

Riparian Forest Buffer



Prioritization

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Introduction

Watershed Conservation Through Forestry Pilot Project

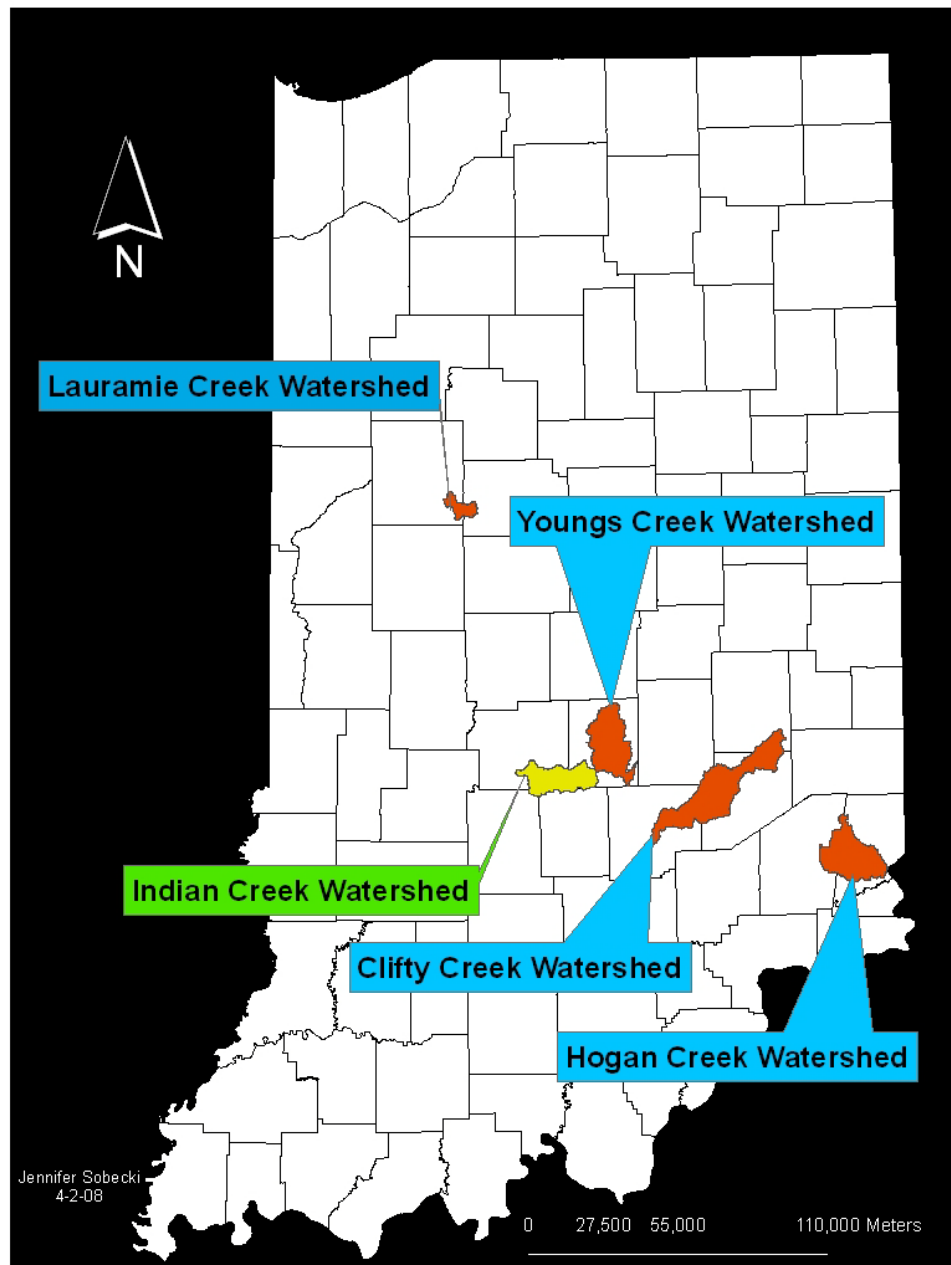
Goals

- Spread message of positive impact of forests on water quality.
- Develop, apply GIS methodology to target areas most in need of Riparian Forest Buffers (RFBs)
- Make available for use on a state and regional level.

