FACTORS AFFECTING SOIL TOTAL MERCURY, CARBON AND NITROGEN DISTRIBUTIONS IN SEASONAL POND BASINS WITHIN A NORTHERN HARDWOOD FOREST IN MINNESOTA, USA

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Factors affecting soil total mercury, carbon and nitrogen distributions in seasonal pond basins within a northern hardwood forest in Minnesota, USA

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The Supervisory Committee certifies that this ***disquisition*** complies with North Dakota State University's regulations and meets the accepted standards for the degree of

MASTER OF SCIENCE

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ABSTRACT

Forests are sites for mercury deposition, where accumulation in aquatic environments can occur. Soil total mercury (THg), C and N to 15 cm were studied in ten seasonal pond basins in a northern hardwood forest (Minnesota, USA). Pools and concentrations of THg were lower in uplands than in ponds, indicating downslope transport or differential deposition. In uplands, THg concentrations were the same in 0-2 and 2-5 cm depths and then decreased, whereas density peaked in 2-5 cm, highlighting the importance of bulk density on mass. Carbon and N trends were similar to THg. Apart from pond centers, strong positive relationships between THg and C were observed. Upland slope length, graminoid cover, basin area and tree height accounted for over half of THg variance at pond edge. Understanding the distribution, trends and contributing factors of soil THg can further efforts toward immobilization and sequestration, thus minimizing the potential for bioaccumulation.

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INTRODUCTION

Mercury inputs to forested watersheds contribute to Hg accumulation in aquatic environments (Burns et al., 2012; Grigal et al., 2000; Johansson et al., 1991; Wiener at al., 2006), which is well documented in the Great Lakes region (Mohapatra et al., 2007; Monson et al., 2011; Rasmussen et al., 2007; Simonin et al., 2008). Anaerobic conditions in aquatic environments can be favorable for conversion of inorganic Hg into biologically available organic forms, such as monomethylmercury and dimethylmercury, that readily bioconcentrate and biomagnify up the food chain (Chasar et al., 2009; Rolfhus et al., 2011; Scheuhammer et al., 2007). In Minnesota, fish consumption advisories have been issued for lakes statewide on account of high concentrations of methylmercury (MeHg) in fish tissues (USEPA, 2011).

Much of the Hg cycling through the environment (Figure 1) begins with natural and anthropogenic discharges of elemental (Hg^0), particulate (Hg-p) and reactive gaseous species (Hg(II)) into the atmosphere (Schroeder and Munthe, 1998). In the atmosphere, Hg-p and Hg(II) are generally transported locally (Lindberg and Stratton, 1998), while Hg^0 can be transported globally (Fitzgerald, 1995). Dry deposition onto the landscape occurs as Hg-p and Hg(II) settle out of the atmosphere, Hg^0 is taken up by foliage, or any species is added to soils via litterfall (Laacouri, et al., 2013; Rea et al., 2000). Wet deposition occurs with precipitation, and as Hg is washed off of vegetation as throughfall and stemflow (Iverfeldt, 1991; Kolka et al., 1999; Rea et al. 2000, 2001; Schroeder and Munthe, 1998). In general, upland soils act as sinks for Hg (Grigal et al., 2000; Kolka et al., 2001), though it can be transported with runoff (Selvendiran et al., 2008a). Once in aquatic environments, Hg can settle into sediments (Balogh et al., 1999; Marvin et al., 2004; Parsons et al., 2010) and/or be converted into MeHg and taken up by organisms (Driscoll et al., 2007; Ravichandran 2004; Shroeder and Munthe, 1998). At any point in the terrestrial or aquatic portions of the Hg cycle, some Hg may be volatilized back into the atmosphere as Hg^0 (Grigal, 2002; Schwesig and Krebs, 2003).

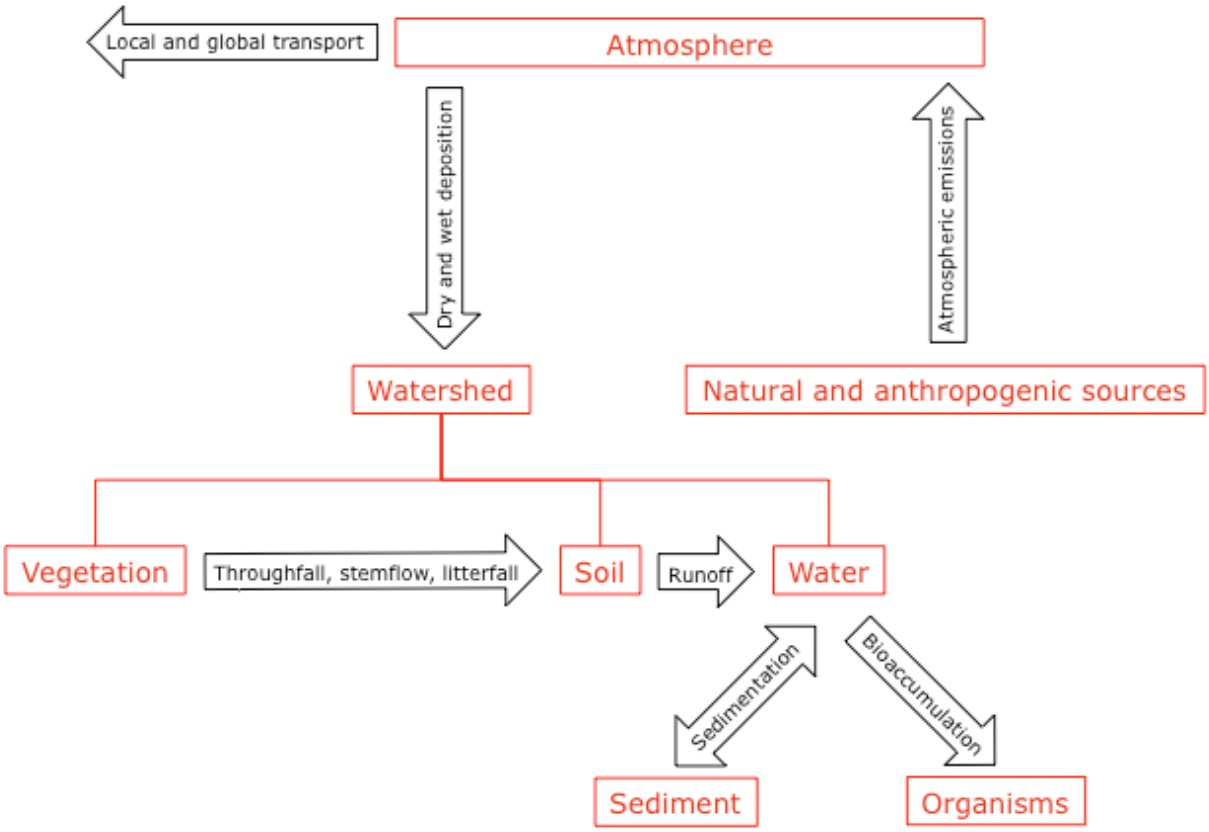

Figure 1. Conceptual schematic of watershed Hg cycling.

Natural releases of Hg occur via weathering of ores, and geothermal and volcanic emissions (Pirrone et al., 2010). However, human activity is responsible for nearly tripling the amount of Hg in the environment in the past century (Fitzgerald, 1995). Anthropogenic sources of Hg can be attributed to both point source discharges and atmospheric emissions. Major point sources in the Great Lakes region, such as pulp and paper mills and chlor-alkali plants, have been curtailed as evidenced by a reduction in Hg concentrations in lake sediments (Balogh et al., 1999; Marvin et al., 2004; Parsons et al., 2010). Currently, major sources of atmospheric emissions worldwide include coal-fired power plants, manufacturing processes and waste incineration (Pirrone et al., 2010). While Hg emissions in the United States declined by approximately 75% between 1990 and 2008 due to the Clean Air Act and related regulations (USEPA, 2012), from 2008 to 2013 many areas in the United States saw increased concentrations of Hg in precipitation, including the upper Midwest, on account of

heightened emissions outside of North America (Weiss-Penzias et al., 2016). Due to its high volatility, Hg in the atmosphere can be transported long distances from its source (Lindqvist et al., 1991) and as such, atmospheric deposition has been implicated in the contamination of remote water bodies (Fitzgerald et al., 1998; Swain et al., 1992).

Most Hg in the forest canopy is derived from the atmosphere, as opposed to root uptake from soils (Bishop et al., 1998; Ericksen et al., 2003; Lindberg et al., 1979; Rea et al., 2002). Several studies have indicated that most Hg accumulated in leaf tissues comes from outside atmospheric sources rather than Hg that has been volatilized locally from the soil (Frescholtz et al., 2003; Millhollen et al., 2006; Rea et al., 2002; St. Louis et al., 2001). Forest ecosystems are important recipients of dry deposition on account of their large canopy surface areas that can interact with the atmosphere (Johnson et al., 2007; Miller et al., 2005; Munthe et al., 1995; St. Louis et al., 2001). Dry deposition occurs via adhesion to surfaces or absorption into leaf tissue through stomata (Laacouri, et al., 2013). Coniferous stands are more efficient at scavenging Hg from the atmosphere than deciduous stands due to a higher leaf surface area (Witt et al., 2009).

Mercury adsorbed to surfaces has the potential to be washed off by precipitation and become a throughfall input to soils below (Iverfeldt, 1991; Kolka et al., 1999; Rea et al. 2000, 2001; Schroeder and Munthe, 1998). Because of their greater scavenging efficiency, throughfall inputs to soils are greater in coniferous forests compared to deciduous stands (Witt et al., 2009). Evasion of Hg from vegetation may occur, whereby elemental Hg volatilizes back into the atmosphere (Schwesig and Krebs, 2003). Litterfall transfers Hg stored in and on leaf tissues from the canopy to the forest floor (O horizon), which is generally the largest input to forested watersheds (Rea et al., 2000). Deciduous stands produce larger inputs of litterfall to the forest floor than coniferous stands (Ericksen et al., 2003; Demers et al., 2007), where such dry deposition often accounts for a majority of inputs as opposed to wet deposition (Cohen et al., 2004; Demers et al., 2007; Miller et al., 2005; Rea et al., 2002; Risch et al, 2011; Sheehan et al., 2006; St. Louis et al., 2001).

Once senesced, leaves become part of the forest floor and may contribute Hg to soils (Ericksen et al., 2003). Other inputs to soils include direct dry and wet deposition from the atmosphere (Grigal, 2003). Soils contain up to 90% of Hg in forested landscapes, with the remainder contained within vegetation (Ericksen et al., 2006; Schroeder and Munthe, 1998). While inputs from above result in high Hg concentrations within the forest floor (Arfstrom et al., 2000; Friedli et al., 2007; Matilainen et al., 2001), four to five times the mass of Hg occurs within underlying mineral soils (Grigal, 2003). Concentrations and pools of total Hg (THg) in Minnesota forest floors range from 30 to 448 ng g^{-1} and 0.25 to 1 mg m^{-2}, respectively, with underlying mineral soil concentrations ranging from 10 to 350 ng g^{-1} and pools from 2.9 to 5.5 mg m^{-2} (Table 1).

Table 1. Total Hg (THg) pools and concentrations in Minnesota forest soils.

Location	Sample	THg	THg	Reference
		mg m^{-2}	ng g^{-1}	
Cedar Creek Natural History Area	Oi and Oe horizons	0.33	142.92	Grigal et al., 1994
	Mineral soil to 10 cm	2.9-5.4	29-83	
Marcell Experimental Forest	Forest floor	-	82.4	Grigal et al., 2000
	Mineral soil to 25 cm	-	17.9	
	Forest floor and mineral soil to 25 cm	5.25	-	
	Organic soil (peat) to 35 cm	3.9	44.5	
Superior National Forest	Forest floor	0.40	-	Kolka et al., 2014
	Mineral soil to 10 cm	3.13	-	
	Mineral soil 10 to 20 cm	4.05	-	
Superior National Forest	Forest floor	0.25-1	75-225	Mitchell et al., 2012
	Mineral soil to 10 cm	1-8	15-75	
Central Minnesota	Forest floor	0.8	125	Nater and Grigal, 1992
	Mineral soil to 10 cm	5.5	23	
Voyageurs National Park	Forest floor	-	246-448	Wiener et al., 2006
	A horizon	-	58-256	
Boundary Waters Canoe Area Wilderness	Forest floor	-	30-290	Woodruff and Cannon, 2010
	A horizon	-	10-350	

Upland soils are often sinks for Hg (Grigal et al., 2000; Kolka et al., 2001), largely due to the affiliation between Hg and organic matter (Grigal et al., 1994; Hurley et al., 1995; Yin et al., 1997) because Hg can form stable bonds with sulfur (S), carbon (C) and

nitrogen (N) (Meili, 1991). Immobilization of Hg in forest soils has been attributed to significant binding to the humic fraction of organic matter, which is the most decomposed form (Schwesig et al., 1999). Humic organic matter is the dominant form in the mineral layer (Gladkova and Malinina, 1999; Grigal et al., 1994). Accumulation of Hg in soils is linked to decomposition of plant detritus (Gladkova and Malinina, 1999) and thusly, transformations of C and N as organic matter decomposes. Correlations between soil Hg with both C and N have been reported, with some finding a stronger relationship between Hg and N compared to Hg and C (Gunda and Scanlon, 2013; Obrist et al., 2009). Obrist et al. (2009) attributes the stronger correlation of Hg and N to Hg binding to ligand-containing nitrogen groups. The correlation of the accumulation of both Hg and N in the forest floor has also been attributed to microbial immobilization that results in an increase of reduced S groups, to which Hg binds (Demers et al., 2007). Similarly, correlation of Hg with total C has also been linked to reduced S groups in organic matter (Selvendiran et al., 2008b). In addition to C, N and S, the accumulation of Hg has been linked to other soil characteristics, such as texture, cation exchange capacity and pH (Navrátil et al., 2014; Obrist et al., 2009; Schwesig et al., 1999).

Mercury that is not sequestered in the soil can be transported elsewhere. Like vegetation, some Hg in the soil is volatilized back into the atmosphere (Grigal, 2002), which can depend on sunlight (Gustin et al., 2002), soil pH, and content of clay and soil organic matter, factors that affect binding sites and how tightly Hg is bound to the soil (Schlüter, 2000). A minor amount of Hg in soil is taken up by plant roots and either incorporated into plant tissues or released through transpiration (Bushey et al., 2008). Mercury can also be lost to the atmosphere during fire events (Amirbahman et al., 2004; Kolka et al., 2014). Finally, Hg can be transported from upland soil to locations downslope (Bushey et al., 2008).

Like vegetation and soils, aquatic environments can receive direct wet and dry deposition from the atmosphere, though a majority of inputs come from the adjacent

landscape (Grigal et al., 2000). Mercury transport is largely associated with that of dissolved organic carbon (Bishop et al., 1995; Dittman et al., 2010; Riscassi and Scanlon, 2011; Selvendiran et al., 2008a) and dissolved organic matter (Ravichandrin, 2004) that is mobilized during high water flow events

Once in aquatic systems, Hg can be stored in sediments, volatilized into the atmosphere (Selvendiran et al., 2008b), or transformed into biologically available MeHg and potentially enter the food chain (Driscoll et al., 2007; Ravichandran 2004; Shroeder and Munthe, 1998). Many factors have been shown to affect Hg concentrations in lakes, including forest coverage and land use (Grigal, 2002; Hurley et al., 1995; Munthe et al., 2007; Sorensen et al., 1990; St. Louis et al., 1996), catchment area to lake area ratio (Drevnick et al., 2011), proportion of wetlands within catchments and distance of wetlands to lakes (Driscoll et al., 1995; Kolka et al., 1999), and connectivity of wetlands to stream water (Selvendiran et al., 2008b).

Wetlands are a particular type of aquatic resource that occur where the water table is at, near or slightly above the ground surface, which gives rise to hydrophytic vegetation and hydric soils (Environmental Laboratory, 1987). Wetlands provide several ecosystem services, including hydrologic flux and storage, biological productivity, biogeochemical cycling and storage, decomposition, and community/wildlife habitat, which contribute to societal values such as flood and erosion control, water quality, recreation, and resource production (Richardson, 1994). In particular, wetlands are sites where elements such as Hg, C, N, and S are stored, mineralized, transformed, and/or lost (Richardson, 1994). Because of their tendency to foster anoxic conditions and accumulate organic matter, wetlands are often sites of MeHg production (Grigal, 2003).

Methylmercury within wetlands has the potential to bioconcentrate in organisms that utilize those habitats and higher trophic levels (Ackerman et al., 2010; Driscoll et al., 2007; Turnquist et al., 2011), and despite that wetlands generally filter pollutants to improve water quality, several studies have found wetlands to be sources of MeHg downstream

within catchments (Rencz et al., 2003; Selvendiran et al., 2008b; St. Louis et al., 1996). The amount of MeHg exported from wetlands has been tied to dissolved organic carbon concentrations, which wetlands export downstream and to which MeHg and Hg bind (Rencz et al., 2003), as well as wetland hydrology, where higher water yields correlate to higher MeHg across various wetland types (St. Louis et al., 1996). Export of MeHg from wetlands through shallow groundwater lakeward has also been documented (Branfireun et al., 2005). The sink/source relationship observed between wetlands and THg has been variable, but at minimum the potential for wetlands to act as a source exists given large THg pools in wetland soils (Selvendiran et al., 2008b).

Forested landscapes are able to scavenge Hg from the atmosphere, and Hg deposited into the soil in these systems has the potential to accumulate in wetlands and other aquatic environments where it can become biologically available. Understanding the distribution of soil Hg in the landscape, and how and why distribution changes over time is essential for efforts aiming to sequester Hg and prevent it from entering aquatic environments. The objectives of this study were to 1) characterize the distribution of THg in the soil across landscape position and profile depth, 2) examine upland characteristics that contribute to the downslope accumulation of THg, and 3) investigate relationship of soil THg between C and N in soils in seasonal pond (wetland) basins within a northern hardwood forest.

MATERIALS AND METHODS

Site Characterization

The 20 ha study area is located about 60 km northwest of Grand Rapids, MN, USA, in the Chippewa National Forest (47.692275 N, −93.780926 W). This area is situated within the Northern Minnesota Drift and Lakes Plain Section, where the loamy till parent material was deposited throughout multiple glaciation events that left behind outwash plains and end, stagnation, and ground moraines (Hanson and Hargrave, 1996). Upland soils within the study area are mapped as Warba (fine-loamy mixed superactive frigid Haplic Glossudalfs) (Soil Survey Staff, 2012a; Soil Survey Staff, 2012b) in a landscape with 0-33% slopes and many depressional vernal and permanent wetlands. These vernal and permanent wetlands are not mapped; however, ponded map units adjacent to the study area are mapped as Seelyeville (euic, frigid Typic Haplosaprists) with 0-1% slopes (Soil Survey Staff, 2016a; Soil Survey Staff, 2016b). The climate is continental with a growing season from May to September. Between 1971-2000, the mean annual precipitation was 73.1 cm and mean annual temperature was 4.22^{o}C (Midwestern Regional Climate Center, 2012). The area is classified as "birch" and "hard maple/basswood" forest (Appendix A) dating from 1944 and 1929, respectively, with no fire or harvest treatments on record (A. Gustafson, District Silviculturist, Chippewa National Forest, personal communication, 2011). The study area was dominated by quaking and bigtooth aspen (*Populus tremuloides* and *Populus grandidentata*, respectively), basswood (*Tilia americana*), sugar maple (*Acer saccharum*), paper birch (*Betula papyrifera)* and black ash (*Fraxinus nigra*).

Twenty-six ponds were identified in the study area during scoping visits in spring 2011. Of these, 10 seasonal pond basins were identified that appeared to have no surface water connection to other ponds, although groundwater connections may exist (Figure 2). All 10 ponds exhibited the hydric soil, hydrophytic vegetation and indicators of hydrology indicative of wetlands. The pond basins are situated adjacent to Elm Lake and Little Round Lake.

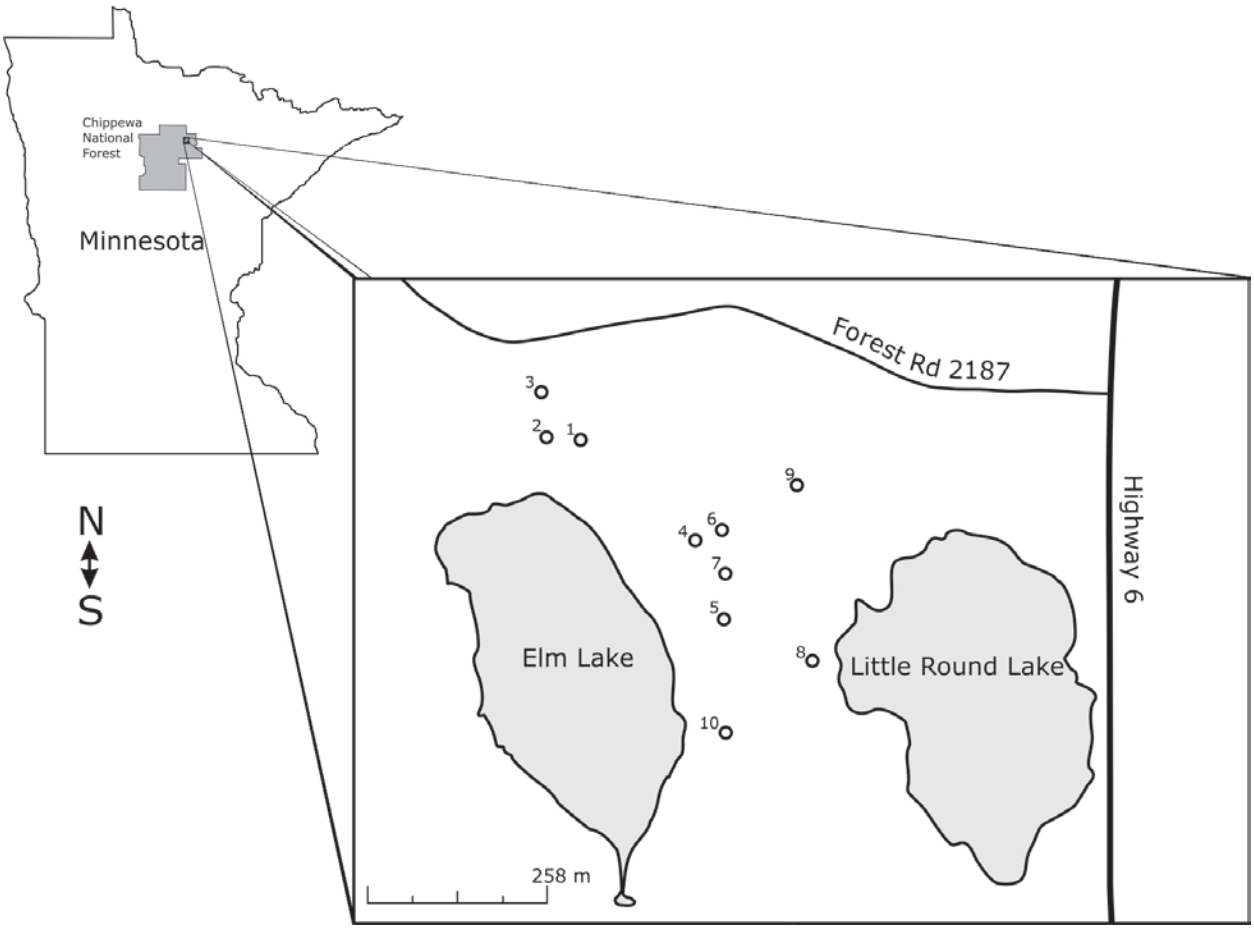

Figure 2. Study area and seasonal pond locations.

The ten basins chosen ranged in size from 730 to 6,300 m^2, with ponds ranging from 24 to 1,200 m^2 (Table 2). Mean upland slopes per basin ranged from 10.9 to 21.3% and mean slope lengths ranged from 6.54 to 28.2 meters. Ponds had either mineral or organic (peat) substrates to 15 cm, as determined by visual observation in the field and laboratory analysis of bulk density and C content. Some ponds with mineral substrates were characterized by hummock/hollow topography. In general, pond centers were dominated by black ash and paper birch and uplands were dominated by sugar maple and basswood (Table 3).

Table 2. General basin (including pond) characteristics.

Basin	Pond Center Latitude	Pond Center Longitude	Basin area	Pond area	Mean upland slope	Mean upland slope length	Pond substrate
	-----decimal degree-----		---------m^2---------		%	m	
1	47.692797	−93.783851	2,490	238	11.9	13.5	Mineral†
2	47.692841	−93.784476	895	47.3	10.9	9.18	Mineral
3	47.693429	−93.784593	6,300	951	13.4	8.38	Organic
4	47.691508	−93.781641	5,220	155	21.3	14.9	Mineral†
5	47.690498	−93.781101	4,380	1,220	17.7	12.5	Organic
6	47.691661	−93.781141	1,230	218	17.7	9.66	Mineral†
7	47.691106	−93.781081	729	23.5	11.9	6.54	Mineral
8	47.689951	−93.779432	1,660	45.3	17.4	17.1	Mineral
9	47.692223	−93.779711	3,080	223	14.1	28.2	Mineral
10	47.689029	−93.781082	4,970	144	16.3	23.5	Mineral

† Pond characterized by hummock/hollow topography.

Table 3. Mean basin (including pond) vegetation characteristics.

						Cover class midpoint							
Basin	Dominant tree species	Canopy openness	Basal area tree coverage	Tree height class midpoint	Tree diameter	Bare ground	Water	Litter /debris	Non-vascular	Graminoid	Forb	Shrub	Tree
		%	m^2 ha^{-1}	m	cm	----------%----------							
1	*Acer saccharum, Populus tremuloides, Fraxinus nigra*	6.30	32.3	15.5	36.0	1.40	19.5	94.0	5.20	10.7	21.9	7.60	85.8
2	*Acer saccharum, Betula papyrifera, Fraxinus nigra*	4.58	23.2	12.7	24.0	4.70	0.00	82.2	5.90	2.80	34.8	9.40	89.6
3	*Populus spp, Acer spp, Fraxinus nigra*	7.26	22.1	12.1	27.9	3.20	3.30	61.7	16.4	8.60	41.2	20.7	84.9
4	*Fraxinus nigra, Acer saccharum, Populus grandidentata*	7.63	31.6	20.5	25.4	7.60	12.7	79.4	4.10	3.30	11.9	19.1	88.1
5	*Acer saccharum, Tilia americana, Populus grandidentata*	10.9	23.5	17.8	28.7	4.40	29.5	73.5	5.50	13.4	33.6	23.7	80.3
6	*Fraxinus nigra, Acer saccharum, Populus grandidentata*	9.70	34.2	21.7	31.5	12.3	27.1	70.4	0.70	6.60	9.10	11.0	84.5
7	*Acer saccharum, Tilia americana, Fraxinus nigra*	7.92	35.5	19.9	29.8	8.00	24.7	77.8	0.30	7.80	20.6	37.7	84.0
8	*Acer saccharum, Tilia americana, Fraxinus nigra*	4.63	30.0	13.6	30.7	4.40	0.00	90.2	2.60	7.00	13.6	2.80	88.0
9	*Populus tremuloides, Fraxinus nigra, Betula papyrifera*	8.15	26.0	20.7	33.9	5.50	19.5	83.3	1.50	6.80	27.7	14.3	78.6
10	*Fraxinus nigra, Tilia americana, Acer saccharum*	3.22	31.3	17.4	29.6	12.7	0.00	77.3	0.20	19.4	16.5	10.3	88.8

Experimental Design

Within each of the 10 selected basins, sampling occurred at five landscape positions along five transects that started at pond center and went up to the shoulder of the immediate catchment slope (Figure 3). Landscape positions were defined as: 1 m from pond center ("pond center"), 1 m inside the high water line ("pond edge"), toe slope, midpoint of back slope ("back slope"), and at the slope shoulder ("shoulder"). The high water line was deduced by examining the extent of hydrophytic vegetation, visual observations of inundation, watermark stains on trees, drift lines, sediment deposits and water stained leaves (Environmental Laboratory, 1987).

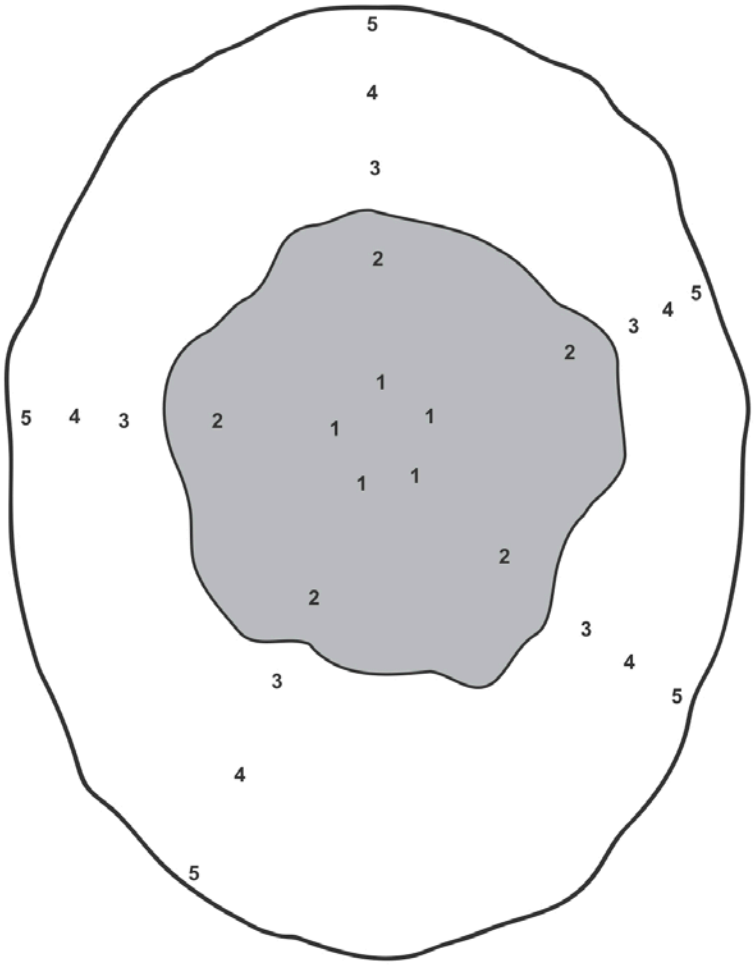

Figure 3. Sampling layout for each basin. The shaded area represents a seasonal pond and the white area represents the upland area of a catchment basin. Five transects were spaced approximately 70 compass degrees apart beginning at the center of the pond. Samples were obtained at five landscape positions: 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

Transects were laid out from pond center to the summit of the basin enclosing the pond. A randomly generated compass bearing was generated (by 10°) and transects were spaced approximately 70° apart using a magnetic compass (MB-6, Suunto, Vantaa, Finland). For example, if the random number generated was 20, the first transect would run in a direction 20° from north from pond center, with the next transect at 90°, and so on until the fifth transect was placed at 300°, leaving 80° between the fifth and first transects. If a transect fell in an area where the slope was less than 8.75% grade, the transect bearing was moved 10 compass degrees in the direction closest to a slope of at least 8.75% grade so that definite basin landscape positions could be identified and characterized.

