

# Adaptive Management Working Group AMP Development 23 March 2021

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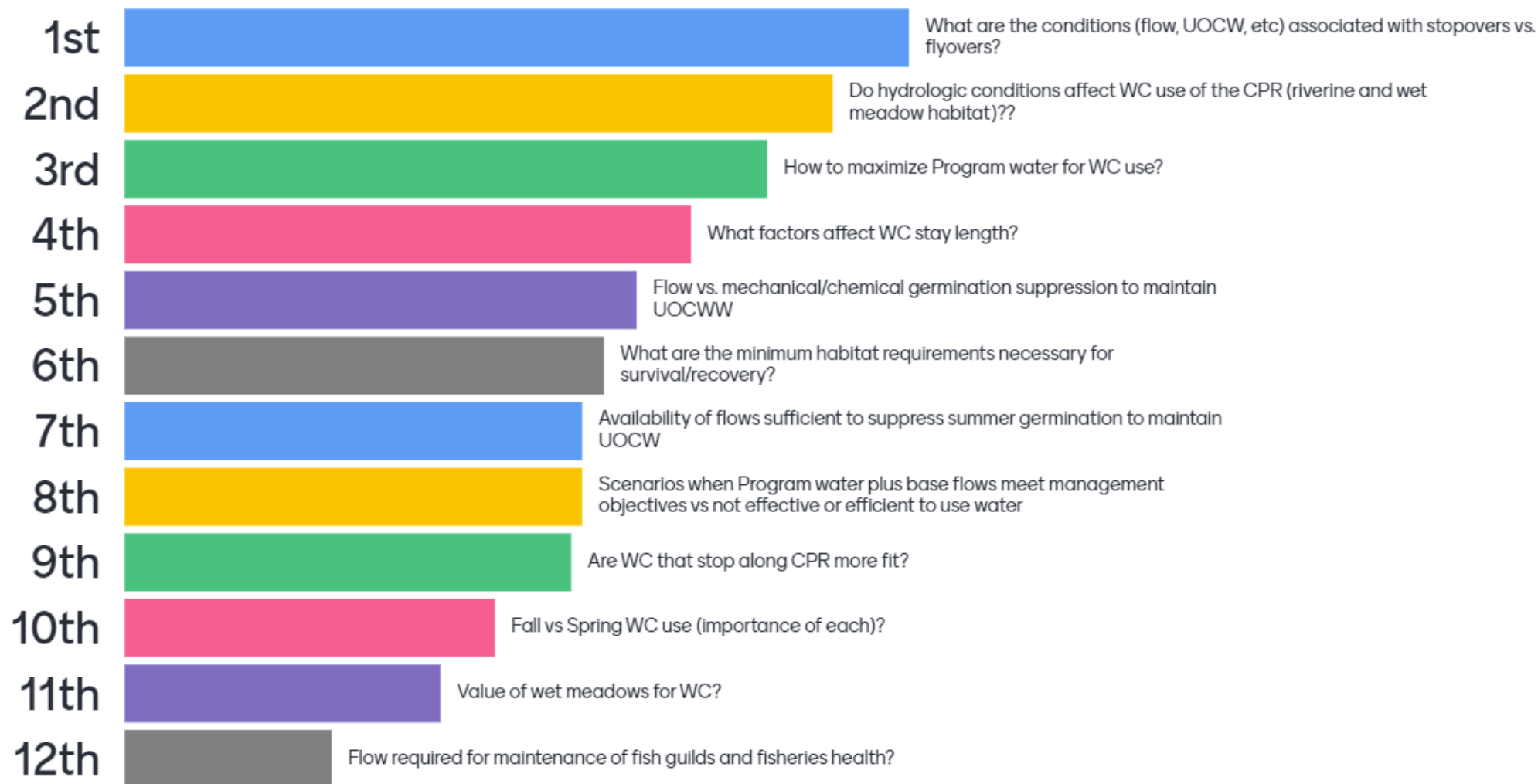
*Colleen Childers*

# WC - Potential Big Questions

1. Conditions associated with stopovers vs. flyovers?
2. Water maintenance of UOCW?
3. Are WC that stop along AHR more fit?
4. Conditions influencing length of stay?



