

WATERSHED MONITORING IN URBAN FOREST

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INTRODUCTION

Major components of the water cycle in a forested watershed from the upper timberline to the lowland forests (Vilhar 2009).

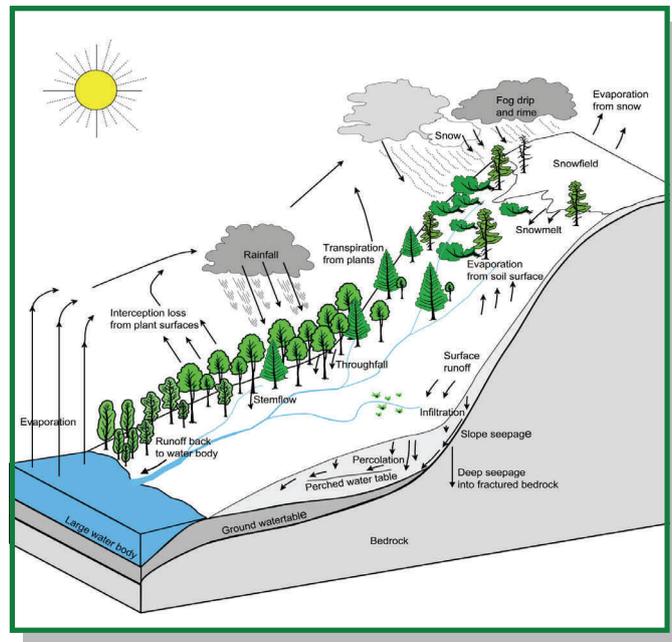
Forests and forestry practices are critical components of healthy watersheds. Trees and forests can prevent erosion, filter contaminants before they enter the waterway, absorb rainfall and snow melt, recharge aquifers, and slow storm water runoff. In addition to water quality benefits, they filter air pollutants and provide critical habitat for fish and wildlife (Anonymus 2003).

Stable forests in good condition growing on appropriate sites are most suitable land use category for retaining water in case of extremely abundant precipitation events (Frehner et al. 2005). Forests can reduce peak flows for storm of short duration and low intensity, but cannot prevent the occurrence of floods that are of high intensity and long duration over a large area (Chang 2003).

METHODOLOGY

Monitoring of watershed in urban forest (Vilhar 2010):

- interception and storage of rainfall and runoff
- stream flow
- suspended sediment
- nutrition discharge
- soil compaction



MAJOR COMPONENTS OF THE WATER CYCLE IN A FORESTED WATERSHED (VILHAR 2009).

TREE PHENOLOGY MONITORING OF URBAN FORESTS

URBAN WATERSHED FORESTRY CONCEPTS

(according to Center for watershed protection, USDA Forest Service (<http://www.slideshare.net/watershedprotection/formatted-uwf-slideshow-presentation>))

“Watershed forestry” is the use of forests and the practice of forestry to protect, restore, and sustain water quality, water flows, and the health and function of watersheds (Anonymus 2003).

Urban foresters as watershed managers:

- Urban watershed forestry seeks to address issues along the gradient of land use
- Urban tree canopy assessment and stormwater forestry



6" PARSHALL FLUME IN
ROŽNIK URBAN FOREST

ESTIMATION OF FINANCIAL COSTS

Long-term monitoring system:

- automatic weather station in the open and on several plots in the forest
- deposition measurements in the open
- throughfall, stemflow, soil moisture measurements on several plots in the forest
- 6" Parshall flume and 2 automatic water level recorders for streamflow monitoring
- water quality analysis
- data base management and data evaluation

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