



Adaptive Management Working Group Meeting 8 October 2020

Platte River Recovery Implementation Program

AMWG Members



Member	PRRIP Entity	Email Address
Terns/Plovers		
Jeff Runge	USFWS	jeff_runge@fws.gov
Jim Jenniges	NPPD	jjjenni@nppd.com
Dave Zorn	CNPPID	dzorn@cnppid.com
Whooping Cranes		
Andy Caven	Crane Trust	acaven@cranetrust.org
Matt Rabbe	USFWS	matt_rabbe@fws.gov
Hydrology/Hydraulics		
Tom Econopouly	USFWS	thomas_econopouly@fws.gov
Mike Drain	CNPPID	mdrain@cnppid.com
Brandi Flyr	CPNRD	flyr@cpnrd.org
Technically Oriented Policymakers		
Brock Merrill	USBR	bemerrill@usbr.gov
Jojo La	Colorado	jojo.la@state.co.us
EDO Staff		
Jason Farnsworth	EDO	farnsworthj@headwaterscorp.com
Chad Smith	EDO	smithc@headwaterscorp.com
Malinda Henry	EDO	henrym@headwaterscorp.com
Patrick Farrell	EDO	farrellp@headwaterscorp.com



08 October 2020 (1:00 – 3:00 PM CDT)				
LOCAL MEETING TIMES New York: 2:00 PM EDT Nebraska: 1:00 PM CDT Wyoming: 12:00 NOON MDT Colorado: 12:00 NOON MDT <i>* See calendar invite for MS Teams meeting link (audio & video)</i>			START TIME (CDT)	MEETING DOCUMENTS
Coffee Time, 12:45-1:00 PM CDT – the Teams meeting will open early to allow for personal discussion and pleasantries over coffee. Not required but feel free to join us!				
WELCOME & ADMINISTRATIVE		Meeting Objective: Greetings, roll call, review agenda, re-cap of previous meeting.		
Introductions – Teams participant list			1:00 PM	n/a
Agenda - modifications			1:05 PM	Meeting Agenda
VIRTUAL TOOLS TUTORIAL		Meeting Objective: Ensuring participant accessibility.		
TECHNICAL TOOLS ONBOARDING <ul style="list-style-type: none"> Microsoft Teams PRRIP AMWG site Mentimeter, Mural or Visio examples 			1:10 PM	n/a
TERMS OF REFERENCE		Meeting Objective: Clarifying participant roles and expectations.		
<ul style="list-style-type: none"> Roles Terms of reference 			1:25 PM	October 2020 PRRIP AMWG Terms of Reference
WHERE ARE WE NOW?		Meeting Objective: Getting everyone up to speed.		
AMP Recap <ul style="list-style-type: none"> Historical context at a broad level 2019 AMP where we left off 			1:30 PM	n/a
QUESTIONS TO ADDRESS		Meeting Objective: Outlining a path forward.		
AMP Management Objective for one species or species group at a time: <ul style="list-style-type: none"> Are we meeting it? How do we measure it? What have we learned during the First Increment? What do we need to learn to continue to meet it if we are, or to meet it if we are not? How do we talk to the GC about this management objective? 			1:40 AM	n/a
TERNs & PLOVERS Management Objective		Meeting Objective: Introducing objectives and gauging progress.		
Management Objective brief review: <ul style="list-style-type: none"> What is the management objective? Are we meeting it? 			1:50 PM	
TERNs & PLOVERS Performance Indicators		Meeting Objective: Introducing prior ways of measuring success.		
Performance Indicators brief review <ul style="list-style-type: none"> What are they? How do we measure these? 			2:00 PM	

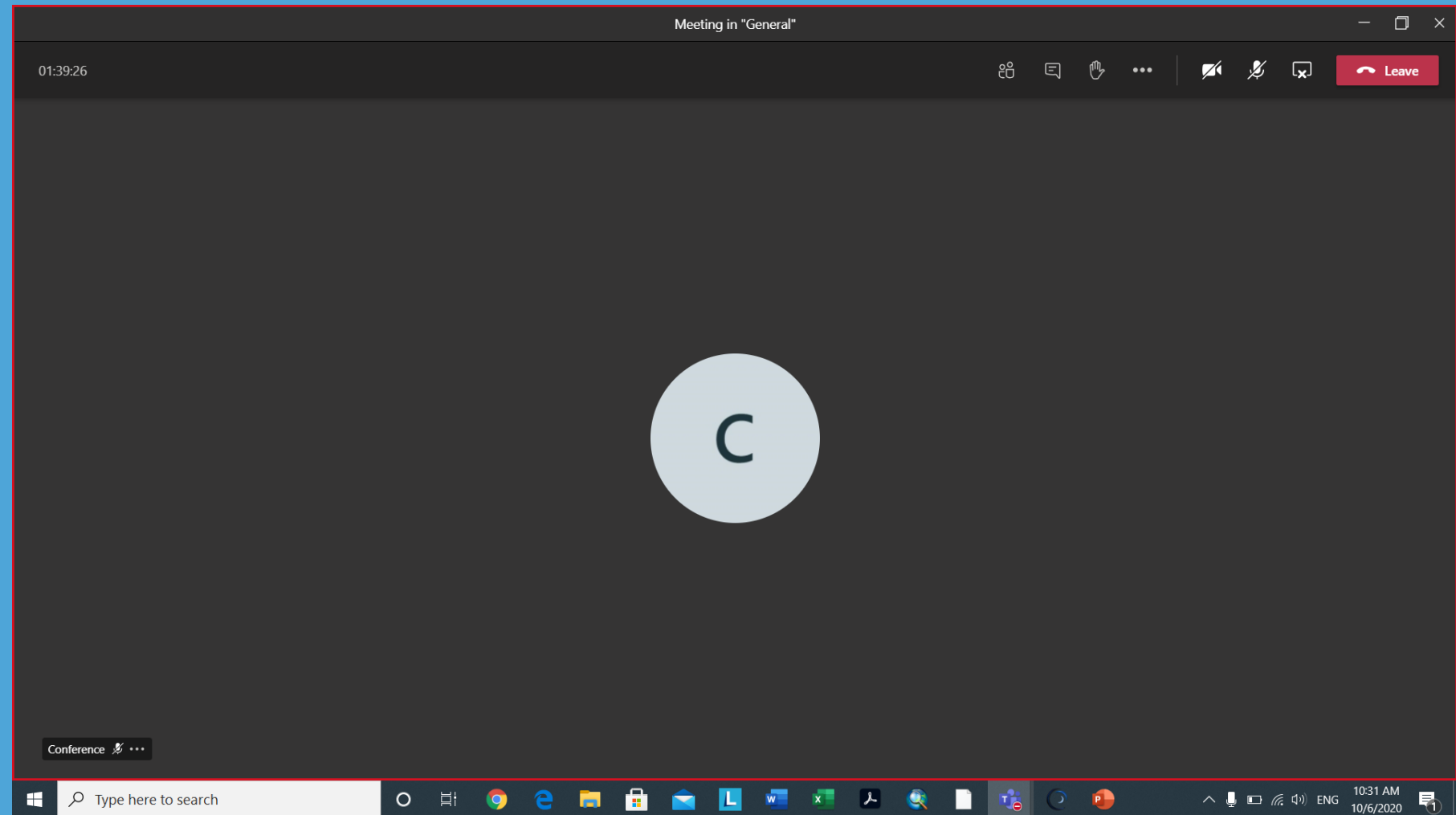
TERNs & PLOVER Incorporating prior learning		Meeting Objective: Review of PRRIP shift of focus to off-channel habitat.	
What have we learned during the First Increment? <ul style="list-style-type: none"> LTPP SDM process review 		2:10 PM	FINAL 2016 PRRIP Tern and Plover SDM Report PRRIP 2019 Tern and Plover Monitoring and Research Report
PREPARATION FOR NEXT MEETING		Meeting Objective: Prepare for next meeting.	
<ul style="list-style-type: none"> Agenda items for next meeting Homework for next meeting – Relevant PRRIP and external science learning Overall species objectives for First Increment: Lutey 2002 Population viability analysis modeling: Ryan et al. 1993, Plissner & Haag 2000, McGowan et al. 2014 Performance indicators for modeling from other systems: Catlin et al. 2016, MRRP 2019 ESA Adaptive Mgmt Compliance Report, 2019 LT PP Annual Report for LPR Performance indicators for modeling from our system: Roche et al. 2016, Farrell et al. 2018 Anything relevant suggested by group (LT population modeling)		2:30 PM	Lutey 2002 Ryan et al. 1993 Plissner & Haag 2000 McGowan et al. 2014 Catlin et al. 2016 MRRP 2019 ESA AM Compliance Report 2019 LT PP Annual Report for LPR Roche et al. 2016 Farrell et al. 2018
MEETING REVIEW & WRAP-UP <ul style="list-style-type: none"> Action items (5 minutes) Meeting feedback & key insights (5 minutes) Upcoming meetings (suggested dates): 		2:40 PM	n/a
AMWG VIRTUAL MEETING END		3:00 PM	

