West Virginia Watershed Assessment Pilot Project
Gauley, Upper Guyandotte, and Little Kanawha Watersheds
Stakeholder Workshop Summary
May 8, 2013
Flatwoods, West Virginia

Workshop Objectives

The goals of this workshop were to:
1) present the final assessment methodology, current condition, and consolidated analysis results for all three watersheds and obtain stakeholder feedback;
2) demonstrate a preliminary version of the interactive web tool and present potential use scenarios. Get stakeholder input on desired web tool design, functionality, and possible uses/workflows; and
3) present and discuss the development of strategies that should be applied according to the analysis results.

Presentation Summary

The workshop began with a review of the project background, including project goals and timeline, and a brief review of the watershed assessment methodology: landscapes, indices, metrics, and objective thresholds and categorizations. The Team then presented the latest version of the current condition and consolidated analysis results for the Upper Guyandotte, Gauley, and Little Kanawha watersheds. An open discussion followed each presentation, during which experts who had not attended previous workshops requested further information, and experts familiar with the project offered suggestions and additional questions. Overview and results maps for the three watersheds were displayed for reference. After the watershed presentations, the demo version of the web map tool was presented, and potential workflows for use of the tool were discussed. The Team reviewed trends emerging from the analysis results with stakeholders, and solicited advice on the best way to present potential strategies to end users.

Review of Project Background
Ruth Thornton, TNC

Ruth presented the project background and a review of the methodology, including a detailed review of analysis indices and metrics, and how the thresholds used for the analysis were determined from reference and stressed catchments. She also presented the concept of "critical" metrics, those metrics significant enough to cap their corresponding index score, regardless of other metrics within that index.

Following the review of the project, stakeholders were given the opportunity to ask questions about the assessment methodology and results. Many of the questions involved the nature of the data used in the project. A brief discussion ensued about wetlands data, and whether or not non-natural wetlands (such

as stormwater catchments) were included, or other sources of wetlands data (such as DNR) were used. The Project Team explained that only National Wetlands Inventory (NWI) data were used, as other sources were less reliable or currently incomplete or unpublished. A recurring question was whether or not the project results in the web tool would be updated as conditions changed, and if users could contact the Project Team with information to update either the data or analysis. The Team explained that as the results are calculated through a complex analysis they will remain static, but as many of the data layers as possible will be dynamic and updated regularly. Further funding for the project is being pursued, and if successful, the results may be updated in the future, perhaps on a 3-5 year cycle by interns at the DEP, or through a similar process.

Overview of Upper Guyandotte Watershed Results
Diane Packett, TNC

A large amount of active and legacy surface mining occurs in this watershed, as well as underground mining, especially in the northwest and southeast areas. There are many wells, but little concentrated development except in the Logan area. Most of the major tributaries of the Guyandotte River are impaired. There are GAP 2 & 3 Protected Lands, including several WMAs and one state park. Consolidated Analysis results revealed higher potential future threats in the northwest and east of the watershed, with the central and southern portions having relatively lower future threats.

Comments: It was noted that separation of mineral rights is a big problem, particularly in the Upper Guyandotte. Incompatible land ownership patterns can be considered a threat much like energy development is a threat; for example, even if DNR owns the surface rights they may not own the mineral rights in a WMA. The project team should check with the GIS Analyst at the WV DNR, Alicia Mein, to see if she has spatial information on state mineral ownership to supplement the federal mineral rights data from USFS.

Overview of Gauley Watershed Results
Misty Downing, TNC

The Gauley watershed is notable for a large area of undeveloped Wilderness Area, and the large Meadow River wetland complex in the southern portion. There is some surface and underground mining, and gas development occurs in the northwestern portion of the watershed. Development trends are clearly reflected in the results; the impacts of roads and urban areas are particularly evident in the uplands analysis. Streams water quality impairments are concentrated in the northwest part of the watershed, near mining activity, though there are impairments even within the protected areas. General trends consisted of Very Good-Good quality planning units in much of the eastern part of the watershed, and lower quality in the west and south, particularly around the major highways and small urban areas. There is also a significant amount of alternative land use, such as grazing, in the southern Meadow River portion of the watershed.

