

Distribution of CRP Tracts in three Southern Illinois Counties

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Abstract

The Conservation Reserve Program (CRP) is used as a way to combat erosion in farming. CRP works by providing federal payments to farmers who take specified tracts out of production and instead adopt specific conservation measures. In this study we asked: **What is the spatial distribution of CRP tracts as compared to the location of eroding soils in Gallatin, Jackson, and White Counties in Illinois?** Using ArcMap we were able to create maps that showed the relationship of the location of the CRP tracts and the eroding soils in each of the counties. Our research showed that CRP tracts are most likely going to be found in areas more easily eroded, but not in all cases.

Background

Erosion of the land is a problem, especially today when more land is going to be needed to support the world's growing population. CRP works to combat erosion through contracts signed by the landowner. These contracts are for individual tracts of varying acreages, and each contract can be either 10 or 15 years in length.

Once the contract has been set, the landowner will be active in an approved conservation practice (CP) by the USDA. There are a total 37 different CPs available with 33 CPs in use in Illinois. For Gallatin, Jackson, and White, the most likely type of CP found will be either introduced grasses or established grasses.



Picture 1. CRP Field next to a crop field in White County photo by Pam Venable

Methods

In order to show the CRP field locations relative to the eroding soils, we first needed to identify the eroding soils in each county. Using the data provided by the NRCS and paper soil maps, soil maps were made from each county using ArcMap. From those maps we were able to single out the soils into 'not eroded', 'eroded', and 'severely eroded'. For the purposes of our research we didn't show the 'not eroded' soils.

Since the exact location of CRP fields is sensitive information, we decided to show the relative location of clustered areas CRP fields. On our individual CRP maps, which we obtained from the local FSA offices, we separated them into townships to get a better understanding of where the fields were. Using a scale bar and a pencil we were able to estimate the number of acres in clustered CRP field areas.

To show this data, we created three new point shapefiles and manually digitized the points onto our eroded soil maps. From there we added a field to the new shapefile's attribute table named 'CRP_acres' and added in the number of acres that corresponded to each point. Then we changed the symbology to reflect graduated symbols, and our final maps were completed (Figure 1-3).

Additionally, we determined the frequency distribution of CRP tract sizes in each county. We obtained our data from the FSA in a database format. We used the frequency formula in Excel to determine the number of tracts at a certain size or less. To show the best comparison, we decided to use the same tract sizes as marks for each data set. After finding the frequency of the tract sizes for each county, we put the data into 3-D bar graphs. This produced our final frequency distribution graphs, shown in graphs 1-3.

Results



Picture 2. Making soil maps.



Figure 4. Map of Illinois with counties highlighted

Picture 2 CRP field in White County
Photo by Pam Venable

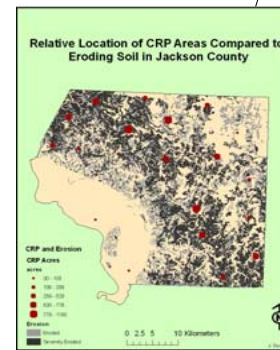
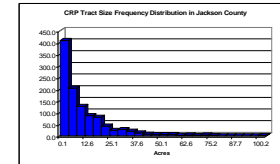


Figure 1.



Graph 1.

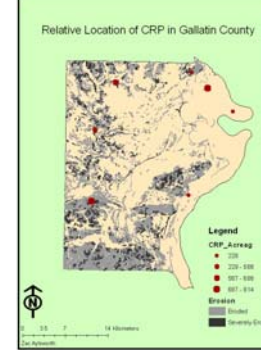
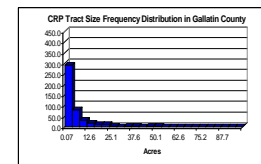


Figure 2.



Graph 2.

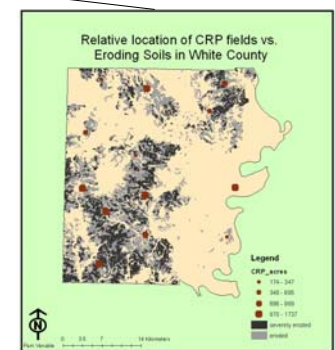
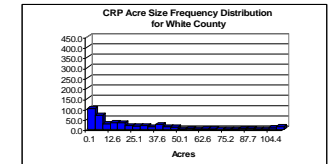


Figure 3.



Graph 3.

Conclusion

Our results showed that the majority of CRP tracts are found in areas where eroding soils are found. However, in each of the counties there were a surprising amount of CRP tracts that were found in areas where the soil was not categorized as being eroded. These areas were found mainly in the flood

plains of the major rivers that form part of each counties border.

Our frequency distribution graphs for each county showed that the majority of CRP tracts in Gallatin and Jackson Counties were less than 30 acres in size. White County had an average amount of tracts that were smaller, but had much more larger CRP tract sizes. Further research in how the land is used in each county could explain these differences.

Acknowledgements

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