# How would you rank these in terms of importance to WC survival?



**Figure 2.** Whooping Crane Conceptual Ecological Model

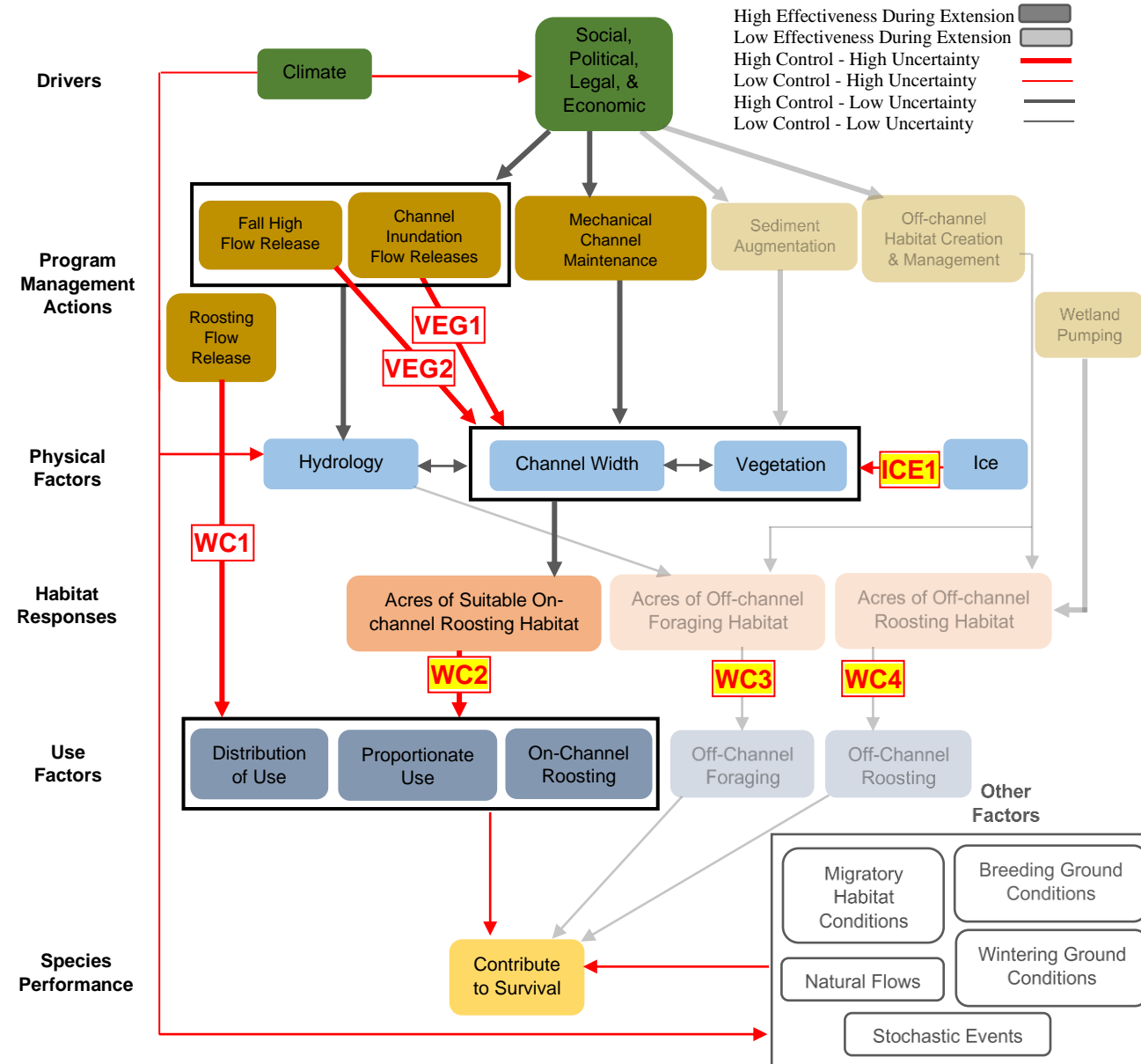
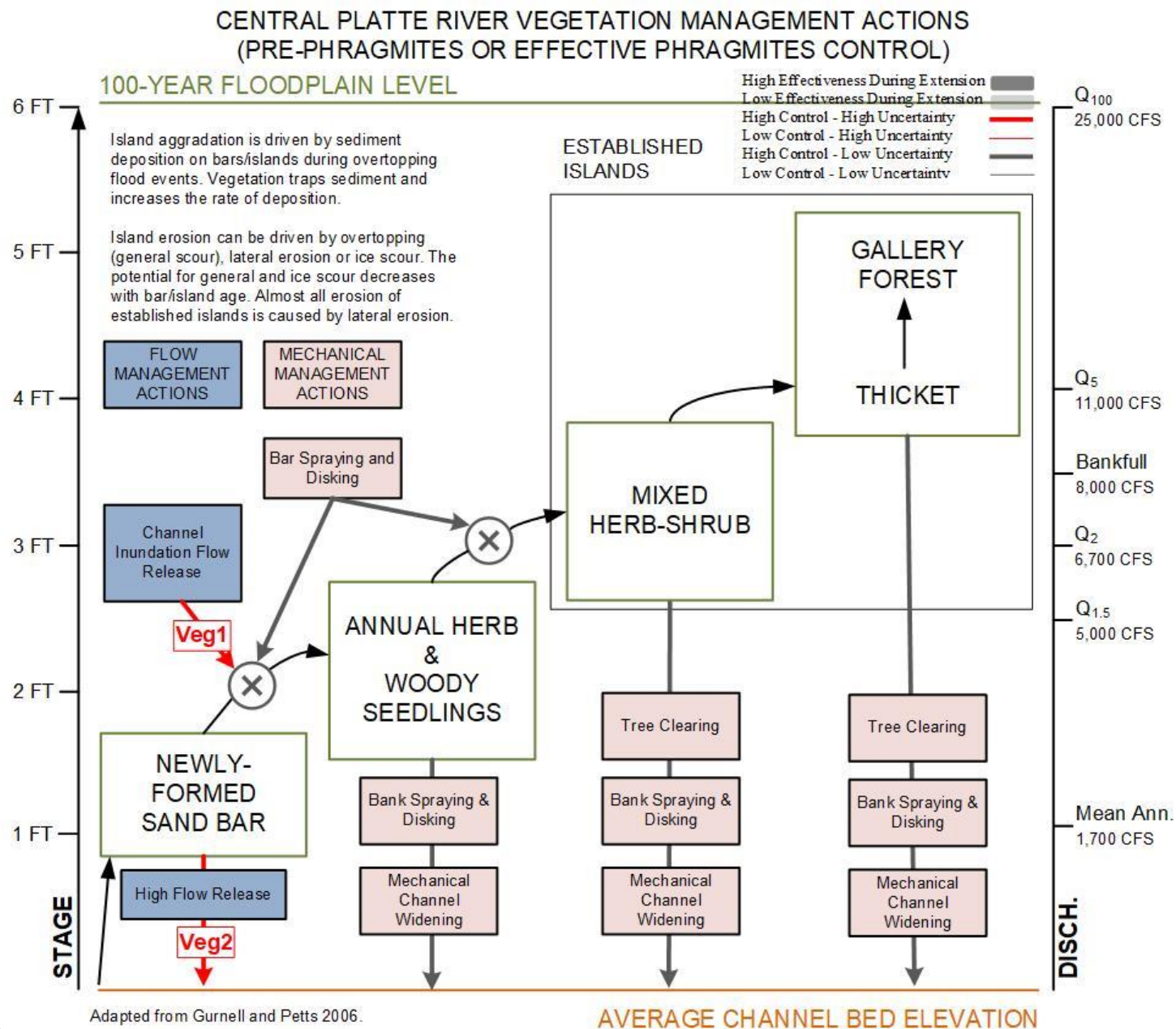


