

Wayne County, Pennsylvania Agricultural Land Use/Land Cover Study

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PROJECT NARRATIVE

WHY A WAYNE COUNTY AGRICULTURAL LAND USE STUDY?

With the changes that have occurred regarding agriculture over the last several decades questions often arise regarding what has become of the lands that are no longer in an agricultural use. Therefore, a study was conducted that specifically examines agricultural land use change from 1959 to 2002. This project examined the changes in agricultural land use in Wayne County and the land use patterns that have developed over time. As agriculture continues to face challenges in the future, it is important to understand agricultural land use in Wayne County and learn from historical patterns what might be expected in the future. In order to do that, detailed information was gathered and assembled in a manner that can be used by the local municipal officials in Wayne County.

PROJECT DESCRIPTION

This project studied the changes of agricultural land use in Wayne County and illustrated the effects of sprawl on Wayne County's agricultural landscape. Wayne County continues to be one of Pennsylvania's fastest growing counties. The most recent U.S. Census Bureau estimate from 2005 places Wayne County as the 12th fastest growing county. It was in the 1960's that development pressures seriously began to affect land use in the County. This project documents agricultural land use prior to the 1960s and compares it to 2002 land use. The first step was to obtain data that accurately disclosed land use prior to the 1960's. Aerial photographs that were taken in 1959 were obtained from the United States Department of Agriculture. This established the base date for the study. Through a contract with Wilkes University's Center for Geographic Information Sciences, Department of Geo-Environmental Sciences and Engineering in Wilkes-Barre, the 218 photos were registered to the state plane coordinate system North American Datum, 1983. This registration is consistent with the County's current Geographic Information System's (GIS) development. The County was flown in 1997 and that digital ortho-photography was compared to the 1959 photos. In order to include changes that have occurred since the 1997 photos,

the two photo-imaging systems were then overlaid with the 2002 county tax maps. Part of the Wilkes contract was to provide training and technical assistance to the planning department staff on how to use the GIS system in creating new land use/cover files, which were based on

