

Habitat Restoration Work Group Meeting
August 19, 2014

Meeting Materials:

Meeting Agenda

Meeting Follow-Up

Middle Rio Grande Endangered Species Collaborative Program
Habitat Restoration Work Group
August 19th, 2014 – 12:30pm – 3:15pm
ISC

Actions

- Mick Porter will send the Corps 2010 Inundation Analysis data to Rob Dudley.
- Danielle Galloway will send out a final notice email for comments on the Draft Final 2013 Habitat Effectiveness Monitoring Report. HRW members will be given final notice to submit any comments to Danielle within the specified deadline.

Decisions

- There were no official decisions made during the August 19th HRW meeting.

Recommendations/Request

- It was suggested that HRW consider looking at the NM Rapid Assessment Method (NMRAM) to determine which elements might be useful. The Greater Rio Grande Water Shed Alliance could be consulted as well.
- It was suggested that HRW consider reviewing and discussing the SWCA habitat restoration planning table/spreadsheet as a starting point in developing Habitat Restoration Effectiveness Monitoring for the Program.

Next Meeting: September 16th, 2014 from 12:30 to 3:30 at Reclamation

- Tentative agenda items include: (1) Potential/future ISC Restoration Projects – presentation by GeoSystems; (2) Corps' Phase I Summary and Update on Phase II (Ondrea Hummel); (3) Approval of July 15th and August 19th HRW meeting notes; (4) Update on the MRGCD Refugial Habitat Suitability Monitoring of Drain Outfalls (carried over from 08/19);

Meeting Summary:

- Rick Billings and Dana Price brought the meeting to order. Introductions were made and the agenda was approved with a reordering of agenda items to allow the contractor presentations to occur first.
- Rob Dudley, with ASIR, presented on the Rio Grande Silvery Minnow (minnow) Population Monitoring project. Begun in 1993, this long-running project addresses trends in fish populations within the Middle Rio Grande (MRG) with specific focus on the minnow. Specifically, the objectives include, but are not limited to: (1) determining long-term (multiple year) and short-term (seasonal) trends in the using statistical approaches that discern spatiotemporal differences in abundance; (2) evaluate the influence of environmental conditions (discharge timing, magnitude, and duration) on population fluctuations over time and space; and (3) determine general habitat use patterns by comparing mesohabitats sampled areas with and without minnows present.
 - Mr. Dudley presented a general explanation of the field sampling and modeling methods. He also highlighted the similarities and differences between the Population Estimation and Population Monitoring.
 - General spatial and temporal trends for the minnow for 2013 were compared to those of the preliminary 2014 examples.
 - To determine how the environment is influencing population numbers and the occurrence of minnow, a mixed model was used to determine which parameters best explains the available information. In simplified terms, each model had a probability of occurrence

- (δ), density (or abundance, μ), and a co-variant parameter (ex. number of days above 3,000 cfs at Central gage).
- With dozens of models and 9 co-variants, goodness-of-fit statistics were applied to determine the relative fit of data to various models among all years to determine which best explains the available information given within that structure.
 - In a sample of results, it was shared that the highest predictor of minnow estimates was the “Number of Days Above 2,000 cfs at Central Gage.” This factor explained about 39% of the densities.
 - The density response is more “tuned into” the spring runoff as opposed to summer drying.
 - In terms of mesohabitat density, the yearly changes are dramatic and account for nearly 99% of the available data. Mesohabitat is thus an important component with minnow density.
 - The models indicated that sampling “occasion” or variation between days is relatively unimportant. In other words, one could expect the same results on Day 1 or Day 4.
- The minnow is a very unique species in that the population can remain at an almost undetectable population level (near 0) for 4 or 5 years and then “jump” to the most abundant species.
 - The November data with 4 samples in a row was utilized to determine how likely the minnow occur at a particular site and provide an estimate of site occupancy rates. Analysis of the data from 2005-2013 provided parameter estimates on: probability of occupancy, probability of extinction, probability of colonization, and probability of detection.
 - It turns out that there is a discharge effect that impacts the likelihood of detection. When discharges are low, the probability of detecting the minnow is also low.
 - Site occupancy was at its highest in 2005; remained relatively high and stable from 2006-2009, but then declined to its lowest point in 2013 (based on the November data).
 - In conclusion, it was shared that:
 - Minnow estimated densities were significantly lower in 2010-2013 as compared with 2007-2009; individuals were collected from only three of 20 sampling sites in 2013.
 - Prolonged high flows during spring were most predictive of increased density and prolonged low flows during summer were most predictive of decreased occurrence of minnow over the period of study (1993–2013).
 - Mesohabitat-specific population trends were quite similar to overall trends from the 20 sampling sites over time (2002–2013).
 - Minnow density estimates were consistent across repeated sampling occasions during November (2005–2013).
 - Site occupancy estimates indicated that the minnow has been cumulatively lost from > 90% of its occupied localities since 2005. The population is currently characterized by a low site occupancy probability, high extinction probability, and low colonization probability.
 - David Lightfoot, with SWCA, presented on the MRG Endangered Species Collaborative Program (Program) Habitat Restoration Effectiveness Monitoring 2010-2012: Data Analysis, Interpretation, and Recommendations.

- The purpose of this work was to “track” restoration projects in a way to show that they are successful (as based on meeting success criteria) and discuss the results of change analysis and provide recommendations for future monitoring.
- For effective Habitat Restoration Effectiveness Monitoring (HREM), there needs to be a habitat restoration monitoring plan that includes specifics on the objectives, the methods, and the success evaluation criteria. That will then guide the analysis of the HR monitoring data.
However, no such HREM plan and evaluation criteria exist for the MRG and individual treatments.
- For this effort, 20 sites were randomly selected from 63 possible Program-funded restoration sites throughout the MRG. The following features were investigated:
 - Minnow and Water Quality;
 - Terrestrial Vegetation;
 - Flycatcher; and
 - Salt Cedar Leaf Beetle.
- Unfortunately, inconsistencies in field measurement protocols, lack of temporal spread (only 2 years) made it very difficult, if not virtually impossible to determine any trends. Combined with the lack of specific HREM objectives and evaluation criteria, the analyses were inconclusive.
 - Attendees briefly discussed that the identification of gaps and issues that need to be addressed will be useful in informing the implementation of the Recovery Implementation Program (RIP).
- In conclusion, SWCA recommended that the Program develop an HREM Plan that contains:
 - Specific HREM objectives by treatment type and species;
 - Specific habitat restoration success evaluation criteria by treatment type and species;
 - Specific low-intensity qualitative and/or high-intensity quantitative parameter measurement protocols; using appropriate (e.g. balanced, adequate sample sizes, consistency in measurements) measurement methods to produce the appropriate data to analyze and to address the evaluation criteria;
 - Integrated field-archival, relational data management system with specific QA/QC protocols;
 - Data analysis methods appropriate for the sampling designs and purpose of the data – protocols, field forms, etc.
 - Adaptive management to evaluate and integrate the findings of HREM into evolving program management.
- Approval of the July 15th HRW meeting notes was postponed until a future meeting.
- The July 15th HRW Action Items were not reviewed.