Temporal changes in terrestrial biota observed through Toronto and Region Conservation Authority's Natural Channel Design Monitoring Program 2-15 years post-restoration

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Creating a riparian corridor with native and diverse vegetation that supports terrestrial habitat equivalent to that of an undisturbed corridor in similar surroundings is typically one of the objectives of stream rehabilitation projects where a Natural Channel Design approach has been applied. Data collected at 13 Natural Channel Design sites in the Greater Toronto Area over a 10 year period were used to characterize the vegetation, breeding bird and amphibian communities at each site and identify temporal trends as the restoration sites matured, including 1) temporal changes in vegetation communities (wetland, meadow, aquatic), percent native flora species, degree of exotic invasion, avian habitat use and frog species richness, and 2) relationships between site size, the number of years post-restoration and vegetation, flora and fauna communities. Natural Channel Design sites, in general, shifted from more terrestrial natural cover to more wetland and aquatic natural cover types. There was a corresponding shift in breeding bird communities to more wetland-associated species likely as a result of the change in natural cover type. Designs that included wetland features and allowed the stream to interact with its floodplain, in addition to beaver activity, contributed to this increase in urban wetland habitat. Larger sites contained more flora and fauna species and species of regional concern and this is likely due to a greater diversity of vegetation community types. These results suggest that maintaining and rehabilitating stream channels in urban areas provides habitat for flora and fauna species of urban and regional concern, and that larger natural areas within the urban matrix allow space for more species.