Virtual Tools Tutorial



- Microsoft Teams

- See each other
- Hear each other
- See items presented
- Raise your hand



Virtual Tools Tutorial



- AMWG room on PRRIP site
 - Access to documents

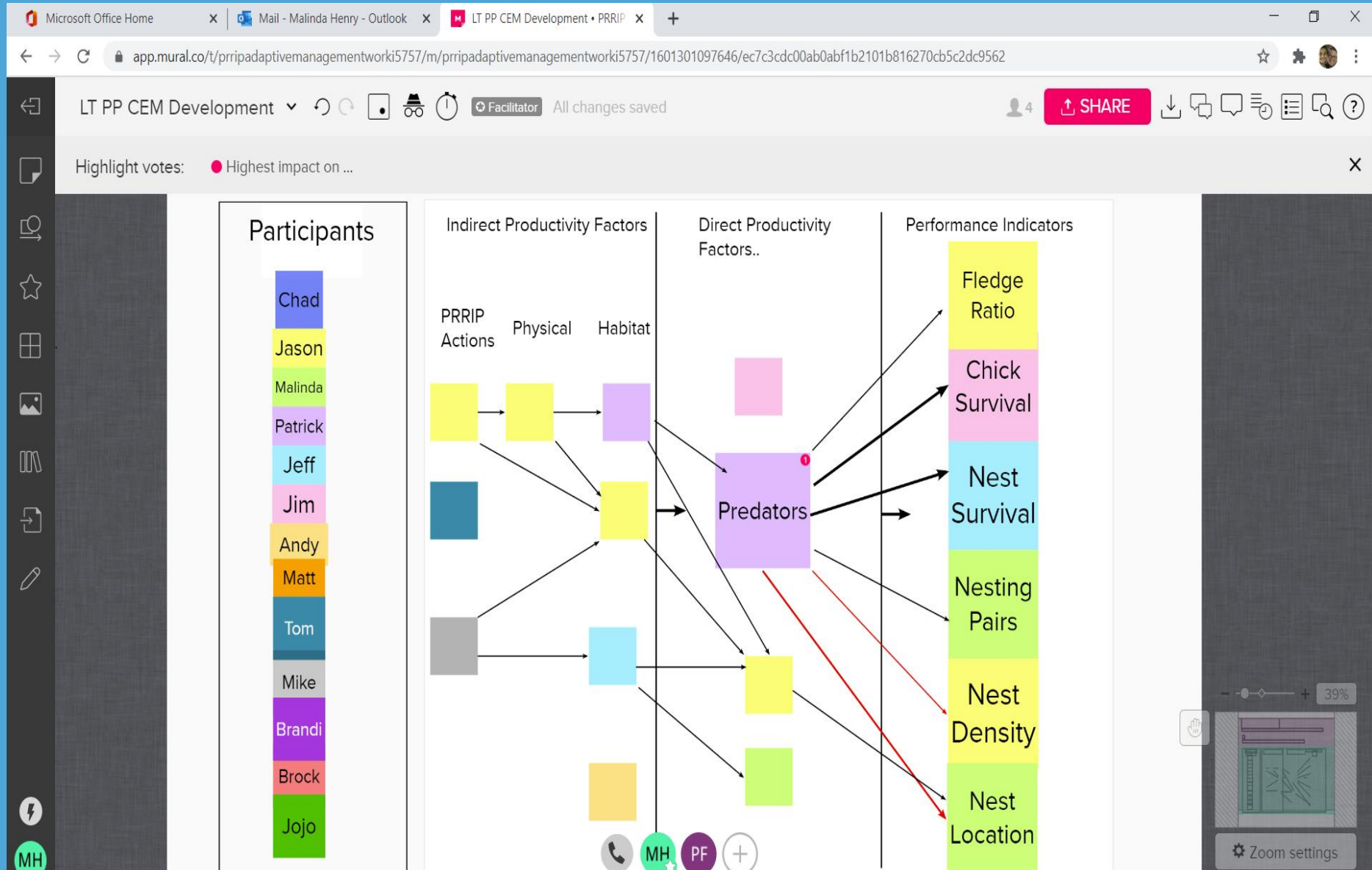
The screenshot shows a web browser window with the URL `platteriverprogram.org/group/event/adaptive-management-working-group-meeting-oct-8-2020`. The page is titled "Platte River Recovery Implementation Program" and has a navigation bar with links: ABOUT, INFORMATION FOR..., FLOW CONDITIONS, and RESOURCES. The main content area is titled "Adaptive Management Working Group Meeting - Oct. 8, 2020" and includes a "VIEW" button. Below the title, it states "October 8th, 2020; 1:00 - 3:00 PM CDT" and "Adaptive Management Working Group Meeting". A "DOWNLOAD ALL FILES" button is present. The "Meeting Documents" section lists several PDF files:

- 8 October 2020 PRRIP AMWG Virtual Meeting Agenda.pdf
- October 2020 PRRIP AMWG Terms of Reference.pdf
- FINAL 2016 PRRIP Tern and Plover SDM Report.pdf
- 2019 Tern and Plover Report.pdf
- Species Recovery Objectives For Four Target Species In The Central And Lower Platte River - Lutey 2002
- Ryan et al 1993 Status of Piping Plover in the Great Plains.pdf
- Plissner Haig 2000 Viability of Piping Plover metapopulations.pdf
- McGowan et al 2014 Establishing endangered species recovery criteria using predictive simulation modeling.pdf
- Catlin et al 2016 Metapopulation viability of an endangered shorebird.pdf
- MRRP 2019 ESA AM Compliance Report.pdf
- 2019 LT PP Annual Report for LPR.pdf

