

2.7 Land Use/Land Cover

Land use and land cover of a watershed has a great influence on water quality and stream stability. The watershed's land cover directly impacts stream hydrology by influencing the amount of stormwater runoff. Forested and grassland areas produce significantly less runoff during a rain event than impervious areas. Impervious cover is defined as any surface within a watershed that are impermeable to infiltration of rainfall into underlying soils/groundwater, including rooftops, parking lots, streets, sidewalks, driveways, and even hardpacked dirt roads. Impervious cover is a major influence on streams and streamlife, because of the way it changes the amount and duration of stormwater that gets to the stream. Generally, the more impervious surface there is in a watershed, the less groundwater recharge (which supplies summer low flows), and the greater the magnitude of stormflows (and related erosion in streambeds). In addition to degrading streams, watersheds with a high percentage of impervious are prone to larger and more frequent floods, which cause property damage through inundation, as well as ecological harm resulting from the lower base flows. Impervious surfaces can also raise the temperature of runoff, which reduces dissolved oxygen in the stream, harms some gamefish populations, and promotes excess algal growth.¹

Although presence of vegetated streamside buffer zones or wetlands can help counteract impervious cover impacts, a watershed exceeding 10% impervious cover will generally have difficulty supporting a high quality stream system. A stream whose watershed is greater than 25% impervious cover will exhibit characteristics such as eroding banks, poor biological diversity, and high bacterial levels.

Current Land Cover

Land cover in the Stony Clove Creek Watershed was studied using the LANDSAT TM 1992 data GIS coverage created by the NYC DEP (Table 1). Approximately 98% of the watershed is covered by coniferous, deciduous, or mixed forest, while grass land cover makes up the remaining 2%. Impervious cover in the Stony Clove Creek Watershed is currently less than 1%. Proper land use planning to direct development and preserve sensitive areas can be utilized to maintain this low level of impervious cover.

Land Cover	Acres	% Cover
Forest Coniferous	2,850	14%
Forest Deciduous	15,080	73%
Forest Mixed	2,317	11%
Grass	379	2%
Impervious Surface	7	0%
Water	21	0%

Property Use Classification

To assess the property use in the Stony Clove Creek Watershed, property use classifications as documented on records of the Greene County Real Property Tax Service Department, was studied (Fig. 2). The overwhelming majority of property type, totaling 17,210 acres, is wild, forested, conservation land & public parks. Approximately, 73% or 16,182 acres of this forest land is owned by the State of New York and under current state laws will remain undeveloped. Residential property type follows in a distant second with 3,022 acres. Residential property in the watershed is predominantly one-family year round residences, located primarily along the Stony Clove Creek and its tributaries. This growth pattern is expected as a result of the watershed topography. Due to the narrow valley and steep walls of this watershed, the most suitable building sites are located in the flatter valley adjacent to the stream. While there are a few tax parcels designated as community services, industrial, public services, and recreation & entertainment property types, combined they make up less than 1% of the watershed.

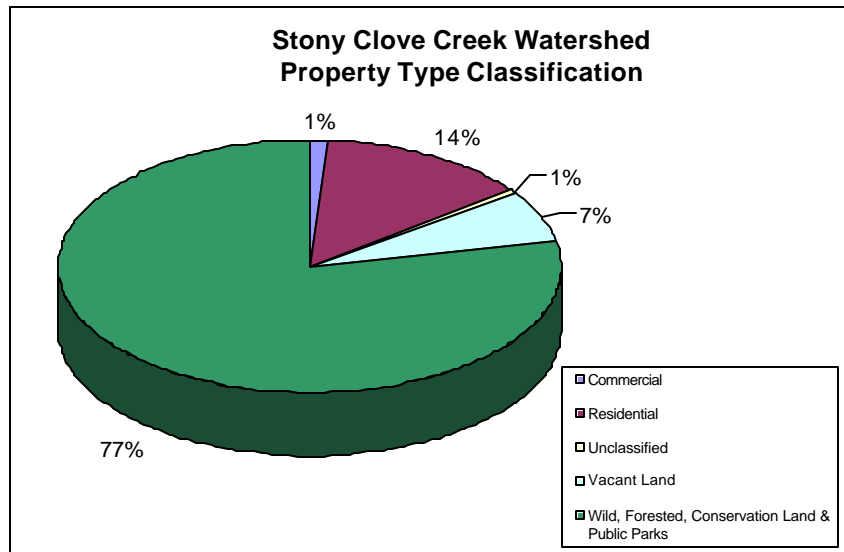


Figure 1 Stony Clove Creek Watershed property type classification

1 <http://www.epa.gov/watertrain/protection/r2.html>