Reference SON: *2015-ER-13 Standards for Monitoring Herbaceous Vegetation*

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Wiki

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Standard Monitoring Protocols for Herbaceous Vegetation[1]

Research Need

Although the Corps has been addressing critical environmental problems through their authority to restore ecosystem integrity (ER 1105-2-100) at a national scale, the Corps has been unable to provide evidence of their success beyond number of acres or linear feet/miles restored. Questions about restoration success remain unanswered, such as: "How well did the chosen restoration techniques meet project goals and objectives?" and "What is the benefit of ecosystem restoration to the nation?"

Corps districts must develop a monitoring plan for each ecosystem restoration project. It is important that the monitoring plan include a set of standard data collection protocols that allows the District to report a standard set of metrics. Standardized reporting of how a project is progressing will ensure that the Corps has the ability to answer questions about ecosystem restoration success and benefit in a consistent and defensible manner, and interpret results across different sites.

Project Objectives & Plan

The purpose of this work is to develop standardized monitoring protocols for restored native herbaceous vegetation that meet the guidelines set forth in Section 2039 of WRDA 2007 Monitoring Ecosystem Restoration and Corps Planning Memorandum – Monitoring Ecosystem Restoration (2009). The primary deliverables will be a series of Technical Notes, training webinars and workshops, illustrating the steps involved in standard data collection and reporting for herbaceous vegetation monitoring. Technical Notes will include concepts such as:

- Detecting trends of change in plant communities
- Determining why certain metrics are/are not good indicators of vegetation condition
- Proof of concept through field testing of standard protocols in different regions.

Webinars and workshops will be focused on transferring knowledge and training district personnel to implement standard data collection protocols. An additional major deliverable will be a guidance manual that details the steps a District can take to implement standard monitoring protocols and reporting for native vegetation restoration projects.

Payoff

This effort will enable the Corps to monitor the condition of restored vegetation, quantitatively report on the success of restoration efforts, and enable a broader narrative to effectively communicate the large-scale benefits that result from Corps restoration projects. Standardized monitoring and reporting will allow the Corps to accumulate the data necessary to begin to answer the question: “What is the return on investment with ecosystem restoration?” Additionally, the results of this effort will allow a better understanding of restoration techniques and perhaps result in reduced construction costs as more efficient techniques are discovered.

Products

Technical Reports (TRs)

Herman, B.D. (2019). Draft standard monitoring protocols for herbaceous vegetation (ERDC/EL TR-19-4), Technical Report. U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi.

Herman, B.D. (2022). Evaluation of methods for monitoring herbaceous vegetation (ERDC/EL SR-22-3), Technical Note. U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi.

Journal Articles (JAs)

Stern, J.L., Herman, B.D., and Matthews, J.W. (2021). Coefficients of conservatism for the flora of the Middle Rio Grande floodplain. Southwestern Naturalist 65, 141-151.

Stern, J.L., Herman, B.D., and Matthews, J.W. (2021). Determining vegetation metric robustness to environmental and methodological variables. Environmental Monitoring and Assessment 193, 647.

Conference Presentations/Webinars/Workshops

(2017). Standard monitoring protocols for herbaceous vegetation, Workshop. U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi.
(2018). Mississippi Native Plant Society, Starkville, MS
(2019). Ecological Society of America Annual Meeting, Louisville, KY
(2019). EMRRP webinar series.
(2019). Monitoring Methods and Monitoring and Adaptive Management Workshop, SWG, Galveston, TX

Project Activities

Field surveys conducted to identify and select potential test sites for protocol demonstration. Draft protocols were tested in the field in 3 locations, Chicago Region, Albuquerque Rio Grande River and Rhode Island Coastal Marshes. Within each location, 3 restoration sites were sampled by 2 different observers. Data will be used to refine or revise protocols for next field season.

[1]Project Alias – Work Unit Documentation & ERDCWiki Title: *Standards for Monitoring Herbaceous Vegetation*