Virtual Tools Tutorial

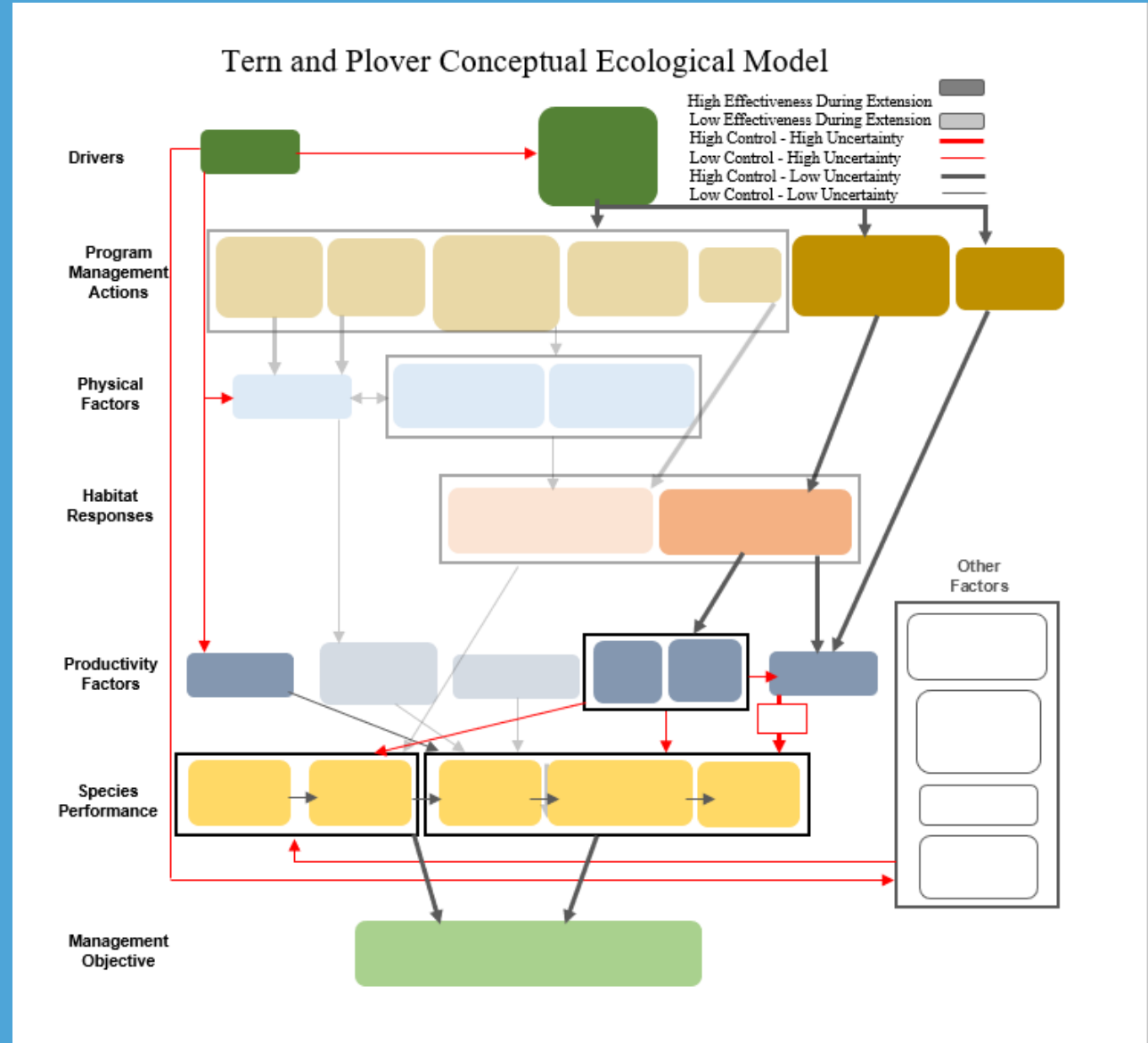


Mural



Virtual Tools Tutorial

- Microsoft Visio

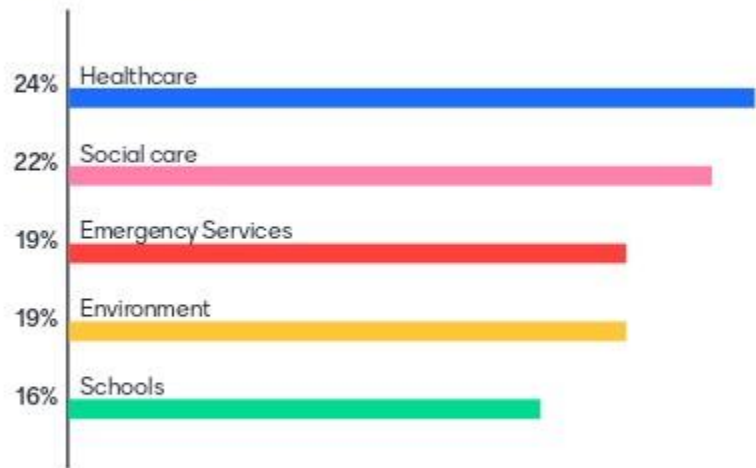


Virtual Tools Tutorial

- Mentimeter



Prioritize these issues



What are your expectations for today?

Strongly disagree

I am looking to learn a lot

4

I want to discuss this topic

4.4

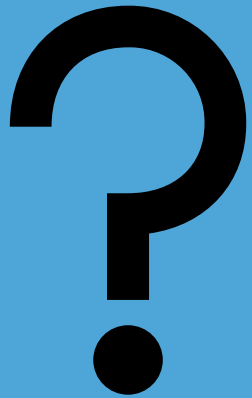
I just want to network

3

Strongly agree



Virtual Tools Tutorial



- QUESTIONS????



Roles and Terms of Reference

- Expectations of AMWG members



Member				
Jeff Runge				
Jim Jenniges				
Dave Zorn				
Andy Caven				
Matt Rabbe				
Tom Econopouly				
Mike Drain				
Brandi Flyr				
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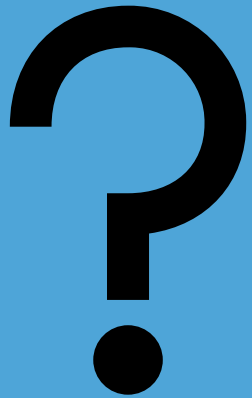
Roles and Terms of Reference



- Be hard on the problem, easy on the people
- Actively participate
- Come prepared
- Build trust
- Openly communicate



Roles and Terms of Reference



• QUESTIONS????