Pond and basin area calculations were obtained using a handheld GPS unit (GPSMAP 62st 010-00868-02, Garmin International, Inc., Olathe, KS). The upland slope angle of each transect from pond edge to hill summit was recorded using a clinometer (PM-5/360PC, Suunto, Vantaa, Finland). Each sample location was marked on the GPS with a waypoint to obtain the elevation and coordinates. Sample locations were marked with flagging tape for identification during follow-up visits. The distance from pond edge to each sampling location was measured using a rangefinder (RX-600, Leupold, Beaverton, OR). Supplementary sampling location data is presented in Appendix B.

Soil Sampling

Soil samples were taken during June and July 2011 using a 3.12 cm diameter stainless-steel T-handled core sampler (PN012, JMC, Newton, IA). Prior to sampling, large debris (e.g., twigs and leaves) was cleared from the sampling location. To obtain a representative sample, a composite sampling technique was employed whereby five 0-5 cm and three 5-15 cm cores were collected from each sample location. The cores were cut with a stainless steel knife into four increments: 0-2, 2-5, 5-10, and 10-15 cm. Like-depth increment sections were collected into 15.2 cm^2 4 mil reclosable polyethylene bags (MGRL4PH0606, Minigrip, Kennesaw, GA). Equipment was wiped clean (Kimwipes EX-L, Kimberly-Clark Corporation, Roswell, GA) between cores and rinsed with 4:1

methanol:water solution between sample locations. Samples were kept on ice in coolers until they could be refrigerated at 3 °C. After being weighed and homogenized by hand, samples were stored frozen at -15 °C.

A subsample of thawed soil was weighed, oven dried at 105 °C for a minimum of 24 h, and weighed again to determine gravimetric water content. A second subsample was air dried for use in THg, C, and N analysis. These subsamples were air dried for a minimum of 96 h on food grade cellophane (916SC, Reynolds, Richmond, VA). The air dry samples were ground with a porcelain mortar and pestle, passed through a 1 mm stainless steel sieve, and then stored in 96 cm^2 2 mil reclosable polyethylene bags (MGRL2P0305, Minigrip, Kennesaw, GA). Grinding and sieving equipment was rinsed with deionized water before and after with a 5% nitric acid solution, and then rinsed with 4:1 methanol:water solution before being allowed to air dry between samples. A subsample of air-dried soil was oven dried at 105 °C for a minimum of 24 h to determine gravimetric water content for moisture corrections.

Total Hg analysis was done using a direct mercury analyzer (DMA-80, Milestone Inc., Shelton, CT) following EPA method 7473 (USEPA, 2009). Total C and N elemental analyses were done by high temperature combustion using a LECO TruSpec CHN Analyzer (200-290, LECO Corporation, St. Joseph, MI). A mineral soil calibration was initially used for all samples during C and N analysis and samples with C concentrations greater than 12% were re-analyzed using an organic material calibration. Supplementary soil data is presented in C.

Vegetation Assessment

Vegetative characteristics, including canopy closure, basal area of trees, predominant species, and ground cover, were recorded at each soil sampling location during peak coverage, between July 31 and August 21, 2011 (Table 3). Canopy closure was determined by averaging concave spherical densiometer (Model C, Forest Densiometers, Bartlesville, OK) readings taken in each of the four cardinal directions. A 10 factor wedge prism (59025, Jim-Gem, Jackson, MS) was used to quantify basal area of trees greater than 2.5 cm

diameter at 1.5 m above the ground surface. The species, diameter and height class estimate of each of these trees was recorded. A 1 m^2 quadrat was placed on a randomly determined side (along the same contour) of each soil sampling location at a distance of 1.5 m to avoid the area disturbed by sampling. For vegetation rooted in or overhanging the quadrat, the five most prevalent species were recorded along with their Daubenmire cover class (<5, 5-25, 25-50, 50-75, 75-95, 95-100%) (Daubenmire, 1959) and primary height class estimate (<0.5, >0.5-2, >2-5, >5-15, >15-30, >30 m) (USEPA, 2011). Ground cover type within the quadrats was also recorded using Daubenmire classes for the following categories: bare ground, water presence (with depth, if any), litter/debris, non-vascular vegetation (bryopsida and sphagnum mosses), graminoids, forbs, shrubs and trees (modified from USEPA, 2011). Supplementary vegetation data is presented in Appendix D.

Calculations and Statistical Analyses

Soil bulk density for each depth increment collected was calculated by dividing the oven dry corrected weight of the sample by the volume sampled. The weighted averages of bulk densities per increment were summed to calculate the bulk density for the entire 15 cm sampled. The mean bulk density (0-15 cm) per landscape position across ponds ranged from 0.108 to 1.55 g cm^{-1}, with a mean of 1.03. Due to the wide range of bulk densities observed across landscape positions and depth increments, and that organic matter and bulk density are inversely related, one may observe high concentrations of elements such as THg, C and N, yet calculate small pools, and vice versa (Grigal et al., 1994; Navrátil et al., 2014; Juillerat et al., 2012); therefore, pools or densities are presented alongside concentrations to standardize comparisons.

Total Hg, C, and N pools for each depth increment were calculated using the equation

$$S_i = x \cdot \rho_b \cdot h \cdot f \quad [1]$$

where S_i is the pool of THg (mg m^{-2}), C (kg m^{-2}) or N (kg m^{-2}) of the depth increment *(i)*; x is the concentration of THg (ng g^{-1}), C (%) or N (%) in the depth increment; ρ_b is the bulk density (g cm^{-3}) of the increment; h is the height (cm) of the increment; and f is the unit conversion factor for THg (0.01), C (0.1) and N (0.1) (modified from Mishra et al., 2009). To standardize comparisons among depth increments of varying heights, THg, C and N densities for each increment were calculated using the equation by multiplying the respective concentration by the corresponding bulk density.

The weighted average of increments was calculated for THg, C, and N pools for the entire 15 cm sampled using the equation

$$S_{0\text{-}15\,cm} = \sum_{i=1}^{n}\left(x \cdot \rho_b \cdot h \cdot f\right) \quad [2]$$

where $S_{0\text{-}15}$ is the pool of THg (mg m^{-2}), C (kg m^{-2}) or N (kg m^{-2}) per entire 0-15 cm core, *n* is the number of increments (4), and *i* is the depth increment (modified from Mishra et al. 2009). A similar process was utilized to obtain THg, C and N concentrations (ng g^{-1}, % and %, respectively) for the entire 15 cm sampled, whereby the weighted percent of each increment were summed for each sampling location. Carbon to N ratios were calculated for each increment and for the entire 0-15 cm sampled by taking the respective pool of C divided by the pool of N.

Statistical analyses were done using SAS software, Version 9.2 of the SAS System for Windows (SAS Institute Inc., Cary, NC, USA, 2008). All code used for statistical analysis is presented in Appendix E. For all statistical analyses, an alpha level of 0.05 was considered as indicative of differences.

Simple linear regression was conducted to examine relationships between THg and C pools (mg m^{-2} and kg m^{-2}, respectively) and concentrations (ng g^{-1} and %, respectively) for 0-15 cm data, and concentrations and densities (ng cm^{-3} and g cm^{-3}, respectively) for incremental data. Linear regression was repeated for all landscape positions together, pond

center alone, and all remaining landscape positions apart from pond center. While residual plots for some of the regressions were not ideal, regressions were retained to demonstrate variability across landscape positions and basins.

Generalized linear mixed models (GLIMMIX procedure) were used to generate Tukey groupings to compare least squares means (LS-means) of THg, C and N pools, densities and concentrations, and C:N among basins, landscape positions and depth increments where the main effects were basin, landscape position, or depth increment. To account for pseudoreplication (Hurlbert, 1984), concentrations, pools and densities from like-landscape positions and like-depth increments (where applicable) within each basin were averaged; however, across and within basin comparisons lacked sufficient degrees of freedom to allow the use of this averaged data to examine differences. For this reason, all five replications (transects) in each basin were used when comparing basins to each other and making comparisons within individual basins, whereas comparison of landscape positions and depths were able to utilize averaged, per-basin concentrations, pools and densities.

Distributions of data utilized in GLIMMIX models were assessed for normality using the Anderson-Darling Goodness-of-Fit test. Some datasets fit neither normal nor gamma distributions, while others fit both. This lack of clear distribution is presumably due to the relatively small sample size. For consistency, and because there was little-to-no difference between results of each specified distribution, a normal distribution was specified for all GLIMMIX models.

Multiple regression was used to identify upland independent variables that predict the THg pool (0-15 cm) at the pond edge landscape position. Pond edge was selected for prediction, as it can be assumed to be a function of the adjacent upland. Where applicable, data from the three upland landscape positions (toe slope, back slope, and shoulder) along each transect were averaged together to produce one value for use in analysis. The predictors were assessed for collinearity so that variables contributing collinearity problems could be removed.

Stepwise regression (significance levels to stay and enter = 0.25) was used to interpret factors contributing to THg pool at the pond edge landscape position using the following upland variables: upland slope length (m), upland slope grade (%), basin area (m^2), and upland means of C:N ratio (0-15 cm), THg pool (0-15 cm; mg m^{-2}), mean tree diameter (cm), mean tree basal area ($m^2\ ha^{-1}$), mean tree height class midpoint (m), canopy openness (%), tree cover class midpoint (%), shrub cover class midpoint (%), forb cover class midpoint (%), graminoid cover class midpoint (%), non-vascular cover class midpoint (%), litter and debris cover class midpoint (%), and bare ground cover class midpoint (%). Residuals were examined for normality, randomness, and leverage. Iterations of the models were carried out to obtain the greatest coefficients of determination (R^2) and acceptable residual plots. These iterations resulted in a model that did not include three data points with large residuals (n=47).

RESULTS AND DISCUSSION

Basin Comparisons of THg, C, N and C:N

Mean soil THg concentrations (0-15 cm) per landscape position across individual basins ranged from 20.1 to 235 ng g^{-1} with a mean of 54.0 ng g^{-1}, whereas THg pools ranged from 2.41 to 15.1 mg m^{-2}, with a mean of 5.31 mg m^{-2} (Table 4). Total Hg concentrations and pools observed were within range of other Minnesota forest soils (Table 1). Comparison of data reported in mass per unit area (i.e., pools) to other studies is somewhat problematic in that pools depend on the soil depth sampled. For example, in peatlands much larger pools have been reported than observed here (Table 4), where Martinez-Cortizas et al. (1999) reported a THg pool of at least 129 mg m^{-2} (assuming 4,000 years of deposition at a rate of 30 µg m^{-2} $year^{-1}$), and Weishampel et al. (2009) presented a C pool of approximately 1,286 Mg ha^{-1}. These studies report the entire profile to depths up to 5 m as opposed to a fixed sampling depth (0-15 cm) as was considered here.

In general, concentrations and pools of THg, C and N, and C:N were not significantly different among basins for any of the upland landscapes positions (i.e., toe slope, back slope, shoulder) (Table 4). Forest cover among basins was similar (Table 3), which is important in terms of homogeneity of soil THg deposition (Bushey et al., 2008; Juillerat et al., 2012; Perry et al., 2006) and C pools in the soil (Weishampel et al., 2009). Canopy structure and composition affects soil THg in terms of deposition via interaction of the canopy with the atmosphere and litterfall inputs to the soil (Bushey et al., 2008; Juillerat et al., 2012; Perry et al., 2006; Witt et al., 2009). For C pools, Weishampel et al. (2009) suggest that forest floor may be more affected by canopy type than underlying mineral soil, whereas Powers et al. (2011) found similar C pools between canopy type, but differing pools in mineral soils depending on canopy species.

Table 4. Comparison of least squares means (LS-means) for soil total Hg (THg), C and N pools and concentrations, and C:N to 15 cm across basins and landscape positions. Capital letters compare basins within a landscape position. Lowercase letters compare landscape positions within a basin.

Parameter	LP†	Basin 1	2	3	4	5	6	7	8	9	10
THg mg m^{-2}	1	15.1‡ A§ a¶	6.77 CD a	2.41 E c	5.56 DE b	2.56 E c	6.66 CD a	9.24 BC a	7.75 CD a	9.15 BCD a	12.6 AB a
	2	6.20 ABC b	4.62 ABC b	5.70 ABC a	7.98 A a	4.04 C b	6.93 ABC a	5.02 ABC b	4.14 BC b	7.60 AB a	6.83 ABC b
	3	3.87 A b	4.09 A b	4.51 A ab	4.16 A b	5.66 A a	4.66 A a	4.79 A b	4.04 A b	4.71 A b	4.96 A bc
	4	3.84 A b	3.85 A b	3.45 A bc	4.89 A b	4.90 A ab	3.96 A a	4.79 A b	3.36 A b	4.44 A b	4.00 A c
	5	4.17 A b	3.90 A b	3.67 A bc	4.45 A b	4.40 A b	4.10 A a	4.74 A b	3.54 A b	4.03 A b	4.53 A bc
C kg m^{-2}	1	9.48 B a	4.40 D a	9.58 B a	12.3 A a	6.80 C a	12.6 A a	5.14 CD a	5.09 CD a	4.00 D b	4.81 D a
	2	6.45 AB b	4.18 BC a	7.19 AB b	9.32 A b	4.71 BC b	6.14 BC b	3.33 C b	4.92 BC ab	6.59 AB a	5.81 BC a
	3	4.08 A c	4.03 A a	5.20 A c	4.44 A c	5.20 A b	4.89 A b	4.39 A ab	4.24 A ab	4.82 A b	4.82 A a
	4	3.73 A c	4.05 A a	3.52 A c	4.25 A c	4.44 A b	3.28 A b	4.02 A ab	3.77 A ab	4.34 A b	4.20 A a
	5	4.31 A c	4.10 A a	4.07 A c	4.33 A c	4.42 A b	3.56 A b	4.66 A a	3.71 A b	4.45 A b	4.30 A a
N kg m^{-2}	1	0.502 BC a	0.323 DE a	0.441 CD a	0.626 AB a	0.306 E a	0.650 A a	0.392 CDE a	0.391 CDE a	0.383 CDE ab	0.423 CDE a
	2	0.397 ABC b	0.271 C ab	0.442 ABC a	0.472 A b	0.290 BC a	0.387 ABC b	0.266 C b	0.329 ABC ab	0.465 AB a	0.414 ABC ab
	3	0.231 A c	0.222 A b	0.277 A b	0.249 A c	0.305 A a	0.251 A bc	0.270 A b	0.270 A bc	0.293 A bc	0.310 A bc
	4	0.196 A c	0.215 A b	0.208 A b	0.252 A c	0.268 A a	0.215 A c	0.256 A b	0.226 A c	0.275 A c	0.259 A c
	5	0.238 A c	0.239 A ab	0.225 A b	0.260 A c	0.277 A a	0.218 A c	0.279 A b	0.198 A c	0.283 A bc	0.274 A c
THg ng g^{-1}	1	235 A a	53.1 E a	118 CD a	198 AB a	158 BC a	209 AB a	73.3 DE a	60.0 E a	66.7 DE a	97.6 DE a
	2	60.9 B b	30.0 B b	45.8 B b	132 A b	35.2 B b	77.7 AB b	25.3 B b	31.9 B b	80.6 AB a	74.9 AB a
	3	25.3 A b	25.3 A b	28.6 A b	27.7 A c	38.9 A b	38.0 A b	33.0 A b	25.8 A b	35.2 A b	32.6 A b
	4	26.2 A b	25.4 A b	20.4 A b	30.4 A c	32.0 A b	23.3 A b	30.7 A b	20.1 A b	28.8 A b	27.4 A b
	5	27.0 A b	24.4 A b	21.7 A b	27.9 A c	28.4 A b	24.4 A b	31.6 A b	21.4 A b	24.5 A b	30.3 A b
C %	1	13.4 C a	3.88 D a	39.0 A a	34.4 B a	30.1 B a	32.6 B a	4.22 D a	4.20 D a	2.80 D b	3.62 D b
	2	6.24 B b	3.05 B a	5.67 B b	15.7 A b	4.15 B b	6.35 B b	1.76 B c	4.11 B ab	7.43 B a	6.58 B a
	3	2.75 A c	2.51 A a	3.31 A c	3.24 A c	3.65 A b	4.45 A b	3.08 A ab	2.73 A ab	3.72 A b	3.19 A b
	4	2.56 AB c	2.71 AB a	2.10 AB c	2.68 AB c	2.96 A b	1.98 B b	2.64 AB bc	2.26 AB b	2.82 AB b	2.86 AB b
	5	2.81 A c	2.53 A a	2.40 A c	2.76 A c	2.93 A b	2.13 A b	3.18 A ab	2.29 A b	2.68 A b	2.93 A b
N %	1	0.724 C a	0.267 D a	1.79 A a	1.77 A a	1.36 B a	1.70 A a	0.304 D a	0.311 D a	0.260 D b	0.306 D ab
	2	0.374 BC b	0.183 BC ab	0.344 BC b	0.806 A b	0.244 BC b	0.388 BC b	0.132 C b	0.264 BC ab	0.498 AB a	0.435 BC a
	3	0.152 A c	0.137 A b	0.175 A c	0.169 A c	0.208 A b	0.203 A bc	0.183 A b	0.173 A bc	0.217 A b	0.201 A b
	4	0.132 A c	0.142 A b	0.121 A c	0.153 A c	0.174 A b	0.126 A c	0.161 A b	0.134 A c	0.175 A b	0.171 A b
	5	0.155 A c	0.146 A b	0.132 A c	0.158 A c	0.179 A b	0.129 A c	0.182 A b	0.121 A c	0.167 A b	0.178 A b
C:N	1	18.9 C a	13.6 D c	21.7 AB a	19.8 ABC a	22.3 A a	19.3 BC a	13.2 D bc	13.0 DE b	10.5 E b	11.4 DE c
	2	16.3 B a	15.4 BC bc	16.3 B b	19.7 A a	16.5 B b	15.9 B a	12.6 C c	14.9 BC b	14.2 BC a	13.9 BC b
	3	17.7 A a	18.2 A a	19.0 A ab	17.5 A a	17.1 A b	19.4 A a	16.2 A a	16.0 A ab	16.6 A a	15.5 A ab
	4	19.2 A a	19.0 A a	17.4 A b	16.9 A a	16.8 A b	15.3 A a	15.7 A ab	16.8 A ab	16.0 A a	16.3 A a
	5	19.3 A a	17.3 A ab	18.2 A b	16.7 A a	16.2 A b	16.4 A a	16.7 A a	19.3 A a	15.7 A a	15.7 A ab

† LP = Landscape position, where 1 = pond center, 2 = pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

‡ n = 5.

§ LS-means with the same capital letter within landscape positions are not significantly different at $\alpha = 0.05$.

¶ LS-means with the same lowercase letter within basins are not significantly different at $\alpha = 0.05$.

In contrast to uplands, THg, C and N concentrations and pools, and C:N at the pond center and pond edge landscape positions among basins were varied (Table 4). With regard to C at pond center, ponds 3, 4, 5 and 6 had lower C concentrations (i.e., Tukey groups C and D) than ponds 1, 2, 7, 8, 9 and 10 (Tukey groups A and B), whereas in terms of C pools, ponds 2, 7, 8, 9 and 10 (Tukey groups C and/or D) were lower than ponds 1, 3, 4 and 6 (Tukey groups A and B). Nitrogen concentrations among ponds followed the same pattern across pond centers as C, though for N pools, there was little statistical difference among ponds. These trends generally correspond to substrate type, where ponds with mineral substrates had lower C concentrations and pools, and lower N concentrations than ponds with organic and/or mineral substrates characterized by hummock hollow topography (Table 2).

Total Hg concentrations at pond center roughly mirrored trends for C and N concentrations; however, there were fewer statistical differences among ponds, and pond 1 was anomalous in that it was among the highest ponds in terms of THg concentration, yet amongst the mid-low range for C and N concentrations (Table 4). Significant differences among ponds for THg pools at pond center were also lacking, though ponds 3 and 5 did have lower pools, and ponds 1 and 10 had higher pools compared to most other ponds. It is evident that concentration cannot accurately predict mass present, and that these pond centers are quite variable in terms of THg, C and N storage. While THg, C and N concentration trends among ponds were roughly analogous, this pattern appears to break down in regard to pools.

For most parameters in Table 4, there was little difference among upland landscape positions for individual basins, and except for C:N, pond centers were generally greater than uplands, indicating that THg, C and N are transported downslope from uplands and accumulating in pond centers. For all basins, THg concentration was greater at pond center than upland landscape positions; however, with regard to THg pools, pond centers in basins 3, 4, 5 and 6, which had organic or mineral substrates characterized by hummock/hollow

topography (Table 2), were either less than or not significantly different than upland landscape positions. For C concentration, pond centers in basins 2, 7, 8, 9 and 10, which had mineral substrates without hummock/hollow topography, were not statistically different than some or all upland landscapes positions; these pond centers all had lower C concentrations than other ponds. Similarly, where N concentrations and pools at pond center in individual basins were not statistically different than uplands, those N concentrations and pools were among the lowest among basins at the pond center landscape position. In short, where low concentrations and pools of C and N were observed at pond center relative to uplands in individual basins, among basins those same pond centers were also relatively low in C and N. With regard to C:N among landscape positions, ratios at pond center were either lower or not significantly different than uplands in most basins, meaning that pond centers are relatively more enriched with N compared to uplands, or proportions of C and N remain steady among landscape positions, respectively.

Differences in concentrations among basins at the pond center may be related to differences in substrate and local topography. For example, many of the ponds with low C, N and THg concentrations (Table 4) were considered to have mineral substrates without hummock/hollow topography (Table 2), whereas many of the ponds with higher concentrations had organic substrates or mineral substrates with hummock/hollow topography. Total Hg concentrations in ponds 3 and 5, the two ponds considered to have organic substrates, had midrange THg concentrations despite some of the highest C concentrations (Table 4), which is interesting given the well documented correlation of THg with organic matter (de Klerk et al., 2013; Gabriel et al., 2012; Gruba et al., 2014; Juillerat et al., 2012; Obrist et al., 2009; Obrist et al., 2011; Selvendiran et al., 2008b; Thompson-Roberts and Pick, 2000; Warner et al., 2005; Wiener et al., 2006).

THg Relationships with C and N

In most cases, a positive relationship between soil THg with C and N was observed (Figure 4, Figure 5, Figure 6, Figure 7, Figure 8 and Figure 9), though a negative

relationship was observed between THg and C in high C and N concentration scenarios (Figure 6, graphs "a" and "c", information in blue). Regression fits were comparable between relationships of soil THg with C and N, though r^2 values were slightly higher in most cases for THg and N relationships than for THg and C relationships. Linear relationships for concentrations for both 0-15 cm ("a" graphs) and for all individual increments ("c" graphs) were stronger than pool ("b" graphs) and density ("d" graphs) relationships, respectively, which indicates that concentrations of C and N are more closely related to THg than respective masses. Where all landscape positions were considered together, the pond center landscape position data appeared more variable than other landscape positions (Figure 4 and Figure 7), which is consistent with the range of THg, C and N concentrations observed among pond centers (Table 4). Removing pond center from consideration and the variation associated with it improved the fit of the models (Figure 4, Figure 5, Figure 7 and Figure 8).

Considering all basins together at the pond center landscape position, linear relationships were weak and/or insignificant, and by grouping data points by pond number it was apparent that ponds 3, 4, 5 and 6 were distinct from ponds 1, 2, 7, 8, 9 and 10 in THg versus C and THg versus N plots (Figure 6 and Figure 9). Because these ponds where characterized by either low or high C and N concentrations, respectively (Table 4), ponds were grouped together accordingly for regression (Figure 6 and Figure 9). From the grouped pond center regression lines, it is evident that C and N at pond centers with a higher concentration of C and N than other ponds have a different relationship with THg than ponds with lower concentrations (Figure 6 and Figure 9, graphs "a" and "c"). For relationships between THg and C concentrations, ponds with lower C and N concentrations had strong positive slopes (16.9 for 0-15 cm and 15.6 for all increments), whereas ponds with higher C and N concentrations exhibited slopes that were both smaller in magnitude and negative (−4.69 for 0-15 cm and −3.72 for all increments). With regard to relationships between THg and N, slopes were positive for both high and low C and N concentration ponds; however,

slopes for high C and N concentration ponds (5.93 for 0-15 cm and 60.1 for all increments) were much lower than for ponds with low C and N concentrations (360 for 0-15 cm and 268 for all increments).

As previously discussed, numerous studies note a correlation between THg and organic matter (de Klerk et al., 2013; Gabriel et al., 2012; Gruba et al., 2014; Juillerat et al., 2012; Obrist et al., 2009; Obrist et al., 2011; Selvendiran et al., 2008b; Thompson-Roberts and Pick, 2000; Warner et al., 2005; Wiener et al., 2006). A few studies have observed different relationships between THg and C in high organic matter scenarios compared to soils with lower organic matter content. A curvilinear distribution of THg versus C concentrations has been reported for lake sediments, where a positive relationship was observed at low C concentrations, and a negative relationship where C concentration was high (Kainz and Lucotte, 2006). The difference between the relationships was attributed to the type of organic matter, where sediments originating from catchments with little to no wetland surface area had low C concentrations and catchments containing a relatively high wetland surface area had high concentrations. The authors attributed the curvilinear distribution to the nature of Hg being less adsorbed to C in wetland sediments compared to upland soils, indicating that the type of organic matter is important in addition to the amount. Others have obtained similar results examining forest litter with high C concentrations versus underlying mineral soil with lower C concentrations (Navrátil et al., 2014; Obrist et al., 2009). The negative relationships between THg and C in litter were attributed to the degree of decomposition of forest litter, where C concentration decreased with depth as decomposition progressed, while THg increased with depth on account of humification of organic matter due to an increased reactive surface area to which Hg can bind.

The type of organic matter and level of decomposition of organic matter may explain the negative relationship between THg and C concentrations in ponds with higher C concentrations (Figure 6). For ponds with high C concentrations that were considered to

have organic rather than mineral substrates (ponds 3 and 5) (Table 2) it may be that, while C concentration continues to increase, the bulk of the organic matter is not humified, thus is not as conducive to Hg binding than if it were more decomposed. The other two ponds with high C concentrations (ponds 4 and 6) were considered to have mineral substrates, though characterized by hummock/hollow topography. Given that such topography is likely the result of tree tips, additional C from this decomposing organic material may also be less humified than C in ponds with mineral substrates that were not characterized by hummock/hollow topography.

Considering all landscape positions together (Figure 4), where pond center was excluded (Figure 5), and ponds in the low C and N group (Figure 6, information in red), slopes for THg versus C concentration relationships (graphs "a" and "c") ranged from 4.80 to 16.9. These slopes are comparable to those reported elsewhere for mineral soils, ranging from approximately 5 to 20 (Juillerat et al., 2012; Mitchell et al., 2012; Navrátil et al., 2014; Obrist et al., 2009). For pond centers with organic and/or mineral substrates characterized by hummock/hollow topography, slopes of -3.72 and -4.69 were observed for THg versus C concentrations (Figure 6, graphs "a" and "c", information in blue), whereas others reported slopes of approximately -11 to -10 for organic forest floor horizons (Navrátil et al., 2014; Obrist et al., 2009).

The better general fit of regression lines for relationships between THg and N relationships versus fits for THg and C relationships has been attributed to Hg binding to ligands containing N groups (Gunda and Scanlon, 2013; Obrist et al., 2009). Unlike C, slopes for THg versus N among ponds with high C and N concentrations had positive slopes (Figure 9, graphs "a" and "c", information in blue), which supports the hypothesis that Hg may bind to N groups. Considering all landscape positions together (Figure 7), where pond center was excluded (Figure 8), and ponds in the low C and N group (Figure 9, information in red), slopes for THg versus N concentration relationships (graphs "a" and "c") ranged from 105 to 360. These slopes are comparable to a slope of 151.8 reported for forest floor

horizons in Sierra Nevada ecosystems (Obrist et al., 2009). For pond centers with organic and/or mineral substrates characterized by hummock/hollow topography, slopes of 5.93 and 60.1 were observed for THg versus N concentrations (Figure 9, graphs "a" and "c", information in blue), whereas Obrist et al. (2009) reported a slope of 110, and Navrátil et al. (2014) found an insignificant negative correlation between THg and N concentrations in Czech forest floors. Again, the differences in N trends may be attributed to differences in Hg binding to ligands containing N groups and highlights that the type of organic matter affects Hg accumulation (Navrátil et al., 2014).

Relationships of THg with C and N in regard to pools and densities all had positive slopes, thus increasing mass of THg can be predicted by increasing masses of C or N (Figure 4, Figure 5, Figure 6, Figure 7, Figure 8 and Figure 9). For pools, slopes for relationships between THg and C ranged from 0.456 to 1.31, and slopes for THg versus N ranged from 14.0 to 35.7 (Figure 6 and Figure 9, graph "b"), which are similar to slopes of 0.38 and 13, respectively, reported elsewhere in a forested landscape (Obrist et al., 2009). At pond center, slopes for THg versus C and N for both pools and densities were larger for ponds with low C and N concentrations, whereby peak THg pools are found in ponds with the lowest C and N concentrations. This may be a function of differing bulk densities, where ponds with high C and N concentrations ranged from 0.100 to 0.233 g cm^{-3} (0-15 cm), and ponds with low C and N ranged from 0.389 to 1.46 g cm^{-3}. For pools, which have corrected for the effects of bulk density, ponds with high C and N concentrations did not contain as much THg mass as ponds with lower C and N concentrations.

