

Catskill Streams

Principles of Stream Stewardship

Management of natural stream systems often results in the perception of competing or inconsistent goals and objectives. Using sound, science-based principles, stream managers will find it easier to guide their work, and achieve a common ground between landowners, municipalities, regulatory agencies and others that play an important role in the health of our Catskill stream systems. These guiding principles set a common framework upon which stream managers may carry out their important activities.

1. We celebrate the role streams play in the natural heritage of our communities.

The creeks, streams and rivers that run through our neighborhoods play a subtle but profound role in the identity of our communities, and also in the larger landscape: they are the “kills” in “Catskills.” Our streams are intimately tied to our culture and history.

2. We will work to protect and restore the environmental services provided by our streams and floodplains.

Streams and their floodplains provide many essential environmental services: they are the major conduits of our stormwater system, convey sediment eroded from upland areas, process a large portion of the human waste stream --both in the stream and through the floodplain “filter”-- and for many anglers, provide significant food resources. Streams and floodplains also provide highly-valued recreational and economic benefits, and their natural beauty is an invaluable collective asset of the community.

3. We will work to protect and restore the health of our stream and floodplain ecosystems.

Stream and floodplain ecosystems are complex. They are key components of the larger ecosystem, interconnected with upland biological diversity and integrity. The health of our ecosystem is dependent on the health of our streams, and vice versa. The health of the environment is likewise connected to human health— both individuals and communities.

4. Wherever possible, we will manage streams so as to maintain their naturally effective channel form and function.

The shape of the stream –its characteristic planform, cross-section and profile— are matched to the hydrologic regime, the geology, the vegetation on the banks and floodplain, and the landscape forms through which they flow. Streams must move sediment as well as water, and the shape of the channel determines how effectively it can perform that function. When we disturb the shape of the stream --widening, narrowing, deepening, straightening, removing gravel bars, or berming-- we alter its effectiveness. Streams evolve over time, and need to be able to shift somewhat within the constraints of their floodplain. Generally speaking, however, in the Catskills, healthy streams are more stable and resilient than disturbed streams, and maintain their characteristic form after even large flood events.

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Principles of Stream Stewardship (cont.)

5. Wherever possible, we will manage floodplains as part of the natural stream system.

Floodplains play a critical role in the stream system, and in the environmental services streams provide: floodplains should be considered part of the stream. When streams and their natural floodplains are well-connected, the risk of flood hazards downstream are reduced and water quality is improved. The most appropriate land use for floodplains will allow natural stream processes to occur.

6. Wherever possible, we will protect and restore mature forest in the riparian buffer.

If we want to prevent bank erosion, the most critical concern should be maintaining a healthy buffer of mature, native vegetation along the stream bank. Ideally, the wider the buffer, the better. The root system of natural, dense vegetation in the streamside, or *riparian*, buffer holds the soil together, and makes it more resistant to the erosive force of fast moving floodwaters. Mowing down to the edge of the stream bank puts the bank at higher risk of erosion. Natural streamside vegetation also supports healthy communities of organisms in the stream and floodplains and moderates water and soil temperatures, protecting fish and amphibians.

7. As we manage streams to protect public safety and investments in infrastructure, our actions in one location shouldn't compromise the health of the stream upstream or downstream, or threaten the adjacent upland ecosystem through which the stream runs.

Even small disturbances at one location on a stream can propagate upstream or downstream, or laterally into floodplains and upland areas. When we engage in management practices in response to flooding or bank erosion, we need to anticipate these off-site impacts, and apply the principle of "do no harm."

8. We will strive to keep abreast of the state-of-the-science and best management practices related to streams and floodplains.

Our understanding of how healthy streams function is still growing. As the science of stream ecosystems and the best management practices to protect and restore them continue to evolve, this improved understanding needs to be incorporated into our day-to-day management activities.