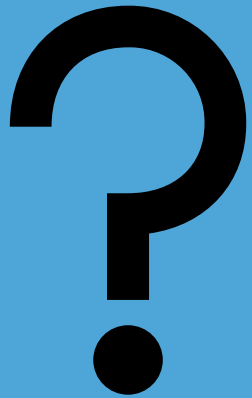




AMP Recap

- Historical context
- 2019-2020 AMP
 - Where we left off

AMP Recap



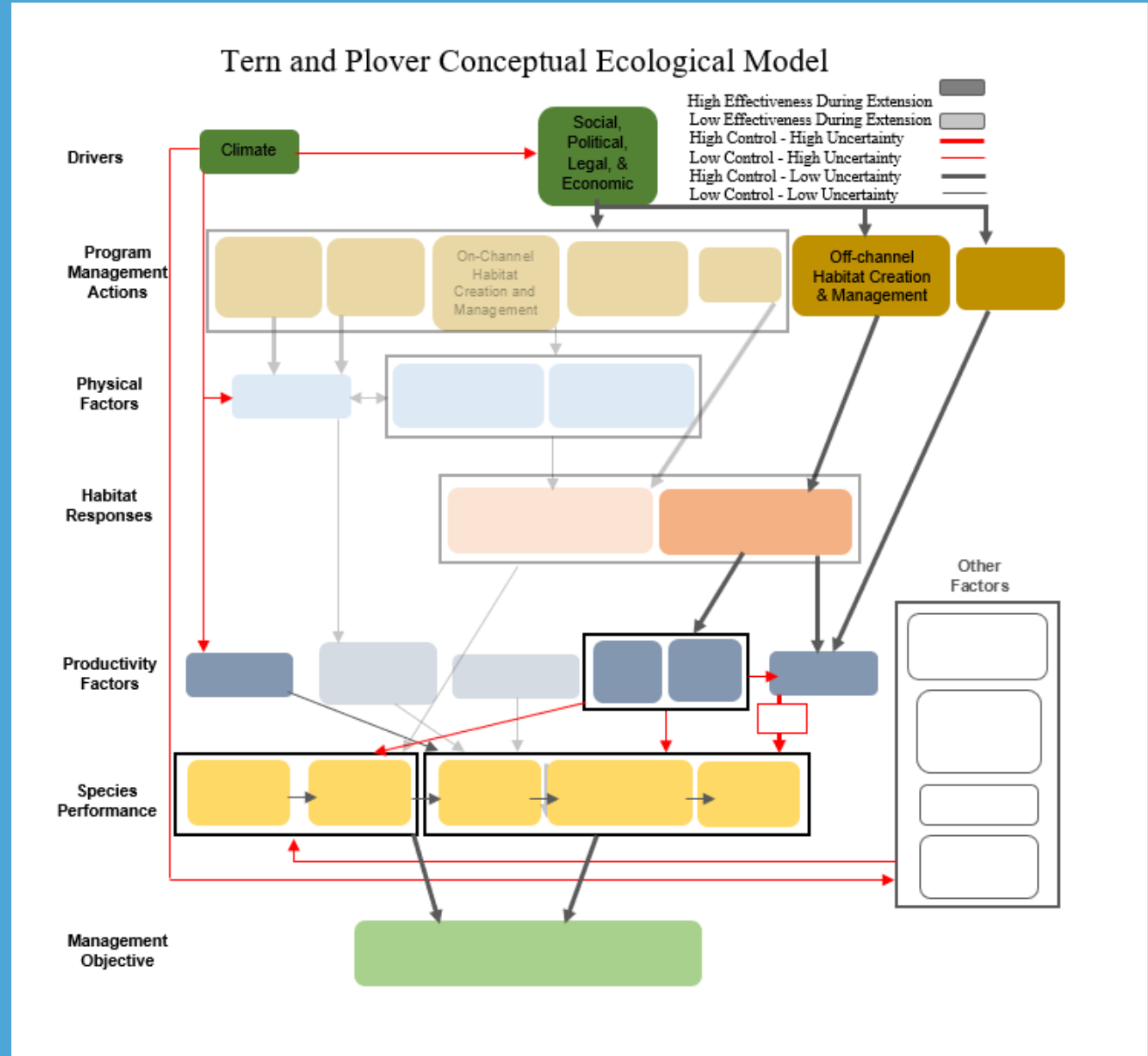
• QUESTIONS????



Questions to Address



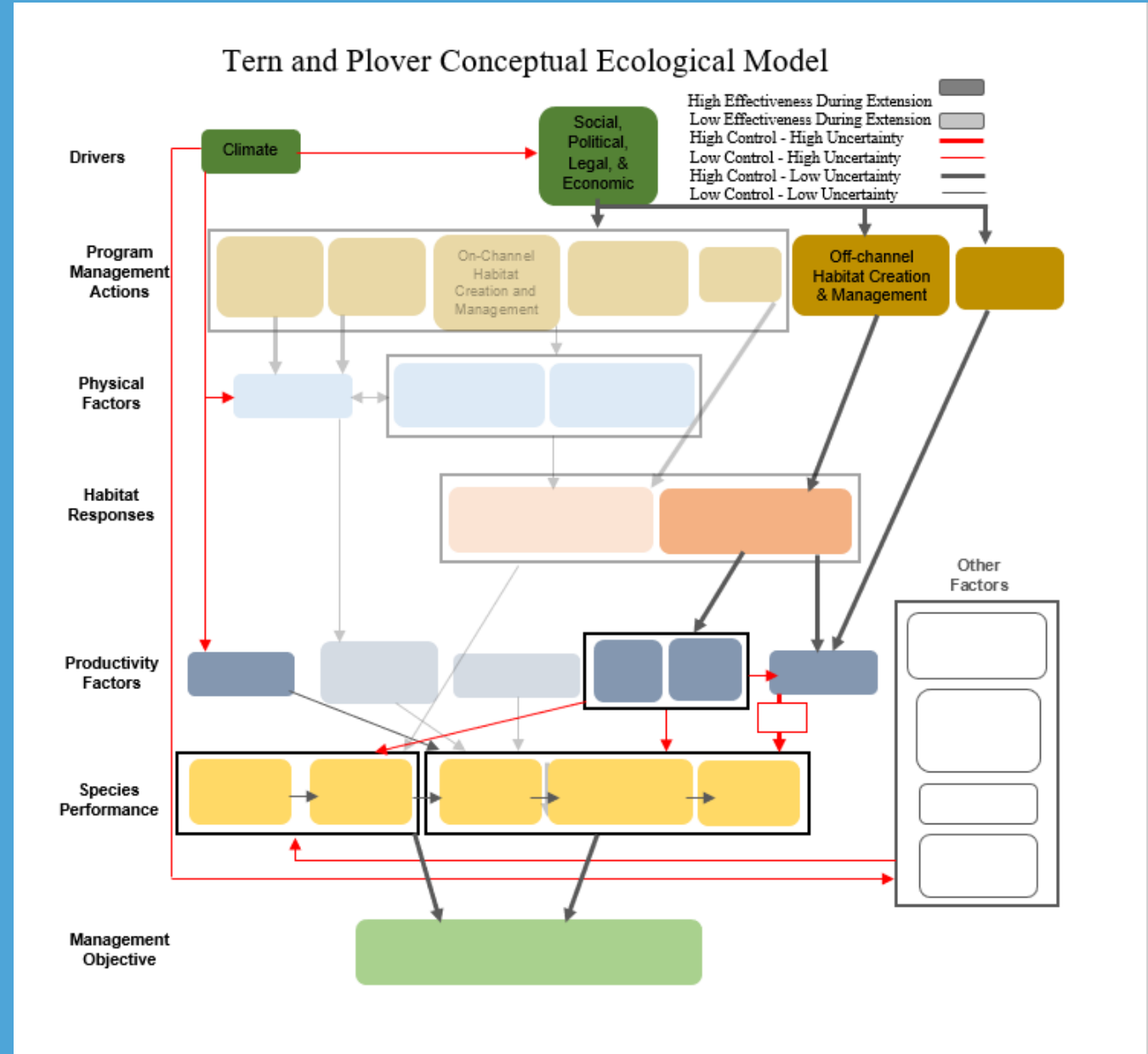
- What is our Management Objective?
- Are we meeting it?