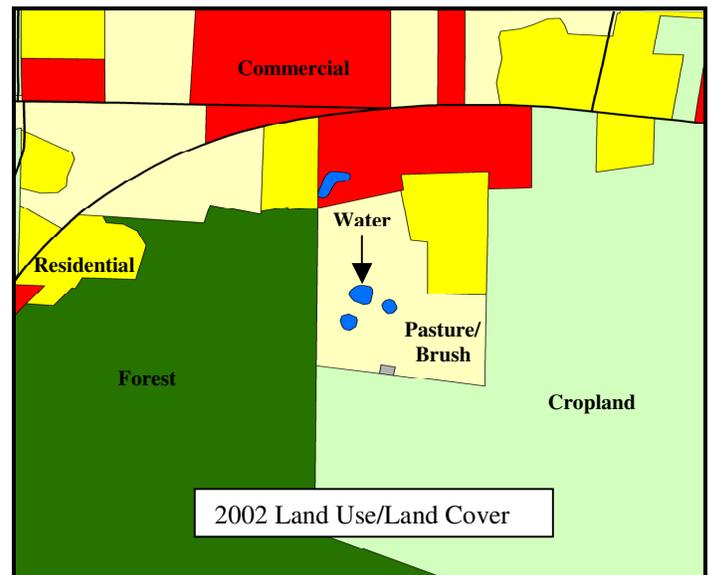
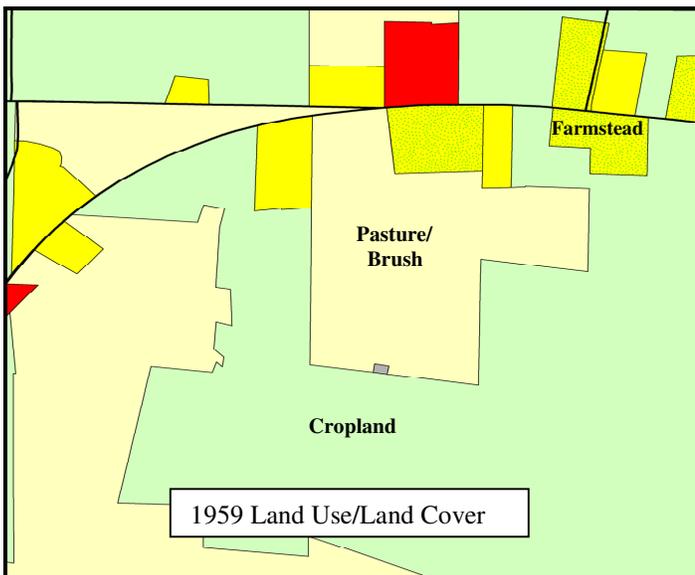
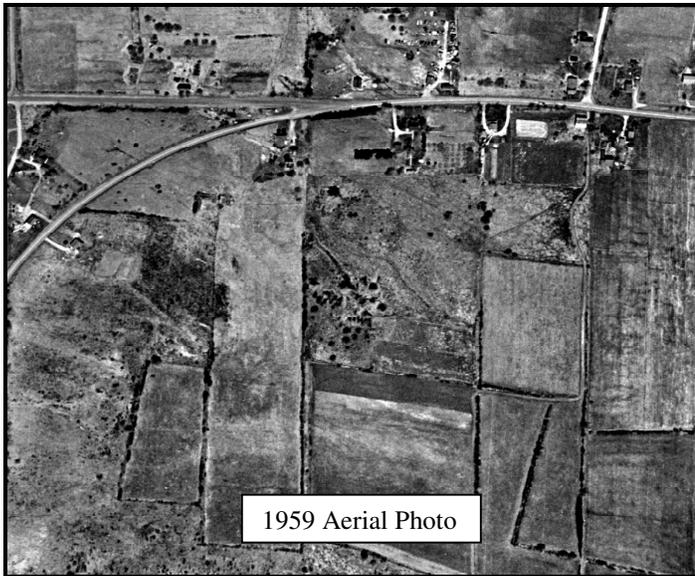
the current and historic photos. The final product shows the changes in agricultural land use over the past 43 years. It shows the land that has been converted from cropland, pasture/brush and other uses to forest, residential, commercial, industrial, etc. The planning staff met with the County Extension Office along with township officials and local citizens from each township or borough to help with the "quality check" process.

Project Basics

- 1959 USDA aerial photos
- 1997 Wayne County aerial photos
- 2002 Assessment records update
- GIS Technology
- Local citizen review for quality control

Procedure

The first step of the study for the Planning Department staff was to analyze the 1959 aerial photography. The different types of land use/land cover were isolated according to their composition through the use of the County's Geographic Information System (GIS). Land use/land cover types were coded according to a classification system developed for the project. For example, as can be seen below, the 1959 aerial photo was analyzed and categorized into various land use/land cover types. This process resulted in a 1959 Land Use/Land Cover layer. This same process was repeated for the 1997 aerial photography to create a 2002 Land Use/Land Cover layer, which would allow for a comparison of the change in land use/land cover for a given municipality, and then cumulatively for the entire County, over a forty-plus year time span. The analysis of the 1997 aerial photography was also supplemented with 2002 Wayne County Tax Assessment data.



After the land use/land cover layers were developed for both periods, the acreage for each specific type of land use/land cover was calculated. This allowed for a general comparison of the change over the forty-plus year period. More specific analysis of the changes in each land use/land cover type and the relationship to the type of soil present were also analyzed and documented. Through the use of GIS it was possible to determine what a specific type of land use/land cover converted to between 1959 and 2002. Narratives, which describe the results of the analysis, together with the resulting land use/land cover maps for each Wayne County municipality, are contained within the "Municipal Reports" section of this report.

NOW THAT WE HAVE THIS DATA, HOW CAN IT BE UTILIZED?