Introduction

“It is imperative that *managers* have simple methods for quickly identifying locations for riparian buffers that address landowner and community goals while maximizing cost share program resources” Bentrup and Kellerman, 2004

Methods



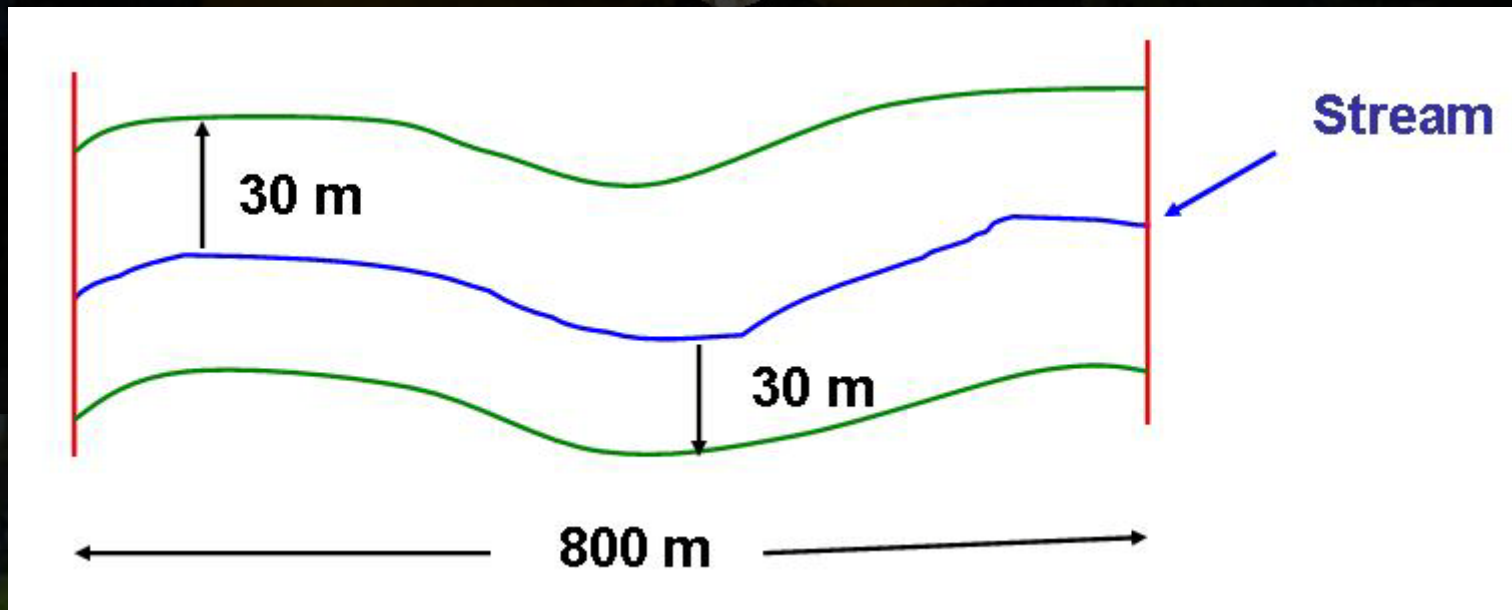
Methods

Data Category	Data Name	Origin	Year	Resolution/ Scale
LULC	NLCD	USGS	2001	30 meter
Soils	STATSGO	NRCS	1994	1:250,00
Elevation Model	Indiana DEM	State IN	2005	1 meter
Hydrologic lines	NHD	USGS	2000	30 meter
Watershed Boundaries	HUC 11 & HUC 14	USGS & NRCS	1991	1:100,000

