Article 129

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The Peculiarities of Perviousness

Much has been made of the importance of imperviousness in determining the quality of aquatic systems in urban watersheds. Indeed, impervious cover is a very useful measure to predict current and future stream quality (Schueler, 1995). Still, pervious areas dominate much of the urban landscape, and their management should not be ignored or neglected. Many urban water managers feel that land that hasn't been paved must be providing some benefit to the watershed. While it is true that pervious areas are generally green, this does not always imply that they are environmentally benign. In fact, many pervious areas in the landscape are as intensively managed or cultivated as any cropland, as far as the input of water, fertilizer or pesticides are concerned.

In this article, the hydrology and pollutant dynamics of pervious areas are explored. To do so, it is necessary to examine the types and distribution of pervious cover found in urban landscapes. Next, the complex interactions of pervious and impervious cover are investigated, particularly along the many edges between the two. The next section examines the hydrological consequences of the direction of flow from pervious areas to impervious ones, and vice versa. Finally, this paper looks closely at the pervious areas that receive high inputs of chemicals and water: lawns, golf courses, and public turf areas. The evidence that this high input turf, which comprises perhaps a third of all pervious areas, influences the water quality of urban streams is evaluated.

The Many Natures of Perviousness

Pervious areas are very diverse in size and vegetative cover. Each community consists of a mosaic of forest, wetlands, meadow, lawn, turf, landscaping and the ubiquitous "vacant" lands. While the mix among these types varies based on the history and intensity of past development, pervious cover can be grouped into one of six general types (Figure 1). The estimated distribution of each type of pervious cover in a typical urban landscape is shown in Figure 2. It should be noted that these estimates are a composite drawn from many different sources and regions, and should be considered very provisional. More accurate local estimates of the distribution and management of pervious cover need to be developed.

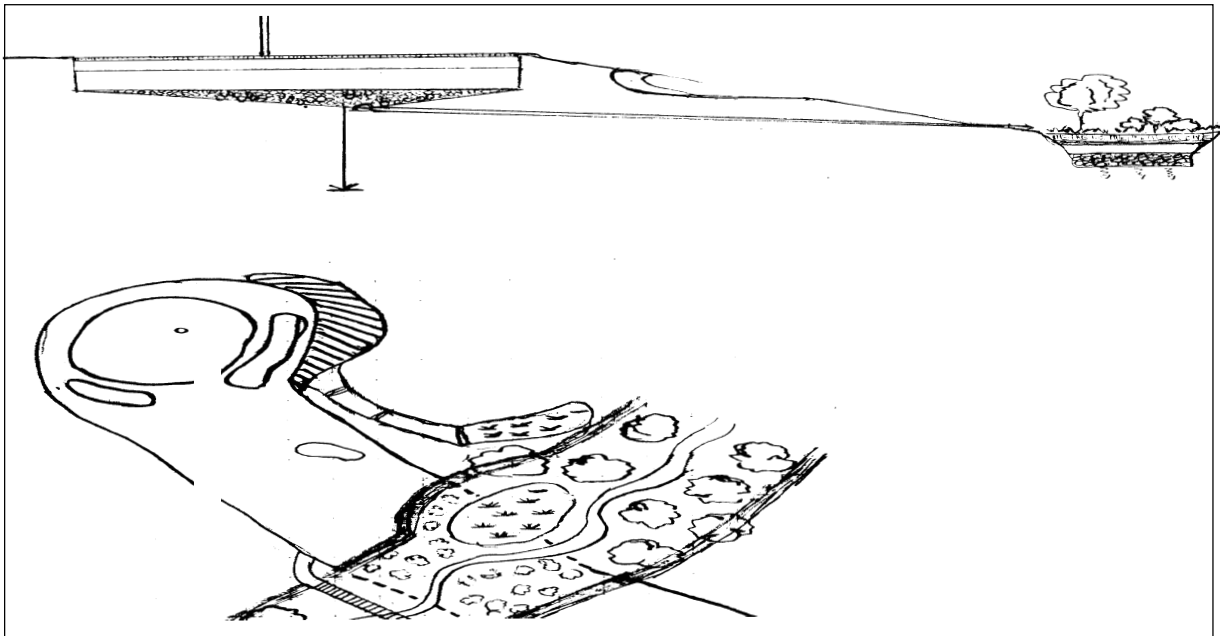

Figure 1: The Six Categories of Pervious Cover in the Urban Landscape