Comments: It was noted that DNR considers the Meadow River watershed a top priority, although there are no spatial data available on their priority areas at this time. It was questioned whether or not natural cover included pasture/hay, which it does not (this explains some of the lower scores in the Meadow River area, due to increased grazing activity). A stakeholder inquired about how TNC handles prioritization of potential conservation projects – do we use the results from this project, or would TNC send out a team to collect data in the field, particularly regarding biodiversity. The Project Team explained that field work is generally outside the scope of TNC protection projects, though we do consult DNR and other agencies/experts to assess the biodiversity of a particular site and conduct site visits to determine an area's suitability for conservation. Explanations of the various agency priority areas was requested (WV Division of Forestry, TNC, etc.), suggesting that it may be useful to provide documentation/background information about priority areas on the project's ConserveOnline webpage.

Overview of Little Kanawha Watershed Results
Misty Downing, TNC

The Little Kanawha watershed has very little mining activity, but a great of oil and gas well development, both current and historic. It is largely a rural watershed, except for the urban area around Parkersburg, where the river drains into the Ohio. The water quality results were generally good, as there are few impaired streams, with the major issue being sedimentation. It was noted that the Streams Riparian Habitat ranks were relatively low in all three watersheds, and there appears to be a discrepancy in results between the HUC12 and catchment levels. This is believed to be a result of the methodology, i.e., the thresholds for critical metrics being the same for both HUC12s and NHDPlus catchments, and the fact that HUC12 and catchment-level results are determined independently of each other, but the Project Team plans to investigate this issue more closely. The Little Kanawha has comparatively few wetlands, but those existing provide decent opportunities for restoration. Uplands results were dominated by the effect of development/infrastructure around the urban areas. Consolidated Analysis results revealed a general trend of increasing potential future threats from west to east across the watershed.

Comments: Representatives from DEP mentioned that the Little Kanawha was known to be under-sampled and under-represented, and this was in the process of being rectified, which may explain the fewer impaired streams.

Interactive Web Mapping Tool

The stakeholder group was presented with the demonstration/draft version of the future web mapping tool currently under development by Paul Angelino and Graham Emde of TNC's Colorado office. Currently, the demonstration version is a basic map with data layers that can be turned off and on in a table of contents, with little advanced functionality or formatting. Current layers include hydrology and mining, various land use and land cover layers, and the assessment results. To provide a clearer example of how the final web tool would function and what potential work flows would be, a potential use scenario was presented for each watershed and landscape. These scenarios were based on many of the

project team's assumptions about how users would mainly use the web tool, for example that Very Good areas would be considered priorities primarily for protection and Fair areas mainly for restoration. Stakeholders were encouraged to provide their own examples of how they anticipated using the tool, their possible workflow(s), and what data and attribute information may be most useful in project planning.

Potential uses/alternative workflows suggested by stakeholders:

- DNR may use the tool to assess the potential success of a project, for example for mitigation proposals.
- Some agencies, such as USACE, may work at a regional or HUC8 level, and use the tool to get a general idea of trends within a larger watershed, before focusing on individual HUC12- based watershed planning.
- Some stakeholders envisioned using the tool for planning future projects: for example, determining accessibility, extent of surface mining, and if there is a watershed group operating in the area.
- A potential application of the tool would identify HUC12s that are ranked Very Good or Good, and look at the catchments within those HUC12s to identify areas ranked Fair or Poor, and which may indicate higher priorities for restoration action as they are pockets of poorer quality within higher-quality areas.
- A Poor rating was not considered necessarily a deterrent, as some end users may specifically look for those places to work, so that their efforts provide significant enough "lift" for regulatory purposes.
- Some stakeholders anticipated using the tool for project prioritization.
- Analysis results could help support other conservation activities by objectively rating the quality of different areas (for instance, WV Rivers Coalition demonstrating the importance of the eastern portions of the Gauley HUC8 watershed being designated a Birthplace of Rivers, supported by the Very Good-Good scores across multiple models and indices).

Stakeholders requested a Resources page for the web tool and suggested potential contacts or webpages to list that users can consult with further questions:

- Any existing best management practices (BMPs), how-to manuals and/or potential funding sources.
- USDA-NRCS (Natural Resources Conservation Service; www.nrcs.usda.gov).
- WV Division of Forestry.
- Chesapeake Bay Program (www.chesapeakebay.net).
- US EPA.
- Non-point pollution source webpage at WVDEP.
- Arbor Day Foundation.
- Nurseries/tree farms.