Questions to Address



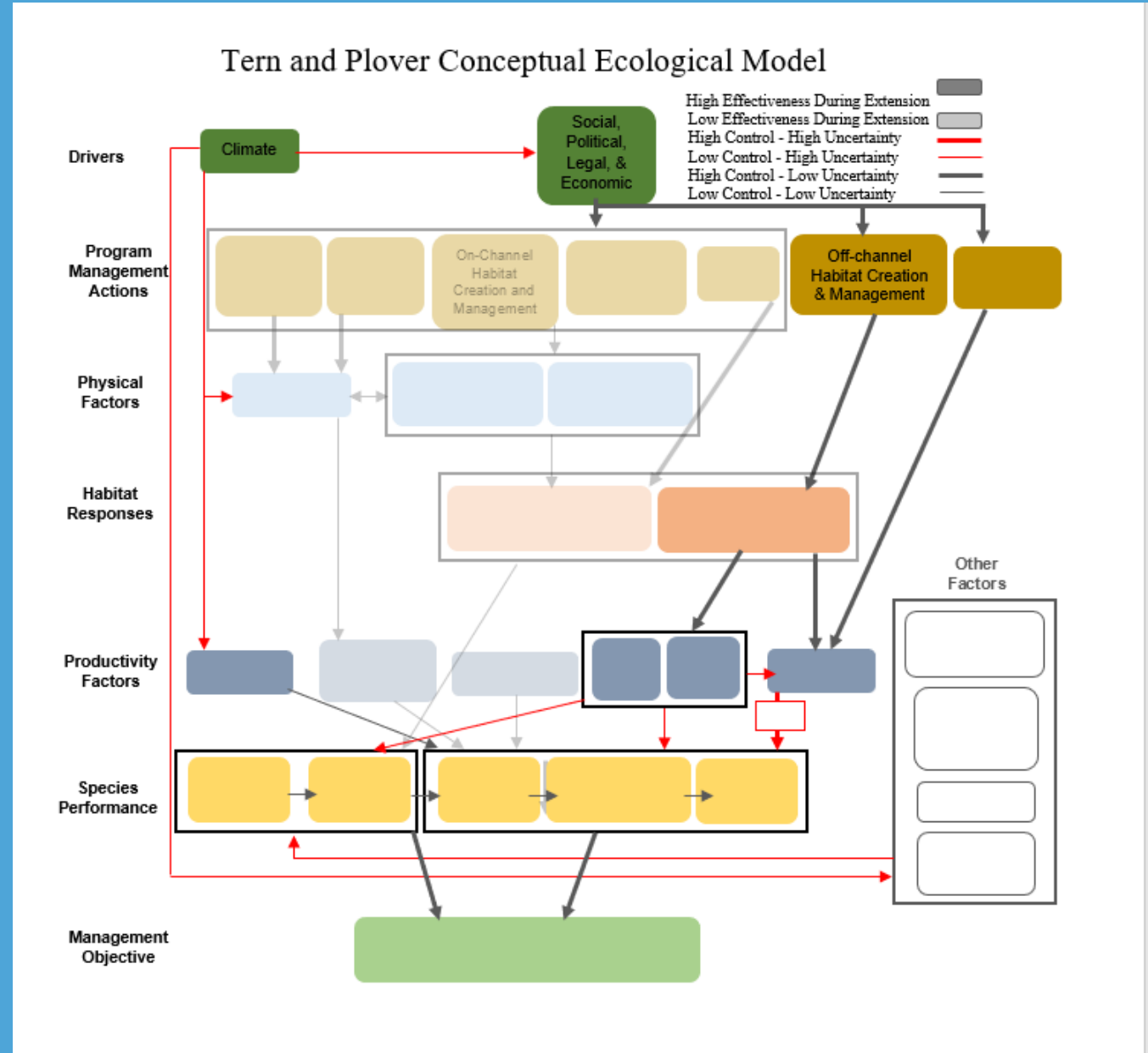
- How do we measure it?



Questions to Address

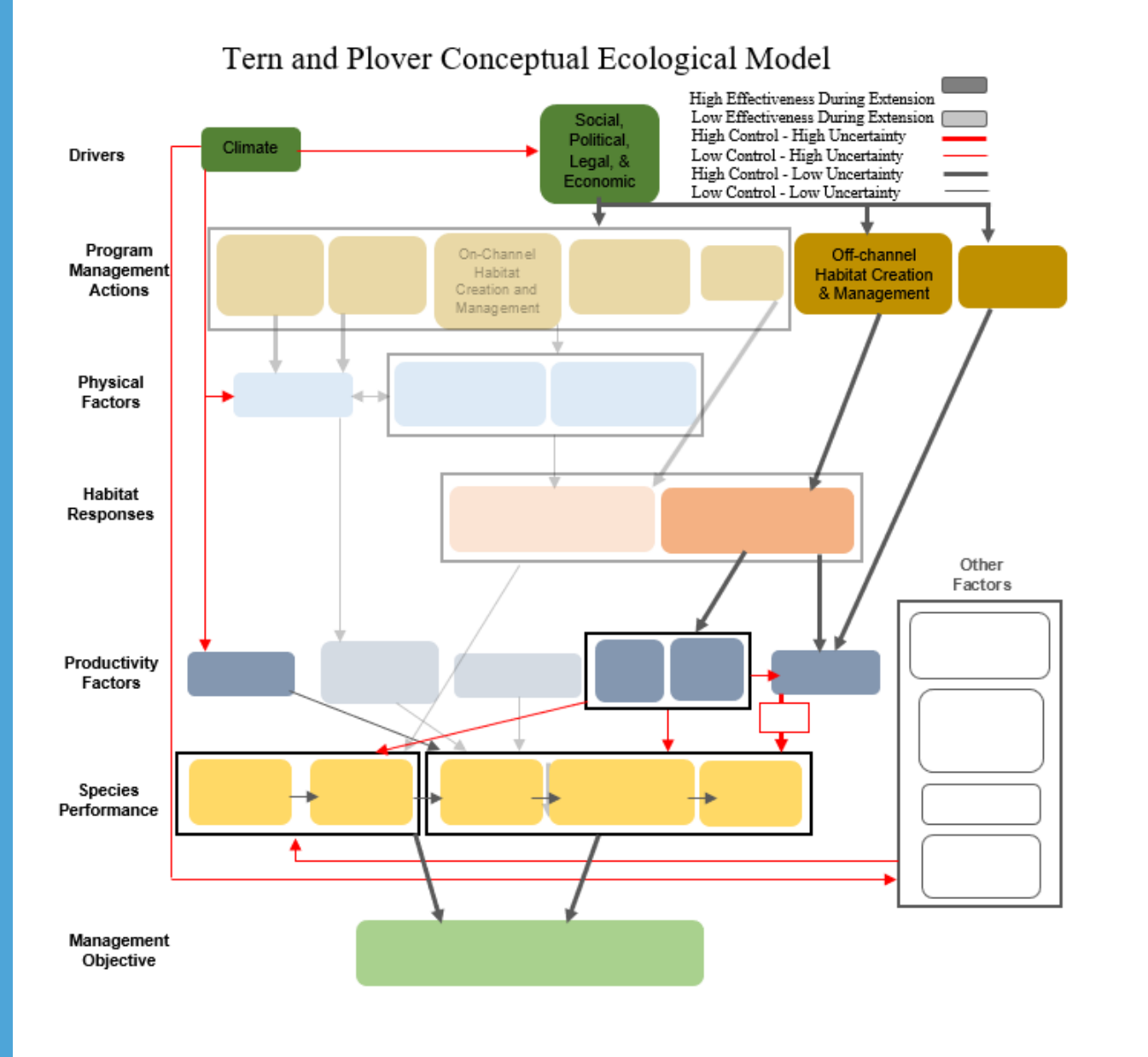
- What have we learned?
- What do we need to learn?