Methods

Two scale prioritization approach

- Subwatershed
- Stream Reach



Methods

Subwatershed Prioritization

- % Riparian Lands in Subwatershed
- % of NPS contributing LULC in Subwatershed
- % of NPS contributing LULC in Riparian Areas
- Erosion Estimates for Subwatershed (RUSLE)

Methods

Stream Reach Prioritization

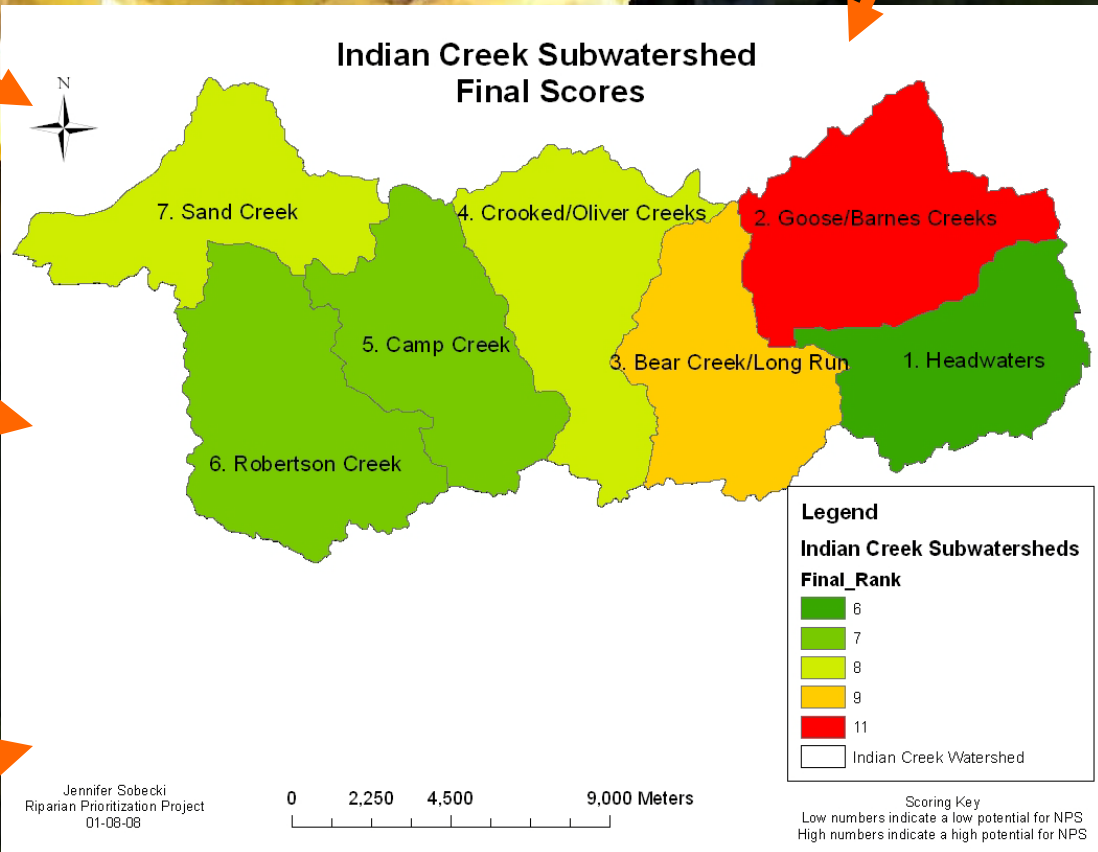
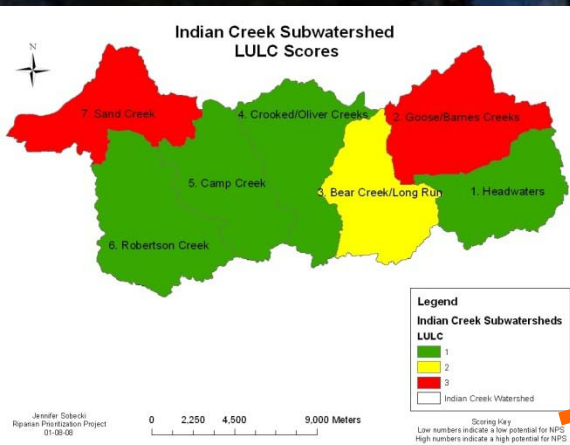
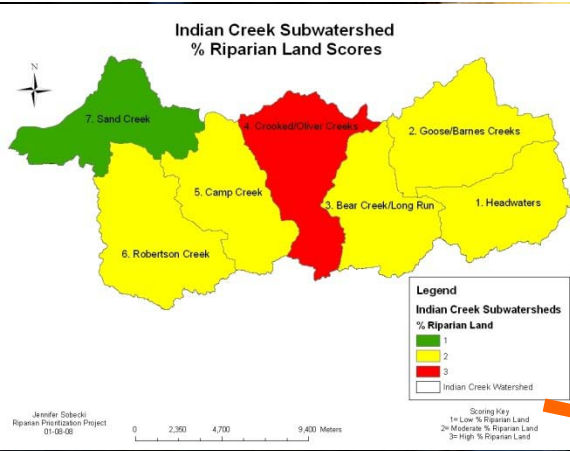
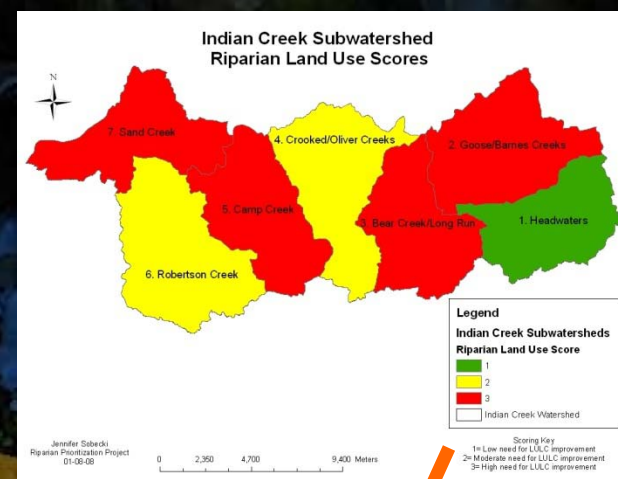
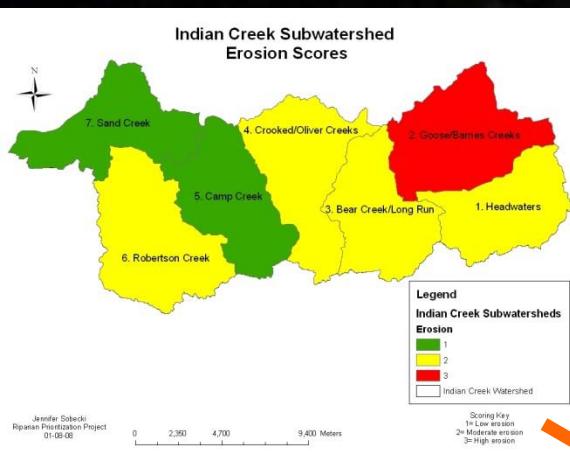
- % NPS contributing LULC
- Erosion Estimates

