Using Adaptive Management to Address Uncertainty in the Management of Missouri River Cottonwoods

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Review of Cottonwood Program

• The 2000 and 2003 BiOps identified the need for CMP; 6 priority segments; three RPMs:

• Map and evaluate current health of cottonwood forest that could provide bald eagle habitat

• Develop a Cottonwood Management Plan

• Ensure no more than 10% of existing suitable habitat is lost for bald eagles
Cottonwood Community Habitat Model

- Measurable variables
- Habitat components
- Community Habitat Suitability Index
Implementation Measures

• Protect existing stands
  – Conservation easements
  – Purchase lands

• Restore hydrologic and geomorphic processes
  – Increase sediment supply
  – Create side channels & chutes

• Planting
  – Cottonwood seedlings
  – Manage invasives

• Management Policies
  – Collaborate with conservation groups
  – Use mitigation to require cottonwood plantings
Implementation of Selected Alternative

Single measure

Multiple measures

Maximum number of measures
Why Adaptive Management?

- Geographic Scope
- Temporal Scope
  - 100 year period of analysis
- Natural Variation
- Development
- Other MR programs
Adaptive Management Process

- Establish team (CMP)
- Identification of problem(s)
- Establish objectives
- Use data to predict how alternatives will alter the system.
- Test and select alternatives based on modeling.
- Design field experiments
- Implementation
- Monitoring and assessment
- Feedback to update models, reassessment, update plan
- Repeat as necessary to achieve objectives, goals and vision.

Source: Williams et al 2007
Monitoring

• Program/Segment Level
  – Landscape level monitoring
  – Same methods used for baseline data
  – Completed every 5 years

• Site Level
  – Dependent on implemented measure(s)

• Protect existing stands
  – Same as baseline methods

• Planting
  – Propagation success
  – Annual monitoring
Multi-Level Monitoring

**Segments**

Site 1
Goal = 500 ac

Site 2
Goal = 800 ac

Site 3
Goal = 2,000 ac

Goal = < 10% decline

Goal = 11,000 acres needed
Threshold for Action

- Monitoring evaluates success
- Threshold stipulates need for action
- How to develop?
Program Threshold for Action

Adaptive Management Response

- Forecasted Trend
- Response Threshold
- Monitored Response
- Plan Failure
- No Action Trend
- Ecosystem Response (Outputs)
- Time (yrs)
- Agency Response
- Non-Compliance
- Time
Program Questions

• How will our data benefit other programs

• How will we incorporate data from other programs?

• Continued support from team members
Questions