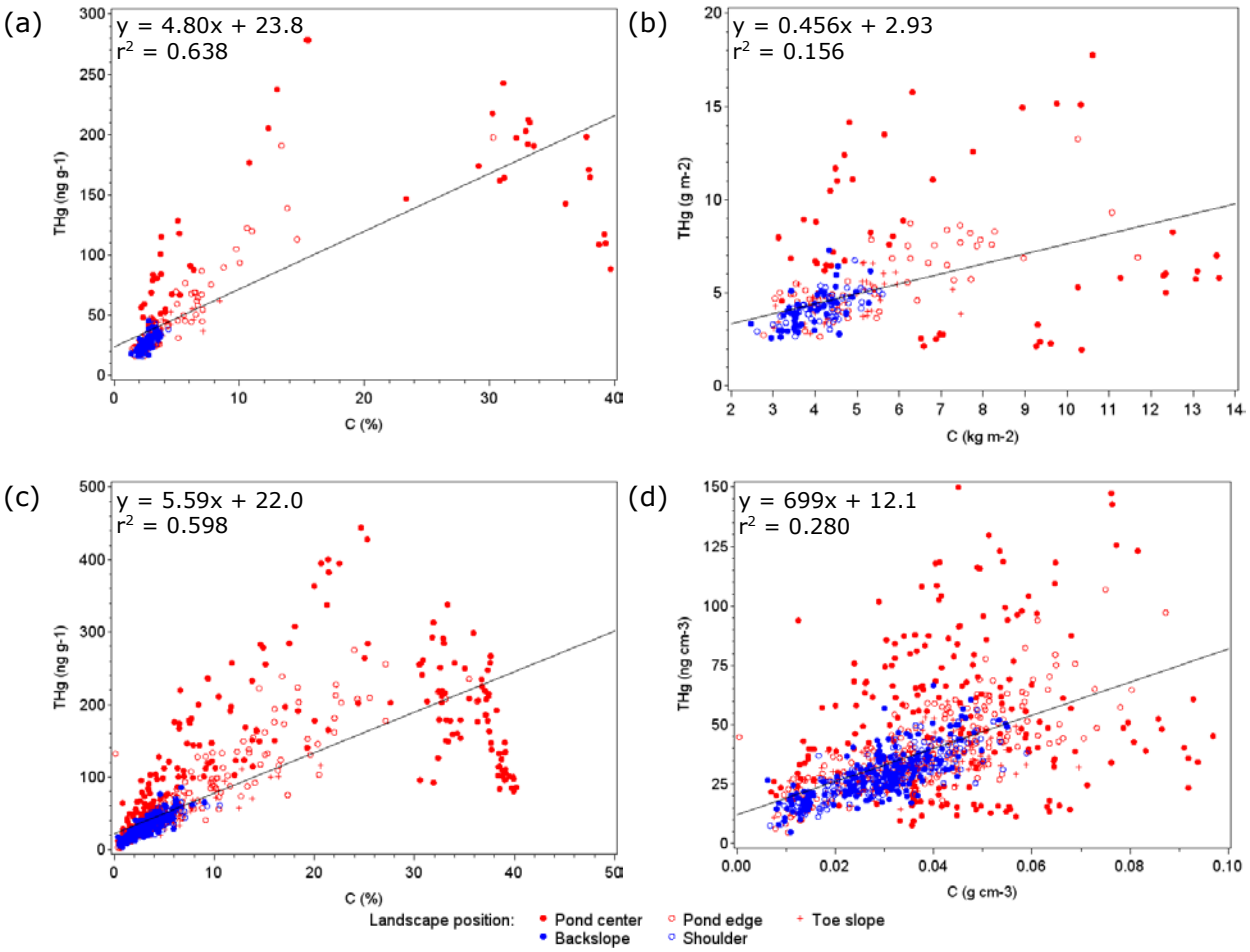

Figure 4. Linear regression between soil total Hg (THg) and C across all landscape positions for (a) concentrations to 15 cm, (b) pools to 15 cm, (c) concentrations of all depth increments, and (d) densities of all depth increments. Symbols denote landscape positions. All linear regressions are significant at $\alpha = 0.05$.

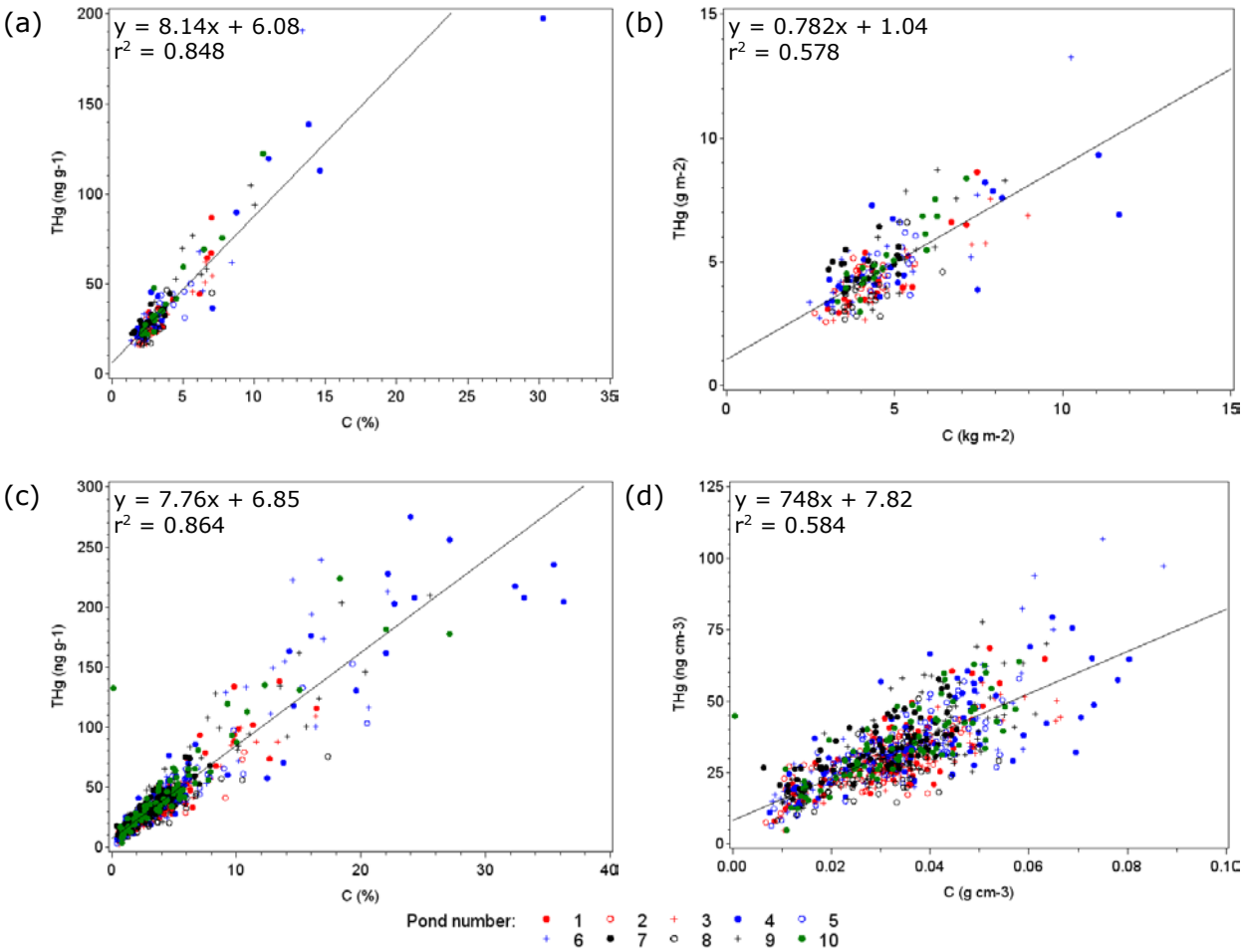

Figure 5. Linear regression between soil total Hg (THg) and C across all landscape positions except pond center for (a) concentrations to 15 cm, (b) pools to 15 cm, (c) concentrations of all depth increments, and (d) densities of all depth increments. Symbols denote pond numbers. All linear regressions are significant at $\alpha = 0.05$.

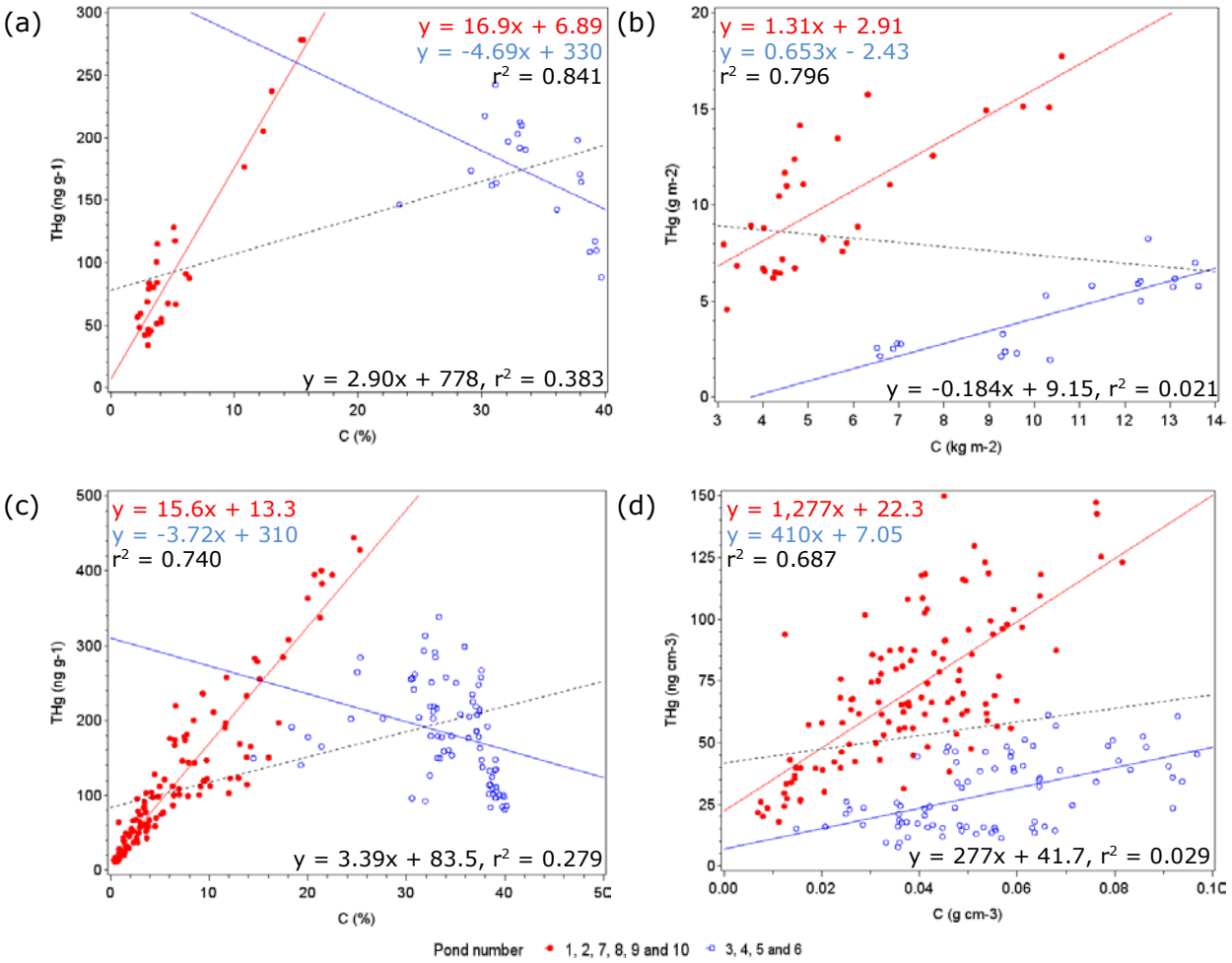

Figure 6. Linear regression between soil total Hg (THg) and C at pond center landscape position for (a) concentrations to 15 cm, (b) pools to 15 cm, (c) concentrations of all depth increments, and (d) densities of all depth increments. Symbols denote pond groupings, where information in red corresponds to pond numbers 1, 2, 7, 8, 9 and 10, and information in blue corresponds to pond numbers 3, 4, 5 and 6. Black lines and equations refer to all ponds together, except for the r^2 value shown beneath the red and blue equations, which is for the overall model that incorporated the pond groupings. All linear regressions are significant at $\alpha = 0.05$, except the black regression line in (b). For pond groupings, all differences between slopes and intercepts are significant at $\alpha = 0.05$.

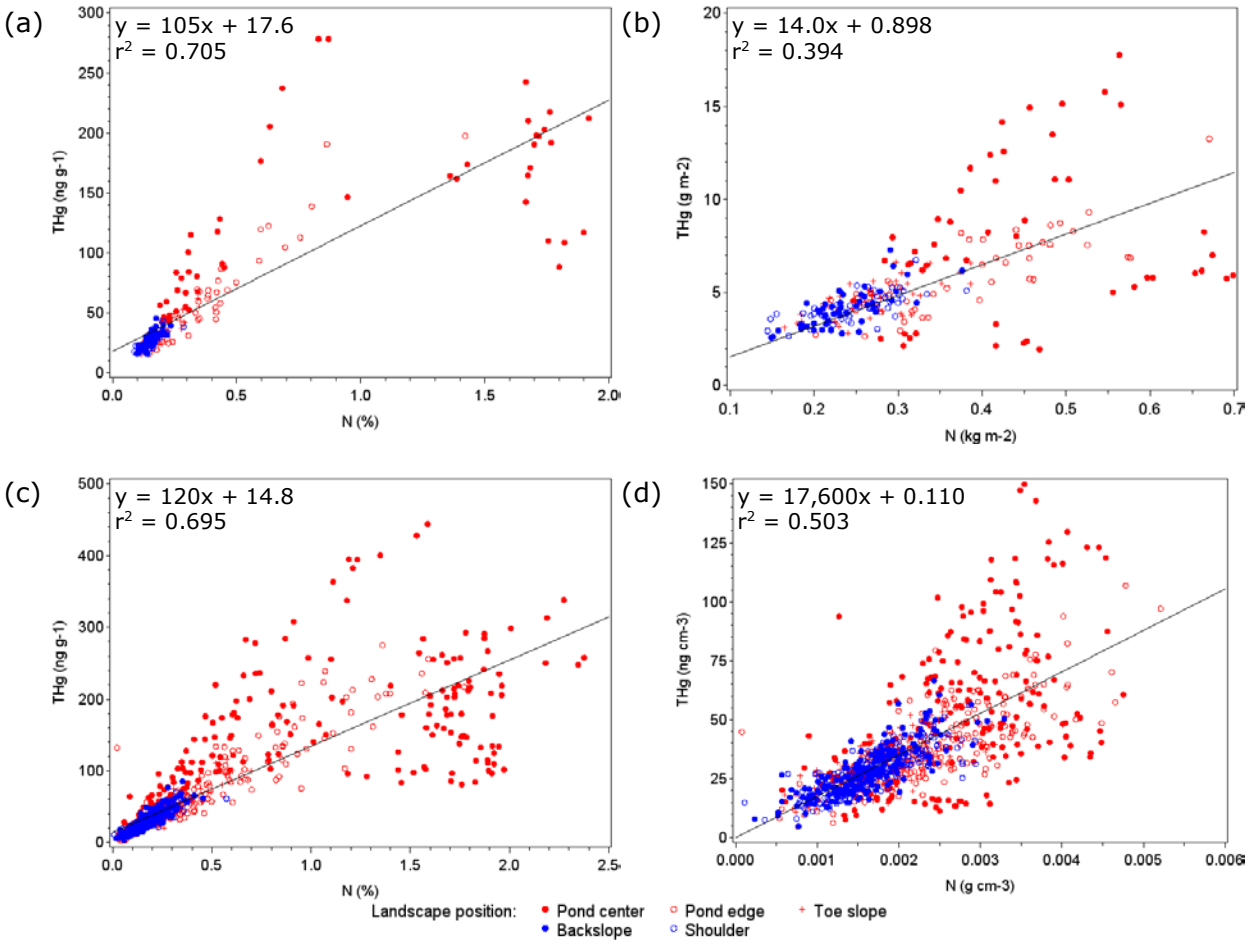

Figure 7. Linear regression between soil total Hg (THg) and N across all landscape positions for (a) concentrations to 15 cm, (b) pools to 15 cm, (c) concentrations of all depth increments, and (d) densities of all depth increments. Symbols denote landscape positions. All linear regressions are significant at α = 0.05.

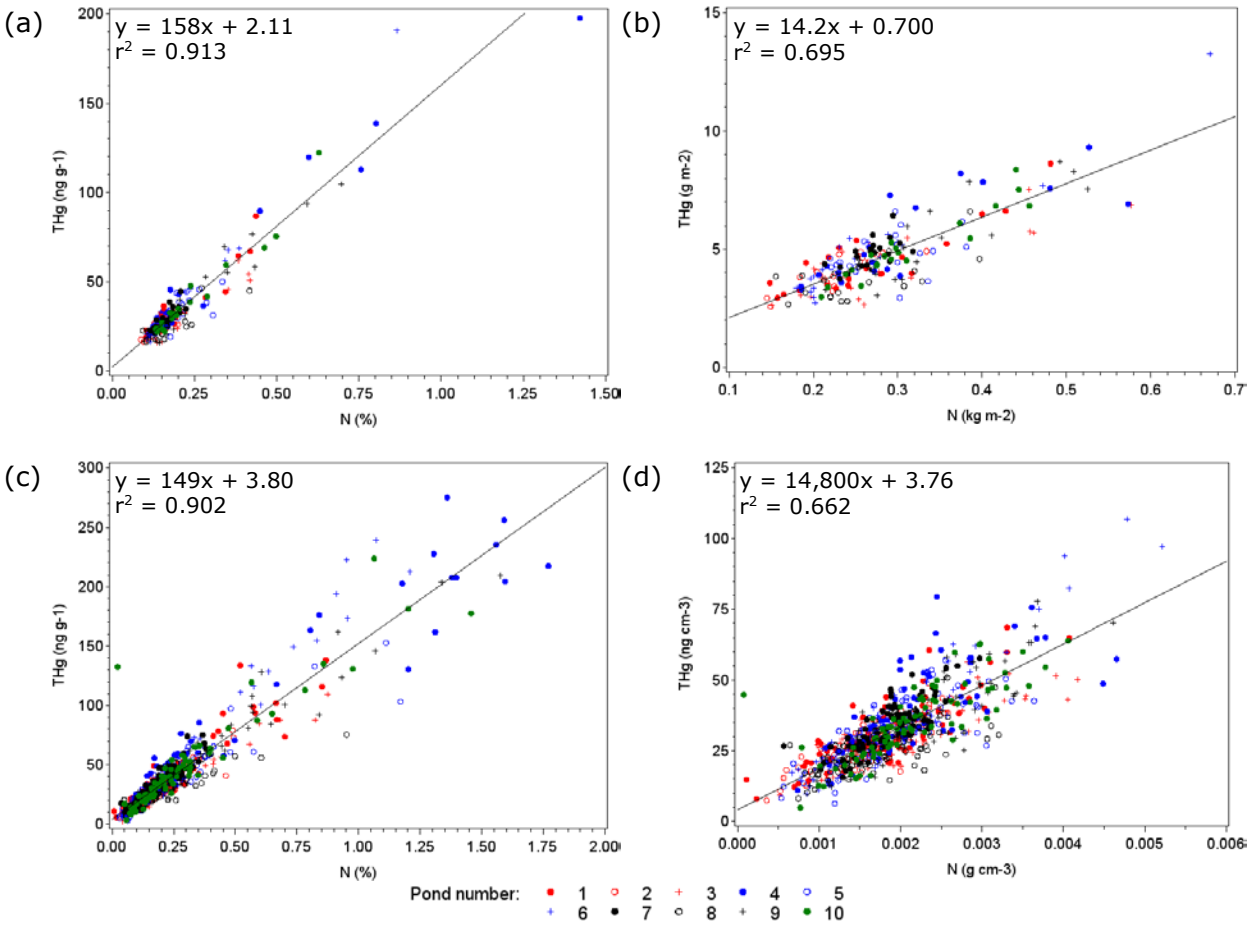

Figure 8. Linear regression between soil total Hg (THg) and N across all landscape positions except pond center for (a) concentrations to 15 cm, (b) pools to 15 cm, (c) concentrations of all depth increments, and (d) densities of all depth increments. Symbols denote pond numbers. All linear regressions are significant at α = 0.05.

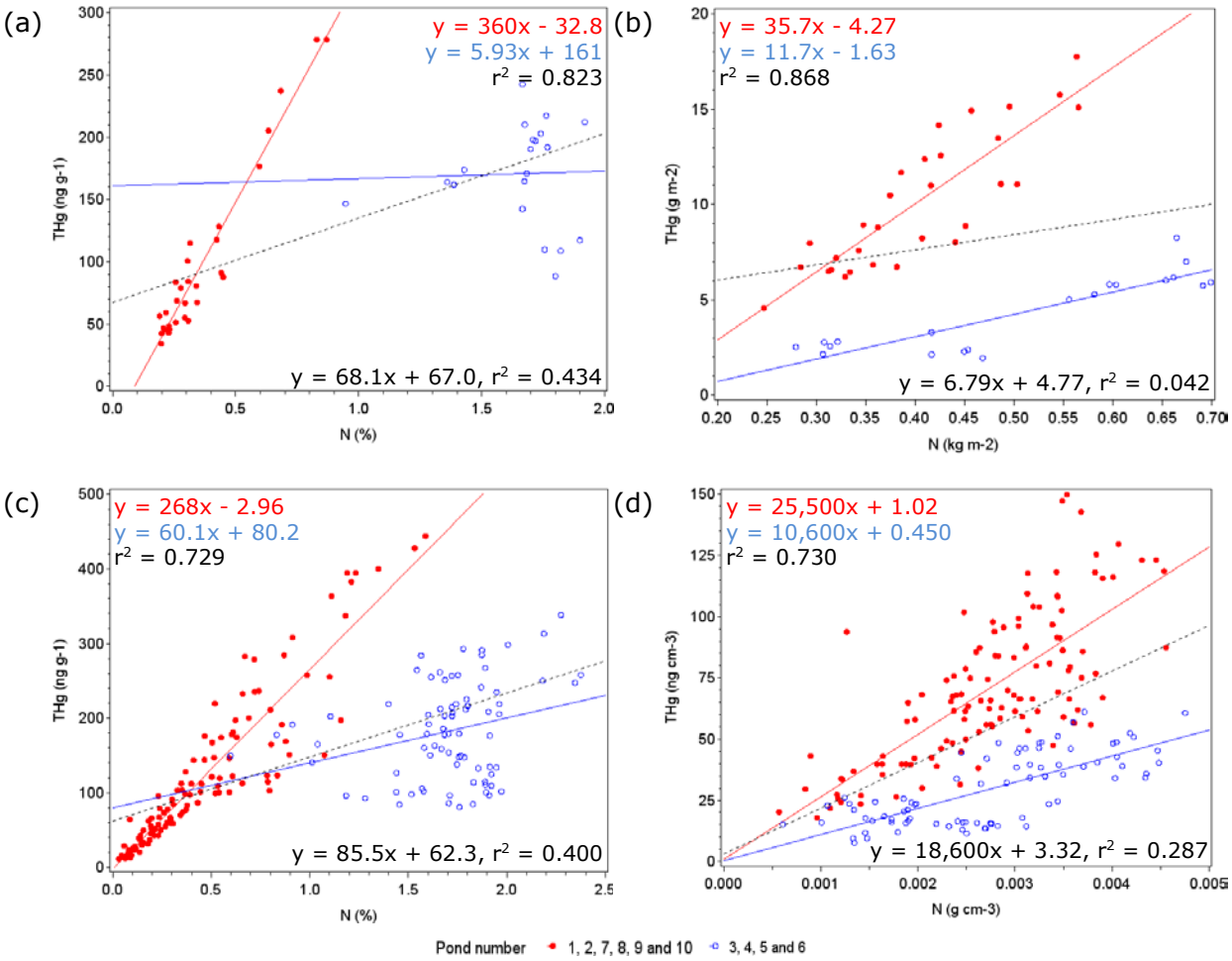

Figure 9. Linear regression between soil total Hg (THg) and N at pond center landscape position for (a) concentrations to 15 cm, (b) pools to 15 cm, (c) concentrations of all depth increments, and (d) densities of all depth increments. Symbols denote pond groupings, where information in red corresponds to pond numbers 1, 2, 7, 8, 9 and 10, and information in blue corresponds to pond numbers 3, 4, 5 and 6. Black lines and equations refer to all ponds together, except for the r^2 value shown beneath the red and blue equations, which is for the overall model that incorporated the pond groupings. All linear regressions are significant at $\alpha = 0.05$, except the black regression line in (b). For pond groupings, all differences between slopes and intercepts are significant at $\alpha = 0.05$, except for (b) and (d), where intercepts are not significantly different.

Landscape Position Comparisons of THg, C, N and C:N

Pools and concentrations of THg, C and N (0-15 cm) were greater at the pond center landscape position than at any of the upland landscape positions (Table 5). Accumulation at pond center may indicate transport downslope. Maximum soil THg concentrations and pools (83 ng g^{-1} and 5.4 mg m^{-2}, respectively) along forested slopes have been observed at the lowest sampled landscape position (toe slope), with summit and backslope positions

exhibiting the lowest concentrations and pools (approximately 29 ng g^{-1} and 2.9 mg m^{-2}) (Grigal et al., 1994). Elevated concentrations of other trace metals (Zn, Cu, and Cd) have also been recorded lower in the landscape in agricultural depressions when compared to uplands (Franzen et al., 2006). Gladkova and Malinina (1999) found 24.1% of variation in THg concentration along a forested riverine catchment slope to be explained by landscape position, with 75.3% attributed to litter subhorizonation, illustrating the importance of considering sampling depth, particularly by horizon and subhorizon, when exploring THg distribution.

Table 5. Comparison of least squares means (LS-means) for soil total Hg (THg), C, and N pools and concentrations, and C:N at 0-15 cm across landscape positions. Lowercase letters compare landscape positions.

Landscape position	THg	C	N	THg	C	N	C:N
	mg m^{-2}	------kg m^{-2}------		ng g^{-1}	--------%--------		
Pond center	7.78† a‡	7.42 a	0.444 a	127 a	16.8 a	0.879 a	16.4 a
Pond edge	5.91 ab	5.86 ab	0.373 a	59.4 b	6.11 b	0.367 b	15.6 a
Toe slope	4.54 b	4.61 b	0.268 b	31.1 b	3.26 b	0.182 b	17.3 a
Back slope	4.15 b	3.96 b	0.237 b	26.5 b	2.56 b	0.149 b	16.9 a
Shoulder	4.15 b	4.19 b	0.249 b	26.2 b	2.66 b	0.155 b	17.1 a

† $n = 10$.
‡ LS-means with the same letter within columns are not significantly different at $\alpha = 0.05$.

Accumulation of THg has been linked to the translocation of Hg bound to dissolved organic C (Selvendiran et al., 2008a) and dissolved organic matter (Ravichandran, 2004). Because of the affiliation of Hg with soil organic matter, pedological concepts relating to soil organic matter, such as differential horizon accumulation and soil organic matter accumulation downslope in a catena can also be used to predict the distribution of Hg in the landscape (Grigal, 2003). Further, landscape position can also affect soil moisture, aeration, texture, chemical composition, plant association and nutrient regime of microorganisms, which can influence soil organic matter and related processes (Gladkova and Malinina, 1999).

The mirrored trends of THg, C and N concentrations and pools observed here (Table 5) fit with the correlation between THg, C and N demonstrated in Figure 4, Figure 7 and by others (de Klerk et al., 2013; Gabriel et al., 2012; Gruba et al., 2014; Juillerat et al., 2012; Mitchell et al., 2012; Obrist et al., 2009; Obrist et al., 2011; Selvendiran et al., 2008b; Thompson-Roberts and Pick, 2000; Warner et al., 2005; Wiener et al., 2006). With regard to C:N when all basins are considered together, the lack of difference among landscape positions follows from the similar trends of C and N in the landscape.

Depth Increment Comparisons of THg, C, N and C:N

For most THg, C and N concentrations and densities considered, depth increments at the pond center landscape position were more uniform than at upland landscape positions (Table 6). Uniformity among depth increments at pond center may be a result of several possibilities: that these increments are saturated from inputs from upslope, that infiltration or fluctuating groundwater serve to distribute elements evenly throughout the profile, that deposition rates are consistent across time, or that the sampling increments were too course to determine differences. Concentrations among depth increments at pond center were more distinct than densities, that is, concentrations incrementally decreased down the profile more rapidly than densities. At pond center, there was no statistical difference among increments for C or N densities despite decreases in concentrations down the profile. Again, this demonstrates that consideration of concentrations alone does not provide an accurate representation of how masses are distributed.

Table 6. Comparison of least squares means (LS-means) for soil total Hg (THg), C and N pools, and C:N at across landscape positions and depth increments. Capital letters compare depth increments within a landscape position. Lowercase letters compare landscape positions within a depth increment.

Parameter	Landscape position	Depth increment			
		0-2 cm	2-5 cm	5-10 cm	10-15 cm
THg ng cm^{-3}	Pond center	58.1† A‡ a§	63.4 A a	54.9 A a	39.5 B a
	Pond edge	39.6 B b	49.2 A ab	42.2 AB ab	30.5 C ab
	Toe slope	30.7 B b	35.2 A b	33.0 AB b	24.5 C b
	Back slope	31.6 B b	35.3 A b	30.2 B b	19.0 C b
	Shoulder	31.6 B b	34.7 A b	30.5 B b	19.0 C b
C g cm^{-3}	Pond center	0.048 A a	0.047 A ab	0.042 A a	0.040 A a
	Pond edge	0.046 A ab	0.049 A a	0.038 B ab	0.026 C ab
	Toe slope	0.040 A bc	0.039 A bc	0.031 B ab	0.020 C b
	Back slope	0.036 A c	0.036 A c	0.027 B b	0.015 C b
	Shoulder	0.038 A c	0.037 A c	0.029 B ab	0.017 C b
N g cm^{-3}	Pond center	0.003 A a	0.003 A a	0.003 A a	0.002 A a
	Pond edge	0.003 AB a	0.003 A a	0.002 B a	0.002 C ab
	Toe slope	0.002 A b	0.002 A b	0.002 B b	0.001 C bc
	Back slope	0.002 A b	0.002 A b	0.002 B b	0.001 C c
	Shoulder	0.002 A b	0.002 A b	0.002 B b	0.001 C bc
THg ng g^{-1}	Pond center	210 A a	168 B a	122 C a	73.7 D a
	Pond edge	112 A b	93.2 A b	52.7 B b	25.0 C b
	Toe slope	45.0 A c	42.3 A b	31.4 B b	18.3 C b
	Back slope	40.0 A c	37.5 A b	27.1 B b	13.8 C b
	Shoulder	39.5 A c	36.7 A b	27.0 B b	13.7 C b
C %	Pond center	21.8 A a	18.3 AB a	15.4 B a	15.4 B a
	Pond edge	13.6 A b	9.36 B b	5.01 C b	2.26 C b
	Toe slope	6.05 A bc	4.75 B b	3.02 C b	1.50 D b
	Back slope	4.60 A c	3.83 B b	2.46 C b	1.07 D b
	Shoulder	4.78 A c	3.89 B b	2.55 C b	1.19 D b
N %	Pond center	1.255 A a	1.03 B a	0.797 C a	0.723 C a
	Pond edge	0.765 A b	0.560 B b	0.306 C b	0.153 C b
	Toe slope	0.297 A c	0.250 B b	0.174 C b	0.102 D b
	Back slope	0.242 A c	0.208 B b	0.147 C b	0.078 D b
	Shoulder	0.250 A c	0.212 B b	0.153 C b	0.084 D b
C:N	Pond center	16.5 A c	16.2 A b	16.2 A a	16.1 A a
	Pond edge	17.4 A bc	16.4 AB ab	15.3 BC a	13.8 C a
	Toe slope	19.8 A a	18.8 AB a	17.3 B a	14.6 C a
	Back slope	19.1 A ab	18.6 A ab	16.9 B a	14.3 C a
	Shoulder	19.1 A ab	18.6 A ab	17.0 A a	16.9 A a

† n = 10.
‡ LS-means with the same capital letter within rows are not significantly different at α = 0.05.
§ LS-means with the same lowercase letter within columns are not significantly different at α = 0.05.