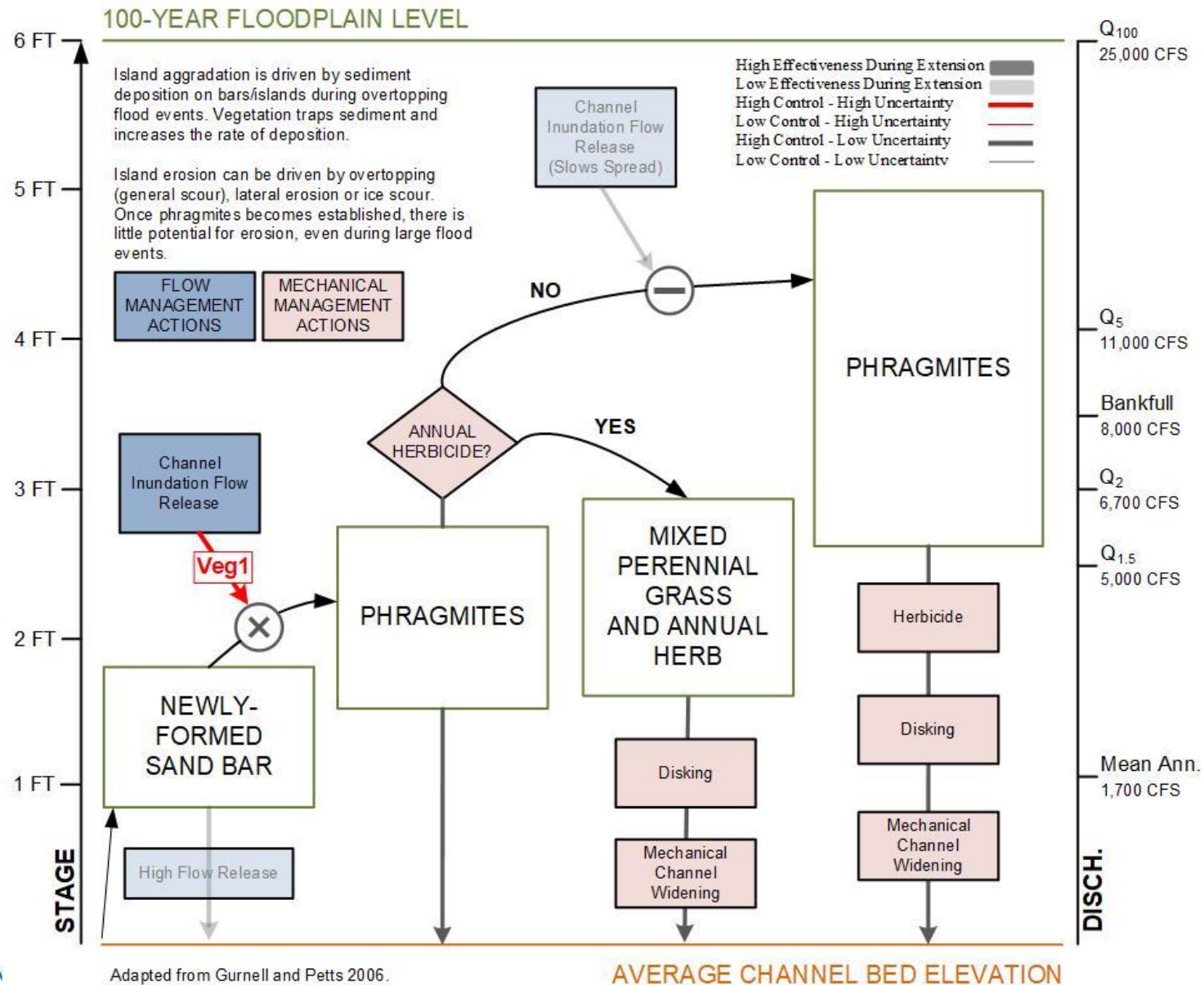


Figure 3. Annual and Perennial Vegetation Establishment Conceptual Ecological Model.



