

# Impact of The Conservation Reserve Program on Natural Habitats in Jefferson County, WI



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## Introduction

The Conservation Reserve Program (CRP) is a voluntary program for agricultural landowners which was designed to help reduce soil erosion. As of January 2010 there are 31.19 million acres enrolled in the program. Of which Wisconsin contributes 429,302 acres of CRP. Topsoil loss is often the product of agricultural practices that encourage erosion on sloping land. The Conservation Reserve offers financial incentive to eliminate row cropping on agricultural land susceptible to water and wind erosion, thereby reducing soil erosion in these areas to an acceptable level. Each CRP contract typically lasts 10 or 15 years; during which time the landowner must replace the row crops with an authorized cover of grass, legumes, or trees that will aid in the retention of topsoil. Landowners are not limited to these three types of authorized land cover but they are the most prevalent. When CRP land adjacent to wild land is converted into grass, legumes, or trees it expands the amount of natural habitat available for wildlife.

This study investigated the relationship between CRP and adjacent land use in Jefferson County, Wisconsin. The CRP data were analyzed using aerial photographs to determine their spatial relationship to six land cover classes. Of these six land classifications, water and wood are more likely to increase natural habitat. The expansion of the existing habitat due to adjacent CRP may increase the habitat patch size which would enhance the value of the parcel as wildlife habitat. Areas that showed an increase in natural habitat were evaluated to determine the amount of expansion. The results enabled us to identify where the CRP program has the most positive effect on habitat expansion in Jefferson County, and also evaluate the overall value of the CRP program for wildlife.

