Upper Mississippi Forest Partnership

Existing Bottomland Forests and Priority Areas for Bottomland Afforestation (2001 Land Cover Update)

This analysis prioritized areas within the UMRS floodplain based on their location and capacity to regenerate bottomland forest. For this particular analysis, any forested land cover type (deciduous, coniferous, mixed, woody wetland) occurring within the floodplain was designated as bottomland forest. The analysis focused only on the Upper Mississippi River and its' major tributaries; these rivers having a floodplain that is inundated periodically reducing the value for agricultural production.

The first step was to highlight those areas within the floodplain already classified as forest by the 2001 National Land Cover Dataset (NLCD.) These areas are displayed in green on the map and designated as "Existing Bottomland Forest."

The next step in the analysis was to create a model using several data parameters to rank those areas in the floodplain having the potential for bottomland afforestation. These model parameters are displayed in the table on the right side of the map. This table shows the scores given to each data layer's unique attributes and the relative influence each data layer has within the model as a whole. Higher scores are given to an attribute if it is the preferred characteristic of an area to be afforested within the floodplain. Higher percent influences were given to those data layers that were considered most important for potential afforestation. The Scientific Assessment and Strategy Team (SAST) floodplain boundary was used as an analysis mask, areas outside this boundary not being considered.

The map at left shows the results of the "Priority Areas for Bottomland Afforestation" model. The resultant values from the model were grouped into three categories: low (yellow), medium (orange), and high (red.) The quantile method was used to establish the groupings, each category having about an equal amount of area.

Optimal areas within the floodplain for bottomland afforestation in this model have several distinguishing characteristics: outside of a flood control levee, wet soils, alterable land cover type, low slopes, and in close proximity to existing public lands. Close proximity to public land was given a higher priority in order to create larger, more contiguous blocks of bottomland forest.

N W E S

1:1,000,000

Miles 0 20 40 80

0 25 50 100 Kilometers

National Land Cover Dataset (2001)	
Score	Description
NoData	11 - Open Water
NoData	21 - Developed, Open Space
NoData	22 - Developed, Low Intensity
NoData	23 - Developed, Medium Intensity.
NoData	24 - Developed, High Intensity
NoData	31 - Barren Land (Rock/Sand/Clay)
NoData	41 - Deciduous Forest
NoData	42 - Evergreen Forest
NoData	43 - Mixed Forest
10	52 - Shrub/Scrub
NoData	71 - Grassland/Herbaceous
10	81 - Pasture/Hay
10	82 - Cultivated Crops
NoData	90 - Woody Wetlands
NoData	95 - Emergent Herbaceous Wetlands
25%	Model Influence
COE Leveed Areas	
Score	Description
2	Leveed within Floodplain
10	Unleveed within Floodplain
20%	Model Influence
Slope (Percent Rise)	
Score	Description
10	0 - 2
0	3 - 5
0	6 - 9
0	10 - 14
0	15 - 18
0	19 - 25
0	26 - 163
13%	Model Influence
STATSGO (Percent Hydric)	
Score	Description
10	Water
0	0
1	1 - 10
2	11 - 20
3	21 - 30
4	31 - 40
5	41 - 50
6	51 - 60
7	61 - 70
8	71 - 80
9	81 - 90
10	91 - 100
12%	Model Influence
STATSGO (Ave. Depth to Water Table)	
Score	Description
10	Water
10	0
10	0.1 - 0.5 (feet)
9	0.6 - 1.0
8	1.1 - 1.5
7	1.6 - 2.0
6	2.1 - 2.5
5	2.6 - 3.0
4	3.1 - 3.5
3	3.6 - 4.0
2	4.1 - 4.5
1	4.6 - 5.0
0	5.1 - 5.5
0	> 5.5
10%	Model Influence
STATSGO (Ave. Capability Class)	
Score	Description
10	Not Classified/Water
1	0 - 1.0
3	1.1 - 2.0
5	2.1 - 3.0
6	3.1 - 4.0
7	4.1 - 5.0
8	5.1 - 6.0
9	6.1 - 7.0
10	> 7.0
10%	Model Influence
Proximity to Public (Including Tribal)	
Score	Description
10	0 - 0.5
5	0.5 - 1.0
0	1.0 - 1.5
0	1.5 - 2.0
0	2.0 - 2.5
0	2.5 - 3.0
0	3.0 - 3.5
0	3.5 - 4.0
0	4.0 - 4.5
0	4.5 - 5.0
0	> 5.0
5	Public Lands
10%	Model Influence

Area summary for bottomland forest models

	Low (Acres)	Low (Pct)	Medium (Acres)	Medium (Pct)	High (Acres)	High (Pct)	Total (Acres)	Total (Pct)
Priority Areas for Bottomland Afforestation	886,740.49	41.99	749,216.02	35.48	475,684.47	22.53	2,111,640.98	48.68
Existing Bottomland Forest							836,108.58	19.27
Other							1,390,185.39	32.05
Total SAST Floodplain Area							4,337,934.95	100.00

UMRS Overview Map

Miles 0 100 200

0 100 200 Kilometers

1:7,500,000

MN WI IA IL IN MO

Map Extent

Map Date: September 24, 2009

USGS science for a changing world

Legend

- Major Cities
- UMRS Boundary
- 8-Digit HUC
- State Boundaries
- County Boundaries

Existing Bottomland Forest

Priority Areas for Bottomland Afforestation

- Low (Scores 3 - 6)
- Medium (Score 7)
- High (Scores 8 - 10)
- SAST Floodplain Boundary