Analyzing Preserved Farmland in New Jersey, 2020

Introduction

New Jersey is home to a strong agricultural industry that produces high quality fruits and vegetables with approximately 9,071 farms spanning across 715,057 acres of land (The State of New Jersey, 2020). The state produces nearly one hundred different kinds of fruits and vegetables but is among the top producers for blueberries, cranberries, spinach, bell peppers and peaches. "In 2017, the state’s more than 9,000 farms generated cash receipts of more than $1 billion" (NJ Department of Agriculture, 2020). Unfortunately, over the past several decades, available land has become increasingly scarce throughout New Jersey. With such a strong agricultural industry, it is essential to preserve these farmlands in order to ensure future growth and production.

Farmland Preservation has been active since 1985 and has preserved 238,283 acres in NJ as of September 2020, making New Jersey a national leader in preserving farmland. Once preserved, the land must continue to be stewarded to ensure impacts to soil and water remain minimal.

In 2013, Rowan University’s Geospatial Research Lab (GeoLab) was asked to assist in stewardship of the land by creating aerial snapshots to catalog characteristics of a farm parcel so that they may be further analyzed based on their potential soil disturbance.

Methodology & Data

Due to the COVID-19 pandemic, it was necessary for the GeoLab team to be creative in how to work collaboratively in order to create map features for the Farmland Preservation program. Using a Post-Gis database, served on Amazon Web Services, the GeoLab created a password protected web interface that allows for polygon creation/editing without needing a traditional enterprise map database.

When digitizing a farmland parcel, there are 23 possible categories for farm features. These farm features determine whether the soil has been undisturbed, temporarily disturbed, or permanently disturbed. Please find the categories below.

A County Perspective

Salem County, NJ ranks the highest in farmland acres preserved across New Jersey’s 21 counties with 49,234 acres with average cost of $4,343/acre. In the map below you can see the progression of farms preserved (shades of green) in Salem County alongside the urban areas (red).

Parcel Level

Located in Pittsgrove Township, Salem County, NJ, this satellite image shows the delineation of the 29.79 acre parcel based on each of the farm features. This farm has been broken down into seven categories: farmland (8.3%), building (0.9%), slio (0.001%), parking (0.8%), farm lane (0.6%), landscape (0.001%) and agricultural production (89.7%). A total of 29.2 acres (98%) of the parcel is undisturbed soil, 0.19 acres (0.6%) is temporarily disturbed and 0.402 (1.32%) is permanently disturbed.

Dubois’ Spring Brook Farm – Case Study

Conclusion

Though it may have the nickname “the Garden State,” New Jersey is not often thought of as such. The Farmland Preservation Program has made great strides in acquisition and agricultural best management practices to make sure that the nickname does not become a relic. Through this first of its kind GIS analysis project, the soil disturbance methodology developed for farmland preservation will be able to set a standard that may be applicable to other state stewardship and monitoring programs. This is not only for farmland preservation but for any kind of open space or land preservation. Please send any questions or comments you may have to Katrina McCarthy, shand@rowan.edu or Devon Nealer, nealer2@d2students.rowan.edu. Thank you.

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Sources: NJ DEP (2015 Land Use), SADC (Farmland Preservation 9/28/20), NJ GIS (Boundaries)

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