Apart from pond center, THg densities in the 0-2 cm increments were lower than the 2-5 cm increments, though concentrations in those increments were not statistically different (Table 6). Several studies have found THg pools to be smaller in the forest floor compared to underlying mineral soil, despite higher concentrations in the former (Fleck et al., 1999; Grigal et al., 1994; Grigal et al., 2000; Juillerat et al., 2012; Mitchell et al., 2012; Nater and Grigal, 1992). This has been attributed to the inverse relationship between organic matter and bulk density, which can result in high concentrations with small pools and vice versa (Juillerat et al., 2012; Grigal et al., 1994; Navrátil et al., 2014). While the forest floor was not explicitly considered here, bulk densities in the 0-2 cm increments at all landscape positions (ranging from 0.31 to 0.83 g cm^{-3}) were the lowest among increments, which suggests a relatively high organic matter content and that at least some forest floor was sampled in the upper increment(s). However, though bulk densities increased with depth for all landscape positions (up to 0.94 to 1.51 g cm^{-3}), THg densities did not increase accordingly. The decrease of THg densities with depth beyond the 2-5 cm increment is an indication that deeper soils are less affected by post-industrial deposition from above than those closer to the surface, and that the THg is not geogenic.

Carbon and N concentrations outside of the pond center landscape position decrease with each increment down the profile (Table 6). With regard to C pools, this is consistent with findings of smaller pools in a northern hardwood (Powers et al., 2011) and mixed (Weishampel et al., 2009) forest floor compared to immediately underlying mineral soils. Nitrogen pools exhibit a parallel trend (Kolka et al., 2014) to that of C between forest floor and mineral soil.

Despite the correlations between THg and C demonstrated here (Figure 5), THg concentration does not decrease down the profile identically to C. For THg concentrations apart from pond center, the 0-2 and 2-5 cm increments are not statistically different, with 5-10 and 10-15 cm increments less than the increment before (Table 6). Because Hg binding is associated with humified soil organic matter, the dominant form in the mineral

layer (Gladkova and Malinina, 1999; Grigal et al., 1994), it is possible that despite a lower concentration of C in mineral soils, this C is associated with more humified organic matter, allowing for more stable binding with THg compared to C in less decomposed organic matter found in the forest floor. This may allow the THg concentration to remain constant in the 0-2 to 2-5 cm increments despite a decrease in C concentration with depth.

In regard to concentrations and pools of THg, C and N for individual depth increments, the pond center landscape position was greater than upland landscape positions in most cases (Table 6). The relative consistency of depth increments among upland landscape positions coupled with peaks at pond center for each increment suggests that upland runoff downslope plays an important role in THg accumulation in the ponds. Further, that each increment is enriched at pond center and not in uplands indicates that transport down the profile occurs to a greater degree at pond center compared to upland landscape positions.

Despite the near identical trends of C and N concentrations, there were some differences in C:N ratios among depth increments and landscape positions (Table 6). For the 0-2 cm increment, the C:N ratio at pond center was lower than at upland landscape positions, which indicates the relative enrichment of N at the soil surface of pond centers. Among depth increments, the C:N ratio declines with depth at the pond edge, toe slope and back slope landscape positions. In uplands, Kolka et al. (2014) also reported a larger C:N ratio higher in the profile (forest floor) compared to the underlying mineral soil, (32.2 and 23.3, respectively) despite C and N both decreasing from forest floor to the underlying mineral soil. Depth increments in this study were not statistically different at both the pond center and shoulder landscape positions (Table 6), which indicates that the profile ratios are similar in C and N throughout the 15 cm depth sampled.

Upland Influences on THg at Pond Edge

Approximately 56% of the variance of THg pool (0-15 cm) at the pond edge landscape position can be accounted for by the linear combination of upland slope length

(18.5%), mean upland graminoid cover class (15.5%), basin area (14.7%), and mean upland tree height class (7.04%) with the regression equation

$$S_{THg} = 2.32 + 0.0460a + 0.000355b - 0.0833c + 0.122d \quad [3]$$

where S_{THg} is THg pool (0-15 cm) at pond edge, a is slope length (m), b is basin area (m^2), c is mean upland graminoid cover class (%), and d is mean upland mean tree height class (m).

Catchment factors that influence water flow and leaching are important to THg accumulation in lakes (Matilainen et al., 2001), and slope grade (Betemariam et al., 2013; Burns et al., 2012; Kainz and Lucotte, 2006; Lorey and Driscoll, 1999) and basin area in relation to lake area (Betemariam et al., 2013; Matilainen et al., 2001) have been implicated as such drivers. Here, basin area was predictive, though only slope length, not slope grade, was significant in the model (Equation 3). Upland graminoid cover was found to have a negative influence on THg at pond edge, which follows from grass buffers slowing runoff and intercepting pollutants (Veum et al., 2009); however, grassland cover around lakes may increase C inputs (and associated Hg) to lakes through transport of roots and debris, as evidenced by correlation between grassland cover and lake Hg advisories compared to other land uses (Betemariam et al., 2013).

Canopy features have also been cited as predictive for soil Hg due to the implications that coverage and species have on deposition, litterfall production and throughfall inputs (Bushey et al., 2008; Juillerat et al., 2012; Perry et al., 2006; Witt et al., 2009). In turn, the degree of decomposition of soil organic matter, as evidenced by C and N contents whereby lower C:N ratios correspond to a higher degree of decomposition and elevated THg concentration in soils (Gunda and Scanlon, 2013; Juillerat et al., 2012; Obrist et al., 2011), though upland C:N was not found to influence THg downslope in this study (Equation 3). Mean upland tree height class was included in the model, which may result in increased surface area to collect dry deposition; however, several other upland vegetative factors were not found to be predictive of THg at pond edge, such as tree diameter, tree basal area,

canopy openness, tree cover, shrub cover and litter/debris cover. Certain types of vegetation and vegetative structure receive differential THg deposition (Bushey et al., 2008; Johnson et al., 2007; Laacouri et al., 2013), thus exploration of THg pools and concentrations of vegetative components themselves may be useful.

Given the relatively low landscape position that pond edge occupies and landscape trends observed here where THg appears to be accumulating downslope at pond center (Table 5), it might be expected that the upland THg pool would be a driver of pools lower in the landscape. However, upland THg pools were not found to be a driver of pools at the pond edge landscape position (Equation 3). The THg concentrations and pools at pond edge were not statistically different than upland landscapes positions (Table 5). In this light, consideration of upland predictors of pond center THg pools may be informative. In this case, the focus was on the transect level to discern if the immediate upland slope affected THg pools at pond edge downslope. Given that the pond center landscape positions were within meters of each other and each pond center sampling location was relatively far removed from upland portion of the associated transect (Figure 3), predicting pond center pool with upland transects was not attempted here.

SUMMARY AND CONCLUSION

Differences among basins at the pond center landscape position were observed in terms of THg, C and N concentrations, and C:N. In addition, varying relationships of THg with C and N were observed among basins at the pond center landscape position in terms of concentrations and mass per area. Drivers of these differences should be investigated as they relate to THg storage including, but not limited to, degree of decomposition and type of organic matter and associated Hg binding, and potential effects of substrate type and local topography.

The accumulation of THg, C and N observed at the pond center landscape position and the relatively uniform saturation of these elements throughout the profile sampled there likely indicates that these elements are being transported downslope, possibly in association with dissolved organic matter. The consistent pattern of greater THg, C and N concentrations and densities at the pond center landscape position for each depth increment also suggests that downward transport throughout the profile is more pronounced at pond center and/or is indicative of accumulation from upslope in that location. Future studies should investigate factors affecting downslope transport. Higher concentrations of THg, C and N in the upper soil depths at upland landscape positions indicate that deposition from above is a more likely source than geogenic processes. The interaction of bulk density with concentration can affect the total mass present in a given volume, thus care should be taken not to utilize concentration as a surrogate for distribution of mass.

The power of organic matter to predict THg in soils is well known, as are landscape features affecting the distribution of organic matter. Here, slope length and basin area were implicated as contributors to THg at the pond edge landscape position. While upland vegetative characteristics such as graminoid cover and tree height class appear to be drivers of THg lower in the landscape, the interaction of vegetation with THg deposition is complex and deserving of further study, particularly at the pond center landscape position where accumulation is greater than uplands.

The importance of sampling designs that examine varying landscape positions explicitly, or are delegated to a specific landscape position has been noted (Franzen et al., 2006). This importance is further demonstrated here by the differences observed between uplands and the pond center, illustrating the need to consider these landscape positions separately. However, given that the upland landscape positions were essentially no different than each other in terms of THg, C and N content, and that there were generally no differences among individual basins at upland positions, one upland sampling location may be as effective as three in future sampling designs conducted in similar landscapes. Future studies may incorporate a summit landscape position, which was not considered here.

Few studies have investigated THg in terms of small, closed-basin vernal ponds. Given that these basins do not have a surface water outlet, these ponds may have the potential to accumulate large quantities of Hg over time. Without an outlet, such accumulation may be sequestered in place, which decrease the likelihood of its transport to lacustrine habitats; however, risks to organisms that utilize these ponds remains. Future research should investigate the behavior of MeHg and bioaccumulation in these systems, as well as whether such vernal ponds contribute to THg and MeHg levels in adjacent lakes via groundwater or otherwise.

Management Implications

Forestry practices have the potential to affect mercury cycling. The removal of forested vegetation would reduce the surface area on which dry deposition could accumulate. In addition, the reduced surface area with which throughfall and stemflow could interact with vegetation may also reduce inputs to the soil. However, the absence of above ground vegetation to intercept precipitation before it reaches the soil, and the reduction of root mass to hold soil in place may increase runoff from harvested areas, thus potentially increasing inputs to aquatic environments. Reduction of canopy closure also has the potential to increase solar radiation to the soil surface, which could increase volatilization of Hg^0. As known sources of MeHg, forest harvest within wetlands themselves has the potential

to greatly increase outputs of MeHg downstream if runoff were to be exacerbated. Selective harvesting, buffer strips, retention of ground cover and/or other best management practices that hold soil in place and avoid or minimize wetland impacts may help reduce these effects.

On a broader scale, climate change has the potential to affect C and N cycling as well as hydrologic cycling, which are linked Hg cycling. Even if anthropogenic sources of Hg to the environment were to be curtailed significantly, large pools of Hg have already accumulated in soils. Mercury stored in soils has the potential to be mobilized into aquatic environments in association with organic matter and water. Forested ecosystems play important roles in cycling of C, N and Hg, making understanding the distribution and drivers of Hg in these environments key to their management objectives and strategies. This understanding is particularly poignant in light of potential alterations to Hg cycling brought on by climate change.

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APPENDIX A. STUDY AREA FOREST STAND BOUNDARIES

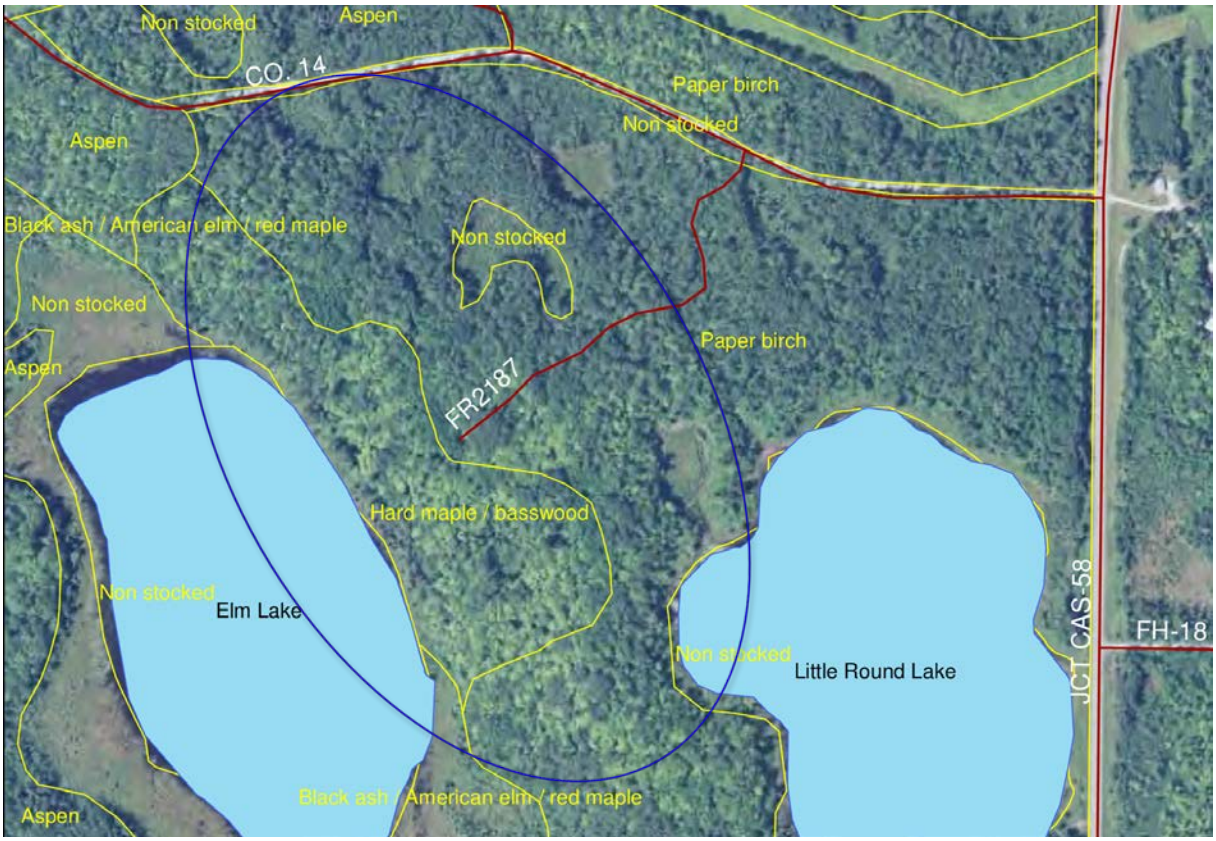

Figure A1. Forest stand boundaries (A. Gustafson, District Silviculturist, Chippewa National Forest, personal communication, 2011) in relation to the study area, outlined in blue (47.692275 N, −93.780926 W).

APPENDIX B. SUPPLEMENATRY SAMPLING LOCATION DATA

Table B1. Sampling location data.

Pond number	Transect compass bearing	Landscape position†	Latitude	Longitude	Elevation	Distance from pond edge	Upland slope grade	Soil sampling date	Vegetation sampling date
	degrees		-------degrees-------		--------m--------		%		
1	0	1	47.692850	-93.783969	430	-9.20	10.50	6/14/11	8/3/11
		2	47.692881	-93.783873	437	-1.00	10.50	6/14/11	8/3/11
		3	47.692926	-93.783819	429	4.60	10.50	6/14/11	8/3/11
		4	47.693029	-93.783894	430	10.10	10.50	6/14/11	8/3/11
		5	47.693079	-93.783862	431	21.90	10.50	6/14/11	8/3/11
	70	1	47.692797	-93.783843	431	-9.20	12.30	6/14/11	8/3/11
		2	47.692793	-93.783804	432	-1.00	12.30	6/14/11	8/3/11
		3	47.692873	-93.783671	431	4.60	12.30	6/14/11	8/3/11
		4	47.692903	-93.783614	431	8.20	12.30	6/14/11	8/3/11
		5	47.692909	-93.783558	431	12.80	12.30	6/14/11	8/3/11
	140	1	47.692815	-93.783856	430	-8.30	8.75	6/14/11	8/3/11
		2	47.692743	-93.783786	433	-1.00	8.75	6/14/11	8/3/11
		3	47.692714	-93.783820	429	3.00	8.75	6/14/11	8/3/11
		4	47.692641	-93.783699	430	10.10	8.75	6/14/11	8/3/11
		5	47.692647	-93.783675	430	15.50	8.75	6/14/11	8/3/11
	210	1	47.692819	-93.783884	428	-8.30	17.60	6/14/11	8/3/11
		2	47.692736	-93.783902	436	-1.00	17.60	6/14/11	8/3/11
		3	47.692730	-93.783994	430	4.60	17.60	6/14/11	8/3/11
		4	47.692678	-93.784021	431	13.70	17.60	6/14/11	8/3/11
		5	47.692556	-93.784131	433	24.70	17.60	6/14/11	8/3/11
	290	1	47.692682	-93.783905	427	-12.00	10.50	6/14/11	8/3/11
		2	47.692835	-93.783968	449	-1.00	10.50	6/14/11	8/3/11
		3	47.692902	-93.783995	428	7.30	10.50	6/14/11	8/3/11
		4	47.692910	-93.784073	430	11.00	10.50	6/14/11	8/3/11
		5	47.692932	-93.784160	430	16.50	10.50	6/14/11	8/3/11
2	0	1	47.692847	-93.784486	439	-3.50	12.30	6/15/11	8/1/11
		2	47.692819	-93.784543	440	-1.00	12.30	6/15/11	8/1/11
		3	47.692865	-93.784541	445	4.00	12.30	6/15/11	8/1/11
		4	47.692877	-93.784530	446	8.20	12.30	6/15/11	8/1/11
		5	47.692927	-93.784511	447	12.80	12.30	6/15/11	8/1/11
	70	1	47.692800	-93.784519	448	-5.60	10.50	6/15/11	8/1/11
		2	47.692816	-93.784471	439	-1.00	10.50	6/15/11	8/1/11
		3	47.692821	-93.784413	442	2.00	10.50	6/15/11	8/1/11
		4	47.692821	-93.784413	443	5.50	10.50	6/15/11	8/1/11
		5	47.692821	-93.784396	443	7.30	10.50	6/15/11	8/1/11
	140	1	47.692800	-93.784555	451	-6.50	8.75	6/15/11	8/1/11
		2	47.692773	-93.784518	439	-1.00	8.75	6/15/11	8/1/11
		3	47.692726	-93.784424	442	1.50	8.75	6/15/11	8/1/11
		4	47.692688	-93.784397	443	9.10	8.75	6/15/11	8/1/11
		5	47.692615	-93.784317	445	21.90	8.75	6/15/11	8/1/11
	220	1	47.692796	-93.784604	449	-4.50	14.10	6/15/11	8/1/11
		2	47.692783	-93.784652	441	-1.00	14.10	6/15/11	8/1/11
		3	47.692772	-93.784603	441	3.50	14.10	6/15/11	8/1/11
		4	47.692764	-93.784627	442	6.40	14.10	6/15/11	8/1/11
		5	47.692748	-93.784658	442	9.10	14.10	6/15/11	8/1/11
	300	1	47.692801	-93.784576	445	-5.60	8.75	6/15/11	8/1/11
		2	47.692826	-93.784545	445	-1.00	8.75	6/15/11	8/1/11
		3	47.692878	-93.784651	441	4.30	8.75	6/15/11	8/1/11
		4	47.692876	-93.784668	442	6.40	8.75	6/15/11	8/1/11
		5	47.692877	-93.784668	442	10.10	8.75	6/15/11	8/1/11

Table B1. Sampling location data (continued).

Pond number	Transect compass bearing	Landscape position†	Latitude	Longitude	Elevation	Distance from pond edge	Upland slope grade	Soil sampling date	Vegetation sampling date
	degrees		-------degrees-------		--------m--------		%		
3	60	1	47.693430	-93.784590	433	-23.80	12.30	6/16/11	8/2/11
		2	47.693474	-93.784330	433	-1.00	12.30	6/16/11	8/3/11
		3	47.693473	-93.784324	433	2.00	12.30	6/16/11	8/3/11
		4	47.693492	-93.784304	434	3.00	12.30	6/16/11	8/3/11
		5	47.693509	-93.784300	434	5.00	12.30	6/16/11	8/3/11
	130	1	47.693442	-93.784585	432	-29.30	17.60	6/16/11	8/2/11
		2	47.693241	-93.784360	434	-1.00	17.60	6/16/11	8/3/11
		3	47.693226	-93.784345	434	1.00	17.60	6/16/11	8/3/11
		4	47.693216	-93.784340	434	3.50	17.60	6/16/11	8/3/11
		5	47.693177	-93.784318	435	6.40	17.60	6/16/11	8/3/11
	200	1	47.693435	-93.784589	432	-23.80	15.80	6/16/11	8/2/11
		2	47.693224	-93.784664	431	-1.00	15.80	6/16/11	8/3/11
		3	47.693209	-93.784676	432	1.00	15.80	6/16/11	8/3/11
		4	47.693195	-93.784692	432	6.40	15.80	6/16/11	8/3/11
		5	47.693167	-93.784761	433	11.90	15.80	6/16/11	8/3/11
	260	1	47.693435	-93.784589	432	-23.00	8.75	6/16/11	8/2/11
		2	47.693265	-93.784807	431	-1.00	8.75	6/16/11	8/3/11
		3	47.693285	-93.784834	432	1.50	8.75	6/16/11	8/3/11
		4	47.693301	-93.784901	432	4.00	8.75	6/16/11	8/3/11
		5	47.693288	-93.784928	432	6.40	8.75	6/16/11	8/3/11
	340	1	47.693398	-93.784552	433	-19.20	12.30	6/16/11	8/2/11
		2	47.693521	-93.784705	430	-1.00	12.30	6/16/11	8/3/11
		3	47.693506	-93.784676	432	1.50	12.30	6/16/11	8/3/11
		4	47.693551	-93.784679	432	8.20	12.30	6/16/11	8/3/11
		5	47.693567	-93.784679	433	19.20	12.30	6/16/11	8/3/11
4	20	1	47.691524	-93.781635	439	-20.10	19.40	6/24/11	8/15/11
		2	47.691667	-93.781865	438	-1.00	19.40	6/24/11	8/15/11
		3	47.691680	-93.781822	438	1.00	19.40	6/24/11	8/15/11
		4	47.691690	-93.781800	439	4.50	19.40	6/24/11	8/15/11
		5	47.691701	-93.781738	440	8.10	19.40	6/24/11	8/15/11
	100	1	47.691544	-93.781609	439	-21.00	21.30	6/24/11	8/15/11
		2	47.691430	-93.781674	443	-1.00	21.30	6/24/11	8/15/11
		3	47.691426	-93.781628	444	2.00	21.30	6/24/11	8/15/11
		4	47.691387	-93.781470	446	14.50	21.30	6/24/11	8/15/11
		5	47.691410	-93.781281	448	26.40	21.30	6/24/11	8/15/11
	170	1	47.691544	-93.781609	439	-22.90	23.10	6/24/11	8/15/11
		2	47.691251	-93.781804	436	-1.00	23.10	6/24/11	8/16/11
		3	47.691243	-93.781811	437	1.50	23.10	6/24/11	8/16/11
		4	47.691149	-93.781892	439	12.70	23.10	6/24/11	8/16/11
		5	47.691036	-93.781917	442	25.30	23.10	6/24/11	8/16/11
	240	1	47.691510	-93.781638	439	-15.50	23.10	6/24/11	8/15/11
		2	47.691343	-93.782187	442	-1.00	23.10	6/24/11	8/16/11
		3	47.691352	-93.782224	442	1.50	23.10	6/24/11	8/16/11
		4	47.691352	-93.782224	443	5.40	23.10	6/24/11	8/16/11
		5	47.691332	-93.782211	443	8.10	23.10	6/24/11	8/16/11
	310	1	47.691510	-93.781636	439	-24.70	19.40	6/24/11	8/15/11
		2	47.691598	-93.782118	444	-1.00	19.40	6/24/11	8/15/11
		3	47.691622	-93.782162	443	4.50	19.40	6/24/11	8/15/11
		4	47.691653	-93.782275	446	9.10	19.40	6/24/11	8/15/11
		5	47.691715	-93.782320	447	17.30	19.40	6/24/11	8/15/11

Table B1. Sampling location data (continued).

Pond number	Transect compass bearing	Landscape position†	Latitude	Longitude	Elevation	Distance from pond edge	Upland slope grade	Soil sampling date	Vegetation sampling date
	degrees		-------degrees-------		--------m--------		%		
5	40	1	47.690508	-93.781098	452	-21.00	14.10	6/25/11	8/21/11
		2	47.690604	-93.780972	446	-1.00	14.10	6/25/11	8/21/11
		3	47.690614	-93.780951	447	2.00	14.10	6/25/11	8/21/11
		4	47.690663	-93.780902	448	8.20	14.10	6/25/11	8/21/11
		5	47.690705	-93.780835	448	13.70	14.10	6/25/11	8/21/11
	120	1	47.690491	-93.781092	453	-33.80	24.90	6/25/11	8/21/11
		2	47.690330	-93.780765	446	-1.00	24.90	6/25/11	8/21/11
		3	47.690323	-93.780759	446	1.50	24.90	6/25/11	8/21/11
		4	47.690297	-93.780706	448	7.30	24.90	6/25/11	8/21/11
		5	47.690273	-93.780639	448	15.50	24.90	6/25/11	8/21/11
	190	1	47.690484	-93.781094	452	-29.40	24.90	6/25/11	8/21/11
		2	47.690252	-93.781127	445	-1.00	24.90	6/25/11	8/21/11
		3	47.690252	-93.781127	445	1.00	24.90	6/25/11	8/21/11
		4	47.690246	-93.781125	445	3.50	24.90	6/25/11	8/21/11
		5	47.690244	-93.781146	445	5.00	24.90	6/25/11	8/21/11
	260	1	47.690489	-93.781112	453	-17.40	15.80	6/25/11	8/21/11
		2	47.690462	-93.781355	442	-1.00	15.80	6/25/11	8/21/11
		3	47.690460	-93.781366	443	1.00	15.80	6/25/11	8/21/11
		4	47.690466	-93.781380	444	4.00	15.80	6/25/11	8/21/11
		5	47.690453	-93.781406	445	8.20	15.80	6/25/11	8/21/11
	330	1	47.690500	-93.781102	452	-22.90	8.75	6/25/11	8/21/11
		2	47.690650	-93.781193	447	-1.00	8.75	6/25/11	8/21/11
		3	47.690665	-93.781213	447	4.50	8.75	6/25/11	8/21/11
		4	47.690815	-93.781331	448	16.50	8.75	6/25/11	8/21/11
		5	47.690948	-93.781485	449	30.20	8.75	6/25/11	8/21/11
6	10	1	47.691658	-93.781131	441	-11.90	8.75	7/1/11	8/16/11
		2	47.691713	-93.780954	440	-1.00	8.75	7/1/11	8/17/11
		3	47.691713	-93.780957	440	1.20	8.75	7/1/11	8/17/11
		4	47.691714	-93.780948	441	5.50	8.75	7/1/11	8/17/11
		5	47.691718	-93.780936	440	9.10	8.75	7/1/11	8/17/11
	70	1	47.691658	-93.781128	440	-12.20	21.30	7/1/11	8/16/11
		2	47.691616	-93.780833	456	-1.00	21.30	7/1/11	8/17/11
		3	47.691643	-93.780797	456	2.00	21.30	7/1/11	8/17/11
		4	47.691645	-93.780775	458	6.50	21.30	7/1/11	8/17/11
		5	47.691660	-93.780699	459	11.00	21.30	7/1/11	8/17/11
	140	1	47.691666	-93.781121	439	-10.10	12.30	7/1/11	8/16/11
		2	47.691589	-93.780947	456	-1.00	12.30	7/1/11	8/17/11
		3	47.691591	-93.780954	456	1.50	12.30	7/1/11	8/17/11
		4	47.691490	-93.780881	457	11.00	12.30	7/1/11	8/17/11
		5	47.691456	-93.780805	458	19.20	12.30	7/1/11	8/17/11
	210	1	47.691656	-93.781108	440	-9.10	26.80	7/1/11	8/16/11
		2	47.691582	-93.781069	445	-1.00	26.80	7/1/11	8/16/11
		3	47.691592	-93.781081	446	7.70	26.80	7/1/11	8/16/11
		4	47.691546	-93.781119	447	13.70	26.80	7/1/11	8/16/11
		5	47.691455	-93.781196	449	17.40	26.80	7/1/11	8/16/11
	280	1	47.691663	-93.781143	441	-8.20	19.40	7/1/11	8/16/11
		2	47.691665	-93.781137	440	-1.00	19.40	7/1/11	8/16/11
		3	47.691651	-93.781279	438	1.50	19.40	7/1/11	8/16/11
		4	47.691650	-93.781278	438	3.50	19.40	7/1/11	8/16/11
		5	47.691658	-93.781314	439	5.50	19.40	7/1/11	8/16/11

Table B1. Sampling location data (continued).

