**Catskill Nutrient Cycling Plots**

*Soil Sampling Methods, Watershed Codes, and Plot Locations*

Methods

We studied five of the most dominant species: sugar maple (*Acer saccharum* Marsh), American beech (*Fagus grandifolia* Ehrh.), yellow birch (*Betula alleghaniensis* Britton), eastern hemlock (*Tsuga canadensis* (L.) Carr) and northern red oak (*Quercus rubra* L.). For brevity, henceforth we refer to these species as maple, beech, birch, hemlock, and oak, respectively. For each species we chose six pairs of monospecific plots located throughout the central Catskills in a region of about 60 x 60 km roughly centered on 42o07’ N and 74o15’ W (Fig. 1). For each species, plots were chosen in three different watersheds to encompass spatial variation across the Catskill region. The single-species plots were chosen within mixed-species stands with the following criteria estimated by observation in the field: 1) >90% dominance of the canopy by mature trees of the target species, 2) pure or nearly pure litter composition from target species, and 3) no evidence of recent disturbance such as logging or fire. Each plot was 12 m in diameter, and measurements of soil and focal trees were made within the inner 6 m diameter circle to avoid edge effects. The inner 6 m circle included two or three canopy dominant trees. The plots were chosen in pairs, with the two plots of each pair located within about 20 m of each other. Nitrogen was added to one plot of each pair and the other plot was left untreated as a control. Thus there were 60 plots in total: 5 species x 2 N treatments x 6 replicates. Nitrogen was added to the forest floor of the full 12m diameter treatment plot as granular NH4NO3 four times per year (June, July, August and November) starting in November 1997. The total annual dose was equivalent to 50 kg N ha-1 y-1. Both N-treated and control plots also received the ambient N deposition of approximately 9 kg Nha-1 y-1 (see above).

Soil properties were measured on four soil samples per plot collected in July of 1998, 2000 and 2003. Fresh litter was brushed away, and a soil core was taken to a depth of 12 cm from the surface unless a rock or large root obstructed. The core was separated into two samples representing organic (Oe + Oa) and mineral (A and/or B) horizons. The 12-cm core generally included the entire organic horizon and a variable depth of mineral soil. In cases where mineral soil was not encountered at a depth of 12 cm, the core was deepened until a mineral horizon was reached and a sample was taken from approximately the top 5 cm of the mineral soil, and this sample was used for chemical comparisons but not for calculations of soil mass to 12 cm depth. This sampling procedure permits comparison of soil chemistry for the forest floor (Oe and Oa horizons) and upper mineral soil. It also permits comparison of the mass and C and N pool sizes for two depth categories: (1) forest floor, and (2) total mass to 12 cm, including the forest floor and whatever depth of mineral soil was encountered to the 12 cm depth. It does not allow direct comparisons of mineral soil mass or pool sizes because the depth of the sampled mineral soil varied among plots, therefore we do not report mineral soil mass results below. A subsample of soil was dried, ground, and analyzed for C and N concentration by dry combustion on a Leco CN2000 or a CE Elantech element analyzer.

Watershed Codes and Species

BB: Biscuit Brook; Maple, Beech, Birch and Hemlock plots

BK: Batavia Kill; Oak plots

CL: Colgate Lake; Oak plots

KB: Kanape Brook; Oak plots

DN: Diamond Notch; Maple and Beech plots

RO: Rondout; Maple, Beech, Birch and Hemlock plots

PR: Prediger Road; Birch and Hemlock plots

Plot Locations and elevations

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| **Catskill Nutrient Cycling Plot Locations and Elevations (Lovett, Weathers, Arthur)** | | | | | | |
|  |  | \*Post Processed Trimble GPS readings; WGS 84 datum | | |  |  |
| **Watershed** | **Species** | **Site** | **Lat** | **Long** | **Elev (ft)** |  |
| BB | B | 1 | N 41 59 46.49206 | W 74 29 32.86626 | 2321 |  |
| BB | B | 2 | N 41 59 40.33382 | W 74 29 42.12050 | 2208 |  |
| BB | H | 1 | N 41 59 39.51262 | W 74 30 00.27676 | 2000 |  |
| BB | H | 2 | N 41 59 32.13266 | W 74 30 02.92686 | 1988 |  |
| BB | M | 1 | N 41 59 36.72664 | W 74 29 55.34350 | 2175 |  |
| BB | M | 2 | N 41 59 46.49206 | W 74 29 32.86626 | 2321 |  |
| BB | Y | 1 | N 41 59 46.00874 | W 74 29 52.87199 | 2000 |  |
| BB | Y | 2 | N 41 59 50.92834 | W 74 29 48.01985 | 2000 |  |
| BK | O | 1 | N 42 17 47.28801 | W 74 07 06.45723 | 2608 |  |
| BK | O | 2 | N 42 17 47.28801 | W 74 07 06.45723 | 2590 |  |
| CL | O | 1 | N 42 14 15.11798 | W 74 07 02.74233 | 2100 |  |
| CL | O | 2 | N 42 14 15.11798 | W 74 07 02.74233 | 2100 |  |
| DN | B | 1 | N 42 09 29.07236 | W 74 15 27.09250 | 2430 |  |
| DN | B | 2 | N 42 09 31.72119 | W 74 15 21.98958 | 2600 |  |
| DN | M | 1 | N 42 09 28.90206 | W 74 15 38.38651 | 2175 |  |
| DN | M | 2 | N 42 09 16.77845 | W 74 15 44.99491 | 2120 |  |
| KB | O | 1 | N 41 55 12.67904 | W 74 18 25.02658 | 1695 |  |
| KB | O | 2 | N 41 55 07.69608 | W 74 18 17.89315 | 1710 |  |
| PR | H | 1 | N 42 07 25.84403 | W 74 06 10.01905 | 2495 |  |
| PR | H | 2 | N 42 07 25.84403 | W 74 06 10.01905 | 2495 |  |
| PR | Y | 1 | N 42 07 07.49222 | W 74 06 59.52468 | 3130 |  |
| PR | Y | 2 | N 42 07 11.05953 | W 74 07 09.37068 | 2890 |  |
| RO | B | 1 | N 41 56 34.31034 | W 74 21 55.62257 | 1720 |  |
| RO | B | 2 | N 41 56 30.90 | W 74 23 24.12 | 2350 |  |
| RO | H | 1 | N 41 56 29.18624 | W 74 22 06.67004 | 1730 |  |
| RO | H | 2 | N 41 56 25.38 | W 74 23 19.02 | 2300 |  |
| RO | M | 1 | N 41 56 21.43047 | W 74 22 17.55440 | 1810 |  |
| RO | M | 2 | N 41 56 15.15065 | W 74 22 22.14807 | 1700 |  |
| RO | Y | 1 | N 41 56 29.18624 | W 74 22 06.67004 | 1840 |  |
| RO | Y | 2 | N 41 56 21.43047 | W 74 22 17.55440 | 1590 |  |