+ or -
rank impacts

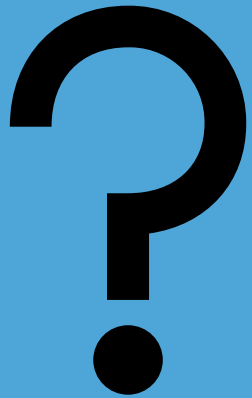


Questions to Address

- How do we talk to the GC about it?
- BIG QUESTIONS
- Priority Hypotheses



Questions to Address

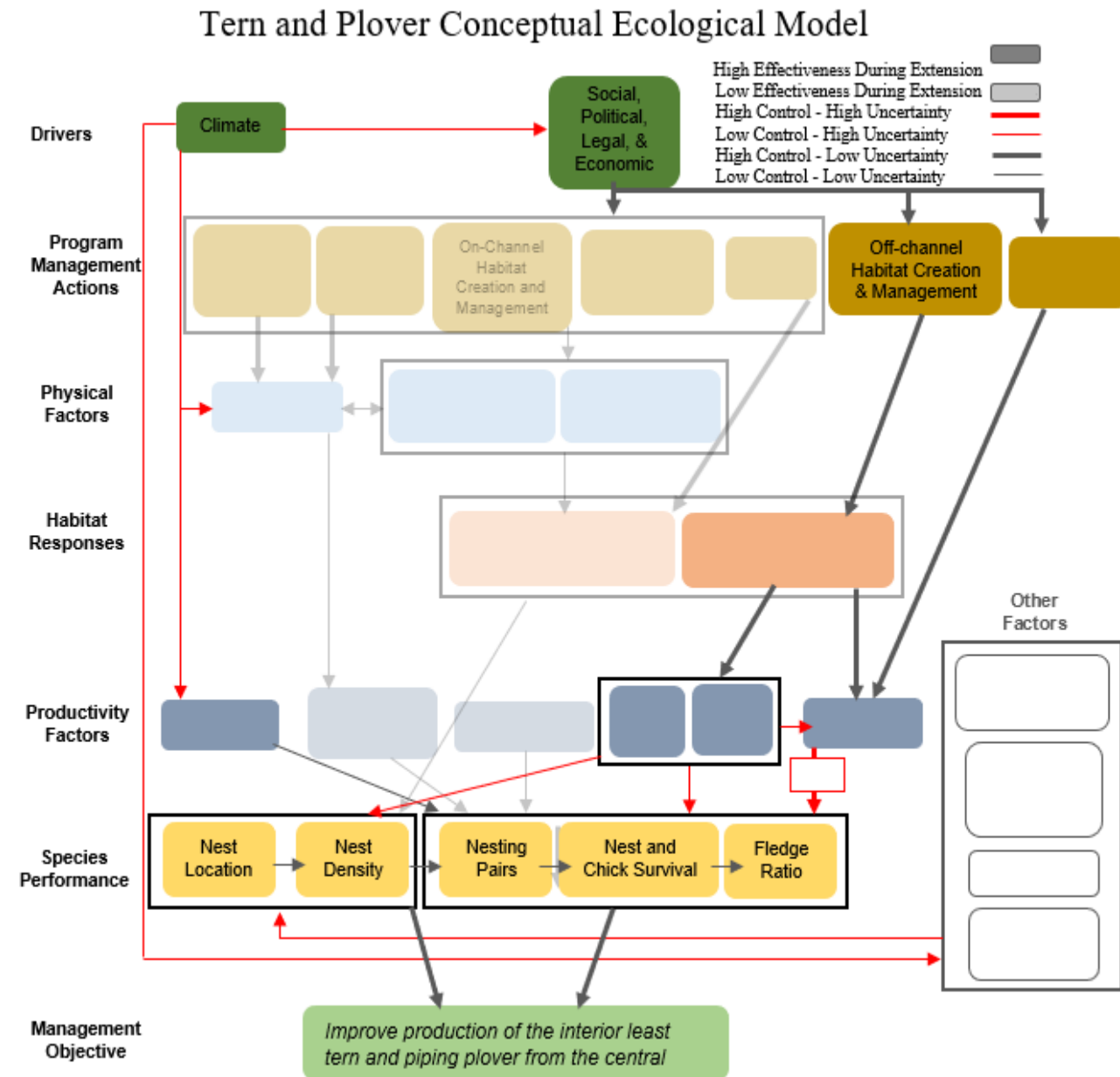


- QUESTIONS????



Terns & Plovers

- Performance Indicators
- Management Objectives



Terns and Plovers Management Objective



- *Improve production of the interior least tern and piping plover from the central Platte River.*



Terns and Plovers Performance Indicators



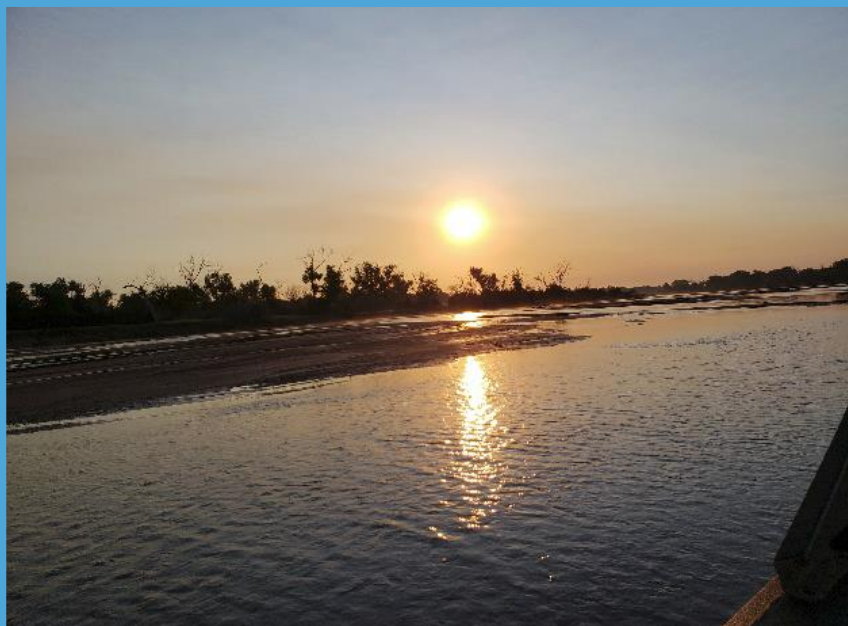
- *Nest location*
- *Nest density*
- *Nesting pairs*
- *Nest and chick survival*
- *Fledge ratio*





Incorporating Prior Learning

- Tern and Plover synthesis chapters
- LTPP SDM Process
- How have performance indicators been used to make management decisions?



On-channel sandbars near Dyer



Dyer off-channel sand pit



Big Question #1

Will implementation of Short-Duration High Flow releases produce suitable tern and plover riverine nesting habitat on an annual or near-annual basis?

The minimum sandbar height suitability criterion is ≥ 1.5 ft above 1,200 cfs river stage.



2016 Assessment

- Observational studies of natural high flow events since 2007 have provided sufficient data to test the hypothesis that SDHF releases will create suitably-high sandbars.
- Full SDHF magnitude of 8,000 cfs is not sufficient to create sandbars exceeding the PRRIP's minimum height suitability criterion.
- Sandbars created by SDHF releases will be inundated during the nesting season in most years.
- Peak flow magnitudes of 15,000 cfs will produce sandbars meeting the minimum height criterion. However, suitably-high sandbar area would be well below the Adaptive Management Plan objective of 10 acres per river mile.