Pond number	Transect compass bearing	Landscape position†	Latitude	Longitude	Elevation	Distance from pond edge	Upland slope grade	Soil sampling date	Vegetation sampling date
	degrees		-------degrees-------		--------m--------		%		
7	10	1	47.691104	-93.781046	434	-5.50	14.10	7/11/11	8/17/11
		2	47.691140	-93.781017	435	-1.00	14.10	7/11/11	8/17/11
		3	47.691150	-93.781017	435	1.00	14.10	7/11/11	8/17/11
		4	47.691154	-93.781014	435	3.00	14.10	7/11/11	8/17/11
		5	47.691176	-93.781019	436	6.40	14.10	7/11/11	8/17/11
	80	1	47.691107	-93.781061	434	-6.40	12.30	7/11/11	8/17/11
		2	47.691134	-93.781093	435	-1.00	12.30	7/11/11	8/17/11
		3	47.691132	-93.781095	436	1.00	12.30	7/11/11	8/17/11
		4	47.691116	-93.781102	435	5.60	12.30	7/11/11	8/17/11
		5	47.691110	-93.781113	436	9.10	12.30	7/11/11	8/17/11
	160	1	47.691110	-93.781039	434	-4.60	12.30	7/11/11	8/17/11
		2	47.691092	-93.781031	435	-1.00	12.30	7/11/11	8/17/11
		3	47.691084	-93.781027	435	2.50	12.30	7/11/11	8/17/11
		4	47.691046	-93.781027	435	4.50	12.30	7/11/11	8/17/11
		5	47.691029	-93.781019	436	8.20	12.30	7/11/11	8/17/11
	230	1	47.691112	-93.781049	434	-4.60	8.75	7/11/11	8/17/11
		2	47.691073	-93.780968	435	-1.00	8.75	7/11/11	8/17/11
		3	47.691083	-93.780962	435	1.00	8.75	7/11/11	8/17/11
		4	47.691081	-93.780941	436	4.50	8.75	7/11/11	8/17/11
		5	47.691070	-93.780919	437	9.10	8.75	7/11/11	8/17/11
	310	1	47.691110	-93.781040	435	-5.50	12.30	7/11/11	8/17/11
		2	47.691168	-93.781070	435	-1.00	12.30	7/11/11	8/17/11
		3	47.691168	-93.781070	435	1.00	12.30	7/11/11	8/17/11
		4	47.691168	-93.781071	435	3.50	12.30	7/11/11	8/17/11
		5	47.691182	-93.781099	435	6.40	12.30	7/11/11	8/17/11
8	10	1	47.689954	-93.779434	435	-8.20	10.50	7/12/11	8/2/11
		2	47.690013	-93.779466	435	-1.00	10.50	7/12/11	8/2/11
		3	47.690032	-93.779448	436	1.50	10.50	7/12/11	8/2/11
		4	47.690107	-93.779435	436	9.10	10.50	7/12/11	8/2/11
		5	47.690204	-93.779413	437	20.10	10.50	7/12/11	8/2/11
	80	1	47.689955	-93.779436	434	-5.50	17.60	7/12/11	8/2/11
		2	47.689959	-93.779414	435	-1.00	17.60	7/12/11	8/2/11
		3	47.689959	-93.779410	435	1.00	17.60	7/12/11	8/2/11
		4	47.689960	-93.779409	436	4.60	17.60	7/12/11	8/2/11
		5	47.689976	-93.779339	437	8.20	17.60	7/12/11	8/2/11
	160	1	47.689956	-93.779439	434	-12.80	8.75	7/12/11	8/2/11
		2	47.689869	-93.779491	433	-1.00	8.75	7/12/11	8/2/11
		3	47.689841	-93.779476	433	1.80	8.75	7/12/11	8/2/11
		4	47.689782	-93.779430	434	8.20	8.75	7/12/11	8/2/11
		5	47.689717	-93.779411	434	17.40	8.75	7/12/11	8/2/11
	230	1	47.689957	-93.779445	434	-6.40	28.70	7/12/11	8/2/11
		2	47.689912	-93.779545	434	-1.00	28.70	7/12/11	8/2/11
		3	47.689870	-93.779667	434	2.50	28.70	7/12/11	8/2/11
		4	47.689807	-93.779812	438	12.80	28.70	7/12/11	8/2/11
		5	47.689806	-93.779814	441	25.60	28.70	7/12/11	8/2/11
	300	1	47.689958	-93.779454	434	-13.70	21.30	7/12/11	8/2/11
		2	47.690082	-93.779546	435	-1.00	21.30	7/12/11	8/2/11
		3	47.690078	-93.779582	435	2.00	21.30	7/12/11	8/2/11
		4	47.690072	-93.779592	437	11.00	21.30	7/12/11	8/2/11
		5	47.690109	-93.779809	439	22.90	21.30	7/12/11	8/2/11

Table B1. Sampling location data (continued).

Pond number	Transect compass bearing	Landscape position†	Latitude	Longitude	Elevation	Distance from pond edge	Upland slope grade	Soil sampling date	Vegetation sampling date
	degrees		-------degrees-------		--------m--------		%		
9	60	1	47.692211	-93.779686	434	-11.00	23.10	7/12/11	8/15/11
		2	47.692268	-93.779621	431	-1.00	23.10	7/12/11	8/15/11
		3	47.692301	-93.779529	432	4.60	23.10	7/12/11	8/15/11
		4	47.692303	-93.779477	434	11.00	23.10	7/12/11	8/15/11
		5	47.692317	-93.779340	436	19.10	23.10	7/12/11	8/15/11
	120	1	47.692213	-93.779688	434	-16.50	14.10	7/12/11	8/15/11
		2	47.692161	-93.779593	432	-1.00	14.10	7/12/11	8/15/11
		3	47.692117	-93.779481	433	10.00	14.10	7/12/11	8/15/11
		4	47.691983	-93.779185	435	36.00	14.10	7/12/11	8/15/11
		5	47.691838	-93.778787	439	67.10	14.10	7/12/11	8/15/11
	180	1	47.692208	-93.779700	434	-11.00	8.75	7/12/11	8/15/11
		2	47.692109	-93.779757	433	-1.00	8.75	7/12/11	8/15/11
		3	47.692020	-93.779782	433	3.00	8.75	7/12/11	8/15/11
		4	47.691914	-93.779806	435	20.10	8.75	7/12/11	8/15/11
		5	47.691790	-93.779791	437	43.00	8.75	7/12/11	8/15/11
	250	1	47.692210	-93.779701	434	-8.20	8.75	7/12/11	8/15/11
		2	47.692181	-93.779782	435	-1.00	8.75	7/12/11	8/15/11
		3	47.692181	-93.779783	435	4.00	8.75	7/12/11	8/15/11
		4	47.692213	-93.779866	435	10.00	8.75	7/12/11	8/15/11
		5	47.692197	-93.779913	435	19.40	8.75	7/12/11	8/15/11
	340	1	47.692220	-93.779702	434	-11.00	15.80	7/12/11	8/15/11
		2	47.692326	-93.779735	431	-1.00	15.80	7/12/11	8/15/11
		3	47.692326	-93.779735	432	3.50	15.80	7/12/11	8/15/11
		4	47.692335	-93.779752	433	9.10	15.80	7/12/11	8/15/11
		5	47.692405	-93.779806	433	17.40	15.80	7/12/11	8/15/11
10	0	1	47.689027	-93.781085	415	-9.10	19.40	7/13/11	7/31/11
		2	47.689116	-93.781154	416	-1.00	19.40	7/13/11	7/31/11
		3	47.689126	-93.781098	417	7.30	19.40	7/13/11	7/31/11
		4	47.689277	-93.781037	420	27.40	19.40	7/13/11	7/31/11
		5	47.689563	-93.781012	423	54.80	19.40	7/13/11	7/31/11
	70	1	47.689024	-93.781070	415	-10.10	32.50	7/13/11	7/31/11
		2	47.689085	-93.780947	416	-1.00	32.50	7/13/11	7/31/11
		3	47.689087	-93.780925	416	2.50	32.50	7/13/11	7/31/11
		4	47.689143	-93.780588	422	24.70	32.50	7/13/11	7/31/11
		5	47.689238	-93.780227	431	54.90	32.50	7/13/11	7/31/11
	150	1	47.689022	-93.781066	416	-12.20	8.75	7/13/11	7/31/11
		2	47.688972	-93.780971	415	-1.00	8.75	7/13/11	7/31/11
		3	47.688944	-93.780963	416	3.00	8.75	7/13/11	7/31/11
		4	47.688926	-93.780956	416	7.00	8.75	7/13/11	7/31/11
		5	47.688888	-93.780933	417	10.60	8.75	7/13/11	7/31/11
	210	1	47.689020	-93.781070	416	-8.20	10.50	7/13/11	7/31/11
		2	47.688985	-93.781113	415	-1.00	10.50	7/13/11	7/31/11
		3	47.688975	-93.781105	416	0.50	10.50	7/13/11	7/31/11
		4	47.688969	-93.781100	416	2.50	10.50	7/13/11	7/31/11
		5	47.688945	-93.781108	416	4.60	10.50	7/13/11	7/31/11
	280	1	47.689030	-93.781060	415	-9.10	10.50	7/13/11	7/31/11
		2	47.689034	-93.781199	416	-1.00	10.50	7/13/11	7/31/11
		3	47.689036	-93.781220	415	1.50	10.50	7/13/11	7/31/11
		4	47.689037	-93.781230	416	4.60	10.50	7/13/11	7/31/11
		5	47.689052	-93.781290	416	7.30	10.50	7/13/11	7/31/11

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

APPENDIX C. SUPPLEMENTARY SOIL DATA

Table C1. Basin 1 (including pond) soil data by increment.

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
0	1	0-2 cm	383.00	21.500	1.210	17.70	78.80	0.044	0.002	0.206
		2-5 cm	364.00	20.000	1.110	18.00	99.40	0.055	0.003	0.273
		5-10 cm	279.00	14.900	0.719	20.70	143.00	0.076	0.004	0.512
		10-15 cm	62.40	3.640	0.183	20.00	64.90	0.038	0.002	1.040
	2	0-2 cm	138.00	13.500	0.868	15.50	64.90	0.063	0.004	0.469
		2-5 cm	134.00	9.840	0.520	18.90	60.60	0.045	0.002	0.452
		5-10 cm	93.40	7.090	0.450	15.70	68.60	0.052	0.003	0.735
		10-15 cm	31.70	2.690	0.203	13.20	41.70	0.035	0.003	1.310
	3	0-2 cm	33.20	6.500	0.295	22.10	20.90	0.041	0.002	0.628
		2-5 cm	32.00	4.420	0.259	17.00	26.10	0.036	0.002	0.817
		5-10 cm	27.50	3.300	0.190	17.40	30.00	0.036	0.002	1.090
		10-15 cm	19.20	2.150	0.107	20.20	25.50	0.029	0.001	1.330
	4	0-2 cm	29.90	3.850	0.195	19.70	25.20	0.032	0.002	0.842
		2-5 cm	29.80	3.940	0.191	20.60	28.30	0.037	0.002	0.949
		5-10 cm	22.20	2.140	0.094	22.80	23.90	0.023	0.001	1.080
		10-15 cm	11.20	1.030	0.068	15.20	14.50	0.013	0.001	1.290
	5	0-2 cm	27.90	4.850	0.250	19.40	20.80	0.036	0.002	0.746
		2-5 cm	31.90	4.190	0.211	19.80	30.10	0.040	0.002	0.944
		5-10 cm	22.80	2.760	0.146	18.90	25.90	0.032	0.002	1.140
		10-15 cm	17.90	1.480	0.092	16.10	22.40	0.019	0.001	1.250
70	1	0-2 cm	444.00	24.700	1.590	15.50	65.50	0.036	0.002	0.147
		2-5 cm	395.00	20.700	1.190	17.40	95.70	0.050	0.003	0.242
		5-10 cm	308.00	18.100	0.914	19.80	94.00	0.055	0.003	0.305
		10-15 cm	113.00	6.330	0.349	18.20	74.10	0.042	0.002	0.658
	2	0-2 cm	102.00	11.400	0.666	17.00	43.60	0.049	0.003	0.427
		2-5 cm	93.80	9.840	0.580	17.00	48.30	0.051	0.003	0.515
		5-10 cm	78.40	7.530	0.431	17.40	56.40	0.054	0.003	0.719
		10-15 cm	18.00	2.180	0.108	20.20	27.20	0.033	0.002	1.510
	3	0-2 cm	24.30	3.840	0.180	21.30	17.70	0.028	0.001	0.728
		2-5 cm	31.00	3.150	0.151	20.90	28.30	0.029	0.001	0.915
		5-10 cm	23.90	1.870	0.111	16.80	25.80	0.020	0.001	1.080
		10-15 cm	9.57	0.835	0.054	15.40	12.30	0.011	0.001	1.290
	4	0-2 cm	28.90	4.200	0.185	22.70	22.40	0.033	0.001	0.776
		2-5 cm	29.20	3.380	0.168	20.10	26.90	0.031	0.002	0.921
		5-10 cm	23.20	2.320	0.123	18.80	25.80	0.026	0.001	1.110
		10-15 cm	5.98	0.633	0.018	36.10	8.07	0.009	0.000	1.350

Table C1. Basin 1 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
70	5	0-2 cm	43.20	4.690	0.259	18.10	30.20	0.033	0.002	0.698
		2-5 cm	26.70	3.400	0.197	17.20	25.30	0.032	0.002	0.945
		5-10 cm	25.30	3.020	0.182	16.60	25.30	0.030	0.002	1.000
		10-15 cm	14.20	1.550	0.092	16.80	17.00	0.019	0.001	1.190
140	1	0-2 cm	401.00	21.400	1.350	15.80	84.00	0.045	0.003	0.210
		2-5 cm	285.00	17.500	0.871	20.10	126.00	0.077	0.004	0.441
		5-10 cm	147.00	9.750	0.515	18.90	123.00	0.082	0.004	0.837
		10-15 cm	51.80	3.630	0.217	16.70	70.00	0.049	0.003	1.350
	2	0-2 cm	73.70	12.700	0.701	18.10	20.80	0.036	0.002	0.282
		2-5 cm	67.80	8.380	0.468	17.90	27.70	0.034	0.002	0.408
		5-10 cm	47.30	6.310	0.333	19.00	33.60	0.045	0.002	0.710
		10-15 cm	16.10	2.110	0.141	15.00	21.50	0.028	0.002	1.330
	3	0-2 cm	32.50	4.890	0.247	19.80	26.20	0.039	0.002	0.806
		2-5 cm	27.40	4.190	0.213	19.70	23.90	0.037	0.002	0.872
		5-10 cm	27.50	2.810	0.153	18.30	29.70	0.030	0.002	1.080
		10-15 cm	24.20	1.740	0.132	13.20	29.70	0.021	0.002	1.230
	4	0-2 cm	52.80	6.010	0.286	21.00	35.70	0.041	0.002	0.676
		2-5 cm	46.60	4.640	0.227	20.40	36.80	0.037	0.002	0.790
		5-10 cm	34.00	2.380	0.141	16.90	44.00	0.031	0.002	1.290
		10-15 cm	14.50	0.837	0.058	14.40	21.00	0.012	0.001	1.450
	5	0-2 cm	44.60	5.140	0.317	16.20	38.30	0.044	0.003	0.857
		2-5 cm	45.50	4.340	0.285	15.20	39.40	0.038	0.002	0.868
		5-10 cm	33.10	2.870	0.204	14.10	37.20	0.032	0.002	1.120
		10-15 cm	12.20	0.876	0.079	11.10	17.40	0.013	0.001	1.430
210	1	0-2 cm	338.00	21.300	1.180	18.00	96.80	0.061	0.003	0.287
		2-5 cm	233.00	13.800	0.660	20.90	97.90	0.058	0.003	0.420
		5-10 cm	197.00	11.700	0.623	18.80	96.20	0.057	0.003	0.488
		10-15 cm	144.00	8.510	0.412	20.70	109.00	0.065	0.003	0.760
	2	0-2 cm	116.00	16.500	0.853	19.30	34.20	0.049	0.003	0.295
		2-5 cm	98.70	10.200	0.573	17.80	47.60	0.049	0.003	0.483
		5-10 cm	74.30	6.030	0.411	14.70	59.80	0.049	0.003	0.805
		10-15 cm	21.60	2.240	0.163	13.80	30.20	0.031	0.002	1.400
	3	0-2 cm	31.50	4.180	0.221	19.00	25.00	0.033	0.002	0.794
		2-5 cm	31.70	4.140	0.174	23.80	25.60	0.033	0.001	0.807
		5-10 cm	24.00	2.270	0.135	16.80	26.00	0.025	0.001	1.080
		10-15 cm	11.50	1.050	0.109	9.64	15.70	0.014	0.001	1.370

Table C1. Basin 1 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
210	4	0-2 cm	32.90	3.660	0.207	17.70	28.40	0.032	0.002	0.864
		2-5 cm	33.80	3.490	0.192	18.20	34.70	0.036	0.002	1.030
		5-10 cm	20.40	2.020	0.138	14.60	24.10	0.024	0.002	1.180
		10-15 cm	9.67	0.812	0.054	15.20	13.60	0.011	0.001	1.400
	5	0-2 cm	36.10	5.950	0.290	20.50	25.50	0.042	0.002	0.706
		2-5 cm	34.60	3.840	0.177	21.70	31.50	0.035	0.002	0.909
		5-10 cm	22.60	2.750	0.083	33.00	27.70	0.034	0.001	1.230
		10-15 cm	11.20	1.250	0.008	149.00	14.90	0.017	0.000	1.330
290	1	0-2 cm	428.00	25.300	1.530	16.50	68.40	0.040	0.002	0.160
		2-5 cm	395.00	22.500	1.230	18.20	104.00	0.059	0.003	0.264
		5-10 cm	283.00	14.600	0.671	21.80	147.00	0.076	0.003	0.520
		10-15 cm	144.00	7.920	0.467	17.00	118.00	0.065	0.004	0.820
	2	0-2 cm	88.30	9.840	0.669	14.70	40.00	0.045	0.003	0.453
		2-5 cm	42.50	4.760	0.351	13.60	31.60	0.035	0.003	0.743
		5-10 cm	46.00	4.440	0.255	17.40	41.00	0.040	0.002	0.891
		10-15 cm	17.40	1.650	0.119	13.80	28.80	0.027	0.002	1.660
	3	0-2 cm	37.00	3.950	0.201	19.70	25.90	0.028	0.001	0.701
		2-5 cm	34.50	4.130	0.230	18.00	29.70	0.036	0.002	0.862
		5-10 cm	34.00	2.630	0.142	18.50	37.00	0.029	0.002	1.090
		10-15 cm	21.30	1.260	0.074	16.90	28.50	0.017	0.001	1.340
	4	0-2 cm	46.70	4.290	0.206	20.80	24.90	0.023	0.001	0.534
		2-5 cm	39.10	4.390	0.230	19.10	28.30	0.032	0.002	0.722
		5-10 cm	49.10	3.870	0.170	22.80	41.00	0.032	0.001	0.834
		10-15 cm	18.60	1.610	0.081	19.80	20.70	0.018	0.001	1.110
	5	0-2 cm	51.20	4.660	0.268	17.40	44.00	0.040	0.002	0.859
		2-5 cm	51.30	3.760	0.236	15.90	49.70	0.036	0.002	0.968
		5-10 cm	37.70	2.950	0.168	17.50	40.60	0.032	0.002	1.080
		10-15 cm	13.40	0.774	0.056	13.80	19.50	0.011	0.001	1.450

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

Table C2. Basin 2 (including pond) soil data by increment.

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
0	1	0-2 cm	123.00	13.000	0.837	15.50	55.80	0.059	0.004	0.452
		2-5 cm	59.10	4.530	0.307	14.70	59.20	0.045	0.003	1.000
		5-10 cm	23.20	0.888	0.085	10.50	33.40	0.013	0.001	1.440
		10-15 cm	28.50	0.892	0.059	15.10	43.20	0.014	0.001	1.520
	2	0-2 cm	54.70	5.960	0.354	16.90	32.70	0.036	0.002	0.597
		2-5 cm	38.50	3.350	0.226	14.80	39.20	0.034	0.002	1.020
		5-10 cm	30.30	2.150	0.156	13.80	39.20	0.028	0.002	1.290
		10-15 cm	15.50	0.653	0.057	11.50	27.20	0.012	0.001	1.760
	3	0-2 cm	31.50	3.410	0.174	19.60	27.90	0.030	0.002	0.886
		2-5 cm	28.20	3.270	0.155	21.00	28.50	0.033	0.002	1.010
		5-10 cm	23.20	2.200	0.117	18.80	28.20	0.027	0.001	1.210
		10-15 cm	16.00	1.470	0.081	18.30	21.90	0.020	0.001	1.380
	4	0-2 cm	45.10	5.430	0.233	23.30	26.20	0.032	0.001	0.580
		2-5 cm	33.60	4.750	0.219	21.70	26.80	0.038	0.002	0.796
		5-10 cm	38.90	3.100	0.163	19.10	36.80	0.029	0.002	0.947
		10-15 cm	15.50	1.290	0.078	16.40	17.80	0.015	0.001	1.150
	5	0-2 cm	26.60	3.100	0.179	17.30	23.90	0.028	0.002	0.897
		2-5 cm	24.30	2.260	0.130	17.40	26.30	0.025	0.001	1.080
		5-10 cm	22.10	1.650	0.087	18.90	25.90	0.019	0.001	1.170
		10-15 cm	5.85	0.521	0.028	18.90	7.60	0.007	0.000	1.300
70	1	0-2 cm	123.00	12.100	0.785	15.50	56.70	0.056	0.004	0.460
		2-5 cm	101.00	6.980	0.447	15.60	67.90	0.047	0.003	0.670
		5-10 cm	32.50	1.690	0.158	10.70	46.20	0.024	0.002	1.420
		10-15 cm	11.60	0.462	0.033	14.10	20.30	0.008	0.001	1.740
	2	0-2 cm	41.10	9.140	0.462	19.80	17.80	0.040	0.002	0.433
		2-5 cm	35.10	5.110	0.288	17.70	27.90	0.041	0.002	0.795
		5-10 cm	27.60	2.520	0.155	16.20	33.90	0.031	0.002	1.230
		10-15 cm	13.20	1.260	0.087	14.50	21.50	0.021	0.001	1.630
	3	0-2 cm	35.60	4.160	0.217	19.20	22.40	0.026	0.001	0.631
		2-5 cm	35.90	3.390	0.203	16.60	30.10	0.028	0.002	0.839
		5-10 cm	30.00	2.330	0.139	16.70	31.40	0.024	0.001	1.040
		10-15 cm	14.10	0.893	0.047	19.20	18.20	0.012	0.001	1.290
	4	0-2 cm	48.60	4.940	0.286	17.30	37.90	0.039	0.002	0.781
		2-5 cm	47.80	5.000	0.275	18.20	43.70	0.046	0.003	0.914
		5-10 cm	33.50	2.540	0.165	15.40	37.50	0.029	0.002	1.120
		10-15 cm	13.70	0.768	0.053	14.40	19.20	0.011	0.001	1.400

Table C2. Basin 2 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
70	5	0-2 cm	50.70	6.020	0.321	18.80	39.00	0.046	0.002	0.770
		2-5 cm	49.40	5.240	0.297	17.60	43.50	0.046	0.003	0.881
		5-10 cm	36.50	4.110	0.245	16.70	38.40	0.043	0.003	1.050
		10-15 cm	15.10	1.590	0.111	14.30	18.30	0.019	0.001	1.220
140	1	0-2 cm	197.00	17.100	1.160	14.70	62.00	0.054	0.004	0.315
		2-5 cm	169.00	13.100	0.879	14.90	87.50	0.068	0.005	0.519
		5-10 cm	60.10	3.420	0.275	12.40	66.50	0.038	0.003	1.110
		10-15 cm	23.50	0.957	0.084	11.40	33.90	0.014	0.001	1.440
	2	0-2 cm	56.40	6.570	0.329	20.00	40.30	0.047	0.002	0.715
		2-5 cm	34.80	3.640	0.213	17.10	35.40	0.037	0.002	1.020
		5-10 cm	18.80	1.360	0.090	15.10	28.10	0.020	0.001	1.500
		10-15 cm	15.40	0.803	0.082	9.81	27.80	0.015	0.001	1.810
	3	0-2 cm	37.00	3.410	0.168	20.40	39.30	0.036	0.002	1.060
		2-5 cm	34.70	3.180	0.167	19.00	36.00	0.033	0.002	1.040
		5-10 cm	26.80	2.310	0.145	15.90	32.00	0.028	0.002	1.190
		10-15 cm	18.70	1.120	0.075	15.00	26.60	0.016	0.001	1.420
	4	0-2 cm	36.30	3.950	0.193	20.40	32.90	0.036	0.002	0.905
		2-5 cm	32.20	3.900	0.243	16.00	31.50	0.038	0.002	0.979
		5-10 cm	27.10	2.960	0.155	19.10	29.70	0.033	0.002	1.100
		10-15 cm	11.80	1.100	0.044	25.30	15.50	0.014	0.001	1.310
	5	0-2 cm	37.50	3.930	0.206	19.10	33.20	0.035	0.002	0.884
		2-5 cm	33.70	3.670	0.188	19.50	33.10	0.036	0.002	0.983
		5-10 cm	23.10	2.550	0.138	18.40	26.20	0.029	0.002	1.130
		10-15 cm	9.42	0.933	0.063	14.90	12.70	0.013	0.001	1.350
220	1	0-2 cm	119.00	9.450	0.544	17.40	62.90	0.050	0.003	0.527
		2-5 cm	74.60	5.160	0.358	14.40	66.40	0.046	0.003	0.889
		5-10 cm	31.30	1.620	0.145	11.20	49.40	0.026	0.002	1.580
		10-15 cm	15.90	0.664	0.045	14.70	29.60	0.012	0.001	1.870
	2	0-2 cm	73.10	10.500	0.493	21.30	34.20	0.049	0.002	0.467
		2-5 cm	47.70	5.530	0.316	17.50	38.30	0.044	0.003	0.803
		5-10 cm	31.60	2.820	0.189	14.90	37.80	0.034	0.002	1.200
		10-15 cm	12.60	0.575	0.043	13.40	23.00	0.011	0.001	1.820
	3	0-2 cm	37.20	4.190	0.167	25.10	34.30	0.039	0.002	0.924
		2-5 cm	35.50	3.900	0.224	17.40	33.10	0.036	0.002	0.933
		5-10 cm	28.20	3.050	0.166	18.40	30.30	0.033	0.002	1.070
		10-15 cm	19.50	1.700	0.113	15.10	25.40	0.022	0.001	1.300

Table C2. Basin 2 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
220	4	0-2 cm	28.90	5.940	0.255	23.30	17.30	0.036	0.002	0.597
		2-5 cm	25.60	3.530	0.174	20.20	22.90	0.032	0.002	0.895
		5-10 cm	21.70	3.000	0.143	21.00	25.30	0.035	0.002	1.170
		10-15 cm	22.20	1.780	0.105	16.90	31.30	0.025	0.001	1.410
	5	0-2 cm	27.50	3.240	0.180	18.00	26.10	0.031	0.002	0.949
		2-5 cm	26.40	3.130	0.169	18.50	27.50	0.033	0.002	1.040
		5-10 cm	20.50	2.290	0.136	16.90	23.20	0.026	0.002	1.130
		10-15 cm	9.48	0.828	0.070	11.80	14.90	0.013	0.001	1.570
300	1	0-2 cm	115.00	13.900	0.788	17.60	38.20	0.046	0.003	0.333
		2-5 cm	42.70	3.680	0.232	15.80	45.00	0.039	0.002	1.050
		5-10 cm	18.00	0.847	0.077	11.10	27.40	0.013	0.001	1.530
		10-15 cm	12.70	0.410	0.064	6.39	21.80	0.007	0.001	1.710
	2	0-2 cm	79.20	10.600	0.490	21.70	26.20	0.035	0.002	0.330
		2-5 cm	49.50	5.220	0.280	18.60	38.00	0.040	0.002	0.767
		5-10 cm	25.70	2.040	0.163	12.50	32.60	0.026	0.002	1.270
		10-15 cm	14.10	0.732	0.072	10.20	23.50	0.012	0.001	1.660
	3	0-2 cm	27.00	3.880	0.208	18.60	21.30	0.031	0.002	0.788
		2-5 cm	27.50	3.290	0.180	18.30	27.40	0.033	0.002	0.998
		5-10 cm	22.50	3.180	0.158	20.10	21.70	0.031	0.002	0.965
		10-15 cm	16.40	1.550	0.086	18.20	22.20	0.021	0.001	1.350
	4	0-2 cm	23.30	3.370	0.185	18.20	18.20	0.026	0.001	0.781
		2-5 cm	19.90	2.910	0.138	21.10	18.40	0.027	0.001	0.925
		5-10 cm	19.70	1.940	0.095	20.30	22.40	0.022	0.001	1.140
		10-15 cm	8.16	0.731	0.039	18.60	10.90	0.010	0.001	1.330
	5	0-2 cm	40.00	4.310	0.227	19.00	41.40	0.045	0.002	1.030
		2-5 cm	35.90	3.820	0.223	17.20	36.00	0.038	0.002	1.000
		5-10 cm	33.50	2.930	0.183	16.00	36.60	0.032	0.002	1.090
		10-15 cm	15.10	1.440	0.080	18.00	20.90	0.020	0.001	1.380

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

Table C3. Basin 3 (including pond) soil data by increment.