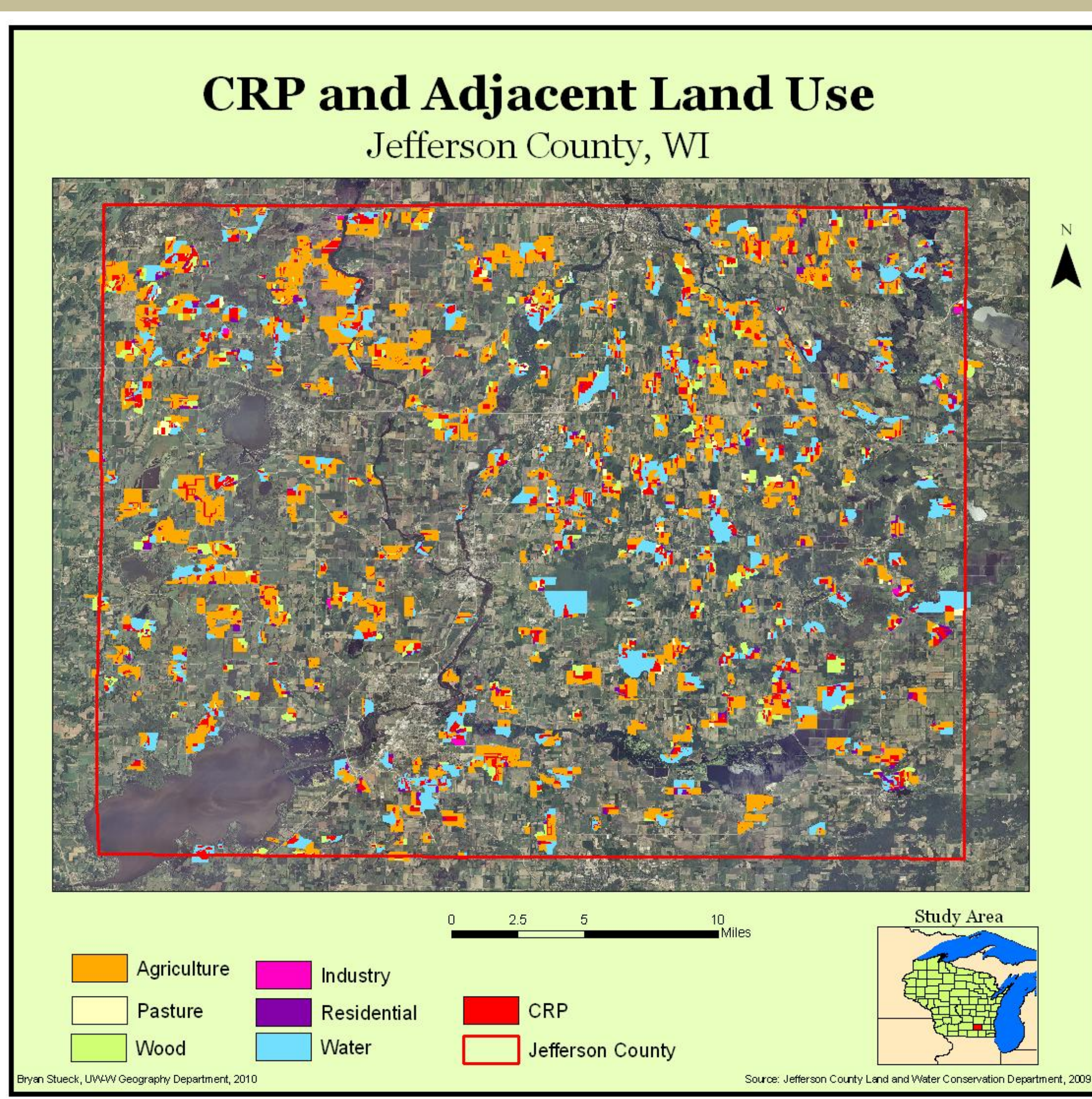
## Methods

- The CRP and Land Use data were provided by Jefferson County Land and Water Conservation Department. A 2008 1m air photo was obtained from the Wisconsin View data server.
- The polygonal CRP and Land Use data were imported and overlaid on the air photo.
- Through visual air photo interpretation, polygons were created for all land adjacent to CRP parcels.
- The polygons were classified into 1 of 6 land use categories: *Agriculture, Water, Wood, Pasture, Residential or Industry.*
- Field validation of adjacent polygons was conducted to evaluate classification accuracy. This consisted of generating and field checking 50 random land use points.
- Line segments were created for the common boundaries between CRP parcels and adjacent land use. This enabled the calculation of the percentage of each land use bordering the CRP land.