Objective	Sub-Objective	Performance Measures
Piping Plovers and Least Terns². The primary goal and driver of the decision process is to maximize the reproductive success of terns and plovers.	Reproductive Success	PRRIP Breeding Pairs
		PRRIP Total Fledglings
Management Cost. This objective reflects a concern for the wise use of resources. Money and water used for terns and plovers are not available for use for other purposes and thus these objectives reflect the opportunity cost associated with using resources for terns and plovers.	Total Long-term Cost	Long-term cost (net present value over 50 years)
	Total Short-term Cost	First Increment cost (total over 2017-2019)
	Long Term Water Use	Proportion of Program water used
Whooping Cranes. This objective reflects a desire to assess the effect of management actions designed for terns and plovers on the availability of suitable whooping crane habitat, and the potential use of that habitat.	WC Habitat Use	Habitat Suitability Scale (<i>changes to habitat suitability</i>)

Sediment Supply. This objective reflects a belief that maintaining an abundance of sediment in the channel is an important contributor to a river form used by the Program's target species.	Contribution to Sediment Supply	Sediment Supply Scale
Pallid Sturgeon. This objective reflects an interest in having a check in place to confirm the assumption that management actions taken for terns and plovers will not affect risks to pallid sturgeon.	Pallid Sturgeon Risk	Change in risk to Pallid Sturgeon
Implementation Effort This objective reflects an interest in ensuring that management actions are practical and feasible to implement.	Implementation Costs and Risks	Implementation Scale
Learning This objective reflects an interest in continual learning to improve the benefits from management actions.	Learning Potential – Plover and Tern Reproductive Success	Learning Potential Scale

Table 2. Possible habitat management actions.

Habitat Management Categories	Components	Range of Options
On-Channel Habitat	Amount of Habitat	<ul style="list-style-type: none"> • Range: 0 – limit of the channel
	Kind of Habitat	<ul style="list-style-type: none"> • Conventional • MCA³
Off-Channel Habitat	Amount of Habitat	<ul style="list-style-type: none"> • Range: 0 – limit of the budget
	Method and timing of habitat creation	<ul style="list-style-type: none"> • New Construction • Rehabilitated Sandpit • Mine-Operator Agreements
	Method of land acquisition	<ul style="list-style-type: none"> • Use Existing PRRIP land • Lease • Fee-title Purchase
Flow Augmentation	Duration	<ul style="list-style-type: none"> • Nest Initiation period (terns and/or plovers) • Brood rearing period (terns and/or plovers)
	Amount	<ul style="list-style-type: none"> • US Fish and Wildlife Service (USFWS) target flows • Other flow targets (including 0).

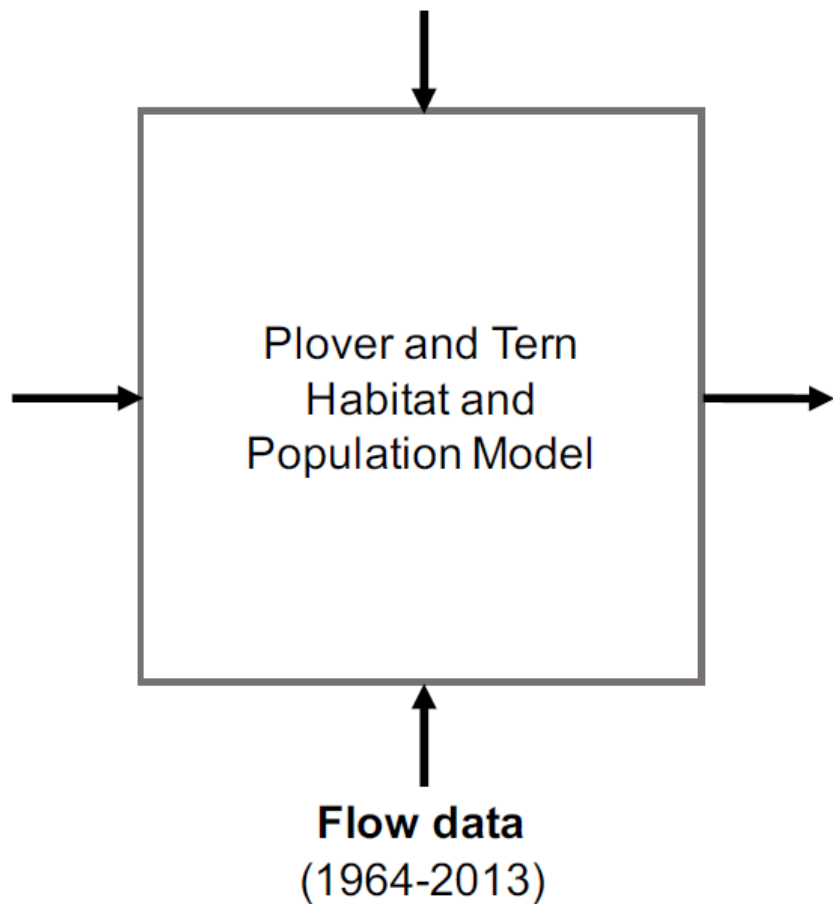
Figure 3. Inputs and outputs of the Plover and Tern Habitat and Population Model.

Habitat inputs

- Baseline habitat (Dec 2015)
- New habitat targets
- Construction timing and # of contactors
- Habitat decay function

Species-specific inputs

- Baseline adults (Summer 2015)
- Plover and Tern nesting period
- Habitat utilization flow preferences (on-channel)
- Nest density (on- and off-channel)
- Fledge ratio (on- and off-channel)
- Preference for on- vs. off-channel habitat
- Adult survival rates and fledgling recruitment rate
- Plover emigration/immigration rates



Model Outputs

- # Breeding Pairs (per year)
- # of Fledglings (total)
- Habitat construction and maintenance costs (long-term NPV, and short-term projected cost)
- Proportion of PRRIP water volume used for augmentation

10 Decision Summary and Next Steps

Component	Decision – for remainder of First Increment	Implementation Considerations
Off-Channel	The Program will acquire an additional 60 acres of off-channel habitat, within a budget of \$xx. Within this budget, EDO has discretion to discretion to acquire land parcels in the most appropriate way (lease, buy, etc.). Considerations will include: cost, timing, certainty, parcel size, parcel location (distribution throughout the AHR), and land conversion issues.	Acquisition decisions will go through the Lands Committee as per usual.
On-Channel	The Program will create and maintain a target of at least 10 acres of on-channel habitat per year using the MCA approach, up to a budget cap of \$26,000.	If costs are higher (or lower) than expected, the actual amount of habitat produced will be lower (or higher).
Flow	Water should not be used solely for the purpose of tern and plover nest initiation. However tern and plover benefits could be identified as part of the rationale for water releases made for other purposes.	The USFWS has authority over flows. This is the Program's consensus recommendation to the USFWS.