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
60	1	0-2 cm	178.00	37.300	1.460	25.60	17.90	0.037	0.001	0.100
		2-5 cm	163.00	37.500	1.630	22.90	17.30	0.040	0.002	0.106
		5-10 cm	192.00	38.200	1.600	23.80	23.80	0.047	0.002	0.124
		10-15 cm	133.00	38.500	1.860	20.70	24.60	0.071	0.003	0.186
	2	0-2 cm	87.60	13.300	0.825	16.20	43.00	0.066	0.004	0.491
		2-5 cm	67.20	8.780	0.558	15.70	50.30	0.066	0.004	0.748
		5-10 cm	54.40	6.240	0.413	15.10	51.50	0.059	0.004	0.947
		10-15 cm	22.40	2.790	0.179	15.60	38.50	0.048	0.003	1.720
	3	0-2 cm	37.50	4.510	0.237	19.00	30.80	0.037	0.002	0.822
		2-5 cm	35.60	3.530	0.215	16.40	30.80	0.031	0.002	0.866
		5-10 cm	30.50	2.870	0.181	15.90	31.10	0.029	0.002	1.020
		10-15 cm	31.00	2.690	0.153	17.70	47.90	0.042	0.002	1.540
	4	0-2 cm	39.60	3.730	0.197	18.90	35.10	0.033	0.002	0.886
		2-5 cm	34.70	3.130	0.173	18.10	37.60	0.034	0.002	1.080
		5-10 cm	29.90	2.430	0.140	17.30	35.30	0.029	0.002	1.180
		10-15 cm	20.10	1.350	0.087	15.40	26.10	0.018	0.001	1.300
	5	0-2 cm	29.70	3.010	0.160	18.80	31.60	0.032	0.002	1.060
		2-5 cm	25.50	2.850	0.167	17.10	26.70	0.030	0.002	1.050
		5-10 cm	21.50	1.590	0.098	16.20	27.60	0.020	0.001	1.280
		10-15 cm	18.10	1.160	0.065	17.80	27.10	0.017	0.001	1.500
130	1	0-2 cm	148.00	39.000	1.760	22.20	15.80	0.042	0.002	0.107
		2-5 cm	134.00	39.000	1.950	20.00	16.60	0.048	0.002	0.124
		5-10 cm	105.00	39.100	1.570	24.90	12.10	0.045	0.002	0.114
		10-15 cm	84.80	39.800	1.830	21.70	14.50	0.068	0.003	0.171
	2	0-2 cm	109.00	16.400	0.874	18.70	44.40	0.066	0.004	0.405
		2-5 cm	85.00	9.620	0.596	16.10	39.30	0.045	0.003	0.463
		5-10 cm	49.50	6.220	0.379	16.40	42.90	0.054	0.003	0.865
		10-15 cm	19.50	2.690	0.159	16.90	30.60	0.042	0.002	1.570
	3	0-2 cm	41.70	6.560	0.309	21.30	28.70	0.045	0.002	0.687
		2-5 cm	41.30	5.600	0.277	20.20	35.40	0.048	0.002	0.857
		5-10 cm	28.80	3.190	0.152	20.90	27.90	0.031	0.001	0.971
		10-15 cm	29.10	2.480	0.124	20.00	35.80	0.031	0.002	1.230
	4	0-2 cm	29.70	4.510	0.208	21.70	21.70	0.033	0.002	0.730
		2-5 cm	26.60	3.320	0.157	21.10	24.10	0.030	0.001	0.907
		5-10 cm	19.60	2.140	0.098	21.80	20.00	0.022	0.001	1.020
		10-15 cm	8.55	0.877	0.047	18.80	9.46	0.010	0.001	1.110

Table C3. Basin 3 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
130	5	0-2 cm	26.60	3.090	0.139	22.20	25.00	0.029	0.001	0.939
		2-5 cm	17.50	2.580	0.132	19.60	19.60	0.029	0.001	1.120
		5-10 cm	20.70	2.170	0.128	17.00	23.70	0.025	0.001	1.150
		10-15 cm	11.70	1.360	0.082	16.50	14.70	0.017	0.001	1.260
200	1	0-2 cm	115.00	38.500	1.890	20.40	15.90	0.053	0.003	0.138
		2-5 cm	100.00	39.800	1.900	21.00	13.00	0.052	0.002	0.130
		5-10 cm	135.00	39.100	1.910	20.40	15.40	0.045	0.002	0.114
		10-15 cm	111.00	39.100	1.890	20.70	18.00	0.064	0.003	0.163
	2	0-2 cm	87.70	11.600	0.682	17.00	28.20	0.037	0.002	0.321
		2-5 cm	99.30	10.400	0.575	18.00	50.90	0.053	0.003	0.513
		5-10 cm	53.70	5.560	0.341	16.30	52.30	0.054	0.003	0.975
		10-15 cm	38.20	3.420	0.191	17.90	56.40	0.051	0.003	1.480
	3	0-2 cm	30.60	4.300	0.210	20.50	27.30	0.038	0.002	0.891
		2-5 cm	30.90	3.910	0.198	19.70	31.20	0.039	0.002	1.010
		5-10 cm	25.80	3.630	0.176	20.60	28.20	0.040	0.002	1.090
		10-15 cm	17.10	1.950	0.117	16.60	23.10	0.026	0.002	1.350
	4	0-2 cm	20.10	3.340	0.172	19.40	18.70	0.031	0.002	0.928
		2-5 cm	21.90	2.960	0.145	20.40	25.10	0.034	0.002	1.140
		5-10 cm	17.60	1.870	0.092	20.30	22.00	0.023	0.001	1.250
		10-15 cm	12.80	1.020	0.067	15.30	16.70	0.013	0.001	1.310
	5	0-2 cm	37.40	4.440	0.250	17.70	30.90	0.037	0.002	0.825
		2-5 cm	36.80	4.120	0.234	17.60	35.60	0.040	0.002	0.966
		5-10 cm	27.40	2.950	0.174	16.90	30.80	0.033	0.002	1.130
		10-15 cm	13.40	1.480	0.104	14.20	16.10	0.018	0.001	1.210
260	1	0-2 cm	125.00	38.700	1.920	20.10	16.00	0.050	0.002	0.128
		2-5 cm	110.00	38.800	1.920	20.20	15.70	0.055	0.003	0.143
		5-10 cm	114.00	38.400	1.830	21.00	14.50	0.049	0.002	0.127
		10-15 cm	96.70	39.100	1.710	22.90	15.60	0.063	0.003	0.161
	2	0-2 cm	56.40	7.960	0.444	17.90	29.10	0.041	0.002	0.516
		2-5 cm	59.00	6.750	0.394	17.10	38.60	0.044	0.003	0.654
		5-10 cm	50.40	6.370	0.411	15.50	43.40	0.055	0.004	0.859
		10-15 cm	27.90	3.440	0.230	14.90	35.90	0.044	0.003	1.280
	3	0-2 cm	28.50	4.150	0.251	16.50	24.30	0.035	0.002	0.855
		2-5 cm	25.70	3.790	0.217	17.50	24.50	0.036	0.002	0.956
		5-10 cm	26.20	3.370	0.208	16.20	28.70	0.037	0.002	1.100
		10-15 cm	18.90	2.510	0.153	16.50	22.60	0.030	0.002	1.200

Table C3. Basin 3 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
260	4	0-2 cm	25.00	3.280	0.200	16.40	21.90	0.029	0.002	0.874
		2-5 cm	22.10	2.930	0.177	16.60	23.60	0.031	0.002	1.070
		5-10 cm	14.60	2.050	0.151	13.60	19.40	0.027	0.002	1.330
		10-15 cm	9.97	0.877	0.075	11.70	15.60	0.014	0.001	1.560
	5	0-2 cm	26.00	3.130	0.182	17.20	30.80	0.037	0.002	1.180
		2-5 cm	24.50	3.150	0.160	19.60	30.40	0.039	0.002	1.240
		5-10 cm	20.10	2.610	0.149	17.40	22.40	0.029	0.002	1.120
		10-15 cm	10.60	1.360	0.082	16.60	14.40	0.018	0.001	1.350
340	1	0-2 cm	102.00	38.800	1.970	19.70	14.60	0.056	0.003	0.143
		2-5 cm	96.50	39.000	1.910	20.40	13.60	0.055	0.003	0.141
		5-10 cm	81.00	39.900	1.760	22.70	11.50	0.057	0.003	0.142
		10-15 cm	86.00	40.200	1.710	23.50	13.60	0.064	0.003	0.158
	2	0-2 cm	39.80	5.740	0.315	18.20	23.70	0.034	0.002	0.596
		2-5 cm	28.30	4.380	0.253	17.30	31.80	0.049	0.003	1.120
		5-10 cm	13.30	1.860	0.129	14.40	19.80	0.028	0.002	1.480
		10-15 cm	2.72	0.596	0.044	13.60	4.76	0.010	0.001	1.750
	3	0-2 cm	30.70	4.630	0.228	20.30	21.90	0.033	0.002	0.712
		2-5 cm	33.10	3.810	0.155	24.70	32.30	0.037	0.002	0.975
		5-10 cm	29.90	3.150	0.128	24.70	30.70	0.032	0.001	1.030
		10-15 cm	23.40	1.800	0.104	17.40	29.10	0.022	0.001	1.240
	4	0-2 cm	25.00	2.740	0.152	18.10	20.80	0.023	0.001	0.835
		2-5 cm	26.20	2.320	0.137	16.90	29.90	0.027	0.002	1.140
		5-10 cm	23.00	2.010	0.136	14.70	27.70	0.024	0.002	1.210
		10-15 cm	15.50	1.070	0.080	13.30	21.70	0.015	0.001	1.390
	5	0-2 cm	29.40	3.040	0.158	19.30	26.70	0.028	0.001	0.910
		2-5 cm	28.40	3.080	0.160	19.30	30.70	0.033	0.002	1.080
		5-10 cm	24.90	3.110	0.136	23.00	25.40	0.032	0.001	1.020
		10-15 cm	17.40	2.050	0.098	21.00	20.60	0.024	0.001	1.180

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

Table C4. Basin 4 (including pond) soil data by increment.

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
20	1	0-2 cm	250.00	35.100	2.180	16.10	39.60	0.056	0.003	0.158
		2-5 cm	265.00	25.000	1.540	16.20	48.50	0.046	0.003	0.183
		5-10 cm	179.00	32.500	1.760	18.50	35.70	0.065	0.004	0.199
		10-15 cm	138.00	37.700	1.750	21.60	34.30	0.094	0.004	0.249
	2	0-2 cm	256.00	27.100	1.590	17.00	44.20	0.047	0.003	0.172
		2-5 cm	275.00	24.000	1.360	17.60	57.70	0.050	0.003	0.210
		5-10 cm	48.90	4.460	0.182	24.60	53.80	0.049	0.002	1.100
		10-15 cm	43.00	3.370	0.158	21.30	58.20	0.046	0.002	1.350
	3	0-2 cm	41.00	4.170	0.233	17.90	38.50	0.039	0.002	0.941
		2-5 cm	36.50	3.120	0.188	16.60	40.90	0.035	0.002	1.120
		5-10 cm	25.30	1.930	0.135	14.20	31.80	0.024	0.002	1.260
		10-15 cm	20.30	1.310	0.093	14.10	30.20	0.020	0.001	1.490
	4	0-2 cm	59.30	6.090	0.267	22.80	52.00	0.053	0.002	0.877
		2-5 cm	58.00	5.970	0.254	23.50	46.90	0.048	0.002	0.809
		5-10 cm	29.40	2.830	0.157	18.10	33.70	0.032	0.002	1.140
		10-15 cm	9.61	0.943	0.084	11.30	13.00	0.013	0.001	1.360
	5	0-2 cm	60.20	9.310	0.349	26.70	38.10	0.059	0.002	0.633
		2-5 cm	51.60	5.830	0.231	25.20	43.20	0.049	0.002	0.838
		5-10 cm	12.30	1.710	0.105	16.30	16.50	0.023	0.001	1.340
		10-15 cm	10.70	1.010	0.084	12.00	14.20	0.013	0.001	1.320
100	1	0-2 cm	248.00	37.300	2.350	15.90	40.60	0.061	0.004	0.164
		2-5 cm	313.00	31.900	2.190	14.60	46.50	0.047	0.003	0.148
		5-10 cm	203.00	27.600	1.720	16.00	38.50	0.052	0.003	0.190
		10-15 cm	147.00	37.700	1.790	21.10	36.00	0.092	0.004	0.244
	2	0-2 cm	218.00	32.400	1.770	18.30	32.40	0.048	0.003	0.149
		2-5 cm	131.00	19.600	1.200	16.30	48.70	0.073	0.004	0.373
		5-10 cm	118.00	14.600	0.668	21.90	64.70	0.080	0.004	0.550
		10-15 cm	55.70	4.550	0.172	26.40	79.50	0.065	0.002	1.430
	3	0-2 cm	46.40	4.940	0.228	21.70	34.10	0.036	0.002	0.735
		2-5 cm	32.30	3.300	0.174	19.00	31.60	0.032	0.002	0.979
		5-10 cm	19.20	1.570	0.095	16.50	25.10	0.021	0.001	1.310
		10-15 cm	7.20	0.491	0.048	10.20	11.00	0.008	0.001	1.530
	4	0-2 cm	26.10	3.280	0.177	18.50	26.10	0.033	0.002	1.000
		2-5 cm	29.20	2.880	0.157	18.40	28.90	0.029	0.002	0.991
		5-10 cm	23.30	1.820	0.108	16.90	29.60	0.023	0.001	1.270
		10-15 cm	13.00	0.893	0.067	13.40	21.00	0.015	0.001	1.620

Table C4. Basin 4 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
100	5	0-2 cm	27.00	2.480	0.135	18.40	28.00	0.026	0.001	1.040
		2-5 cm	23.70	2.540	0.137	18.60	25.90	0.028	0.002	1.090
		5-10 cm	25.60	1.860	0.106	17.50	26.10	0.019	0.001	1.020
		10-15 cm	11.10	1.130	0.096	11.90	13.40	0.014	0.001	1.200
170	1	0-2 cm	258.00	37.600	2.380	15.80	34.30	0.050	0.003	0.133
		2-5 cm	338.00	33.300	2.280	14.60	46.20	0.046	0.003	0.137
		5-10 cm	206.00	36.400	1.960	18.60	38.90	0.069	0.004	0.189
		10-15 cm	141.00	19.300	1.010	19.10	25.80	0.035	0.002	0.183
	2	0-2 cm	203.00	22.700	1.180	19.30	65.10	0.073	0.004	0.321
		2-5 cm	176.00	16.000	0.841	19.10	75.70	0.069	0.004	0.430
		5-10 cm	58.70	5.180	0.255	20.40	52.70	0.047	0.002	0.898
		10-15 cm	24.00	2.420	0.118	20.50	33.00	0.033	0.002	1.380
	3	0-2 cm	49.40	4.650	0.254	18.40	43.10	0.041	0.002	0.873
		2-5 cm	32.60	2.560	0.166	15.50	36.00	0.028	0.002	1.100
		5-10 cm	15.70	1.010	0.088	11.50	20.10	0.013	0.001	1.280
		10-15 cm	21.60	1.120	0.091	12.30	26.80	0.014	0.001	1.240
	4	0-2 cm	85.80	6.730	0.353	19.00	60.70	0.048	0.003	0.707
		2-5 cm	76.60	4.600	0.280	16.40	66.60	0.040	0.002	0.870
		5-10 cm	40.90	2.160	0.143	15.10	56.90	0.030	0.002	1.390
		10-15 cm	15.70	0.731	0.079	9.29	24.60	0.012	0.001	1.570
	5	0-2 cm	70.00	6.150	0.321	19.20	51.30	0.045	0.002	0.733
		2-5 cm	59.50	5.180	0.303	17.10	56.20	0.049	0.003	0.945
		5-10 cm	40.60	3.000	0.201	14.90	43.70	0.032	0.002	1.080
		10-15 cm	25.40	1.150	0.099	11.60	37.00	0.017	0.001	1.450
240	1	0-2 cm	267.00	37.600	1.890	19.90	33.90	0.048	0.002	0.127
		2-5 cm	299.00	35.900	2.010	17.90	51.20	0.062	0.003	0.172
		5-10 cm	208.00	37.200	1.730	21.60	48.30	0.087	0.004	0.233
		10-15 cm	101.00	39.500	1.440	27.40	23.50	0.092	0.003	0.233
	2	0-2 cm	208.00	24.300	1.400	17.40	35.10	0.041	0.002	0.169
		2-5 cm	228.00	22.200	1.310	17.00	49.40	0.048	0.003	0.217
		5-10 cm	163.00	14.300	0.805	17.70	69.10	0.060	0.003	0.423
		10-15 cm	33.00	4.230	0.260	16.20	38.90	0.050	0.003	1.180
	3	0-2 cm	39.20	5.390	0.289	18.70	25.30	0.035	0.002	0.646
		2-5 cm	35.70	3.950	0.240	16.40	33.10	0.037	0.002	0.927
		5-10 cm	28.30	2.910	0.189	15.40	30.50	0.032	0.002	1.080
		10-15 cm	16.30	1.520	0.097	15.70	21.10	0.020	0.001	1.290

Table C4. Basin 4 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
240	4	0-2 cm	35.20	3.320	0.207	16.00	34.10	0.032	0.002	0.971
		2-5 cm	33.00	2.770	0.164	16.90	35.60	0.030	0.002	1.080
		5-10 cm	21.50	1.890	0.121	15.50	26.10	0.023	0.001	1.210
		10-15 cm	12.80	0.823	0.080	10.20	19.20	0.012	0.001	1.500
	5	0-2 cm	33.20	3.760	0.202	18.60	28.90	0.033	0.002	0.870
		2-5 cm	30.80	3.270	0.206	15.90	33.40	0.035	0.002	1.080
		5-10 cm	26.80	2.300	0.155	14.90	31.80	0.027	0.002	1.180
		10-15 cm	15.20	1.140	0.095	12.00	24.60	0.019	0.002	1.620
310	1	0-2 cm	235.00	36.700	1.950	18.80	51.00	0.080	0.004	0.217
		2-5 cm	225.00	36.800	1.800	20.50	52.60	0.086	0.004	0.233
		5-10 cm	186.00	37.200	1.680	22.10	32.30	0.065	0.003	0.174
		10-15 cm	97.90	39.900	1.520	26.30	16.10	0.066	0.002	0.164
	2	0-2 cm	205.00	36.300	1.600	22.70	27.60	0.049	0.002	0.135
		2-5 cm	236.00	35.500	1.560	22.80	42.20	0.064	0.003	0.179
		5-10 cm	208.00	33.100	1.380	24.00	44.30	0.071	0.003	0.213
		10-15 cm	162.00	22.000	1.310	16.80	57.40	0.078	0.005	0.355
	3	0-2 cm	70.70	13.800	0.498	27.70	29.20	0.057	0.002	0.413
		2-5 cm	57.70	12.500	0.453	27.60	32.20	0.070	0.003	0.557
		5-10 cm	28.00	5.110	0.213	24.00	24.40	0.045	0.002	0.872
		10-15 cm	19.00	3.160	0.148	21.30	22.10	0.037	0.002	1.170
	4	0-2 cm	43.40	5.950	0.277	21.40	31.40	0.043	0.002	0.724
		2-5 cm	41.00	5.040	0.247	20.40	36.70	0.045	0.002	0.894
		5-10 cm	29.20	3.500	0.185	19.00	30.10	0.036	0.002	1.030
		10-15 cm	17.60	1.700	0.093	18.40	24.50	0.024	0.001	1.400
	5	0-2 cm	39.80	5.080	0.271	18.80	34.80	0.045	0.002	0.876
		2-5 cm	38.00	5.480	0.251	21.80	34.80	0.050	0.002	0.915
		5-10 cm	26.20	2.810	0.165	17.00	32.60	0.035	0.002	1.240
		10-15 cm	10.40	1.130	0.083	13.60	16.10	0.017	0.001	1.540

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

Table C5. Basin 5 (including pond) soil data by increment.

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
40	1	0-2 cm	219.00	32.500	1.400	23.20	24.40	0.036	0.002	0.111
		2-5 cm	178.00	20.000	0.833	24.10	22.90	0.026	0.001	0.128
		5-10 cm	150.00	14.500	0.598	24.30	15.30	0.015	0.001	0.102
		10-15 cm	96.10	30.600	1.190	25.80	11.80	0.038	0.001	0.123
	2	0-2 cm	65.20	5.970	0.309	19.30	42.70	0.039	0.002	0.654
		2-5 cm	59.00	4.860	0.264	18.40	57.00	0.047	0.003	0.966
		5-10 cm	20.00	1.940	0.097	19.90	28.60	0.028	0.001	1.430
		10-15 cm	6.84	0.465	0.031	14.80	12.40	0.008	0.001	1.810
	3	0-2 cm	58.40	7.870	0.392	20.10	32.30	0.044	0.002	0.552
		2-5 cm	51.50	5.700	0.285	20.00	39.10	0.043	0.002	0.760
		5-10 cm	47.50	4.100	0.205	20.00	46.60	0.040	0.002	0.981
		10-15 cm	31.60	2.180	0.145	15.00	38.00	0.026	0.002	1.200
	4	0-2 cm	38.60	4.190	0.234	17.90	29.40	0.032	0.002	0.762
		2-5 cm	35.80	3.530	0.189	18.70	35.70	0.035	0.002	0.999
		5-10 cm	27.00	2.280	0.158	14.50	31.30	0.026	0.002	1.160
		10-15 cm	13.10	0.709	0.044	16.20	20.50	0.011	0.001	1.560
	5	0-2 cm	38.20	4.390	0.222	19.80	35.90	0.041	0.002	0.940
		2-5 cm	31.70	3.470	0.192	18.10	33.90	0.037	0.002	1.070
		5-10 cm	22.90	2.430	0.140	17.40	27.40	0.029	0.002	1.190
		10-15 cm	9.24	1.150	0.055	20.70	13.60	0.017	0.001	1.470
120	1	0-2 cm	219.00	37.100	1.960	18.90	21.20	0.036	0.002	0.097
		2-5 cm	177.00	36.300	1.910	19.00	17.70	0.036	0.002	0.100
		5-10 cm	150.00	33.200	1.610	20.60	16.20	0.036	0.002	0.108
		10-15 cm	84.00	38.500	1.460	26.50	7.77	0.036	0.001	0.093
	2	0-2 cm	133.00	15.300	0.823	18.60	34.40	0.040	0.002	0.259
		2-5 cm	97.50	9.780	0.482	20.30	57.90	0.058	0.003	0.594
		5-10 cm	20.90	2.710	0.147	18.50	24.10	0.031	0.002	1.150
		10-15 cm	4.94	0.585	0.032	18.40	8.40	0.010	0.001	1.700
	3	0-2 cm	49.50	7.060	0.343	20.60	31.40	0.045	0.002	0.635
		2-5 cm	42.90	4.400	0.227	19.40	35.90	0.037	0.002	0.835
		5-10 cm	41.70	3.620	0.169	21.40	41.20	0.036	0.002	0.990
		10-15 cm	29.20	2.090	0.171	12.20	36.80	0.026	0.002	1.260
	4	0-2 cm	65.70	9.020	0.413	21.90	31.90	0.044	0.002	0.486
		2-5 cm	57.40	5.900	0.271	21.70	43.90	0.045	0.002	0.765
		5-10 cm	29.20	2.780	0.122	22.70	32.10	0.031	0.001	1.100
		10-15 cm	12.10	0.901	0.077	11.70	18.00	0.014	0.001	1.490

Table C5. Basin 5 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
120	5	0-2 cm	27.70	2.790	0.170	16.40	27.40	0.028	0.002	0.989
		2-5 cm	30.70	2.490	0.135	18.40	36.80	0.030	0.002	1.200
		5-10 cm	24.80	2.000	0.132	15.20	31.30	0.025	0.002	1.260
		10-15 cm	16.50	1.450	0.087	16.70	22.50	0.020	0.001	1.370
190	1	0-2 cm	262.00	30.900	1.660	18.60	21.20	0.025	0.001	0.081
		2-5 cm	209.00	35.500	1.910	18.60	16.70	0.029	0.002	0.080
		5-10 cm	165.00	21.400	1.040	20.60	16.00	0.021	0.001	0.097
		10-15 cm	127.00	32.400	1.440	22.50	16.70	0.043	0.002	0.132
	2	0-2 cm	153.00	19.300	1.110	17.40	40.50	0.051	0.003	0.265
		2-5 cm	66.50	6.860	0.373	18.40	48.20	0.050	0.003	0.725
		5-10 cm	32.20	3.220	0.210	15.40	31.70	0.032	0.002	0.986
		10-15 cm	17.20	1.610	0.127	12.70	21.80	0.020	0.002	1.270
	3	0-2 cm	55.40	6.450	0.336	19.20	37.10	0.043	0.002	0.670
		2-5 cm	47.80	5.650	0.295	19.20	40.50	0.048	0.002	0.846
		5-10 cm	39.80	3.600	0.188	19.10	38.90	0.035	0.002	0.978
		10-15 cm	22.70	1.690	0.136	12.40	25.60	0.019	0.002	1.130
	4	0-2 cm	38.60	4.850	0.261	18.60	24.30	0.031	0.002	0.631
		2-5 cm	38.00	4.220	0.234	18.00	32.00	0.036	0.002	0.842
		5-10 cm	33.70	3.180	0.177	18.00	34.90	0.033	0.002	1.040
		10-15 cm	16.60	1.200	0.093	12.90	21.40	0.015	0.001	1.280
	5	0-2 cm	44.20	7.090	0.358	19.80	21.50	0.035	0.002	0.486
		2-5 cm	41.70	5.230	0.283	18.50	33.70	0.042	0.002	0.809
		5-10 cm	31.80	3.040	0.201	15.10	31.80	0.030	0.002	1.000
		10-15 cm	21.90	1.810	0.134	13.50	28.40	0.023	0.002	1.300
260	1	0-2 cm	212.00	37.400	1.790	20.90	23.30	0.041	0.002	0.110
		2-5 cm	179.00	34.600	1.600	21.70	18.60	0.036	0.002	0.104
		5-10 cm	191.00	18.400	0.913	20.10	26.10	0.025	0.001	0.136
		10-15 cm	102.00	38.400	1.580	24.30	9.59	0.036	0.001	0.094
	2	0-2 cm	103.00	20.500	1.170	17.50	27.00	0.054	0.003	0.261
		2-5 cm	36.00	5.170	0.320	16.10	31.30	0.045	0.003	0.870
		5-10 cm	11.50	1.740	0.120	14.50	15.10	0.023	0.002	1.320
		10-15 cm	19.50	2.370	0.139	17.00	28.50	0.035	0.002	1.460
	3	0-2 cm	38.00	5.090	0.283	18.00	31.60	0.042	0.002	0.832
		2-5 cm	35.30	4.010	0.253	15.90	34.50	0.039	0.002	0.977
		5-10 cm	34.00	2.860	0.207	13.80	38.50	0.032	0.002	1.130
		10-15 cm	19.20	1.680	0.126	13.30	25.10	0.022	0.002	1.310

Table C5. Basin 5 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
260	4	0-2 cm	57.80	6.270	0.377	16.60	50.40	0.055	0.003	0.873
		2-5 cm	52.10	4.560	0.324	14.10	49.60	0.043	0.003	0.952
		5-10 cm	45.60	3.550	0.248	14.30	45.30	0.035	0.002	0.994
		10-15 cm	18.80	1.350	0.112	12.00	28.40	0.020	0.002	1.510
	5	0-2 cm	61.10	10.600	0.575	18.40	31.30	0.054	0.003	0.513
		2-5 cm	56.60	5.860	0.377	15.50	41.60	0.043	0.003	0.735
		5-10 cm	39.40	3.770	0.281	13.40	41.20	0.039	0.003	1.040
		10-15 cm	17.50	1.530	0.124	12.40	23.60	0.021	0.002	1.350
330	1	0-2 cm	215.00	37.500	1.720	21.80	24.20	0.042	0.002	0.113
		2-5 cm	186.00	37.100	1.680	22.10	20.60	0.041	0.002	0.111
		5-10 cm	202.00	24.400	1.110	22.10	23.80	0.029	0.001	0.117
		10-15 cm	92.60	31.900	1.280	24.90	9.63	0.033	0.001	0.104
	2	0-2 cm	60.80	7.720	0.481	16.10	42.60	0.054	0.003	0.701
		2-5 cm	40.10	4.820	0.342	14.10	42.60	0.051	0.004	1.060
		5-10 cm	6.03	0.783	0.071	11.00	10.10	0.013	0.001	1.680
		10-15 cm	3.38	0.418	0.064	6.58	6.36	0.008	0.001	1.880
	3	0-2 cm	62.10	6.080	0.304	20.00	40.70	0.040	0.002	0.655
		2-5 cm	58.00	5.090	0.268	19.00	52.00	0.046	0.002	0.897
		5-10 cm	50.10	3.830	0.222	17.30	52.60	0.040	0.002	1.050
		10-15 cm	21.70	1.170	0.084	13.80	32.10	0.017	0.001	1.480
	4	0-2 cm	53.30	4.540	0.236	19.20	53.70	0.046	0.002	1.010
		2-5 cm	49.00	4.310	0.216	20.00	52.90	0.047	0.002	1.080
		5-10 cm	31.10	2.640	0.156	16.90	34.20	0.029	0.002	1.100
		10-15 cm	12.80	0.834	0.068	12.30	19.30	0.013	0.001	1.510
	5	0-2 cm	39.90	4.220	0.222	19.00	36.20	0.038	0.002	0.906
		2-5 cm	42.60	3.790	0.205	18.50	42.80	0.038	0.002	1.010
		5-10 cm	26.10	1.950	0.125	15.60	31.30	0.024	0.002	1.200
		10-15 cm	9.10	0.719	0.077	9.29	14.60	0.012	0.001	1.600

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

Table C6. Basin 6 (including pond) soil data by increment.