Results

Indian Creek Subwatershed Scores

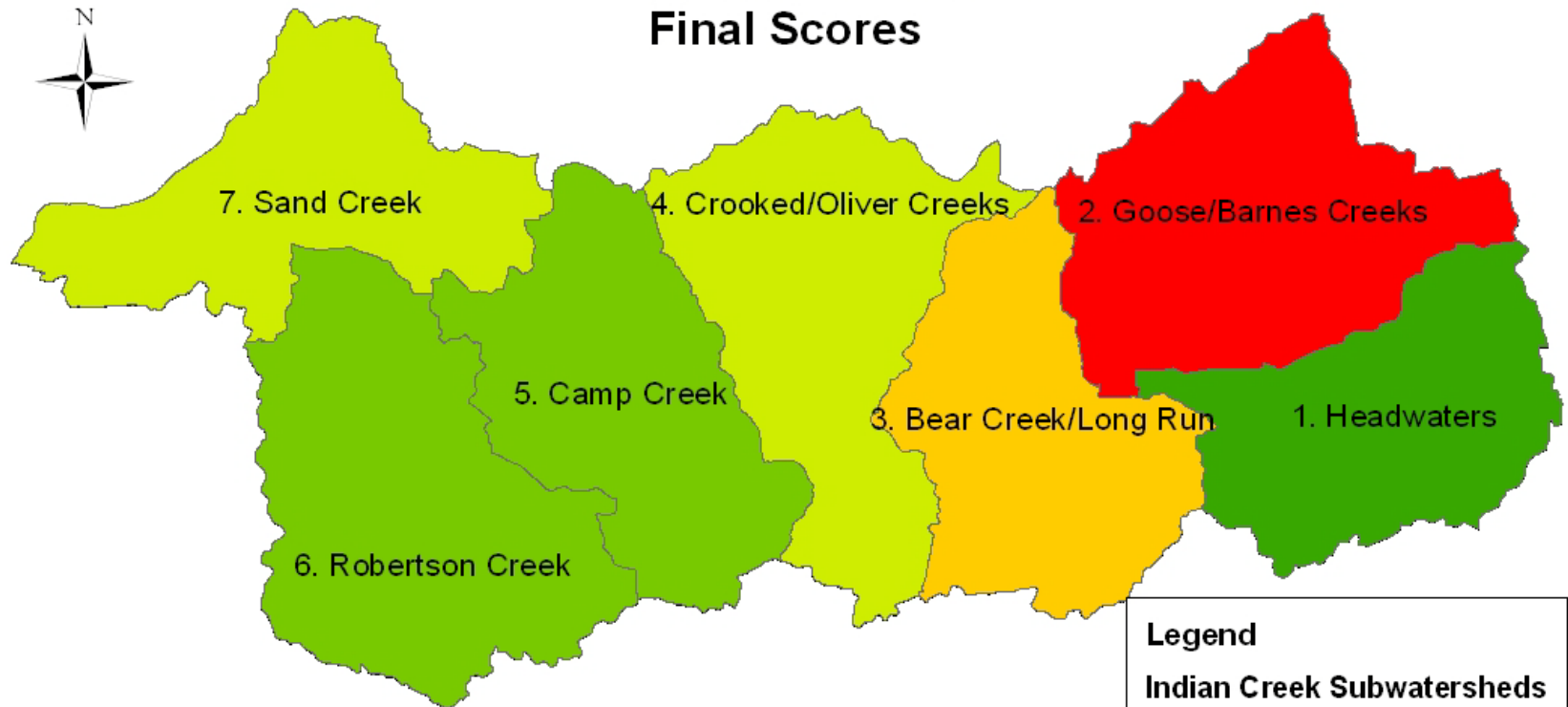
Subwshds	% Subwshd LULC	Score	% Rip LULC	Score	% Rip Land	Score	Erosion	Score	Final Score
1	33.9	1	9.17	1	9.31	2	6.2	2	6
2	71.48	3	27.46	3	8.21	2	9.6	3	11
3	51.32	2	25.01	3	9.02	2	7.43	2	9
4	36.95	1	17.86	2	11.39	3	7.21	2	8
5	31.56	1	27.7	3	8.6	2	5.1	1	7
6	24.14	1	20.41	2	8.97	2	6.15	2	7
7	59.85	3	21.72	3	6.52	1	4.4	1	8