**Figure 4.** Phragmites Conceptual Ecological Model.

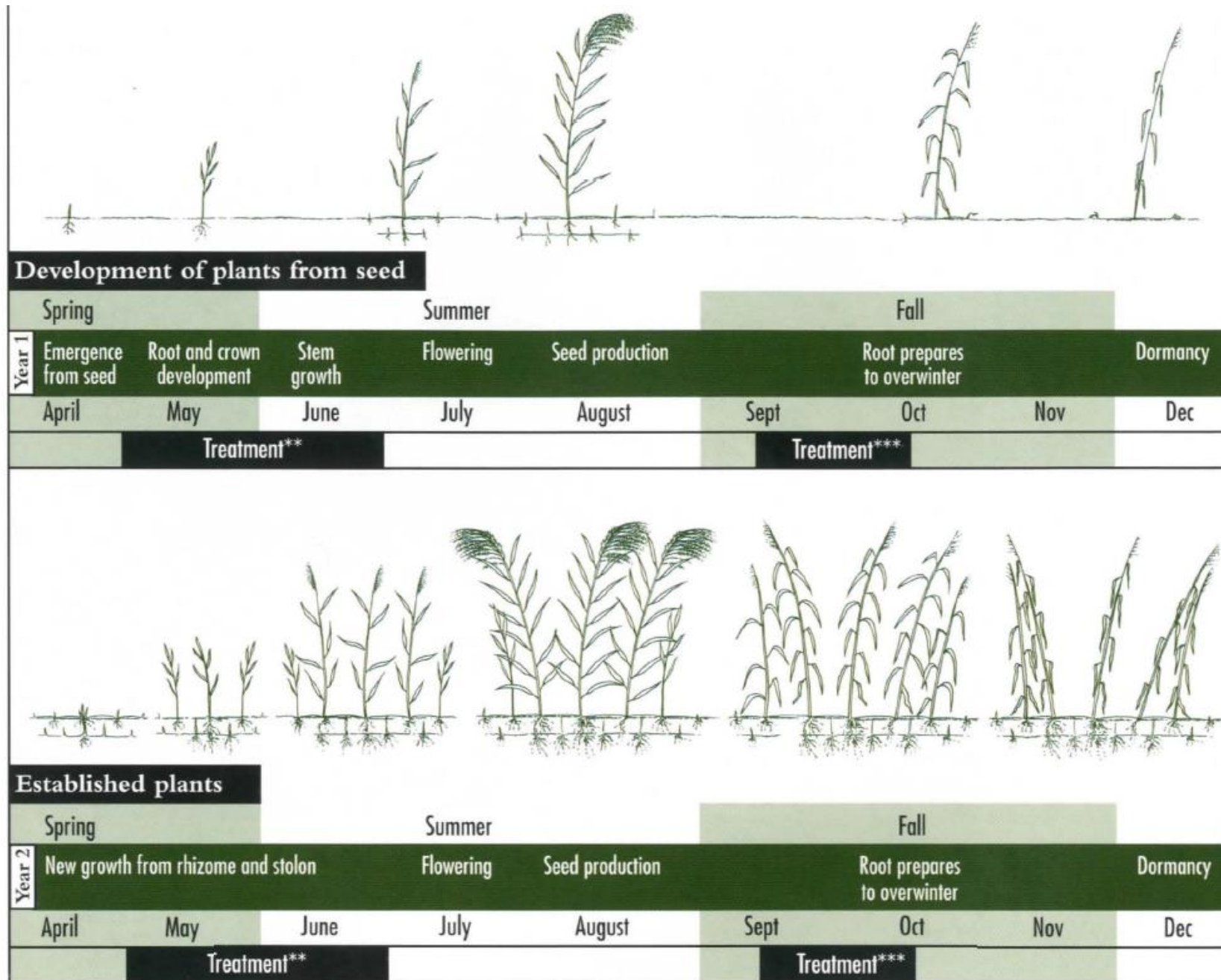
# CENTRAL PLATTE RIVER PHRAGMITES MANAGEMENT ACTIONS



# Phragmites – Potential BIG QUESTIONS

- Does Phragmites prevent us from meeting Program goals and/or target species management objectives?
- Do we want to have a management objective for Phragmites?
- What do we need to know about Phragmites that would help us do a better job of meeting management objectives?
- Can we use Program water to control Phragmites?
- Should we?
  - Timing – When? Frequency?
  - Magnitude – How much water do we need? Depth? Volume?
  - Can we do it? Do we have the volume/operations capacity to do it? For how long? How often?
  - How effective can we expect to be? How to measure progress toward objectives?
- What more do we need to learn about chemical/mechanical control?
  - Rapp 2012 pg 35-37





Knezevic *et al.* 2008



**PLATTE RIVER**  
RECOVERY IMPLEMENTATION PROGRAM

\*Life cycles in Year 2 and consecutive years are similar.

\*\*Spring treatment should be at 2-3 feet of growth.

\*\*\*Fall treatment should be 2-3 weeks before killing frost.



Table 2. Impact of disking and disking followed by an application of either imazapyr or glyphosate applied in the fall of 2008, or the summer of 2009

on common reed control, flowering, and stem density for three locations in Nebraska (study 1)a.