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
10	1	0-2 cm	258.00	34.000	1.750	19.40	44.50	0.059	0.003	0.173
		2-5 cm	219.00	32.800	1.740	18.80	39.70	0.059	0.003	0.181
		5-10 cm	178.00	33.600	1.680	19.90	42.80	0.081	0.004	0.240
		10-15 cm	159.00	33.800	1.670	20.30	39.10	0.083	0.004	0.246
	2	0-2 cm	58.70	6.250	0.403	15.50	37.50	0.040	0.003	0.639
		2-5 cm	20.50	1.990	0.131	15.20	27.40	0.027	0.002	1.340
		5-10 cm	6.70	0.628	0.048	13.00	12.30	0.012	0.001	1.830
		10-15 cm	6.50	0.640	0.058	11.00	11.10	0.011	0.001	1.710
	3	0-2 cm	40.70	4.900	0.279	17.50	35.40	0.043	0.002	0.870
		2-5 cm	35.40	3.770	0.226	16.70	35.70	0.038	0.002	1.010
		5-10 cm	27.50	2.360	0.151	15.60	32.70	0.028	0.002	1.190
		10-15 cm	17.80	1.120	0.095	11.80	25.30	0.016	0.001	1.430
	4	0-2 cm	38.60	4.320	0.261	16.60	34.60	0.039	0.002	0.897
		2-5 cm	36.40	2.920	0.191	15.30	37.00	0.030	0.002	1.020
		5-10 cm	25.50	1.960	0.132	14.90	29.60	0.023	0.002	1.160
		10-15 cm	11.80	0.684	0.061	11.30	18.40	0.011	0.001	1.560
	5	0-2 cm	49.30	5.550	0.290	19.10	44.10	0.050	0.003	0.894
		2-5 cm	58.30	4.430	0.275	16.10	49.30	0.037	0.002	0.845
		5-10 cm	32.80	2.330	0.151	15.40	37.60	0.027	0.002	1.140
		10-15 cm	15.90	1.080	0.077	14.00	21.30	0.015	0.001	1.340
70	1	0-2 cm	291.00	32.900	1.870	17.60	42.10	0.048	0.003	0.145
		2-5 cm	251.00	32.600	1.690	19.30	48.80	0.063	0.003	0.194
		5-10 cm	203.00	32.700	1.680	19.40	48.80	0.079	0.004	0.240
		10-15 cm	160.00	34.300	1.580	21.70	45.30	0.097	0.004	0.283
	2	0-2 cm	213.00	22.200	1.210	18.30	46.60	0.049	0.003	0.219
		2-5 cm	150.00	12.900	0.736	17.60	75.10	0.065	0.004	0.502
		5-10 cm	18.40	1.320	0.088	14.90	30.20	0.022	0.001	1.650
		10-15 cm	10.10	0.574	0.041	14.10	18.50	0.011	0.001	1.830
	3	0-2 cm	45.10	4.290	0.256	16.80	35.40	0.034	0.002	0.783
		2-5 cm	50.60	3.580	0.218	16.40	44.70	0.032	0.002	0.883
		5-10 cm	34.00	2.220	0.141	15.70	40.20	0.026	0.002	1.180
		10-15 cm	18.00	0.801	0.074	10.80	28.10	0.013	0.001	1.560
	4	0-2 cm	30.80	2.800	0.167	16.80	30.00	0.027	0.002	0.974
		2-5 cm	30.50	2.260	0.142	16.00	32.90	0.025	0.002	1.080
		5-10 cm	15.10	1.130	0.109	10.40	20.40	0.015	0.001	1.350
		10-15 cm	9.25	0.509	0.058	8.75	14.70	0.008	0.001	1.590

Table C6. Basin 6 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
70	5	0-2 cm	27.80	2.830	0.160	17.70	33.40	0.034	0.002	1.200
		2-5 cm	27.90	2.540	0.138	18.40	30.60	0.028	0.002	1.100
		5-10 cm	23.90	1.820	0.119	15.40	28.80	0.022	0.001	1.200
		10-15 cm	10.40	0.752	0.055	13.60	14.60	0.011	0.001	1.410
140	1	0-2 cm	284.00	25.300	1.570	16.20	44.40	0.040	0.002	0.156
		2-5 cm	242.00	30.800	1.870	16.50	46.20	0.059	0.004	0.191
		5-10 cm	179.00	33.200	1.700	19.50	34.80	0.065	0.003	0.194
		10-15 cm	154.00	34.600	1.710	20.30	40.50	0.091	0.004	0.263
	2	0-2 cm	173.00	17.000	0.956	17.80	59.70	0.059	0.003	0.345
		2-5 cm	155.00	13.900	0.830	16.70	97.20	0.087	0.005	0.628
		5-10 cm	34.30	3.210	0.185	17.40	53.00	0.050	0.003	1.540
		10-15 cm	10.40	0.903	0.093	9.69	18.80	0.016	0.002	1.810
	3	0-2 cm	101.00	16.400	0.604	27.10	33.00	0.054	0.002	0.328
		2-5 cm	111.00	12.800	0.521	24.50	49.40	0.057	0.002	0.444
		5-10 cm	53.10	7.610	0.312	24.40	35.70	0.051	0.002	0.673
		10-15 cm	25.90	3.470	0.166	21.00	25.20	0.034	0.002	0.971
	4	0-2 cm	52.70	4.130	0.242	17.10	50.80	0.040	0.002	0.964
		2-5 cm	47.90	3.570	0.211	16.90	46.40	0.035	0.002	0.969
		5-10 cm	29.00	1.770	0.135	13.10	36.80	0.022	0.002	1.270
		10-15 cm	11.80	0.590	0.046	12.90	17.20	0.009	0.001	1.460
	5	0-2 cm	30.60	3.120	0.177	17.70	28.30	0.029	0.002	0.923
		2-5 cm	31.50	2.750	0.150	18.30	34.00	0.030	0.002	1.080
		5-10 cm	24.70	2.170	0.132	16.40	28.30	0.025	0.002	1.140
		10-15 cm	14.70	1.280	0.070	18.20	17.20	0.015	0.001	1.170
210	1	0-2 cm	293.00	31.800	1.780	17.90	61.20	0.066	0.004	0.209
		2-5 cm	216.00	33.100	1.800	18.40	31.90	0.049	0.003	0.147
		5-10 cm	212.00	32.700	1.660	19.70	38.50	0.059	0.003	0.181
		10-15 cm	150.00	33.400	1.770	18.90	34.10	0.076	0.004	0.228
	2	0-2 cm	194.00	16.000	0.910	17.60	62.20	0.051	0.003	0.320
		2-5 cm	239.00	16.800	1.070	15.70	107.00	0.075	0.005	0.447
		5-10 cm	223.00	14.500	0.952	15.20	93.90	0.061	0.004	0.422
		10-15 cm	129.00	9.160	0.635	14.40	82.40	0.059	0.004	0.641
	3	0-2 cm	116.00	20.600	0.574	35.90	33.10	0.059	0.002	0.285
		2-5 cm	71.90	10.200	0.357	28.50	34.10	0.048	0.002	0.475
		5-10 cm	29.10	3.370	0.172	19.60	30.10	0.035	0.002	1.030
		10-15 cm	19.60	1.450	0.099	14.60	28.20	0.021	0.001	1.440

Table C6. Basin 6 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
210	4	0-2 cm	25.90	3.480	0.176	19.70	21.70	0.029	0.001	0.838
		2-5 cm	21.90	2.940	0.145	20.20	23.30	0.031	0.002	1.060
		5-10 cm	24.10	2.210	0.136	16.30	21.50	0.020	0.001	0.895
		10-15 cm	11.80	1.050	0.095	11.10	15.30	0.014	0.001	1.300
	5	0-2 cm	28.50	3.890	0.203	19.10	23.80	0.033	0.002	0.836
		2-5 cm	22.20	2.820	0.156	18.10	21.10	0.027	0.001	0.951
		5-10 cm	23.00	2.120	0.138	15.40	25.70	0.024	0.002	1.120
		10-15 cm	12.10	0.734	0.060	12.20	16.00	0.010	0.001	1.320
280	1	0-2 cm	285.00	33.000	1.870	17.60	46.30	0.054	0.003	0.163
		2-5 cm	257.00	30.700	1.720	17.80	48.50	0.058	0.003	0.189
		5-10 cm	255.00	30.500	1.620	18.90	56.90	0.068	0.004	0.223
		10-15 cm	204.00	31.300	1.600	19.50	60.70	0.093	0.005	0.297
	2	0-2 cm	133.00	10.800	0.564	19.10	62.60	0.051	0.003	0.469
		2-5 cm	72.90	6.280	0.333	18.90	56.60	0.049	0.003	0.777
		5-10 cm	30.80	3.550	0.197	18.10	37.30	0.043	0.002	1.210
		10-15 cm	5.56	0.737	0.048	15.20	9.72	0.013	0.001	1.750
	3	0-2 cm	37.40	5.970	0.245	24.30	23.00	0.037	0.002	0.614
		2-5 cm	25.80	3.940	0.175	22.40	23.40	0.036	0.002	0.906
		5-10 cm	18.80	1.870	0.088	21.40	22.40	0.022	0.001	1.190
		10-15 cm	13.60	1.010	0.061	16.40	21.30	0.016	0.001	1.570
	4	0-2 cm	24.30	4.440	0.207	21.40	20.20	0.037	0.002	0.830
		2-5 cm	27.80	2.970	0.155	19.10	32.40	0.035	0.002	1.160
		5-10 cm	24.20	1.950	0.109	17.80	29.50	0.024	0.001	1.220
		10-15 cm	20.00	1.370	0.081	16.90	25.90	0.018	0.001	1.290
	5	0-2 cm	33.70	3.230	0.158	20.40	32.20	0.031	0.002	0.957
		2-5 cm	32.40	2.630	0.152	17.30	36.70	0.030	0.002	1.130
		5-10 cm	25.00	1.980	0.126	15.70	31.90	0.025	0.002	1.270
		10-15 cm	12.80	1.140	0.082	13.90	20.70	0.019	0.001	1.610

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

Table C7. Basin 7 (including pond) soil data by increment.

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
10	1	0-2 cm	191.00	11.600	0.859	13.50	79.40	0.048	0.004	0.415
		2-5 cm	112.00	5.010	0.400	12.50	87.40	0.039	0.003	0.779
		5-10 cm	66.20	2.320	0.198	11.70	68.20	0.024	0.002	1.030
		10-15 cm	42.80	1.300	0.141	9.20	57.30	0.017	0.002	1.340
	2	0-2 cm	43.30	3.940	0.241	16.30	33.50	0.030	0.002	0.773
		2-5 cm	34.90	2.300	0.166	13.80	39.90	0.026	0.002	1.150
		5-10 cm	22.60	1.310	0.100	13.20	36.10	0.021	0.002	1.600
		10-15 cm	10.30	0.561	0.075	7.49	20.60	0.011	0.002	2.000
	3	0-2 cm	41.90	5.350	0.285	18.80	26.50	0.034	0.002	0.632
		2-5 cm	44.60	4.380	0.236	18.50	37.80	0.037	0.002	0.847
		5-10 cm	35.10	3.070	0.189	16.20	37.20	0.032	0.002	1.060
		10-15 cm	18.70	1.240	0.101	12.30	27.00	0.018	0.001	1.440
	4	0-2 cm	37.80	4.740	0.233	20.40	28.60	0.036	0.002	0.756
		2-5 cm	36.70	3.430	0.191	17.90	29.90	0.028	0.002	0.815
		5-10 cm	23.10	2.020	0.134	15.10	27.70	0.024	0.002	1.200
		10-15 cm	12.60	0.983	0.093	10.60	18.00	0.014	0.001	1.440
	5	0-2 cm	47.30	5.710	0.302	18.90	26.30	0.032	0.002	0.556
		2-5 cm	45.00	4.810	0.256	18.80	38.70	0.041	0.002	0.861
		5-10 cm	41.40	3.680	0.190	19.40	40.80	0.036	0.002	0.984
		10-15 cm	20.50	1.770	0.140	12.60	30.80	0.027	0.002	1.500
80	1	0-2 cm	256.00	15.100	1.100	13.70	85.90	0.051	0.004	0.336
		2-5 cm	181.00	7.740	0.611	12.70	116.00	0.049	0.004	0.639
		5-10 cm	103.00	3.600	0.329	10.90	108.00	0.038	0.003	1.050
		10-15 cm	39.10	1.350	0.133	10.20	58.10	0.020	0.002	1.490
	2	0-2 cm	75.20	5.940	0.368	16.10	55.10	0.044	0.003	0.733
		2-5 cm	49.00	3.550	0.253	14.10	57.70	0.042	0.003	1.180
		5-10 cm	19.40	1.050	0.108	9.74	32.80	0.018	0.002	1.690
		10-15 cm	10.10	0.470	0.052	9.06	20.60	0.010	0.001	2.040
	3	0-2 cm	39.80	4.800	0.266	18.10	27.90	0.034	0.002	0.700
		2-5 cm	41.30	4.130	0.246	16.80	36.40	0.036	0.002	0.881
		5-10 cm	30.60	2.640	0.178	14.80	34.70	0.030	0.002	1.130
		10-15 cm	12.60	0.769	0.070	11.00	18.50	0.011	0.001	1.460
	4	0-2 cm	42.40	4.940	0.269	18.40	31.10	0.036	0.002	0.734
		2-5 cm	43.40	4.210	0.234	18.00	38.10	0.037	0.002	0.878
		5-10 cm	31.00	3.030	0.171	17.70	32.80	0.032	0.002	1.060
		10-15 cm	11.90	0.931	0.088	10.50	18.70	0.015	0.001	1.570

Table C7. Basin 7 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
80	5	0-2 cm	40.00	4.850	0.275	17.60	31.00	0.038	0.002	0.775
		2-5 cm	40.60	4.110	0.260	15.80	35.80	0.036	0.002	0.882
		5-10 cm	30.90	2.650	0.166	16.00	36.40	0.031	0.002	1.180
		10-15 cm	16.70	1.150	0.099	11.60	26.10	0.018	0.002	1.560
160	1	0-2 cm	113.00	10.100	0.658	15.40	67.00	0.060	0.004	0.593
		2-5 cm	86.60	6.350	0.432	14.70	76.90	0.056	0.004	0.888
		5-10 cm	54.90	3.670	0.268	13.70	61.50	0.041	0.003	1.120
		10-15 cm	13.60	0.804	0.091	8.81	26.40	0.016	0.002	1.950
	2	0-2 cm	46.90	3.650	0.221	16.50	54.40	0.042	0.003	1.160
		2-5 cm	32.80	2.260	0.135	16.70	45.60	0.032	0.002	1.390
		5-10 cm	16.80	1.190	0.086	13.80	26.80	0.019	0.001	1.600
		10-15 cm	13.80	0.798	0.088	9.10	22.60	0.013	0.001	1.640
	3	0-2 cm	68.10	7.900	0.374	21.10	38.30	0.044	0.002	0.562
		2-5 cm	74.20	6.280	0.306	20.50	52.00	0.044	0.002	0.700
		5-10 cm	47.40	4.090	0.202	20.20	44.20	0.038	0.002	0.932
		10-15 cm	14.90	1.250	0.089	14.00	21.60	0.018	0.001	1.450
	4	0-2 cm	49.10	4.640	0.242	19.20	46.10	0.044	0.002	0.937
		2-5 cm	47.50	3.330	0.191	17.50	46.80	0.033	0.002	0.986
		5-10 cm	40.70	2.860	0.190	15.00	41.30	0.029	0.002	1.020
		10-15 cm	27.20	1.580	0.124	12.80	40.70	0.024	0.002	1.490
	5	0-2 cm	59.40	6.700	0.291	23.10	40.30	0.045	0.002	0.678
		2-5 cm	48.70	5.500	0.235	23.40	38.20	0.043	0.002	0.784
		5-10 cm	37.20	3.610	0.191	18.90	38.10	0.037	0.002	1.020
		10-15 cm	18.40	1.450	0.106	13.70	25.80	0.020	0.001	1.410
230	1	0-2 cm	122.00	9.800	0.609	16.10	69.20	0.056	0.003	0.566
		2-5 cm	66.90	3.940	0.293	13.40	62.50	0.037	0.003	0.934
		5-10 cm	25.50	1.360	0.118	11.50	42.20	0.023	0.002	1.660
		10-15 cm	12.60	0.641	0.063	10.20	24.30	0.012	0.001	1.930
	2	0-2 cm	41.80	3.140	0.227	13.80	44.50	0.033	0.002	1.060
		2-5 cm	33.50	2.410	0.168	14.30	44.70	0.032	0.002	1.330
		5-10 cm	17.00	1.010	0.092	11.00	29.50	0.017	0.002	1.730
		10-15 cm	13.50	0.650	0.073	8.94	26.30	0.013	0.001	1.940
	3	0-2 cm	44.40	5.370	0.316	17.00	32.90	0.040	0.002	0.741
		2-5 cm	40.80	4.320	0.263	16.40	36.00	0.038	0.002	0.883
		5-10 cm	37.70	3.810	0.239	15.90	33.90	0.034	0.002	0.899
		10-15 cm	24.90	2.140	0.151	14.20	29.70	0.026	0.002	1.190

Table C7. Basin 7 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
230	4	0-2 cm	48.20	5.750	0.328	17.50	34.90	0.042	0.002	0.724
		2-5 cm	48.20	3.860	0.254	15.20	46.10	0.037	0.002	0.956
		5-10 cm	36.50	2.710	0.166	16.30	39.10	0.029	0.002	1.070
		10-15 cm	14.50	1.110	0.094	11.90	20.40	0.016	0.001	1.400
	5	0-2 cm	52.70	7.030	0.351	20.10	30.80	0.041	0.002	0.585
		2-5 cm	47.70	5.520	0.281	19.60	33.90	0.039	0.002	0.710
		5-10 cm	34.00	3.390	0.197	17.20	36.60	0.037	0.002	1.080
		10-15 cm	14.10	1.660	0.109	15.30	20.80	0.025	0.002	1.480
310	1	0-2 cm	165.00	14.200	0.805	17.70	48.40	0.042	0.002	0.293
		2-5 cm	112.00	9.140	0.452	20.20	65.80	0.054	0.003	0.587
		5-10 cm	37.30	2.760	0.142	19.40	43.10	0.032	0.002	1.150
		10-15 cm	30.00	1.870	0.150	12.50	50.00	0.031	0.003	1.660
	2	0-2 cm	63.70	6.150	0.381	16.10	42.60	0.041	0.003	0.669
		2-5 cm	47.90	3.530	0.244	14.50	47.30	0.035	0.002	0.987
		5-10 cm	16.10	1.060	0.100	10.50	26.90	0.018	0.002	1.670
		10-15 cm	13.40	0.703	0.058	12.20	26.40	0.014	0.001	1.970
	3	0-2 cm	39.00	3.850	0.233	16.50	33.70	0.033	0.002	0.866
		2-5 cm	37.40	3.530	0.187	18.90	37.70	0.036	0.002	1.010
		5-10 cm	25.40	1.950	0.116	16.80	29.60	0.023	0.001	1.170
		10-15 cm	11.20	0.790	0.076	10.50	19.30	0.014	0.001	1.720
	4	0-2 cm	47.00	5.380	0.249	21.60	28.30	0.032	0.002	0.601
		2-5 cm	44.00	4.720	0.228	20.70	36.70	0.039	0.002	0.833
		5-10 cm	23.10	2.010	0.129	15.50	27.50	0.024	0.002	1.190
		10-15 cm	17.80	0.419	0.038	11.10	26.80	0.006	0.001	1.510
	5	0-2 cm	35.10	4.010	0.236	17.00	27.50	0.031	0.002	0.783
		2-5 cm	32.50	3.020	0.156	19.30	32.70	0.030	0.002	1.000
		5-10 cm	28.40	2.470	0.156	15.80	32.90	0.029	0.002	1.160
		10-15 cm	9.28	0.724	0.077	9.45	15.70	0.012	0.001	1.690

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

Table C8. Basin 8 (including pond) soil data by increment.

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
10	1	0-2 cm	99.20	7.870	0.522	15.10	61.50	0.049	0.003	0.620
		2-5 cm	70.10	4.630	0.344	13.40	56.10	0.037	0.003	0.800
		5-10 cm	42.80	2.640	0.212	12.40	53.10	0.033	0.003	1.240
		10-15 cm	12.50	0.777	0.067	11.70	18.00	0.011	0.001	1.450
	2	0-2 cm	75.50	17.400	0.952	18.20	18.20	0.042	0.002	0.241
		2-5 cm	57.30	8.810	0.499	17.70	25.70	0.040	0.002	0.449
		5-10 cm	41.10	6.030	0.377	16.00	33.90	0.050	0.003	0.825
		10-15 cm	29.50	2.890	0.195	14.80	35.40	0.035	0.002	1.200
	3	0-2 cm	25.50	3.480	0.220	15.80	26.80	0.037	0.002	1.050
		2-5 cm	25.80	3.230	0.186	17.30	28.20	0.035	0.002	1.100
		5-10 cm	20.60	2.470	0.162	15.30	23.10	0.028	0.002	1.120
		10-15 cm	15.70	1.570	0.095	16.50	21.40	0.021	0.001	1.360
	4	0-2 cm	34.70	3.960	0.209	18.90	29.50	0.034	0.002	0.852
		2-5 cm	33.40	3.370	0.178	19.00	32.50	0.033	0.002	0.975
		5-10 cm	21.60	1.840	0.126	14.60	26.00	0.022	0.002	1.210
		10-15 cm	11.50	1.000	0.063	15.80	16.70	0.015	0.001	1.450
	5	0-2 cm	29.00	3.150	0.160	19.70	30.40	0.033	0.002	1.050
		2-5 cm	27.40	3.240	0.133	24.30	26.80	0.032	0.001	0.977
		5-10 cm	22.70	1.730	0.101	17.10	27.00	0.021	0.001	1.190
		10-15 cm	16.20	1.290	0.076	17.00	22.60	0.018	0.001	1.400
80	1	0-2 cm	103.00	12.000	0.796	15.10	31.50	0.037	0.002	0.306
		2-5 cm	77.30	5.350	0.374	14.30	55.80	0.039	0.003	0.723
		5-10 cm	50.20	2.900	0.244	11.90	58.50	0.034	0.003	1.160
		10-15 cm	20.20	1.380	0.137	10.10	30.10	0.021	0.002	1.490
	2	0-2 cm	56.20	10.500	0.606	17.30	23.70	0.044	0.003	0.422
		2-5 cm	34.80	5.000	0.364	13.80	30.70	0.044	0.003	0.882
		5-10 cm	23.60	2.570	0.180	14.30	26.40	0.029	0.002	1.120
		10-15 cm	11.30	1.140	0.086	13.10	14.60	0.015	0.001	1.290
	3	0-2 cm	20.30	4.630	0.259	17.80	14.60	0.033	0.002	0.720
		2-5 cm	20.80	3.700	0.228	16.30	19.90	0.035	0.002	0.955
		5-10 cm	19.20	2.150	0.142	15.10	21.10	0.024	0.002	1.100
		10-15 cm	14.20	1.520	0.093	16.20	17.30	0.019	0.001	1.220
	4	0-2 cm	21.10	3.670	0.172	21.30	19.90	0.035	0.002	0.944
		2-5 cm	17.70	2.980	0.125	23.90	17.50	0.030	0.001	0.992
		5-10 cm	19.50	2.970	0.161	18.50	22.60	0.034	0.002	1.160
		10-15 cm	12.60	2.060	0.114	18.00	15.00	0.025	0.001	1.190

Table C8. Basin 8 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
80	5	0-2 cm	27.10	3.350	0.168	19.90	21.90	0.027	0.001	0.809
		2-5 cm	19.70	2.840	0.128	22.20	20.60	0.030	0.001	1.050
		5-10 cm	17.90	2.100	0.092	22.80	21.10	0.025	0.001	1.180
		10-15 cm	8.89	1.310	0.074	17.60	11.30	0.017	0.001	1.270
160	1	0-2 cm	101.00	8.980	0.592	15.20	53.50	0.048	0.003	0.530
		2-5 cm	59.30	3.850	0.297	13.00	55.30	0.036	0.003	0.933
		5-10 cm	37.30	2.360	0.189	12.50	42.50	0.027	0.002	1.140
		10-15 cm	15.70	0.910	0.082	11.10	27.10	0.016	0.001	1.730
	2	0-2 cm	59.00	6.670	0.391	17.00	33.60	0.038	0.002	0.569
		2-5 cm	44.70	4.000	0.247	16.20	39.50	0.035	0.002	0.884
		5-10 cm	35.40	2.880	0.220	13.10	36.50	0.030	0.002	1.030
		10-15 cm	20.90	1.750	0.105	16.70	24.90	0.021	0.001	1.190
	3	0-2 cm	28.60	3.340	0.193	17.30	31.50	0.037	0.002	1.100
		2-5 cm	31.30	2.450	0.149	16.50	35.80	0.028	0.002	1.140
		5-10 cm	24.90	2.380	0.149	15.90	27.50	0.026	0.002	1.100
		10-15 cm	13.50	1.440	0.070	20.40	18.20	0.020	0.001	1.350
	4	0-2 cm	28.80	3.000	0.152	19.80	32.40	0.034	0.002	1.130
		2-5 cm	26.10	2.770	0.132	21.10	29.60	0.031	0.001	1.130
		5-10 cm	19.00	2.060	0.114	18.00	22.40	0.024	0.001	1.180
		10-15 cm	7.05	0.883	0.058	15.10	10.30	0.013	0.001	1.460
	5	0-2 cm	30.50	3.730	0.148	25.20	27.90	0.034	0.001	0.913
		2-5 cm	25.50	3.210	0.125	25.60	26.70	0.034	0.001	1.050
		5-10 cm	20.10	2.230	0.098	22.80	22.80	0.025	0.001	1.130
		10-15 cm	20.50	1.290	0.049	26.50	27.10	0.017	0.001	1.320
230	1	0-2 cm	151.00	13.800	0.897	15.40	59.00	0.054	0.004	0.391
		2-5 cm	100.00	6.440	0.539	11.90	66.40	0.043	0.004	0.660
		5-10 cm	57.40	3.020	0.232	13.00	61.50	0.032	0.002	1.070
		10-15 cm	24.60	1.470	0.116	12.70	39.90	0.024	0.002	1.620
	2	0-2 cm	45.00	6.820	0.415	16.40	25.20	0.038	0.002	0.561
		2-5 cm	33.40	4.310	0.293	14.70	25.80	0.033	0.002	0.772
		5-10 cm	33.10	3.070	0.219	14.00	37.70	0.035	0.002	1.140
		10-15 cm	12.70	1.340	0.106	12.70	18.40	0.019	0.002	1.440
	3	0-2 cm	31.00	4.860	0.243	20.00	22.90	0.036	0.002	0.740
		2-5 cm	27.30	3.270	0.177	18.50	25.40	0.031	0.002	0.934
		5-10 cm	21.50	2.680	0.178	15.10	22.10	0.028	0.002	1.030
		10-15 cm	12.70	1.020	0.075	13.70	16.90	0.014	0.001	1.330

Table C8. Basin 8 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
230	4	0-2 cm	26.00	3.190	0.184	17.30	19.80	0.024	0.001	0.763
		2-5 cm	23.40	3.020	0.194	15.60	24.90	0.032	0.002	1.070
		5-10 cm	17.00	1.850	0.132	14.00	20.30	0.022	0.002	1.190
		10-15 cm	12.40	0.843	0.075	11.30	16.50	0.011	0.001	1.320
	5	0-2 cm	37.40	5.780	0.300	19.30	21.40	0.033	0.002	0.571
		2-5 cm	32.40	4.170	0.252	16.60	30.40	0.039	0.002	0.938
		5-10 cm	22.20	2.090	0.132	15.80	25.20	0.024	0.002	1.140
		10-15 cm	6.06	0.669	0.055	12.20	8.23	0.009	0.001	1.360
300	1	0-2 cm	150.00	16.000	1.080	14.90	47.50	0.051	0.003	0.316
		2-5 cm	109.00	6.960	0.534	13.00	75.20	0.048	0.004	0.690
		5-10 cm	98.40	4.880	0.369	13.20	91.60	0.045	0.003	0.931
		10-15 cm	49.40	2.810	0.206	13.60	65.90	0.037	0.003	1.330
	2	0-2 cm	43.10	6.760	0.411	16.40	23.20	0.036	0.002	0.538
		2-5 cm	32.40	5.980	0.340	17.60	29.20	0.054	0.003	0.903
		5-10 cm	26.10	2.650	0.190	14.00	28.90	0.030	0.002	1.110
		10-15 cm	12.20	1.280	0.119	10.80	17.20	0.018	0.002	1.400
	3	0-2 cm	59.50	6.700	0.401	16.70	35.10	0.040	0.002	0.590
		2-5 cm	54.80	5.080	0.365	13.90	47.40	0.044	0.003	0.866
		5-10 cm	51.60	3.820	0.261	14.60	50.90	0.038	0.003	0.987
		10-15 cm	31.70	2.090	0.176	11.90	38.60	0.025	0.002	1.220
	4	0-2 cm	38.40	4.650	0.301	15.50	31.60	0.038	0.002	0.823
		2-5 cm	35.10	3.660	0.244	15.00	37.10	0.039	0.003	1.060
		5-10 cm	27.80	2.750	0.176	15.60	30.80	0.031	0.002	1.110
		10-15 cm	12.90	0.830	0.062	13.40	17.20	0.011	0.001	1.340
	5	0-2 cm	31.80	3.640	0.216	16.80	26.10	0.030	0.002	0.821
		2-5 cm	33.20	3.800	0.208	18.30	37.40	0.043	0.002	1.120
		5-10 cm	26.80	2.300	0.141	16.30	32.10	0.028	0.002	1.200
		10-15 cm	14.70	1.140	0.089	12.80	20.20	0.016	0.001	1.370

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

Table C9. Basin 9 (including pond) soil data by increment.

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
60	1	0-2 cm	174.00	6.530	0.551	11.80	109.00	0.041	0.003	0.624
		2-5 cm	90.90	3.480	0.302	11.50	84.20	0.032	0.003	0.925
		5-10 cm	67.30	2.610	0.237	11.00	68.00	0.026	0.002	1.010
		10-15 cm	45.70	1.910	0.195	9.79	58.20	0.024	0.002	1.270
	2	0-2 cm	146.00	20.400	1.070	19.10	40.90	0.057	0.003	0.281
		2-5 cm	124.00	16.700	0.932	17.90	45.50	0.061	0.003	0.368
		5-10 cm	99.00	8.620	0.565	15.30	63.20	0.055	0.004	0.638
		10-15 cm	49.30	3.370	0.224	15.00	59.00	0.040	0.003	1.200
	3	0-2 cm	30.00	4.050	0.201	20.10	36.80	0.050	0.002	1.220
		2-5 cm	26.90	3.730	0.183	20.40	29.50	0.041	0.002	1.100
		5-10 cm	17.70	2.000	0.097	20.70	21.50	0.024	0.001	1.220
		10-15 cm	9.25	1.040	0.065	16.00	12.80	0.014	0.001	1.380
	4	0-2 cm	36.40	3.800	0.198	19.20	40.00	0.042	0.002	1.100
		2-5 cm	35.60	3.500	0.197	17.80	39.60	0.039	0.002	1.110
		5-10 cm	30.20	3.060	0.149	20.50	29.70	0.030	0.001	0.981
		10-15 cm	15.90	1.150	0.102	11.30	21.40	0.016	0.001	1.340
	5	0-2 cm	43.10	4.380	0.215	20.40	51.40	0.052	0.003	1.190
		2-5 cm	42.60	4.230	0.219	19.30	44.50	0.044	0.002	1.050
		5-10 cm	29.50	3.260	0.195	16.70	33.00	0.036	0.002	1.120
		10-15 cm	16.30	1.550	0.111	14.00	21.40	0.020	0.001	1.310
120	1	0-2 cm	121.00	5.490	0.504	10.90	81.00	0.037	0.003	0.667
		2-5 cm	97.50	4.300	0.393	10.90	79.90	0.035	0.003	0.820
		5-10 cm	83.10	3.430	0.379	9.05	78.00	0.032	0.004	0.938
		10-15 cm	51.60	2.120	0.205	10.30	63.50	0.026	0.003	1.230
	2	0-2 cm	134.00	13.500	0.858	15.70	48.60	0.049	0.003	0.363
		2-5 cm	108.00	7.700	0.569	13.50	69.10	0.049	0.004	0.642
		5-10 cm	64.90	4.260	0.339	12.60	59.20	0.039	0.003	0.912
		10-15 cm	47.30	2.790	0.254	11.00	54.40	0.032	0.003	1.150
	3	0-2 cm	45.10	4.830	0.290	16.70	39.10	0.042	0.003	0.866
		2-5 cm	38.90	3.890	0.211	18.40	43.00	0.043	0.002	1.110
		5-10 cm	27.30	2.150	0.127	17.00	32.00	0.025	0.001	1.170
		10-15 cm	9.48	0.669	0.073	9.15	14.30	0.010	0.001	1.510
	4	0-2 cm	27.50	3.130	0.164	19.00	24.70	0.028	0.001	0.900
		2-5 cm	26.10	2.770	0.159	17.40	28.80	0.031	0.002	1.100
		5-10 cm	22.00	2.560	0.145	17.60	24.40	0.029	0.002	1.110
		10-15 cm	12.10	1.230	0.082	14.90	14.30	0.015	0.001	1.180