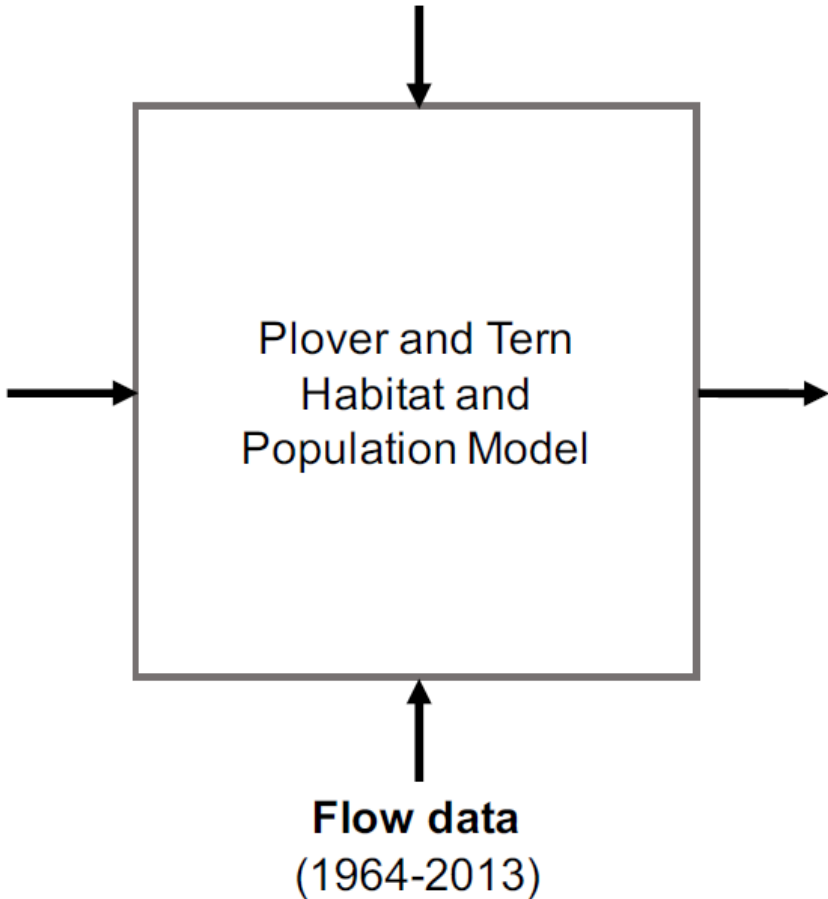
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Habitat inputs

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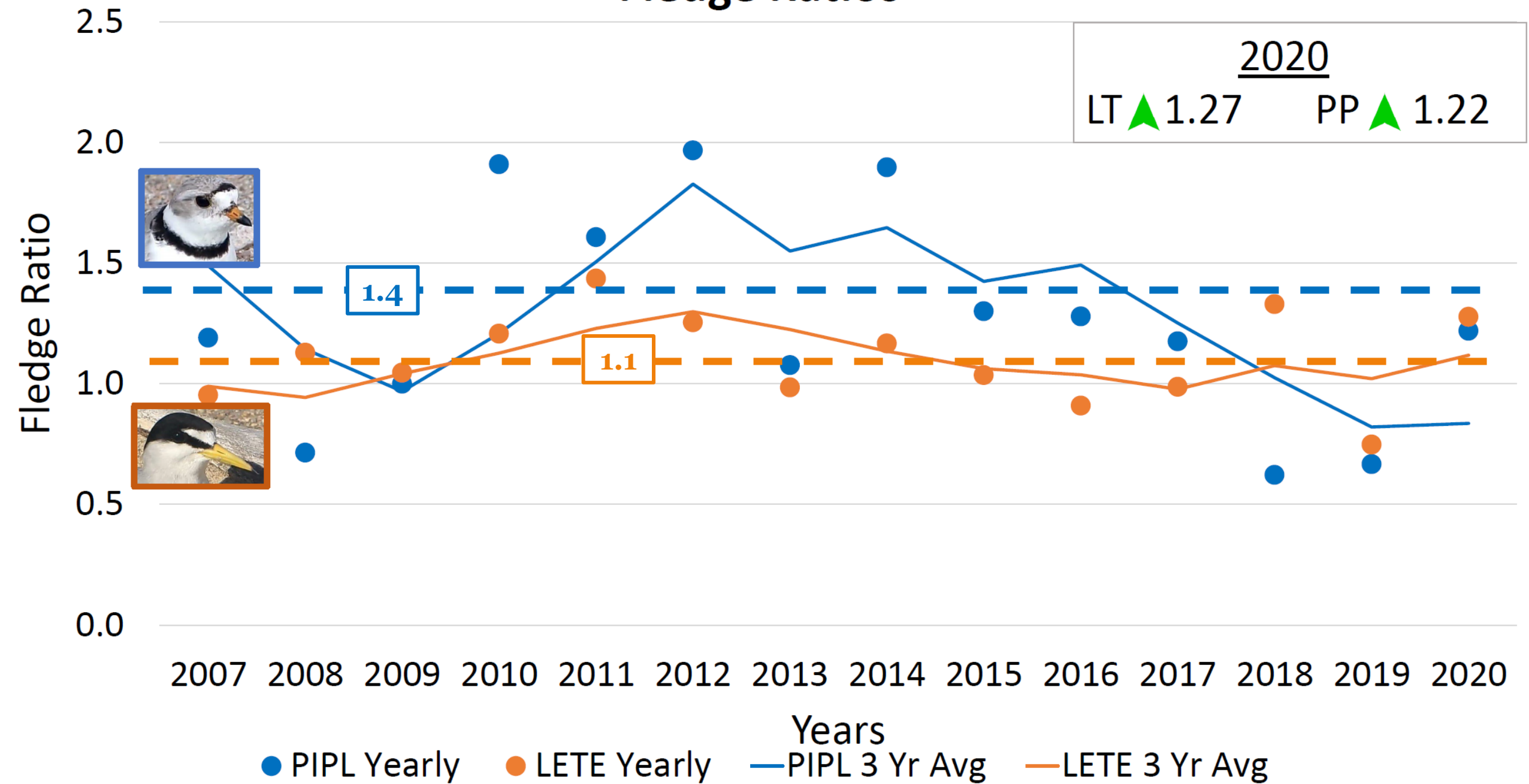
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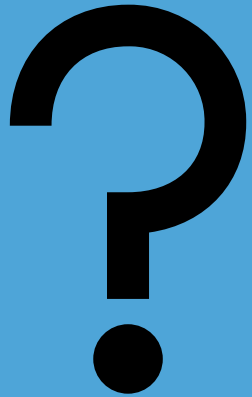
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Fledge Ratios



Incorporating Prior Learning



- QUESTIONS????





Preparation for Next Meeting

PREPARATION FOR NEXT MEETING		Meeting Objective: Prepare for next meeting.
<ul style="list-style-type: none">○ Agenda items for next meeting○ Homework for next meeting – Relevant PRRIP and external science learning <p>Overall species objectives for First Increment: Lutey 2002</p> <p>Population viability analysis modeling: Ryan et al. 1993, Plissner & Haag 2000, McGowan et al. 2014</p> <p>Performance indicators for modeling from other systems: Catlin et al. 2016, MRRP 2019 ESA Adaptive Mgmt Compliance Report, 2019 LT PP Annual Report for LPR</p> <p>Performance indicators for modeling from our system: Roche et al. 2016, Farrell et al. 2018</p> <p>Anything relevant suggested by group (LT population modeling)</p>	2:30 PM	<p>Lutey 2002</p> <p>Ryan et al. 1993</p> <p>Plissner & Haag 2000</p> <p>McGowan et al. 2014</p> <p>Catlin et al. 2016</p> <p>MRRP 2019 ESA AM Compliance Report</p> <p>2019 LT PP Annual Report for LPR</p> <p>Roche et al. 2016</p> <p>Farrell et al. 2018</p>

Upcoming Meetings (suggested dates)



2020 OCTOBER						
CALENDAR YEAR	CALENDAR MONTH	SUNDAY FIRST DAY OF WEEK				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27	28	29	30	01	02	03
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

2020 NOVEMBER						
CALENDAR YEAR	CALENDAR MONTH	SUNDAY FIRST DAY OF WEEK				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01	02	03	04	05	06	07
08	09	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	01	02	03	04	05

2020 DECEMBER						
CALENDAR YEAR	CALENDAR MONTH	SUNDAY FIRST DAY OF WEEK				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29	30	01	02	03	04	05
06	07	08	09	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	01	02

Meeting Review and Wrap-Up

- Action Items
 - 2nd meeting agenda posted
 - homework
- Meeting Feedback
- Key Insights

