SWMPC Preservation Area Model

Synopsis

The model was constructed by adding numerical ratings for a number of different preservation criteria to each quarter-quarter section (QQ - approx. 40 acre square) in the Paw Paw River Watershed (PPRW). Combining the value of each criteria for each QQ section allowed for ranking on the basis of preservation priority. Table 1 and Figure 1 illustrate the classification and distribution of QQs. Table 2 provides statistics on the distribution of QQs by subwatershed. Table 3 describes the numerical value assigned to each preservation related criteria.

The following criteria were considered when computing preservation values: 1) land cover, 2) hydrology, 3) groundwater recharge potential, 4) proximity to already protected areas, 5) presence of high quality floodplain forest areas and 6) presence of wetlands with significant habitat related functions.

- 1. Land cover was characterized using the percent of natural land cover (wetland, lowland forest, upland forest and upland open land) within each QQ section based on IFMAP land cover data.
- Hydrology values were given based on the presence of: 1) any lake, river or drain feature,
 the main stem of the Paw Paw River, and 3) high quality fisheries in each QQ section. Hydrology data was derived from Michigan Framework version 5a spatial data. The MI DNR Fisheries Division assisted in determining which streams qualified as high quality fisheries.
- Groundwater recharge potential was derived from statewide groundwater movement potential data created by the MI DNR Fisheries Division, Institute for Fisheries Research. This grid dataset represents potential groundwater movement for regions 30 meters by 30 meters.
- 4. A dataset of protected areas in the Paw Paw River Watershed was developed from data provided by Ducks Unlimited (Conservation and Recreation Lands in Michigan), The Nature Conservancy, Southwest Michigan Land Conservancy, and the Southwest Michigan Planning Commission with the help of the PPRW Land Protection Committee.
- 5. The Nature Conservancy completed a study to identify large intact floodplain forest areas along the Paw Paw River. The GIS data provided included six prioritized areas.
- 6. The MDEQ completed a Wetland Functional Assessment for the PPRW, which included a dataset of existing wetlands with habitat related functionality. This dataset was used to determine the extent of wetlands with a high significance for habitat related functions such as fish, shellfish, waterfowl and other wildlife habitat.

Preservation Class	Value Range	Number of QQs	% of QQs
1 (Highest)	148 – 189	244	3.2%
2	137 – 147	224	2.9%
3	130 - 136	275	3.6%
4	123 – 129	334	4.4%
5	115 – 122	408	5.4%
6 (High)	106 - 114	431	5.7%
7	0 - 105	5689	74.8%

 Table 1. Classification and Distribution of QQs

Classes 1 to 6 contain 25.2% of all QQs in the PPRW

Total # *of* QQs = 7605

Figure 1. PPRW Preservation Areas



Table ? Subwatershed	ഹ	Statistics	(sorted by	V Avorado	Score)
Table 2. Subwatersheu	VV	y Statistics	sorieu Dy	y Average	Score

SubWS ID#	Ttl QQs	Max Score	Avg Score	% QQs Class 1-6
6	535	189	97	45.05%
1	428	177	95	51.4%
3	595	176	90	41.85%
9	480	184	82	33.33%
10	455	174	77	21.32%
16	528	186	76	23.11%
15	242	166	75	23.55%
7	421	162	74	20.9%
4	426	165	74	22.3%
12	263	144	73	17.11%
17	388	186	69	18.81%
8	665	170	67	19.55%
11	260	144	67	14.23%
14	310	176	65	17.42%
2	487	184	64	16.63%
13	480	174	58	11.8%
5	246	135	55	11.79%

Table 3. Criteria Weighting

CRITERIA	WEIGHT		
Natural Land Cover	100 (max)		
Wetland, Forest and Open Land	1 point for each percent		
Hydrology	24 (max)		
Any Water Feature	4		
Paw Paw Mainstem	12		
High Quality Fishery	8		
Groundwater Recharge Potential (m day-1)	45 (max)		
Very Low (>-100)	0		
<i>Low (<-100 and >=-268)</i>	8		
<i>Medium (<-268 and >=-553)</i>	15		
<i>High (<-553 and >=-992)</i>	20		
<i>Higher (<-992 and >=-1616)</i>	35		
Highest (<-1616)	45		
Proximity to Protected Areas	12		
TNC Floodplain Forest Areas	30 (max)		
High Priority	10		
Higher Priority	20		
Highest Priority	30		
Wetlands w/ Habitat Related Functions	30 (max)		
No Medium or High Significance Functions	0		
Only Medium Significance Functions	10		
Only 1 High Significance Function	20		
2 or More High Significance Functions	30		
Total Maximum Possible	241		
Total Maximum Actual	189		