“Preliminary Evaluation of a Habitat Restoration Technique for Development of Mesohabitats for the RGSM”

Status Report

aka “Island Destabilization”

Funded by ESA Collaborative Program FY04 and FY05

by

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Conducted In Conjunction with MRG Albuquerque Reach Riverine Habitat Restoration Project

Work will take place in 3 sub-reaches of the Albuquerque Reach:

1. North Diversion Channel
2. Central/I-40
3. South Diversion Channel

Total restoration area for Phase 1 is approx. 25 acres.
MRG Albuquerque Reach Riverine Habitat Restoration Project

Purpose

• Evaluate effectiveness of specific restoration techniques listed in the Collaborative Program’s Habitat Restoration Plan – can they improve habitat suitability for egg, larvae, juvenile and adult life stages of the RGSM?

• Satisfy Reasonable and Prudent Alternative Element S of 2003 BO – “to conduct habitat/ecosystem restoration projects in the MRG…”

• Implement restoration projects without increasing depletions.
Phase I Restoration Techniques

• Island destabilization – 3 methods
• Embayments
• Bank-line scours
• Bankline lowering
• Ephemeral side channels
Island Destabilization

Purpose – to physically disturb island vegetation and sediments to promote island mobilization and create surfaces that will be inundated at moderately high flows (>2000 cfs).
Method 1 for Island Destabilization

• Upstream third of island rootplowed.

• Sediment removed to depth that allows inundation at 2000 cfs.

• Excess sediment deposited on downstream portion of island.
Island Method 1
Method 2 for Island Destabilization

• Same as Method 1 except that the middle third of island is root-plowed.

• Upper third of island acts as vegetated buffer.

• Shallow water eddies created behind vegetated buffer.
Island Method 2
Method 3 for Island Destabilization

• Upstream third of island rootplowed.

• Upstream half re-contoured with 3 or more terraces stepping down in 1-ft increments to the water level.

• Excess sediment deposited adjacent to island to create low flow shelf habitat at 750 to 1000 cfs.
Island Method 3
Embayments are constructed along islands and point bar bank lines to produce low-velocity mesohabitats at flows of 2000-3000cfs.
Bankline Scours

Scours are created along islands and point bars where the thalweg of the river comes into contact with the bank to enhance river widening and overbank flow.
Bankline Lowering

Banklines are lowered to promote overbank flooding and create shallow bankline habitat at greater than 2000 CFS.
High Flow Ephemeral Side Channel

Ephemeral channels are created on islands and point bars such that low velocity habitats will be connected to the river channel when flows are greater than 2000 cfs.
Monitoring

Monitoring will include:
• Photographic records of habitats before and after modification
• Geomorphic transect mapping at two flows
• Sampling microhabitats along established transects – depth, velocity, composition and structure
• Comparing measurements and observations at two different flows
• Comparing with two control islands
• Fish monitoring may be conducted in conjunction with USBR
Schedule

- Phase 1 construction and as-built surveys will be completed next week – by April 20, 2006.
- Monitoring will begin post spring-runoff
- Phase II will begin Fall 2006
- Subsequent phases continuing through 2009, depending on funding.