By reviewing land use changes that have occurred over time, we can more effectively plan for the future. The products from the agricultural land use/land cover study demonstrate the land use change patterns that have developed. It identifies the class of soil and at the same time identifies the agricultural land affected by the change. This study of the entire county is available to not only the County as part of its planning process, but also to the 28 municipalities for their planning efforts. The data and mapping from this study is being supplied to the municipalities in the Lake Region of Wayne County and municipalities in East Central Wayne County to assist in the preparation of their multi-municipal comprehensive plans.

The Geographic Information System (GIS) that was developed allows efficient and effective utilization of the data from the study. The acreage changes for land use/land cover along with the accompanying mapping supplied through the use of GIS enables each municipality to better understand the dynamics of change not only in their municipality but also in adjoining municipalities. It is an educational tool available to all municipalities to understand land use change from a multi-municipal and regional perspective. Local municipalities have another tool available to understand regional changes in land use that will assist in preparing them to deal with the challenges common in a growing community. Local elected officials will be able to understand and know what kind of land use pressures could be expected in the future which will help them plan to deal with those potential growth pressures.

Acknowledgements

In order to provide as accurate a study as possible, the planning department staff solicited input from township officials and local citizens. We thank all who volunteered their time for this project. The local input greatly contributed to the historical accuracy of the 1959 study because no tax assessment information was available for that time. Local input also provided help with verification of the photo-interpretation portion of the 2002 study. The following is a list of the persons who provided local input:

Berlin ▪ Bert Henry, Carol Dunn, and William Buckingham.
Bethany ▪ Nina Martin.
Buckingham ▪ Edward Dix and Duane Giles.
Canaan ▪ Dorothy Gregory and Lewis Henshaw.
Cherry Ridge ▪ Edmund Rose and Robert Suhosky.
Clinton ▪ Ronald Poska.
Damascus ▪ Bill Gager, Arthur (Jim) Freiermuth, William Adams, Earl Mohn, and Ernest Matern.
Dreher ▪ John Young and Jerry McLain.
Dyberry ▪ Edward Fritsch.
Hawley ▪ Lake Region Comp Plan Group: Don Kyzer, Mary Sanders, and Alvin Myers.
Honesdale ▪ Kenneth Bunnell and Edmund Rose.
Lake ▪ Lake Region Comp Plan Group: Russ Enslin, Chester Grodack, David Cummins, and Pete Snyder.
Lebanon ▪ Ronald Lewis and Raymond Pulis.
Lehigh ▪ Protus Phillips.
Manchester ▪ Don Stalker and Steven Macey.
Mt. Pleasant ▪ Albert Wildenstein.
Oregon ▪ Raymond Pulis.
Palmyra ▪ Lake Region Comp Plan Group: Joseph Kmetz and Michael Hanf.
Paupack ▪ Lake Region Comp Plan Group: Ted Kostige, Bill Igoe, and Justin Hoffman.
Preston ▪ Kuni Holbert and Duane Giles.
Prompton ▪ Allen Heberling.
Salem ▪ Edward Pruss.
Scott ▪ Duane Giles.
South Canaan ▪ Lewis Henshaw.
Starrucca ▪ Roger and Barbara Glover and Duane Giles.
Sterling ▪ Nancy McLain.
Texas ▪ Edmund Rose and Bruce Mackle.
Waymart ▪ Dorothy Gregory.

We were impressed with the eagerness of local citizens to assist in identifying the various land use/land cover types that existed in their respective communities. The extensive time and knowledge they provided was invaluable in assisting in the completion of this study. Therefore, we would like to thank the individuals involved and we would like to express our gratitude for their contribution.

Also, a special thanks to the Wilkes University Center for Geographic Information Sciences, Department of Geo-Environmental Sciences and Engineering, Wilkes Barre, Pennsylvania. Mr. Bill Toothill and his staff provided valuable assistance in GIS training for the planning department staff.

Former staff members of the Department of Planning include Mr. Aaron Kilgo and Mr. Christopher McDonough whose contributions to the project are greatly appreciated.