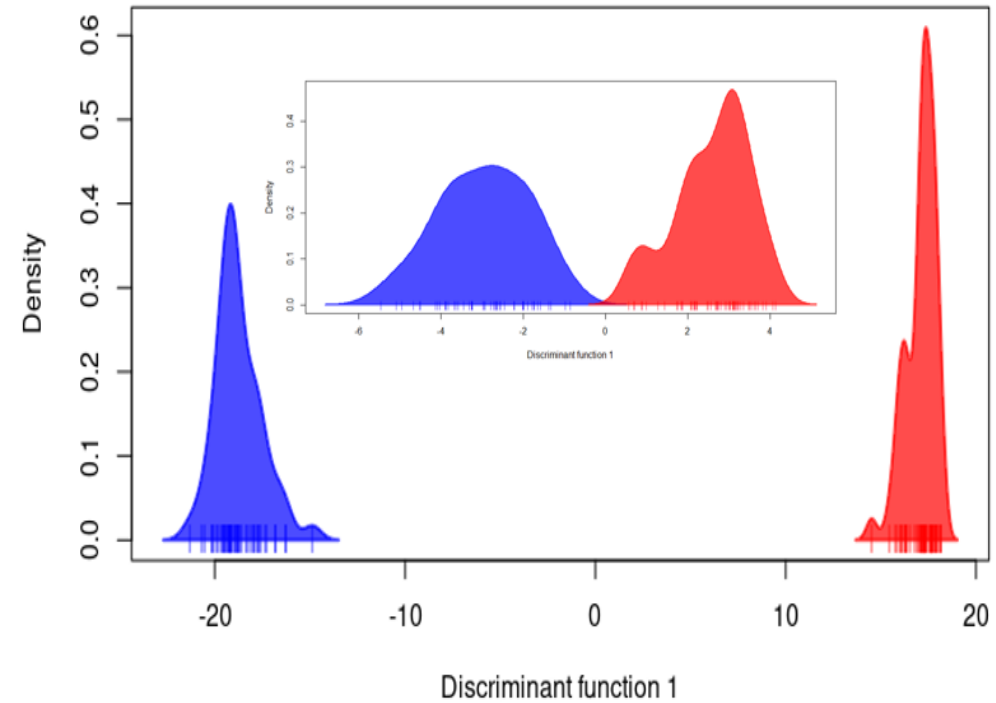


 Pallid
 Shovelnose






















































Genetic Research

Ed Heist (SIU)

- Ties learning to pallids
- Composition of lower Platte pallid young of the year
- Parentage
- Link lower Platte young of the year to parental origin
- Hatcheries and stocking of pallids
- Reassess population structure
- Estimate effective population size (N_e)



Timeline

Task	2022	2023	2024	2025	2026
Hire personnel					
Acquire telemetry and sample equipment					
Deploy/replace listening stations					
Fish collection and transmitter implantation					
Active Tracking (all fish)					
Active Tracking (reproductively ready adults)					
Passive Tracking Listening station downloads					
Free embryo and exogenous feeding sampling					
Development of GTseq markers and new species identification protocols					
Genetic sample processing and analysis					
Data processing (QA/QC)					
Data analyses (interim and preliminary)					
Annual summary/report					
Student dissertation/theses completion					
Final Report analyses and preparation					

UNL/NGPC Budget

UNL Basic Request Budget											
	Person Months					Year 1	Year 2	Year 3	Year 4	Year 5	Total
Senior Personnel	Yr1	Yr2	Yr3	Yr4	Yr5						
Total Senior Personnel											
Other Personnel	# of Ppl										
Post Docs	0	0	0	0	0						
Other Professionals	1	1	1	1	0						
Graduate Students	2.00	2.00	2.00	2.00	2.00						
Undergraduate Students	3	3	3	3	1						
Secretarial	0	0	0	0	0						
Other	0	0	0	0	0						
Total Other Personnel											
Fringe Benefits						28,816	30,384	32,068	33,878	32,676	157,822
Total Salaries and Benefits						113,376	117,480	121,778	126,279	108,625	587,538
Equipment						74,000	-	-	-	-	74,000
Travel						23,740	24,452	25,186	25,941	9,432	108,751
Supplies						15,000	10,000	5,000	5,000	5,000	40,000
Subawards						-	-	-	-	-	-
Other						104,500	46,500	25,000	5,000	1,500	182,500
Total Other Direct Costs						217,240	80,952	55,186	35,941	15,932	405,251
Total Direct Costs						330,616	198,432	176,964	162,220	124,557	992,789
F&A Base	MTDC					234,156	175,154	152,834	137,206	100,621	799,971
F&A	26.0%					60,881	45,540	39,737	35,674	26,161	207,993
Total Request						391,497	243,972	216,701	197,894	150,718	1,200,782
MTDC Exclusions						Year 1	Year 2	Year 3	Year 4	Year 5	Total
Equipment						74,000	-	-	-	-	74,000
Tuition Remission						20,460	21,278	22,130	23,014	23,936	110,818
Subawards in excess of \$25K						-	-	-	-	-	-
Participant Support Costs						-	-	-	-	-	-
Rent						2,000	2,000	2,000	2,000	-	8,000
Alterations and Renovations						-	-	-	-	-	-
Total Exclusions						96,460	23,278	24,130	25,014	23,936	192,818

SIU Budget

Year 1 (July 1, 2021 – June 30, 2022)

Illumina MiSeq DNA sequencer (with 5-year service plan) \$143,810

Labor \$20,457

GT-Seq Primers \$5750

Consulting (GTseek) \$3000

Indirect (47.5% all but equipment) \$13,873

Total year 1 = \$186,890

Total Year 1 Costs paid by PRRIP for equipment purchase and GT-seq consulting.