Treatment	Application timing	Common reed										
		Control					Flowering			Density		
		90 DAT	289 DAT	440 DAT	670 DAT	817 DAT						
		30 DAT <sup>c</sup>	229 DAT <sup>c</sup>	380 DAT <sup>c</sup>	610 DAT <sup>c</sup>	757 DAT <sup>c</sup>						
				90 DAT <sup>d</sup>	320 DAT <sup>d</sup>	467 DAT <sup>d</sup>	2008 <sup>e</sup>	2009 <sup>f</sup>	2010 <sup>g</sup>	2008 <sup>e</sup>	2009 <sup>f</sup>	2010 <sup>g</sup>
		-----%-----					-----%-----			-----stem m <sup>-2</sup> -----		
Disking alone	Summer 08	42	47	43	13	8	0	40	90	53	109	161
Disking + imazapyr	Summer 08 + Fall 08	71	100	99	97	97	0	1	1	51	1	2
Disking + glyphosate	Summer 08 + Fall 08	77	100	97	92	93	0	3	3	50	2	5
Disking + imazapyr	Summer 08 + Summer 09	40	47	63	100	100	0	0	0	49	106	0
Disking + glyphosate	Summer 08 + Summer 09	40	47	72	99	99	0	0	0	49	110	0
	LSD (0.05) <sup>b</sup>	7	2	4	4	3	0	10	3	6	20	5

<sup>a</sup> There was no treatment-by-location interaction; therefore, data from the three locations were pooled. Abbreviations: DAT, days after treatment.

<sup>b</sup> Fisher's Protected LSD (P = 0.05).

<sup>c</sup> Days after the fall 2008 herbicide treatment.

<sup>d</sup> Days after the summer 2009 herbicide treatment.

<sup>e</sup> End of growing season for 2008 corresponds with 90 DAT.

<sup>f</sup> End of growing season for 2009 corresponds with 440 DAT.

<sup>g</sup> End of growing season for 2010 corresponds with 817 DAT.

Rapp 2012

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Table 3. Impact of mowing and mowing followed by an application of either imazapyr or glyphosate applied in the fall of 2008 or the summer of 2009 on common reed control, flowering, and density for three locations in Nebraska (study 2)a.

Treatment	Application timing	Common reed										
		Control					Flowering			Density		
		90 DAT	289 DAT	440 DAT	670 DAT	817 DAT						
		30 DAT <sup>c</sup>	229 DAT <sup>c</sup>	380 DAT <sup>c</sup>	610 DAT <sup>c</sup>	757 DAT <sup>c</sup>						
				90 DAT <sup>d</sup>	320 DAT <sup>d</sup>	467 DAT <sup>d</sup>	2008 <sup>e</sup>	2009 <sup>f</sup>	2010 <sup>g</sup>	2008 <sup>e</sup>	2009 <sup>f</sup>	2010 <sup>g</sup>
		-----%-----					-----%-----			-----stem m <sup>-2</sup> -----		
Mowing alone	Summer 08 + Fall 08	100	32	36	0	0	0	17	99	9	155	186
Mowing + imazapyr	Summer 08 + Fall 08	74	100	99	95	95	0	0	3	85	1	4
Mowing + glyphosate	Summer 08 + Fall 08	81	100	96	93	93	0	1	5	86	3	6
Mowing + imazapyr	Summer 08 + Summer 09	25	27	47	99	99	0	0	1	87	150	1
Mowing + glyphosate	Summer 08 + Summer 09	25	27	72	100	100	0	0	0	86	153	0
LSD (0.05) <sup>b</sup>		5	12	4	2	2	0	11	2	13	17	3

<sup>a</sup> There was no treatment-by-location interaction; therefore, data from the three locations were pooled. Abbreviations: DAT, days after treatment.

<sup>b</sup> Fisher's protected LSD (P = 0.05).

<sup>c</sup> Days after the fall 2008 herbicide treatment.

<sup>d</sup> Days after the summer 2009 herbicide treatment.

<sup>e</sup> End of growing season for 2008 corresponds with 90 DAT.

<sup>f</sup> End of growing season for 2009 corresponds with 440 DAT.

<sup>g</sup> End of growing season for 2010 corresponds with 817 DAT.

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Table 4. Impact of herbicide applied in the summer of 2008 or fall of 2008 and herbicide followed by mechanical treatment of either mowing or disking applied in the fall of 2008 or the summer of 2009 on common reed control, flowering and stem density for three locations in Nebraska (study 3)a.

