Data Article

Data on four criteria for targeting the placement of conservation buffers in agricultural landscapes

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ABSTRACT

Four criteria are generally used to prioritize agricultural lands for placing conservation buffers. The criteria include soil erodibility, hydrological sensitivity, wildlife habitat, and impervious surface rate that capture conservation buffers' benefits in reducing soil erosion, controlling runoff generation, enhancing wildlife habitat, and mitigating stormwater impacts, respectively. This article describes the data used to derive the values of those attributes and a scheme to classify the values in multi-criteria analysis of conservation buffer placement in "Choosing between alternative placement strategies for conservation buffers using borda count" [1].
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Specifications Table

Subject area	*Ecology*
More specific subject area	*Conservation buffers*
Type of data	*Tables, figures*
How data was acquired	*Maps generated from readily available spatial data using ArcMap 10.3 developed by ESRI*

Data format	*Processed*
Experimental factors	*Primarily based on a 10-m digital elevation model and the 2002 land use/cover data developed and maintained by New Jersey Department of Environmental Protection (NJDEP) and a digital soil database maintained by the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)*
Experimental features	*Presented spatially in the original and classified values*
Data source location	*Raritan River Basin, Central New Jersey, USA*
Data accessibility	*Data are within this article*

Value of the data

- Each of four criteria can be useful indicators for prioritizing conservation efforts in landscapes.
- A localized classification system is a powerful tool to balance the subjective preferences of stakeholders and the objective measurement of natural resource conditions in resource management decision-making.
- The method for analyzing the data and the classification system are useful tools for making critical decisions on conservation buffer placement.

1. Data

This study is to present the data on four criteria values and a scheme to classify those values for multi-criteria analysis of prioritizing agricultural lands for conservation buffer placement in Raritan River Basin in central New Jersey, USA [1,2]. The data include soil erodibility, hydrological sensitivity, wildlife habitat, and impervious surface rate that capture buffers' benefits in reducing soil erosion, controlling runoff generation, enhancing wildlife habitat, and mitigating stormwater impacts, respectively. The data were derived from readily available spatial data on resource conditions in landscapes.

2. Experimental design, materials and methods

2.1. Soil erodibility

Soil erodibility is approximated by soil erodibility index (SEI) [3]. To derive SEI, the value of rainfall and runoff intensity was estimated from the annualized isoerodent map for the eastern United States and was set at 160 for the region [4]. The slope length factor and slope steepness factor were derived from a 10-meter digital elevation model (DEM) maintained by NJDEP. The susceptibility of soil to water erosion and the soil loss tolerance factor were extracted from the Soil Survey Geographic database (SSURGO) maintained by NRCS. The estimated SEI ranged from zero to 14,228 and its distribution in the basin is shown in Supplementary Fig. 1a. The index was classified into five classes based on the following classification scheme (Table 1) and the spatial distribution of the five soil erodibility classes is presented in Supplementary Fig. 1b.

2.2. Hydrological sensitivity

Hydrological sensitivity is approximated by a modified topographic index based on the VSA hydrology [5]. Similarly, the topographic index was derived from the NJDEP DEM and NRCS SSURGO