Years 2 - 5 (July 1, 2022– June 30, 2026)

1000 samples run w/ GTseq

\$45 per sample*

1000 samples per year = \$45,000

Total Years 2-5 = \$180,000

Year 2-5 Costs are shared by PRRIP and ACOE based upon the number of samples analyzed from each source (see budget justification below).

ACOE estimated contribution based upon \$172,800

960 samples/year at \$45/sample over 4 years

PRRIP estimated contribution based upon \$194,090

Total Year 1 cost for GT-seq equipment and development

40 samples/year at \$45/sample over 4 years

Total 5-year project budget

\$366,890 10



Reporting

1) Annual reports from each field season

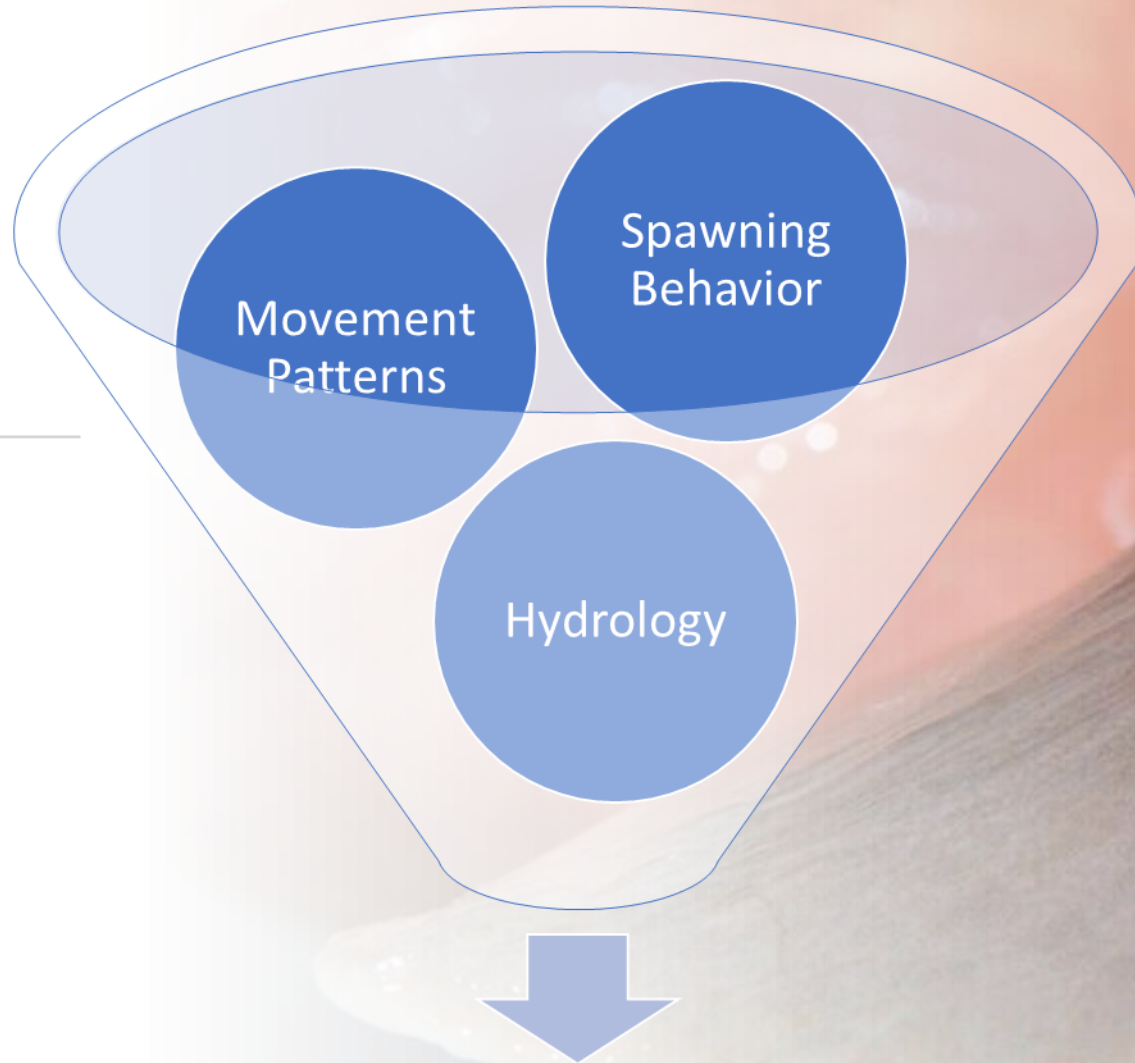
- Annual AMP Reporting Session
- Annual results, future plans to address PRRIP objectives

2) Final reports – 1 year from completion

3) Publications

- Drafts reviewed by EDO, TAC, and ISAC
- Findings from field data collection
- Will not address Program implications

Step 2: PRRIP Water Management Study



Qualitative Assessment of
Benefits & Impacts

Step 3: PRRIP Water Management