Treatment	Application timing	Common reed										
		Control			Flowering			Density				
		90 DAT	289 DAT	440 DAT	670 DAT	817 DAT						
		30 DAT <sup>c</sup>	229 DAT <sup>c</sup>	380 DAT <sup>c</sup>	610 DAT <sup>c</sup>	757 DAT <sup>c</sup>						
				90 DAT <sup>d</sup>	320 DAT <sup>d</sup>	467 DAT <sup>d</sup>	2008 <sup>e</sup>	2009 <sup>f</sup>	2010 <sup>g</sup>	2008 <sup>e</sup>	2009 <sup>f</sup>	2010 <sup>g</sup>
		-----%			-----%			-----stem m <sup>-2</sup> -----				
Glyphosate only	Summer 08	34	100	95	86	88	11	4	8	180	9	9
Glyphosate + mowing	Summer 08 + Fall 08	100	100	92	85	84	0	6	11	58	13	14
Glyphosate + disking	Summer 08 + Fall 08	100	100	93	87	86	0	6	9	60	12	11
Imazapyr only	Summer 08	27	100	99	95	95	4	1	3	161	3	3
Imazapyr + mowing	Summer 08 + Fall 08	100	100	96	95	95	0	3	3	57	7	4
Imazapyr + disking	Summer 08 + Fall 08	100	100	97	95	95	0	1	2	58	5	3
Glyphosate only	Fall 08	78	100	97	96	96	88	0	1	179	4	3
Imazapyr only	Fall 08	71	100	99	97	97	99	1	1	134	2	2
Imazapyr only (applied twice)	Fall 08 + Summer 09	67	100	99	99	99	88	0	0	131	3	1
Glyphosate only (applied twice)	Fall 08 + Summer 09	73	100	99	96	95	99	0	2	154	1	3
Glyphosate + mowing	Fall 08 + Summer 09	76	100	100	91	92	98	1	4	119	0	7
Glyphosate + disking	Fall 08 + Summer 09	76	100	99	92	92	87	1	4	148	2	6
Imazapyr + mowing	Fall 08 + Summer 09	68	100	100	94	94	98	0	2	128	0	5
Imazapyr + disking	Fall 08 + Summer 09	68	100	100	96	96	99	0	2	131	0	3
	LSD (0.05) <sup>b</sup>	4	0	2	5	5	15	2	4	78	6	4

<sup>a</sup> There was no treatment-by-location interaction; therefore, data from the three locations were pooled. Abbreviations: DAT, days after treatment.

<sup>b</sup> Fisher's protected LSD (P = 0.05).

<sup>c</sup> Days after the fall 2008 herbicide treatment.

<sup>d</sup> Days after the summer 2009 herbicide treatment.

<sup>e</sup> End of growing season for 2008 corresponds with 90 DAT.

<sup>f</sup> End of growing season for 2009 corresponds with 440 DAT.

<sup>g</sup> End of growing season for 2010 corresponds with 817 DAT.

Rapp 2012



# Wet Meadows – Potential BIG QUESTIONS

- Do wet meadows help us meet our Program goals (complex) and/or target species management objectives?
  - Lieh's, Deboer, Fox
- Do we want to treat wet meadows like a “habitat” of concern?
- Do we want to have a management objective for wet meadows?
- What do we need to know about wet meadows that will help us meet our management objectives?
- What is it about wet meadows that we think is important that we need to manage for – water, vegetation, forage?
- Are wet meadows a good use of Program water?
- Where do wet meadows fall in terms of water use priorities?
- How to measure progress toward objectives?





# Other Species of Concern – Potential BIG QUESTIONS

- Does managing for other species of concern help us meet our Program goals and/or target species management objectives?
- Do we want to have a management objective for other species of concern? What would it be?
- What do we need to know about these other species that will help us meet our management objectives?
- What is it about other species of concern that we think is important that we need to manage for – water, vegetation, forage?
- How to measure progress toward objectives?
- Is this a good use of Program resources?
- Where do these fall in terms of priority?

# Use of Program Water– Potential BIG QUESTIONS

- Build a CEM for water management?
- Identified potential uses of Program water
  - WC migration (flows high enough to avoid hydrocycling?)
  - Create/maintain UOCW – high peak flows, SDHF, germination suppression
  - Reduce Phragmites expansion
  - Wet meadow hydrology
  - Water to prevent fish kill or provide WC forage
  - Pallid sturgeon
- BIG Uncertainty - What are the most effective and efficient uses of Program water?
- SDM process to evaluate tradeoffs for Program water use
  - *AMWG has been working on identifying Program learning we need, that we don't already have, to feed into this process?*

# Meeting Review and Wrap-Up

- Meeting Feedback
- Action Items
- Agenda suggestions for next meeting
- Upcoming Meetings:
  - AMWG regular meeting suspended as EDO works on draft Science Plan
  - TAC Quarterly Virtual April 14<sup>th</sup>, 1-4 PM CT

