Recommendation

Issue: Should Springfield maintain current wetlands buffers?

Overview: Buffer areas, the upland areas adjacent to forested, riparian and aquatic wetlands, are essential to maintenance and protection of wetland functions and values. These buffer areas protect wetlands from degradation by:

- Stabilizing soil and preventing erosion
- Trapping and/or transforming pollutants such as sediments, nutrients, pathogens, and pesticides
- Moderating impacts of stormwater runoff
- Moderating system microclimate
- Providing habitat and protecting wetland wildlife habitat from adverse impacts
- Maintaining and enhancing habitat diversity and/or integrity
- Supporting and protecting wetland plant and biotic communities

Recommendation: Maintain current 100-foot buffers around wetlands to ensure water quality; maintain 660-foot buffer around McDaniel's Marsh to ensure water quality and wildlife habitat; add a 50-foot "no-disturb" buffer around naturally occurring vernal pools to ensure water quality; and provide for a reduction to a 50-foot buffer around forested wetlands where they exceed 100-feet in width, recognizing the total depth of the buffer.

Reasoning:

- Water and forests are two of the most profound natural forces on the planet, and they are closely linked. Without water, there are no forests. And without forests we are much more vulnerable to erosion and flooding.[1]
- The ability of vegetated wetland buffers to provide water quality protection increases with the size of the buffer. At 100 feet, most of the contaminants and nutrients have been removed (Chase *et al*, 1997). Protection of buffers will reduce wetland impacts by moderating the effects of stormwater runoff, including stabilizing soil to prevent erosion; filtering suspended solids, nutrients, and harmful or toxic substances; and moderating water level fluctuations.[2]

[1] Appendix H – Michael Snyder, Commissioner, VT Dep't of Forests, Parks and Recreation. Can Forests Prevent of Mitigate Floods?
[2] Appendix A – Chase et al., 1997

Recommendation

- Riparian areas make up only 1% of the landscape but support 80% of all vertebrate wildlife and more bird species than any other habitat area.[3]
- Wetland buffers designed to support wildlife may need to be much larger. Buffers also provide essential habitat for wetland-associated species for use in feeding, roosting, breeding and rearing of young, and cover for safety, mobility, and thermal protection.[4]
- There is not one optimal width for a wetland buffer. Instead, widths depend on the desired wetland functions and local conditions such as topography. A substantial body of research exists that correlates wetland buffer widths with function (NRCS, 2003; USACE, 2000; CWP &USEPA, 2005; USEPA, 2005b); there is a wide range of recommended widths for different functions as shown in the following table and graph. Regardless of the climate or contaminant, the pathway of sheet flow as opposed to channelized flow across a wetland buffer is the key variable influencing the effectiveness of capturing sediment and increasing infiltration.[5]
- Our data clearly indicate that the 15-30 meters used to protect wetland species in many states, are inadequate for amphibian and reptiles. Further, we emphasize that our estimates are derived from the core terrestrial habitats used by amphibians and reptiles and therefore are not buffers per se but necessary habitat. [6]
- Without mature, densely vegetated buffers, common runoff pollutants such as pesticides and fertilizers easily find their way into and degrade receiving waters [7]
- The effectiveness of wetland buffers varies by function and depends on a number of factors including vegetation, width, length, and landscape setting, but generally speaking, the wider the buffer, the more effective it will be.[5]

Specification: Amend Section 4.12 Wetland Buffers – add vernal pool buffer and reduce buffer size in certain circumstances - see Draft Ordinance with Changes

[3] Natural Resources Conservation Service
[4] Appendix A – NH Office of Energy & Planning
[5] Appendix C – City of Boulder and Biohabitats, Inc.
[6] Appendix C - Semlitsch, R. D. and J. R. Bodie., 2003
[7] Appendix C - Miltner, et al., 2004