STAR Science Needs Meeting: Riparian Forest Buffers

Katie Brownson, USFS

Completed Science Needs

- Water temperature increases in Bay tidal and non-tidal areas
  - STAC Rising Water Temperatures workshop and report completed
  - Extensive involvement from CBP workgroups, GITs and partners
  - Multiple follow-up actions identified for both science and management
  - This science need can be archived (but will be replaced by new science needs)

Ongoing/In Progress Science Needs- High priority

- Monitor forest buffer cover change using hi-rez data
  - Initiated work on a State of Chesapeake Forests 2.0 Storymap in collaboration with the CBPO GIS team
  - Proposed modification: Expand to include evaluating current (2017/18) forest cover in the riparian area using the high-resolution LU dataset and the hyper-resolution hydrography data when available
- Monitor forest and tree cover change in developed areas using hi-rez data
  - Community Tree Canopy indicator in development
  - State of Chesapeake Forests 2.0 initiated
  - Proposed modification: Integrate with forest buffer cover change science need, expand to include monitoring forest and tree cover change watershed-wide
- **New proposed integrated science need: Monitor forest buffer, forest and tree cover status and change watershed-wide using the new hi-rez data**

Status of the resource

- **Full resources**

Ongoing/In Progress Science Needs- High priority

- Identify agricultural landowners who have the greatest amount of bufferable acreage to target for buffer outreach.
  - Some progress in certain states, for example:
    - DE's identifying agricultural landowners with >1 acre of bufferable space
  - **Proposed modification**: Expand to identify ALL landowners with streamside frontage to capture state-owned lands or other rural landowners.

Status of the resource

- **Partial resources**

Ongoing/In Progress Science Needs

- Develop and mainstream methods to reduce the costs associated with planting and maintaining buffers, while still generating the desired benefits
- Explore restoration systems, effectiveness, and plant species. What kinds of forests are we trying to create? Are we planting the right trees and shrubs to ensure the highest success rate?
- How are previously established forest buffers fairing?
- **New proposed integrated science need: Identify the most effective and cost-effective methods for planting and maintaining buffers**
    - Expand to highlight the importance of looking at efficacy of methods in different parts of the watershed, determining which stock sizes have the best survival rates, best plant species and species mixes to use, cost-benefit analyses for more expensive buffer designs, and alternatives to herbicide for maintenance.

Status of the resource

- **Partial Resources**

Ongoing/In Progress Science Needs

- Identify better methods for quantifying co-benefits from forest buffers in a way that can be easily incorporated into decision-making
  - Upcoming GIT-funded project “Optimizing Riparian Forest Buffer implementation for climate adaptation and resilience” which will synthesize information about climate adaptation co-benefits of forest buffers
  - RESES project: Ecosystem Services viewer and forthcoming report

Status of the resource

- **Partial resources**

Ongoing/In Progress Science Needs

- Develop low-cost methods for verifying buffer acres
  - BMPVAHAT report forthcoming
  - Chesapeake Conservancy's efforts to explore ways remote sensing/geospatial tech can be used for BMP verification

Status of the resource

- **Partial resources**

In-Progress Science Needs

- Develop tailored buffer outreach materials for farmers and non-farmers, reflecting different motivations and benefits that can be derived from buffers
  - OpinionWorks completed a study (report forthcoming) to evaluate public outreach and engagement for tree planting and maintenance
  - Report recommends additional audience research to better understand the motivations of new audiences

Status of the resource

- **Partial resources**

New and Emerging Science Needs - High Priority

- Evaluate potential for additional forest buffers to cool streams, especially in high-priority coldwater watersheds
  - Science need identified by the STAC Rising Water Temperature workshop
  - No currently engaged resources or dedicated funding
  - First need to map riparian areas and evaluate current riparian tree cover

Status of the resource

- **No resources**

New and Emerging Science Needs - Medium Priority

- Continue to assess opportunities to minimize the impacts of stream restoration projects on mature forest buffers, following up from the Center for Watershed Protection's GIT-funded project
  - Develop riparian vegetation guidance for stream restoration design based on the best available knowledge
  - Conduct a comprehensive review of county-level regulations to determine how well they incorporate state-level requirements to protect forests and the extent to which they include enforceability measures
  - No currently engaged resources, but upcoming STAC workshop may be relevant
  - Potential future GIT funding project?

Status of the resource

- **No resources**

New and Emerging Science Needs - Medium Priority

- Use new high-res LU data to improve watershed-wide maps of priority riparian habitat to restore.
  - Identify potentially plantable riparian areas, determine key priorities, map where plantable areas intersect with priority areas
  - Could help determine where investments in riparian buffer restoration could generate the greatest benefits
  - Some states/sub-watersheds have done their own prioritizations already
  - Need additional resources for a watershed-wide analysis

Status of the resource

- **Partial resources**

New and Emerging Science Needs - Medium Priority

- Evaluate financial and human capacity needs for accelerating riparian forest buffer planting
  - Look for relationships between historic funding/staffing levels and planting rates, estimate funding/staffing levels needed to reach the goals in the WIPs, identify barriers for increasing funding/staffing levels and key skills and competencies needed
  - Important for assessing how we can build the capacity we need to improve outcome attainability!
    - C-StREAM intern

Status of the resource

- **Partial resources**

Questions?

Point of Contact for new/emerging RFB science needs:

Katie Brownson: Katherine.brownson@usda.gov