- WV Conservation Agency (www.wvca.us): Has 14 conservation districts across the state, with cooperative working agreements between different agencies and organizations, making it a good clearinghouse to reach multiple partners.

Stakeholders suggested additional datasets or changes to the data for the web map:

- Link map to Web Soil Surveys, which are updated 4-5 times a year, to bring in soils data if desired.
- Add the Wetland Reserve Program (WRP) national dataset.
- Add all modeled future energy threats data, if available (shale gas/well development potential, wind potential).
- Retain the impervious cover layer, which stakeholders considered an important dataset.
- Separate the protected lands into several layers that can be turned on/off (state, federal, etc.) as some users would be limited on which type of public lands they can work on or with.
- Add local watershed groups as potential contacts for more information or collaboration.
- Add data about which streams have current or pending watershed-based plans or TMDLs.
- Find or create spatial data to reflect all other restoration work happening within the watersheds, so end users know what projects exist or are pending in places they may be interested in working (this could help to identify gaps between existing projects and increase connectivity).
- Add a layer for activities carried out under Nationwide Permit 27 (general federal permit for stream/wetland restoration).
- Add layers for In Lieu Fee (ILF) projects, mitigation banks, and compensatory mitigation sites.
- Regularly update the Water Quality data (perhaps include a version of the trends tool from the DEP mining data application if feasible). Project Team intends to publish median Water Quality data for each station in the web tool.
- Add volunteer water quality monitoring data (which should be kept separate from agency data, with its rigorous quality control procedures). Trout Unlimited is initiating a water quality study, data may be available in about one year.

Desired functionality/features of the web tool:

- Search by town, county, HUC12, latitude/longitude coordinates.
- Print attribute tables.
- Manipulate the transparency and order of layers.
- Access contact information and publication dates (particularly for water quality data) for datasets in web tool
- Hover mouse over planning units to get their names.
- Hover mouse over a feature to get the lat/long coordinates.
- Import/export shapefiles.
- Save a map to pdf or jpg format.
- Export to .kmz format (for use in Google Earth).

- Get a well's API number, perhaps by hovering mouse over point feature.
- Click on map feature and open hyperlink to more info about data, a web page with a data source or ability to download that data.
- Streams labeled with DNR stream reach codes.
- A user guide to help users who aren't familiar with prioritization procedures or how to choose the best project for their goals.
- An embedded glossary of some of the more scientific or agency-related terms (particularly acronyms).

Strategies and Trends

Ruth presented the concept of strategy development for the pilot project watersheds and solicited input on how end users may perceive the usefulness or necessity of including a list of potential strategies, and how detailed the strategies should be. Stakeholders were reminded that the goal of the project was to conduct watershed assessments and not provide watershed-based plans, so that the tool remains useful to the widest variety of potential stakeholders. Stakeholders were given a list of trends that emerged from the initial analysis results and asked to consider the following questions:

- How useful are potential strategies to you?
- How do you anticipate using the web tool and supplied strategies?
- What can we do to improve the usefulness of the strategies section for the end user?
- What datasets would help you develop useful strategies?

The stakeholders provided a variety of feedback to these issues. It was believed that a strategies section would be most useful to groups other than regulatory agencies. It was suggested that it would be beneficial to distinguish between regulatory/enforcement related strategies versus voluntary or optional strategies (which often also differentiates between more expensive and complex strategies versus what would be feasible for a watershed group or private landowner). One suggestion was to relate results seen in particular indices or metrics to trends in the watershed and potential resulting strategies to abate those threats. Another suggestion was to provide a sample workflow of this process so end users can learn how to associate analysis results in certain models and indices with possible conservation or remediation projects. As trends are anticipated to be different with different causes in each watershed, a general trends section may not be applicable, but a guide for identifying trends from analysis results may be more useful. There was an overall sentiment that a specific strategies section would likely not be very useful, but a detailed guide to potential resources for determining strategies (links to BMPs, manuals, etc.) would be more helpful.

Meeting Attendees

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