Results



Results

Indian Creek Subwatershed Final Scores



Legend

Indian Creek Subwatersheds

Final_Rank

6

7

8

9

11

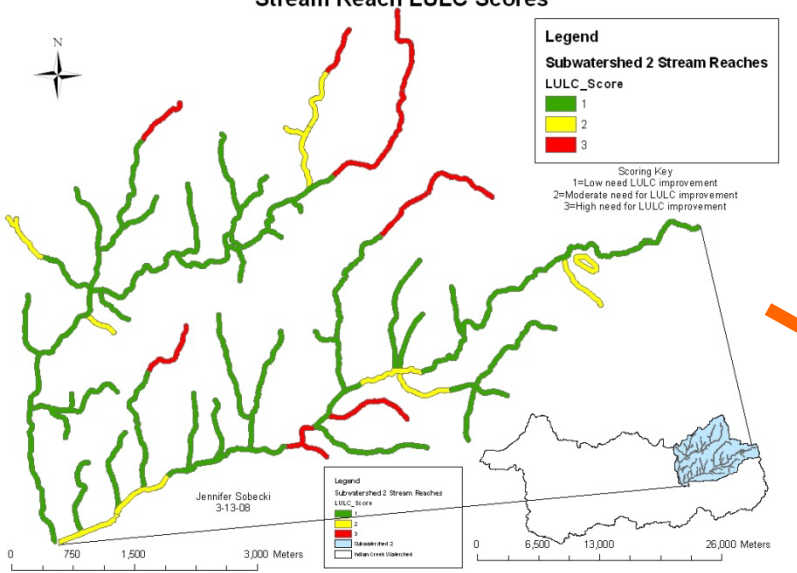
Indian Creek Watershed

Scoring Key

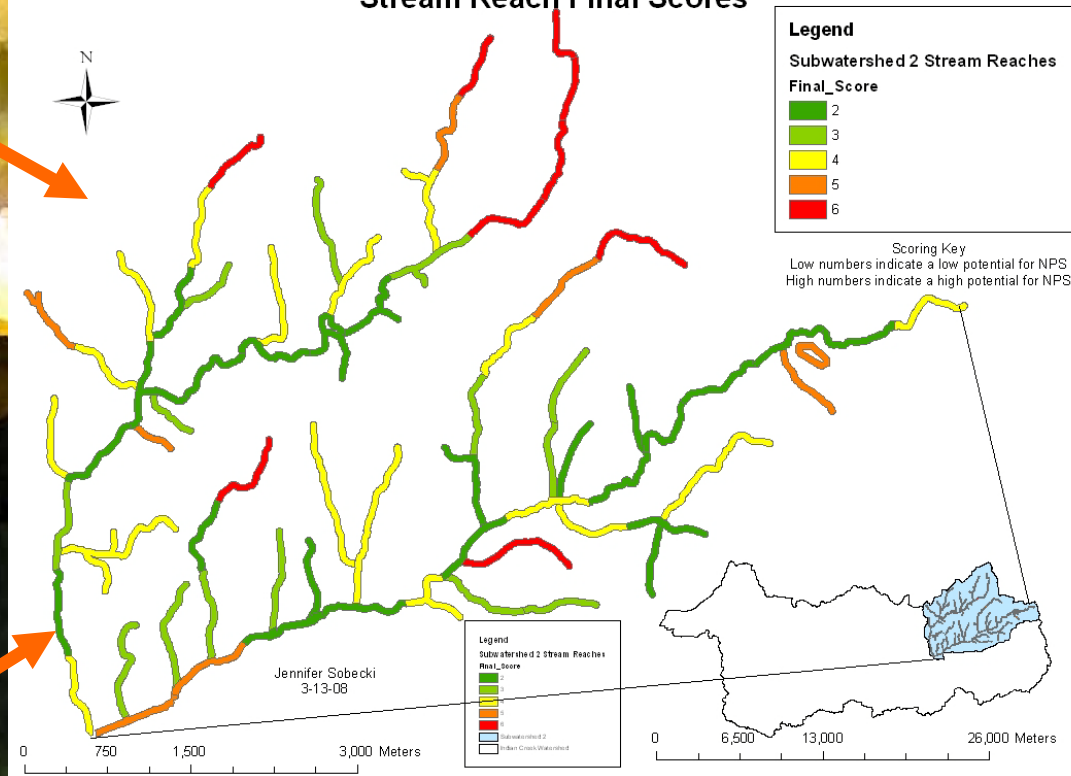
Low numbers indicate a low potential for NPS
High numbers indicate a high potential for NPS