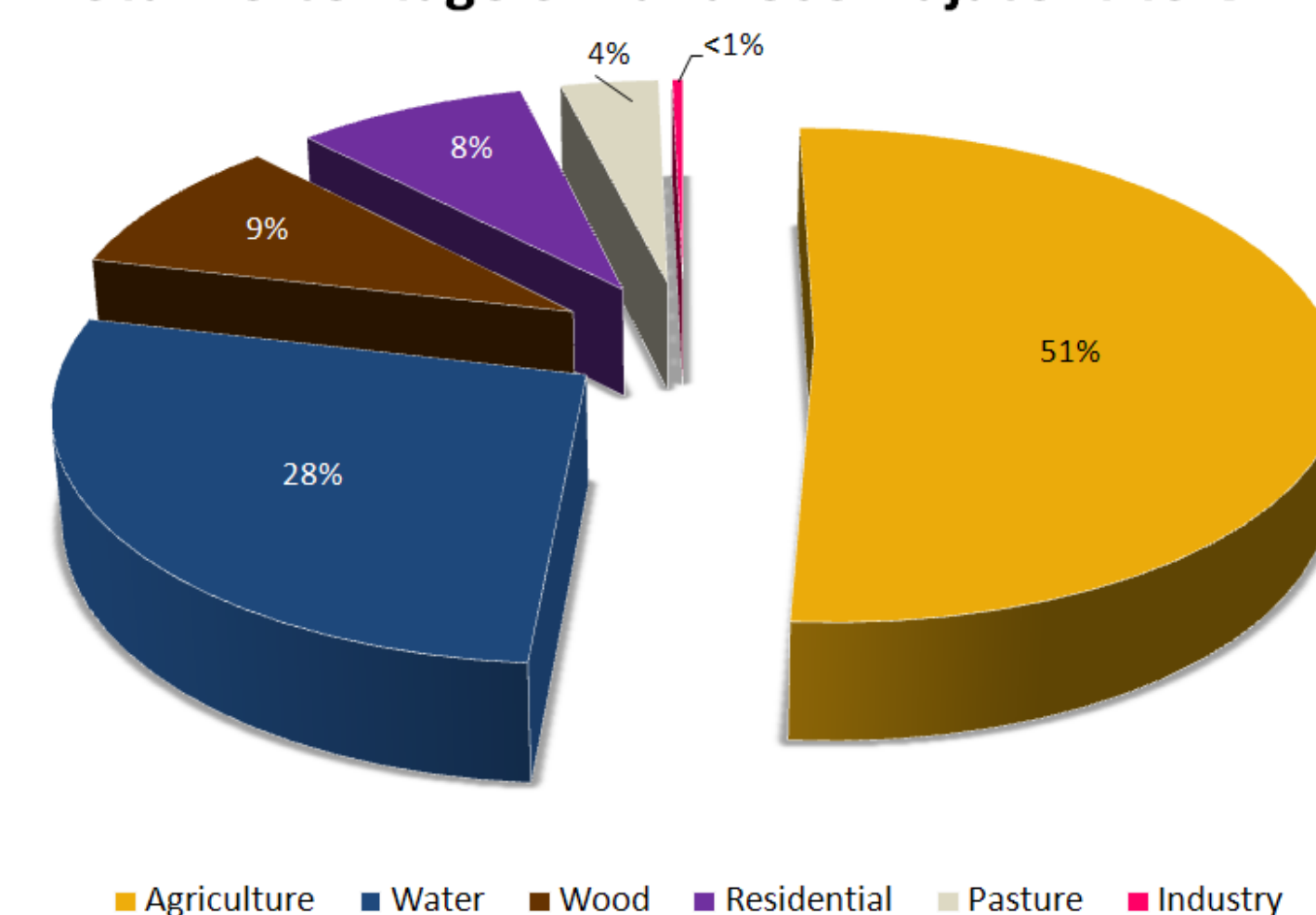


This photo shows row crop agriculture (foreground) with registered CRP land (grassy slope in background).

## Results



Total Percentage of Land Use Adjacent to CRP



