

Appendix C

Biodiversity Resources

Harvard Forest digitized maps from the 1830s (mandated for many towns by the Massachusetts legislature) show areas forested in the 1830s, areas of Possible Primary Forest, untilled woodlots and wooded pastures. Such lands have greater biodiversity than areas that have been tilled. These are not Old Growth, they have been harvested and pastured, but the ground may not have been tilled. NHESP GIS staff has taken data from the Harvard Forest maps and combined them with information from MassGIS' landcover datalayer made from 1999 aerial photos. NHESP notes that although activity will likely have occurred in those areas in the time between the map dates, some areas that were forested in both times won't ever have been tilled. Surveys of the soil structure in the individual sites are necessary to determine whether those sites are primary forest. The importance of primary forest is that such sites retain more native biodiversity than sites that have been tilled: soil fauna and flora, microorganisms and plants that reproduce primarily vegetatively contribute to the higher biodiversity. In addition, a variety of species of wildflowers are more common in untilled forests than previously tilled lands. The areas of 1830s forest on private land would be good targets for conservation acquisition to maintain the biodiversity of the Byway communities and the region.¹

BioMap and Living Waters Report—produced with data from 2001 and 2003 by NHESP—identifies the areas of most importance for biodiversity conservation planning. These identified areas are based on known locations of rare species and uncommon natural communities, and incorporate the habitats needed by rare species to maintain the local populations. *BioMap* focuses on species of uplands and wetlands while *Living Waters* focuses on aquatic species. *BioMap* and *Living Waters* represent the sum total of viable rare plant habitat, viable rare animal habitat, and viable exemplary natural communities (NHESP). *BioMap* “Supporting Natural Landscapes” are the most intact lands adjacent to and near “Core Habitat” areas. These lands provide linkages between habitats, buffer “Core Habitat,” and are thought to contain rare species not yet discovered. NHESP has recommended that large unfragmented conservation land provides the best opportunities to maintain populations of species and limit further

¹ The Harvard Forest website contains information on the 1830s forest datalayer and copies of papers with discussion of the information.

<http://harvardforest.fas.harvard.edu/data/p01/hf014/1830readme.html>

Harvard Forest. 2002. 1830 Map Project. Harvard Forest Archives, Petersham, MA.

Hall, B., G. Motzkin, D. R. Foster, M. Syfert, and J. Burk. 2002. *Three hundred years of forest and land-use change in Massachusetts, USA*. *Journal of Biogeography* 129: 1319-1135.

species loss from Byway communities. Land protection by towns that ties in with open space in other municipalities, and other protected open space, public or private is one way to provide important large areas of biodiversity protection. ²

Priority and Estimated Habitats Maps— are regulatory. Priority Habitats are drawn for *all* rare species, while Estimated Habitats are a subset that focus on habitat of rare wetlands wildlife. The maps are updated regularly so they include of the most recently identified rare species areas. The *BioMap* and *Living Waters* reports, in contrast, are static (data from 2001 and 2003). The Priority and Estimated Habitat maps are provided to Conservation Commissions and shown in reduced form in the Natural Heritage Atlas. ³

² BioMap and Living Waters core areas report can be downloaded from the NHESP website at <http://www.mass.gov/dfwele/dfw/nhesp/nhtwnreports.htm> .

BioMap and Living Waters polygons are also available from MassGIS at <http://www.mass.gov/mgis/biocore.htm> and <http://www.mass.gov/mgis/lwcore.htm>

³ These data layers are also available from MassGIS, requiring access to some form of GIS to view them, at <http://www.mass.gov/mgis/wethab.htm> and <http://www.mass.gov/mgis/prihab.htm>.