

Hydrologic Function

Surface Water – Riparian Area Cover Target –Hydrologic Function

This value is related to the location of natural cover within the watershed.

The purpose of setting a target on this value is to ensure that the preferred scenario includes sufficient areas of natural cover adjacent to riparian features across the watershed at the Watershed Planning Area scale.

Current conservation planning literature supports a minimum 30 meter stream buffer on each side of a stream. In terms of the hydrologic function, riparian vegetation aids in the attenuation of flood waters and limits the erosive force of the water on the stream banks. Buffers provide benefits to the system no matter where they occur.

The amount of natural vegetation adjacent to streams is directly linked to the level of protection that stream has from contaminants, erosion, thermal pollution, and other impacts to quantity and quality of the water. This vegetation also provides habitat for a host of species.

Datasets

1. NPCA NAI ELC Community Series Mapping
2. NPCA Large Scale Surface Water Inventory
3. NPCA Watershed Planning Areas

The riparian zone was derived by buffering applicable surface water features from the detailed inventory (removed as many minor surface water features such as ephemeral agricultural drainage, as well as non-natural channeled and anthropogenic municipal drains as possible) using a distance of 30m. Instead of calculating length of streams with a 30m buffer, the riparian zone was intersected with the natural areas to determine what percent of it contained riparian cover.

Across the Niagara Watershed 47% of the riparian zone contains natural cover at 30m. The riparian zone constitutes approximately 15.7% of the landscape.

Discussion

The discussion for this target was initially centered on what constitutes a riparian area. There was much discussion about how wide an area we should be considering. Based on the literature it was decided that we would use the minimum 30 meter buffer.

There was a great deal of discussion related to agricultural and municipal drains and whether they should be included in the dataset.

There was also discussion about what type of vegetation is best adjacent to the streams. It was decided that as long as it showed up as naturally vegetated in the natural areas inventory, it would be considered for its contribution.

Data Gap

None noted.

Decision

Date: April 7, 2011

75% of the riparian zone in natural cover by subwatershed scale.

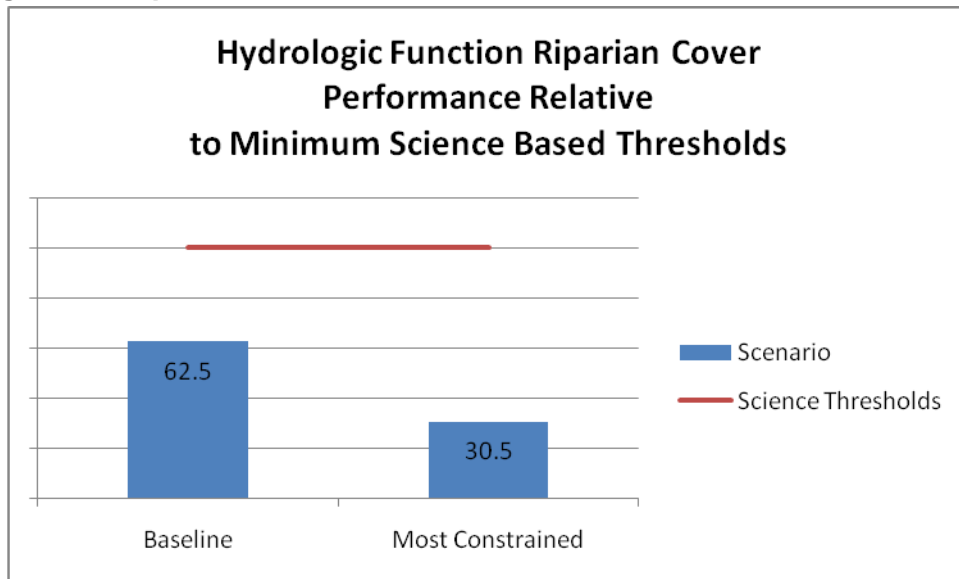
Representation in the Learning Scenarios

Riparian Cover within the Learning Scenarios was defined as the area adjacent to surface water features within a 30 meter buffer. Riparian zones adjacent to constructed municipal drains were removed from the dataset prior to the modeling exercise. Municipal drains that function as natural channels remained in the data layer for consideration.

Representation in the Final Scenarios

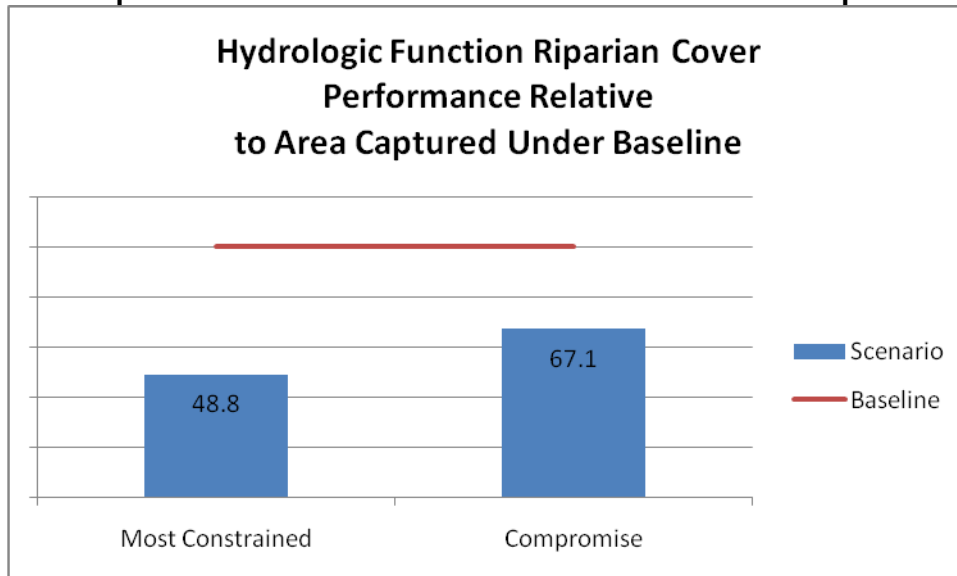
Under the Baseline Scenario, the model had to capture almost all of the area available as riparian cover to achieve just over 62.5% of the target values. The distribution of the targets across the Watershed Planning Areas showed drastic fluctuations on the achievement across the landscape.

Figure 39: Riparian Cover Performance Relative to Science Thresholds



Under the Most Constrained Scenario, Riparian Cover was limited to those areas that were not excluded. This led to the poor performance in relation to the targets. Riparian Cover under the Most Constrained Scenario achieved 30.5% of the target value and 48.8% of the value held in the Baseline Scenario.

Figure 40: Riparian Cover Performance Relative to Baseline Comparator



Within the Compromise Scenario, the model could not achieve the best 80% of what exists. This proved that much of the value associated with riparian cover is in meadow communities which were excluded from this compromise scenario therefore, could not contribute.

Riparian Cover as it relates to the Hydrologic Function targets in the Compromise Scenario achieved 67.1% of the value in the Baseline Comparator.

Recommendations

Better feature typing for the watercourse layer would facilitate a more accurate riparian cover estimate by enabling the creation of the riparian zone on watercourse features where it is not unreasonable to expect persistent riparian habitat (confidently weed out all ephemeral features, certain ditch types etc.).