The pie chart shows the total percentage of land use adjacent to CRP. Agriculture is the predominate land use.

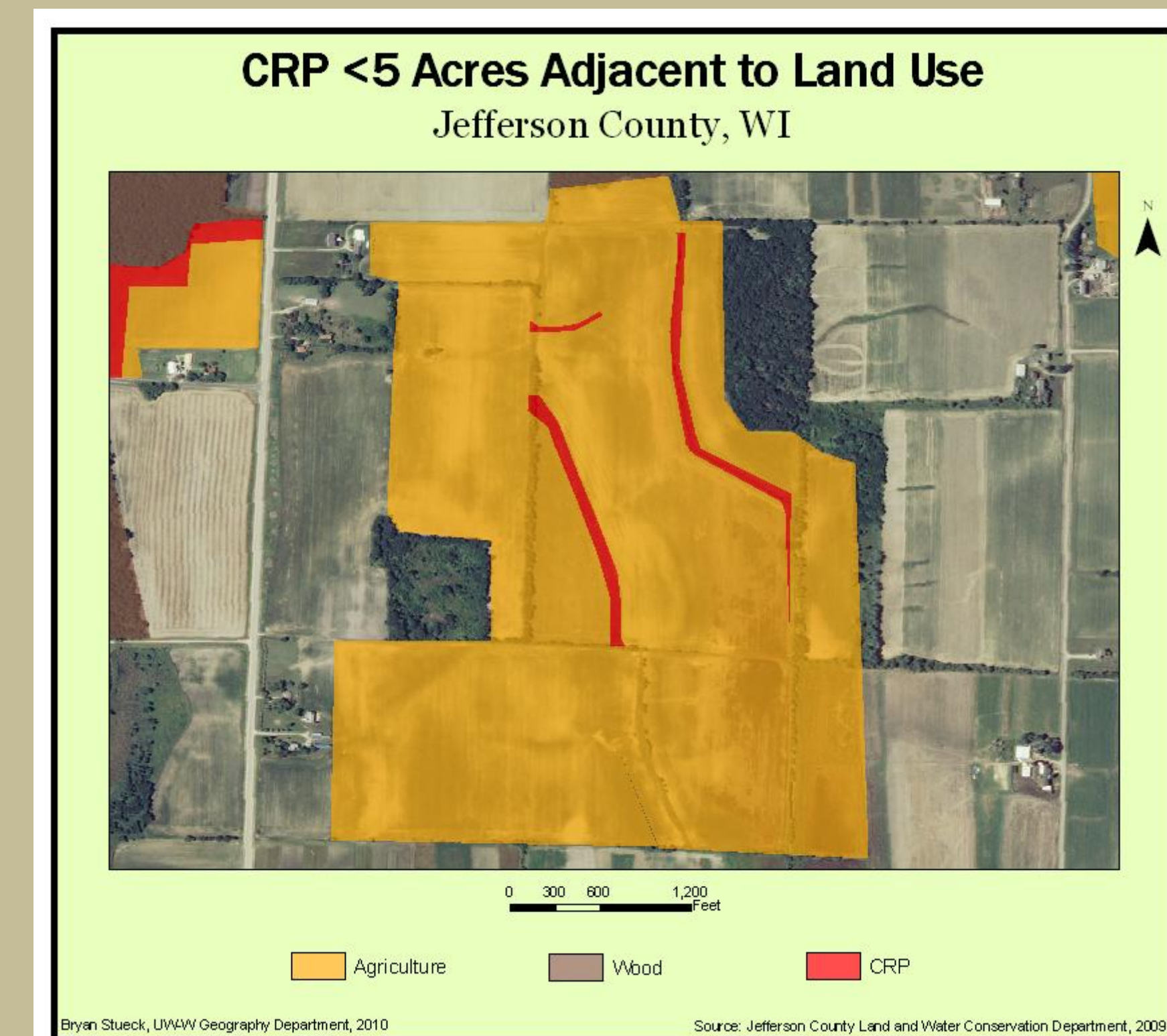
## Land Use Adjacency Based on CRP Parcel Size