Results

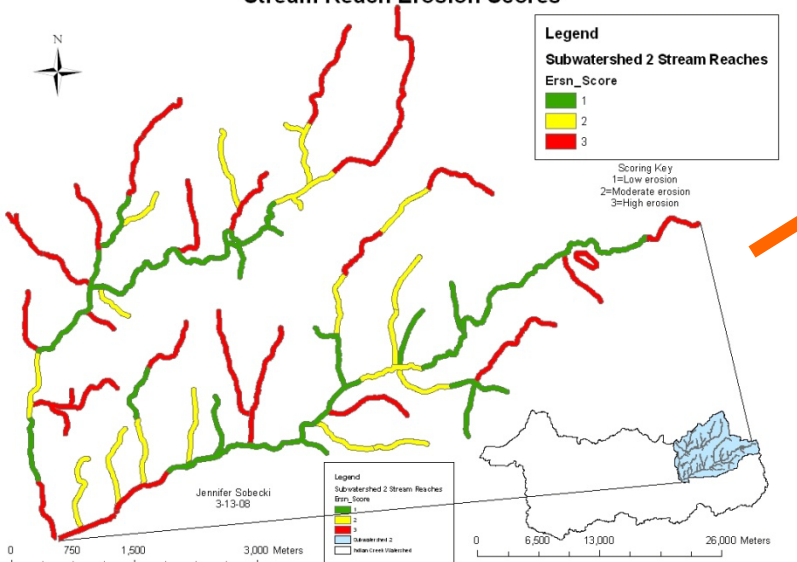
Indian Creek Watershed Subwatershed 2
Stream Reach LULC Scores



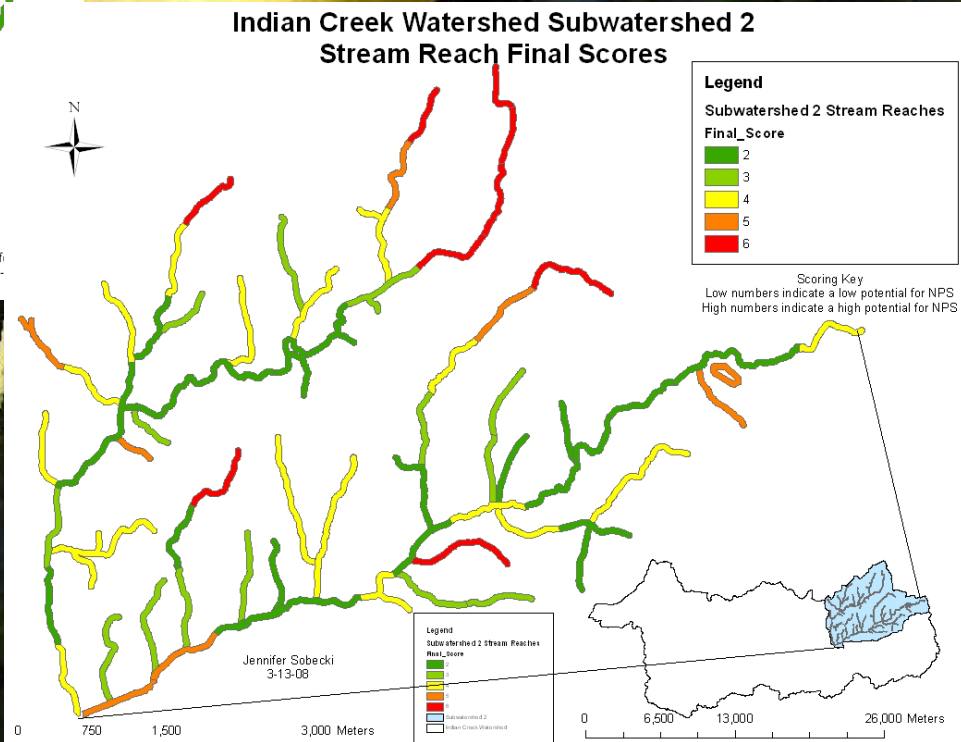
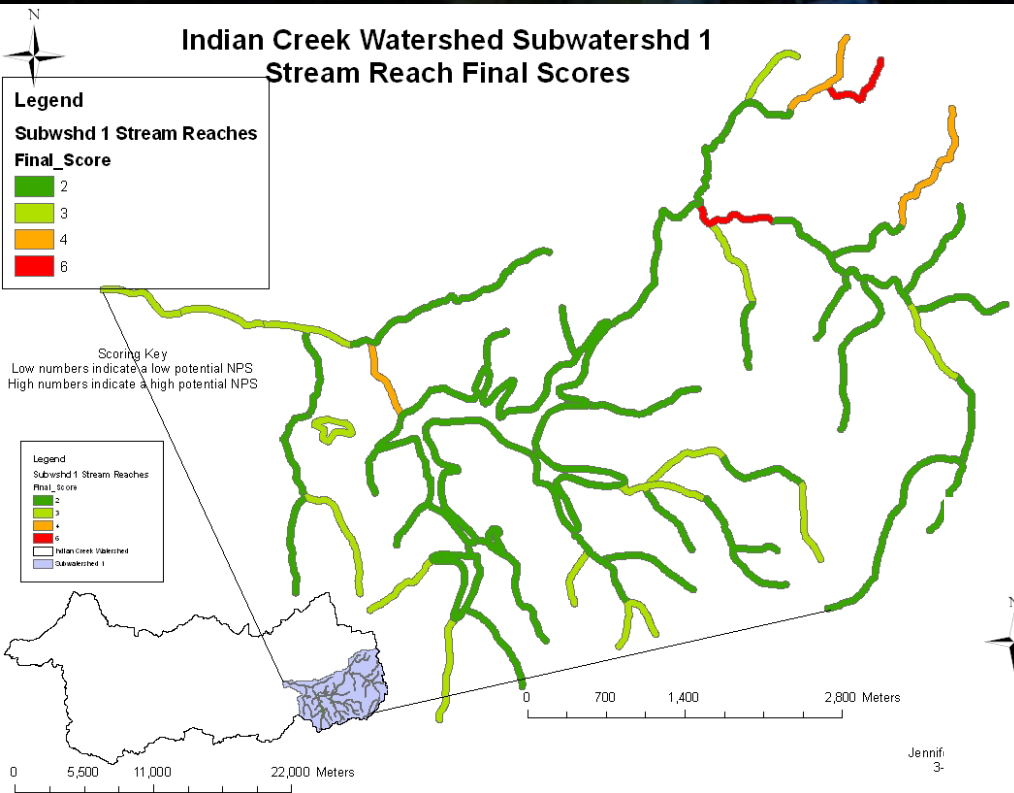
Indian Creek Watershed Subwatershed 2
Stream Reach Final Scores



Indian Creek Watershed Subwatershed 2
Stream Reach Erosion Scores



Results



Management Implications

How results can be used

- Watershed planning - restoration, enhancement and protection
- Starting point for education and outreach to landowners.
- Can tie prioritized areas with cost share \$

Management Implications

Modification Examples

- Use other indicators
- Use different loading model
- Weight indicators
- Change scoring scheme

Management Implications

Limitations

- No ground truthing or validation has yet occurred
- Data resolution and error
- Intended as first round assessment
- Fine detail not detected
- Can not replace on ground surveys

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Literature Cited

1. Bentrup, G. and T. Kellerman. 2004. Where should buffers go? Modeling riparian habitat connectivity in northeast Kansas. *Journal of Soil and Water Conservation*. 59(5) 209-215.

*Only when the last tree has died
and the last river been poisoned
and the last fish been caught
will we realize we cannot eat money*

Cree Indian Proverb