0-5 Acres Adjacent to CRP			5.1-10 Acres Adjacent to CRP		
Land Class	[lin. ft. boundary]	Percentage	Land Class	[lin. ft. boundary]	Percentage
Agriculture	789,596.94	60.13%	Agriculture	381,146.80	51.12%
Water	294,376.60	22.42%	Water	213,868.68	28.68%
Wood	104,419.79	7.95%	Wood	61,500.46	8.25%
Residential	83,146.23	6.33%	Residential	59,070.46	7.92%
Pasture	36,668.65	2.79%	Pasture	28,509.34	3.82%
Industry	4,845.51	0.37%	Industry	1,520.91	0.20%

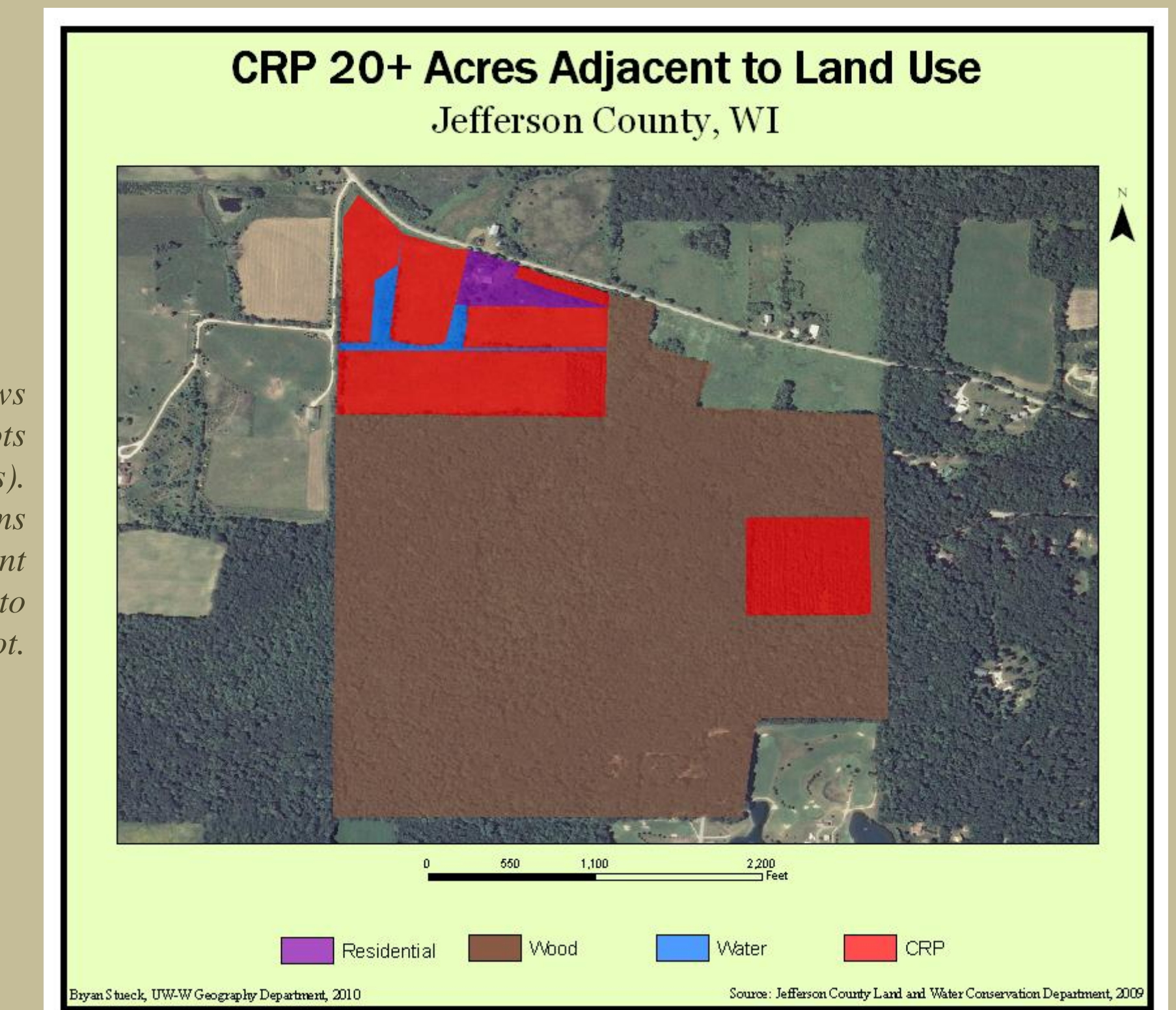
10.1-15 Acres Adjacent to CRP			15.1-20 Acres Adjacent to CRP		
Land Class	[lin. ft. boundary]	Percentage	Land Class	[lin. ft. boundary]	Percentage
Agriculture	222,838.18	42.21%	Agriculture	118,944.98	45.91%
Water	192,887.59	36.54%	Water	69,213.85	26.71%
Wood	45,635.56	8.65%	Wood	36,996.63	14.28%
Residential	45,498.90	8.62%	Residential	27,980.20	10.80%
Pasture	19,381.32	3.67%	Pasture	5,468.15	2.11%
Industry	1,628.05	0.31%	Industry	497.19	0.19%

20+ Acres Adjacent to CRP		
Land Class	[lin. ft. boundary]	Percentage
Agriculture	287,281.59	42.02%
Water	201,074.94	29.41%
Wood	78,557.40	11.49%
Residential	75,686.62	11.07%
Pasture	36,132.82	5.28%
Industry	5,025.16	0.73%

Above are tables showing individual statistics for each land use class based on the size of CRP parcel. Five ranges were created to determine the relationship between different sized CRP parcels and adjacent land use.



This map shows small CRP plots. Agriculture is the dominant adjacent parcel to CRP.



This map shows large CRP plots (20+ acres). Woodland forms the dominant adjacent parcel to this CRP plot.

## Conclusion

Based on the results, agriculture is the predominant land use located adjacent to CRP in Jefferson County. This was not unexpected since most current CRP was originally agriculture. In addition, as CRP parcel size increased, water adjacent to CRP parcels also increased. Larger CRP parcels also tended to be located adjacent to woodland parcels. This research indicates that larger CRP parcels are more likely to be adjacent to water and wood land use, thus providing expansion of natural habitat. This is important since not only does CRP reduce soil erosion but also has a positive benefit for natural habitat. Although agriculture is the predominant land use in all CRP parcels, it tends to decrease in size with larger CRP parcels.

## Acknowledgements

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## Source

Conservation Reserve Program Status. USDA Farm Service Agency, 31 Jan. 2010. Web 28 Mar. 2010. < <http://www.fsa.usda.gov> >.