Table C9. Basin 9 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
120	5	0-2 cm	34.60	5.040	0.307	16.40	31.30	0.046	0.003	0.905
		2-5 cm	28.90	3.590	0.249	14.50	32.30	0.040	0.003	1.120
		5-10 cm	23.00	2.410	0.149	16.20	29.60	0.031	0.002	1.290
		10-15 cm	8.21	0.856	0.072	12.00	12.90	0.014	0.001	1.570
180	1	0-2 cm	178.00	7.500	0.604	12.40	75.00	0.032	0.003	0.421
		2-5 cm	84.50	3.420	0.309	11.10	74.50	0.030	0.003	0.882
		5-10 cm	51.80	2.320	0.199	11.70	61.80	0.028	0.002	1.190
		10-15 cm	32.80	1.550	0.159	9.74	39.70	0.019	0.002	1.210
	2	0-2 cm	162.00	15.100	0.918	16.40	63.10	0.059	0.004	0.390
		2-5 cm	128.00	8.340	0.606	13.80	77.70	0.051	0.004	0.607
		5-10 cm	50.80	3.010	0.225	13.40	58.10	0.034	0.003	1.140
		10-15 cm	16.50	0.830	0.070	11.90	27.10	0.014	0.001	1.640
	3	0-2 cm	81.10	10.100	0.553	18.30	34.90	0.044	0.002	0.431
		2-5 cm	74.70	7.190	0.445	16.20	43.30	0.042	0.003	0.580
		5-10 cm	53.80	3.880	0.256	15.10	53.20	0.038	0.003	0.989
		10-15 cm	27.00	1.290	0.107	12.10	38.70	0.019	0.002	1.430
	4	0-2 cm	68.70	6.190	0.347	17.80	50.00	0.045	0.003	0.728
		2-5 cm	61.70	5.020	0.315	15.90	56.60	0.046	0.003	0.917
		5-10 cm	40.40	2.660	0.207	12.80	43.40	0.029	0.002	1.070
		10-15 cm	15.50	0.965	0.078	12.40	22.00	0.014	0.001	1.420
	5	0-2 cm	36.90	5.310	0.276	19.20	26.30	0.038	0.002	0.712
		2-5 cm	34.70	3.760	0.212	17.80	34.60	0.038	0.002	0.997
		5-10 cm	33.10	3.100	0.182	17.00	31.40	0.030	0.002	0.949
		10-15 cm	13.60	1.320	0.098	13.50	20.30	0.020	0.001	1.500
250	1	0-2 cm	146.00	7.300	0.592	12.30	86.30	0.043	0.003	0.590
		2-5 cm	63.90	3.050	0.294	10.40	66.50	0.032	0.003	1.040
		5-10 cm	31.90	1.660	0.180	9.22	39.00	0.020	0.002	1.220
		10-15 cm	16.00	0.607	0.096	6.33	23.60	0.009	0.001	1.470
	2	0-2 cm	209.00	25.600	1.580	16.20	45.10	0.055	0.003	0.215
		2-5 cm	204.00	18.400	1.340	13.80	70.20	0.064	0.005	0.345
		5-10 cm	83.50	6.280	0.483	13.00	56.80	0.043	0.003	0.680
		10-15 cm	25.20	1.720	0.172	10.00	34.10	0.023	0.002	1.350
	3	0-2 cm	100.00	15.600	0.700	22.30	32.30	0.050	0.002	0.321
		2-5 cm	94.30	11.000	0.573	19.20	44.30	0.052	0.003	0.469
		5-10 cm	53.90	5.060	0.334	15.20	48.10	0.045	0.003	0.892
		10-15 cm	15.80	0.845	0.090	9.35	22.40	0.012	0.001	1.420

Table C9. Basin 9 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
250	4	0-2 cm	61.80	7.820	0.457	17.10	39.40	0.050	0.003	0.637
		2-5 cm	59.40	6.650	0.359	18.50	49.10	0.055	0.003	0.827
		5-10 cm	25.30	2.020	0.171	11.80	29.10	0.023	0.002	1.150
		10-15 cm	10.10	0.692	0.094	7.35	14.90	0.010	0.001	1.480
	5	0-2 cm	45.70	5.660	0.321	17.60	32.00	0.040	0.002	0.701
		2-5 cm	39.20	4.170	0.218	19.10	31.00	0.033	0.002	0.792
		5-10 cm	26.60	2.090	0.160	13.10	30.30	0.024	0.002	1.140
		10-15 cm	18.10	1.260	0.131	9.65	21.30	0.015	0.002	1.170
340	1	0-2 cm	167.00	6.520	0.505	12.90	87.40	0.034	0.003	0.522
		2-5 cm	104.00	4.160	0.353	11.80	103.00	0.041	0.003	0.988
		5-10 cm	23.50	0.922	0.085	10.80	36.90	0.015	0.001	1.570
		10-15 cm	16.90	0.490	0.076	6.43	26.10	0.008	0.001	1.540
	2	0-2 cm	92.40	14.100	0.840	16.80	29.50	0.045	0.003	0.319
		2-5 cm	84.50	10.200	0.645	15.80	44.40	0.054	0.003	0.525
		5-10 cm	65.80	6.280	0.444	14.10	45.50	0.043	0.003	0.692
		10-15 cm	21.10	2.030	0.137	14.80	27.60	0.027	0.002	1.310
	3	0-2 cm	33.70	5.060	0.277	18.30	31.30	0.047	0.003	0.931
		2-5 cm	36.30	4.240	0.234	18.10	32.90	0.038	0.002	0.908
		5-10 cm	22.90	3.160	0.179	17.70	26.20	0.036	0.002	1.150
		10-15 cm	11.80	1.750	0.126	13.90	15.70	0.023	0.002	1.340
	4	0-2 cm	28.40	4.490	0.242	18.60	28.30	0.045	0.002	0.999
		2-5 cm	27.70	3.590	0.200	17.90	27.50	0.036	0.002	0.990
		5-10 cm	23.50	2.610	0.148	17.60	25.70	0.029	0.002	1.090
		10-15 cm	22.10	2.250	0.141	15.90	25.50	0.026	0.002	1.160
	5	0-2 cm	21.20	4.050	0.232	17.40	25.40	0.049	0.003	1.200
		2-5 cm	24.80	3.370	0.189	17.90	30.90	0.042	0.002	1.250
		5-10 cm	15.30	2.120	0.137	15.50	19.90	0.028	0.002	1.300
		10-15 cm	9.03	1.010	0.084	12.10	12.30	0.014	0.001	1.370

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

Table C10. Basin 10 (including pond) soil data by increment.

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
0	1	0-2 cm	236.00	9.410	0.721	13.10	104.00	0.042	0.003	0.442
		2-5 cm	176.00	6.050	0.468	12.90	118.00	0.040	0.003	0.669
		5-10 cm	79.00	2.800	0.240	11.70	85.70	0.030	0.003	1.090
		10-15 cm	23.20	0.945	0.107	8.86	35.60	0.015	0.002	1.530
	2	0-2 cm	182.00	22.000	1.200	18.30	47.30	0.057	0.003	0.260
		2-5 cm	224.00	18.300	1.060	17.20	62.50	0.051	0.003	0.279
		5-10 cm	120.00	9.300	0.566	16.40	62.90	0.049	0.003	0.526
		10-15 cm	40.60	2.820	0.202	13.90	48.20	0.033	0.002	1.190
	3	0-2 cm	34.20	4.820	0.248	19.40	31.70	0.045	0.002	0.926
		2-5 cm	35.20	3.900	0.210	18.50	32.80	0.036	0.002	0.931
		5-10 cm	19.20	1.890	0.123	15.30	24.20	0.024	0.002	1.260
		10-15 cm	17.00	0.697	0.051	13.60	26.20	0.011	0.001	1.540
	4	0-2 cm	45.10	4.970	0.267	18.60	30.80	0.034	0.002	0.682
		2-5 cm	40.20	5.450	0.262	20.80	31.30	0.043	0.002	0.779
		5-10 cm	24.10	2.870	0.142	20.20	23.80	0.028	0.001	0.988
		10-15 cm	3.70	0.828	0.058	14.20	4.91	0.011	0.001	1.330
	5	0-2 cm	53.10	5.320	0.317	16.80	37.70	0.038	0.002	0.710
		2-5 cm	55.70	4.690	0.296	15.90	42.90	0.036	0.002	0.770
		5-10 cm	23.50	2.300	0.169	13.60	27.30	0.027	0.002	1.160
		10-15 cm	17.30	1.350	0.099	13.60	29.30	0.023	0.002	1.690
70	1	0-2 cm	211.00	10.500	0.801	13.00	91.40	0.045	0.003	0.432
		2-5 cm	77.80	3.570	0.279	12.80	83.40	0.038	0.003	1.070
		5-10 cm	55.80	2.160	0.195	11.10	67.50	0.026	0.002	1.210
		10-15 cm	64.50	0.859	0.087	9.87	93.90	0.013	0.001	1.460
	2	0-2 cm	87.40	10.000	0.589	17.00	42.40	0.049	0.003	0.485
		2-5 cm	81.10	6.940	0.473	14.70	60.00	0.051	0.004	0.740
		5-10 cm	66.20	4.950	0.355	14.00	57.50	0.043	0.003	0.869
		10-15 cm	28.70	1.950	0.165	11.90	40.20	0.027	0.002	1.400
	3	0-2 cm	37.40	4.300	0.239	18.00	33.10	0.038	0.002	0.885
		2-5 cm	47.20	3.750	0.216	17.40	47.50	0.038	0.002	1.010
		5-10 cm	25.20	2.050	0.139	14.80	33.60	0.027	0.002	1.330
		10-15 cm	13.80	1.020	0.091	11.30	20.00	0.015	0.001	1.450
	4	0-2 cm	29.80	3.830	0.218	17.50	22.80	0.029	0.002	0.764
		2-5 cm	36.00	3.090	0.201	15.30	36.50	0.031	0.002	1.010
		5-10 cm	24.70	2.230	0.158	14.10	28.20	0.026	0.002	1.150
		10-15 cm	14.50	1.070	0.075	14.20	19.50	0.014	0.001	1.350

Table C10. Basin 10 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
70	5	0-2 cm	47.80	5.320	0.295	18.00	29.90	0.033	0.002	0.626
		2-5 cm	47.70	5.280	0.273	19.30	42.50	0.047	0.002	0.890
		5-10 cm	32.60	2.780	0.190	14.60	37.40	0.032	0.002	1.150
		10-15 cm	8.80	0.928	0.075	12.50	12.50	0.013	0.001	1.420
150	1	0-2 cm	258.00	11.800	0.986	11.90	119.00	0.054	0.005	0.460
		2-5 cm	174.00	7.570	0.630	12.00	123.00	0.054	0.004	0.707
		5-10 cm	128.00	4.470	0.372	12.00	118.00	0.041	0.003	0.923
		10-15 cm	49.80	1.570	0.156	10.10	75.90	0.024	0.002	1.520
	2	0-2 cm	131.00	15.100	0.977	15.40	48.00	0.055	0.004	0.366
		2-5 cm	113.00	10.900	0.784	13.90	54.50	0.053	0.004	0.482
		5-10 cm	63.80	5.130	0.398	12.90	52.70	0.042	0.003	0.825
		10-15 cm	23.60	1.790	0.130	13.70	32.40	0.025	0.002	1.370
	3	0-2 cm	47.90	5.740	0.318	18.10	32.30	0.039	0.002	0.674
		2-5 cm	51.50	5.290	0.317	16.70	42.60	0.044	0.003	0.828
		5-10 cm	34.20	2.650	0.194	13.70	35.10	0.027	0.002	1.030
		10-15 cm	9.29	0.872	0.073	11.90	12.70	0.012	0.001	1.360
	4	0-2 cm	65.30	6.150	0.338	18.20	43.80	0.041	0.002	0.670
		2-5 cm	58.30	5.210	0.286	18.20	50.00	0.045	0.002	0.858
		5-10 cm	25.20	2.720	0.172	15.80	27.70	0.030	0.002	1.100
		10-15 cm	10.60	0.964	0.098	9.87	16.30	0.015	0.002	1.540
	5	0-2 cm	62.90	7.930	0.400	19.80	32.10	0.041	0.002	0.511
		2-5 cm	65.40	6.690	0.333	20.10	47.70	0.049	0.002	0.729
		5-10 cm	30.50	2.670	0.161	16.50	36.20	0.032	0.002	1.190
		10-15 cm	10.30	0.853	0.086	9.94	16.80	0.014	0.001	1.630
210	1	0-2 cm	200.00	8.430	0.691	12.20	116.00	0.049	0.004	0.581
		2-5 cm	73.50	3.040	0.261	11.60	87.80	0.036	0.003	1.190
		5-10 cm	26.20	1.030	0.104	9.94	39.80	0.016	0.002	1.520
		10-15 cm	27.80	1.030	0.114	9.00	39.90	0.015	0.002	1.430
	2	0-2 cm	133.00	0.146	0.023	6.46	44.90	0.000	0.000	0.339
		2-5 cm	93.20	9.660	0.650	14.90	47.40	0.049	0.003	0.508
		5-10 cm	26.30	2.290	0.241	9.52	28.90	0.025	0.003	1.100
		10-15 cm	8.07	0.809	0.077	10.60	15.40	0.015	0.001	1.900
	3	0-2 cm	41.60	5.850	0.349	16.80	36.50	0.051	0.003	0.876
		2-5 cm	41.20	5.460	0.313	17.40	34.60	0.046	0.003	0.840
		5-10 cm	54.20	3.890	0.242	16.10	59.80	0.043	0.003	1.100
		10-15 cm	20.40	1.890	0.141	13.50	27.20	0.025	0.002	1.330

Table C10. Basin 10 (including pond) soil data by increment (continued).

Transect compass bearing	Landscape position†	Increment	THg	C	N	C:N	THg	C	N	Bulk density
degrees			ng g^{-1}	------%------			ng cm^{-3}	---------g cm^{-3}---------		
210	4	0-2 cm	30.80	3.810	0.217	17.60	26.30	0.033	0.002	0.853
		2-5 cm	31.60	3.590	0.182	19.70	29.60	0.034	0.002	0.937
		5-10 cm	22.60	2.380	0.154	15.40	24.50	0.026	0.002	1.080
		10-15 cm	12.70	1.530	0.127	12.00	16.40	0.020	0.002	1.280
	5	0-2 cm	39.40	4.450	0.215	20.70	26.10	0.029	0.001	0.662
		2-5 cm	26.20	2.470	0.165	15.00	26.20	0.025	0.002	1.000
		5-10 cm	20.80	1.870	0.137	13.70	23.30	0.021	0.002	1.120
		10-15 cm	14.00	1.340	0.090	14.90	18.70	0.018	0.001	1.340
280	1	0-2 cm	237.00	9.360	0.742	12.60	130.00	0.051	0.004	0.548
		2-5 cm	220.00	6.610	0.519	12.70	150.00	0.045	0.004	0.681
		5-10 cm	95.60	2.720	0.233	11.70	102.00	0.029	0.002	1.060
		10-15 cm	23.50	0.885	0.108	8.18	39.80	0.015	0.002	1.700
	2	0-2 cm	178.00	27.100	1.460	18.60	33.50	0.051	0.003	0.189
		2-5 cm	135.00	12.300	0.859	14.30	63.90	0.058	0.004	0.473
		5-10 cm	50.50	3.780	0.289	13.10	48.70	0.036	0.003	0.965
		10-15 cm	23.90	1.280	0.109	11.80	36.50	0.020	0.002	1.520
	3	0-2 cm	56.10	7.760	0.451	17.20	39.60	0.055	0.003	0.706
		2-5 cm	59.90	6.220	0.396	15.70	46.60	0.048	0.003	0.777
		5-10 cm	48.70	5.040	0.316	16.00	41.60	0.043	0.003	0.855
		10-15 cm	18.70	1.750	0.135	12.90	24.10	0.023	0.002	1.290
	4	0-2 cm	44.50	5.480	0.316	17.40	33.60	0.041	0.002	0.754
		2-5 cm	40.20	4.190	0.236	17.80	35.40	0.037	0.002	0.882
		5-10 cm	37.00	3.570	0.208	17.10	33.50	0.032	0.002	0.907
		10-15 cm	25.20	2.070	0.136	15.20	33.00	0.027	0.002	1.310
	5	0-2 cm	53.70	6.690	0.300	22.30	43.00	0.054	0.002	0.800
		2-5 cm	46.40	4.450	0.240	18.50	43.30	0.042	0.002	0.933
		5-10 cm	35.20	2.850	0.174	16.40	40.60	0.033	0.002	1.150
		10-15 cm	13.60	0.899	0.090	9.96	21.90	0.015	0.001	1.620

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

Table C11. Soil data by sampling location (0-15 cm).

Pond number	Transect compass bearing	Landscape position†	THg	C	N	C:N	THg	C	N	Bulk density
	degrees		ng g^{-1}	--------%	--------		mg m^{-2}	-----kg m^{-2}-----		g cm^{-3}
1	0	1	237.00	13.00	0.684	19.60	14.90	8.94	0.457	0.600
		2	86.90	7.02	0.438	15.50	8.63	7.46	0.482	0.836
		3	26.40	3.57	0.190	18.70	3.98	5.24	0.281	1.050
		4	21.10	2.36	0.118	19.80	3.27	3.64	0.184	1.090
		5	23.70	2.90	0.155	18.50	3.74	4.49	0.242	1.090
	70	1	279.00	15.60	0.871	18.20	12.60	7.76	0.426	0.389
		2	64.50	6.72	0.385	17.80	6.50	7.14	0.400	0.902
		3	20.60	2.04	0.109	18.30	3.11	3.02	0.165	1.070
		4	19.40	2.22	0.105	21.20	2.95	3.35	0.158	1.110
		5	24.30	2.83	0.165	17.00	3.48	4.11	0.241	1.010
	140	1	177.00	10.80	0.598	18.30	15.10	10.30	0.565	0.846
		2	44.50	6.18	0.345	17.50	4.00	5.53	0.317	0.800
		3	27.10	3.01	0.171	17.20	4.21	4.53	0.263	1.050
		4	32.50	2.80	0.150	18.00	5.07	4.15	0.231	1.160
		5	30.10	2.80	0.193	14.20	4.68	4.34	0.305	1.140
	210	1	205.00	12.30	0.635	19.70	15.20	9.75	0.496	0.538
		2	67.20	6.99	0.420	15.60	6.62	6.70	0.428	0.870
		3	22.40	2.49	0.145	16.10	3.35	3.66	0.227	1.080
		4	21.20	2.13	0.130	16.20	3.49	3.52	0.217	1.180
		5	23.00	2.89	0.105	30.20	3.58	4.48	0.148	1.130
	290	1	279.00	15.40	0.830	18.80	17.80	10.60	0.564	0.521
		2	41.40	4.29	0.284	15.10	5.24	5.41	0.358	1.060
		3	30.30	2.65	0.145	18.20	4.69	3.96	0.218	1.070
		4	36.60	3.28	0.157	20.90	4.43	3.99	0.191	0.865
		5	34.10	2.61	0.158	16.40	5.38	4.13	0.251	1.150
2	0	1	45.50	3.23	0.221	14.10	6.72	4.01	0.284	1.250
		2	30.30	2.40	0.163	14.10	5.15	3.78	0.267	1.300
		3	22.90	2.33	0.120	19.30	3.92	4.00	0.207	1.180
		4	30.90	3.14	0.155	19.70	4.05	4.04	0.205	0.934
		5	17.70	1.59	0.088	18.10	2.94	2.62	0.145	1.160
	70	1	51.40	3.73	0.257	13.70	6.50	4.27	0.312	1.250
		2	26.10	3.50	0.200	16.70	3.96	4.67	0.280	1.170
		3	26.60	2.31	0.131	17.50	3.83	3.22	0.184	1.030
		4	31.70	2.76	0.166	16.50	4.90	4.22	0.256	1.130
		5	33.80	3.75	0.221	16.80	4.92	5.61	0.334	1.040

Table C11. Soil data by sampling location (0-15 cm) (continued).

Pond number	Transect compass bearing	Landscape position†	THg	C	N	C:N	THg	C	N	Bulk density
	degrees		ng g^{-1}	--------%	--------		mg m^{-2}	-----kg m^{-2}-----		g cm^{-3}
2	140	1	87.90	6.36	0.450	13.50	8.88	6.10	0.451	0.995
		2	25.90	2.33	0.144	15.00	4.66	3.88	0.258	1.400
		3	27.00	2.24	0.129	17.10	4.80	3.95	0.231	1.220
		4	24.20	2.66	0.141	19.10	3.86	4.27	0.224	1.120
		5	22.60	2.42	0.132	18.10	3.60	3.92	0.216	1.140
	220	1	46.60	3.05	0.208	13.80	7.20	4.43	0.320	1.400
		2	34.00	3.64	0.206	16.50	4.87	4.67	0.283	1.230
		3	28.00	2.92	0.160	18.00	4.47	4.71	0.261	1.100
		4	23.60	3.09	0.152	19.90	3.86	4.75	0.239	1.120
		5	19.00	2.10	0.127	16.10	3.25	3.60	0.223	1.240
	300	1	34.10	3.00	0.198	13.00	4.57	3.21	0.247	1.330
		2	33.80	3.39	0.199	14.70	4.47	3.91	0.266	1.170
		3	22.10	2.75	0.145	18.90	3.44	4.26	0.225	1.080
		4	16.40	1.92	0.097	19.80	2.58	2.96	0.149	1.110
		5	28.80	2.80	0.163	17.20	4.78	4.74	0.275	1.160
3	60	1	165.00	38.00	1.670	22.30	3.30	9.31	0.417	0.138
		2	50.70	6.55	0.419	15.50	6.87	8.97	0.577	1.110
		3	32.60	3.16	0.186	17.10	5.49	5.32	0.311	1.140
		4	28.90	2.38	0.137	17.30	4.90	4.06	0.235	1.160
		5	22.30	1.89	0.109	17.30	4.17	3.46	0.201	1.280
	130	1	110.00	39.30	1.760	22.20	2.14	9.27	0.417	0.134
		2	54.60	7.08	0.415	16.90	5.74	7.71	0.457	0.958
		3	33.10	3.88	0.189	20.50	4.82	5.53	0.269	0.996
		4	18.60	2.27	0.108	21.10	2.63	3.18	0.151	0.989
		5	17.80	2.10	0.115	18.20	3.00	3.57	0.196	1.150
	200	1	117.00	39.20	1.900	20.60	2.38	9.36	0.454	0.137
		2	62.20	6.61	0.383	17.20	7.53	7.86	0.456	0.963
		3	24.60	3.22	0.166	19.20	4.04	5.33	0.277	1.130
		4	17.20	2.00	0.105	19.00	3.06	3.51	0.185	1.200
		5	25.90	2.89	0.173	16.60	4.03	4.54	0.274	1.080
	260	1	109.00	38.80	1.820	21.40	2.29	9.61	0.450	0.142
		2	45.40	5.68	0.352	15.80	5.70	7.31	0.461	0.914
		3	23.90	3.27	0.197	16.60	3.79	5.24	0.316	1.070
		4	15.90	2.00	0.138	14.20	2.90	3.60	0.254	1.300
		5	18.60	2.37	0.133	17.80	3.37	4.34	0.244	1.230

Table C11. Soil data by sampling location (0-15 cm) (continued).

Pond number	Transect compass bearing	Landscape position†	THg	C	N	C:N	THg	C	N	Bulk density
	degrees		ng g^{-1}	--------%	--------		mg m^{-2}	-----kg m^{-2}-----		g cm^{-3}
3	340	1	88.50	39.70	1.800	22.10	1.95	10.30	0.468	0.147
		2	16.30	2.46	0.150	15.80	2.65	4.12	0.261	1.380
		3	28.50	3.03	0.138	21.70	4.40	4.59	0.211	1.050
		4	21.40	1.85	0.120	15.20	3.78	3.26	0.214	1.210
		5	23.70	2.74	0.131	21.00	3.75	4.41	0.210	1.070
4	20	1	192.00	33.10	1.770	18.90	5.75	13.10	0.691	0.207
		2	120.00	11.00	0.598	20.50	8.21	7.70	0.375	0.882
		3	27.90	2.26	0.145	15.40	5.10	4.10	0.266	1.270
		4	32.50	3.26	0.166	18.80	4.78	4.89	0.260	1.110
		5	26.00	3.31	0.156	19.60	3.59	4.56	0.233	1.140
	100	1	212.00	33.10	1.920	17.60	5.93	12.30	0.699	0.196
		2	113.00	14.60	0.757	21.00	9.32	11.10	0.527	0.753
		3	21.40	2.01	0.113	16.90	3.44	3.13	0.185	1.240
		4	21.40	1.92	0.113	16.60	3.92	3.43	0.207	1.300
		5	20.60	1.84	0.113	16.10	3.31	3.00	0.186	1.100
	170	1	218.00	30.30	1.760	17.60	5.31	10.30	0.581	0.169
		2	89.80	8.76	0.450	19.80	7.86	7.94	0.401	0.887
		3	25.50	1.84	0.126	14.20	4.29	3.06	0.216	1.180
		4	45.60	2.78	0.177	14.90	7.29	4.33	0.291	1.260
		5	43.30	3.24	0.203	15.40	6.75	4.95	0.321	1.130
	240	1	198.00	37.80	1.710	22.60	5.80	13.60	0.603	0.206
		2	139.00	13.80	0.803	17.10	7.59	8.21	0.481	0.600
		3	27.20	2.99	0.182	16.20	4.08	4.41	0.273	1.060
		4	22.70	1.90	0.128	14.50	4.02	3.34	0.230	1.250
		5	24.60	2.30	0.151	14.80	4.40	4.05	0.274	1.270
	310	1	171.00	38.00	1.680	22.20	5.02	12.40	0.556	0.188
		2	198.00	30.30	1.420	20.40	6.91	11.70	0.574	0.243
		3	36.60	7.09	0.278	24.70	3.87	7.47	0.303	0.846
		4	29.60	3.54	0.179	19.60	4.46	5.28	0.270	1.080
		5	25.10	3.09	0.169	17.70	4.17	5.10	0.288	1.230
5	40	1	147.00	23.40	0.948	24.60	2.53	6.88	0.280	0.116
		2	29.40	2.57	0.137	18.60	4.61	4.09	0.220	1.360
		3	44.50	4.28	0.226	18.50	6.05	5.63	0.304	0.954
		4	25.70	2.26	0.136	16.40	4.25	3.63	0.221	1.210
		5	22.10	2.47	0.133	18.60	3.78	4.30	0.231	1.230

Table C11. Soil data by sampling location (0-15 cm) (continued).

Pond number	Transect compass bearing	Landscape position†	THg	C	N	C:N	THg	C	N	Bulk density
	degrees		ng g^{-1}	--------%	--------		mg m^{-2}	-----kg m^{-2}-----		g cm^{-3}
5	120	1	143.00	36.10	1.670	21.50	2.15	6.59	0.307	0.100
		2	45.80	5.10	0.266	19.10	4.05	4.79	0.250	1.100
		3	38.80	3.72	0.204	17.50	5.60	5.21	0.298	1.000
		4	34.00	3.61	0.176	19.60	4.46	4.53	0.232	1.080
		5	23.60	2.02	0.123	16.40	4.34	3.74	0.228	1.250
	190	1	174.00	29.10	1.430	20.80	2.56	6.53	0.314	0.103
		2	50.10	5.56	0.335	15.80	4.93	5.42	0.342	0.931
		3	37.80	3.75	0.212	17.40	5.18	5.19	0.299	0.961
		4	29.50	2.95	0.172	16.80	4.26	4.20	0.250	1.030
		5	32.10	3.61	0.216	16.00	4.45	4.80	0.300	0.992
	260	1	162.00	30.80	1.390	21.70	2.81	6.97	0.322	0.112
		2	31.30	5.14	0.307	16.30	3.66	5.47	0.336	1.130
		3	29.90	2.99	0.199	14.80	4.85	4.82	0.326	1.120
		4	39.60	3.38	0.235	14.10	6.18	5.32	0.377	1.140
		5	38.50	4.35	0.287	14.50	5.11	5.52	0.382	1.010
	330	1	164.00	31.20	1.360	22.90	2.77	7.05	0.308	0.111
		2	19.30	2.39	0.177	12.40	2.96	3.76	0.303	1.490
		3	43.80	3.49	0.196	17.40	6.60	5.16	0.297	1.110
		4	31.50	2.63	0.149	17.30	5.34	4.50	0.260	1.220
		5	25.60	2.21	0.138	15.30	4.30	3.72	0.243	1.260
6	10	1	191.00	33.60	1.700	19.80	6.18	13.10	0.662	0.221
		2	16.30	1.66	0.115	13.80	2.74	2.78	0.202	1.530
		3	27.60	2.57	0.165	15.30	4.68	4.27	0.279	1.190
		4	24.90	2.04	0.137	14.60	4.21	3.39	0.232	1.230
		5	34.50	2.76	0.170	16.10	5.30	4.25	0.265	1.120
	70	1	210.00	33.20	1.680	20.10	7.01	13.60	0.674	0.232
		2	67.80	6.17	0.352	16.60	5.62	4.78	0.288	1.290
		3	33.50	2.29	0.149	14.90	5.46	3.61	0.243	1.190
		4	18.30	1.37	0.106	12.40	3.34	2.48	0.200	1.330
		5	20.70	1.74	0.107	16.20	3.76	3.18	0.196	1.250
	140	1	197.00	32.10	1.720	18.90	6.04	12.30	0.654	0.211
		2	69.00	6.41	0.386	15.80	7.70	7.46	0.472	1.290
		3	62.00	8.43	0.344	23.90	5.19	7.27	0.305	0.681
		4	30.20	2.05	0.135	14.90	5.11	3.43	0.230	1.230
		5	23.50	2.12	0.121	17.40	3.86	3.49	0.200	1.110

Table C11. Soil data by sampling location (0-15 cm) (continued).

Pond number	Transect compass bearing	Landscape position†	THg	C	N	C:N	THg	C	N	Bulk density
	degrees		ng g^{-1}	--------%	--------		mg m^{-2}	-----kg m^{-2}-----		g cm^{-3}
6	210	1	203.00	32.90	1.740	18.90	5.81	11.30	0.597	0.194
		2	191.00	13.40	0.865	15.30	13.30	10.30	0.671	0.486
		3	46.10	6.39	0.238	22.30	4.60	5.55	0.249	0.958
		4	19.80	2.14	0.129	16.10	2.98	3.22	0.200	1.050
		5	19.90	2.03	0.124	16.00	3.19	3.15	0.197	1.110
	280	1	243.00	31.10	1.670	18.80	8.26	12.50	0.664	0.233
		2	44.50	4.12	0.223	18.10	5.30	5.42	0.300	1.200
		3	21.00	2.54	0.117	20.80	3.34	3.75	0.180	1.180
		4	23.50	2.29	0.122	18.50	4.15	3.90	0.211	1.180
		5	23.60	2.00	0.121	16.10	4.37	3.74	0.231	1.320
7	10	1	84.30	3.76	0.308	11.60	10.50	4.36	0.375	1.000
		2	23.70	1.61	0.124	12.10	4.70	3.05	0.252	1.530
		3	32.50	3.03	0.182	16.00	4.87	4.37	0.273	1.090
		4	24.30	2.32	0.145	15.20	3.76	3.52	0.231	1.140
		5	36.00	3.54	0.201	16.80	5.26	5.09	0.303	1.070
	80	1	118.00	5.22	0.423	11.70	13.50	5.66	0.484	1.020
		2	29.70	2.01	0.153	12.20	5.51	3.55	0.291	1.580
		3	28.00	2.60	0.167	15.00	4.31	3.87	0.257	1.140
		4	28.60	2.82	0.169	16.00	4.34	4.22	0.264	1.150
		5	29.30	2.74	0.177	15.00	4.82	4.34	0.289	1.190
	160	1	55.20	4.11	0.294	13.30	8.04	5.85	0.441	1.280
		2	23.00	1.60	0.114	13.70	4.93	3.42	0.250	1.510
		3	44.70	4.09	0.208	18.90	5.61	5.12	0.271	1.010
		4	38.70	2.77	0.175	15.40	6.43	4.55	0.295	1.160
		5	36.20	3.68	0.185	19.00	5.15	5.15	0.271	1.060
	230	1	42.40	2.76	0.200	12.80	6.59	4.04	0.315	1.460
		2	22.40	1.45	0.119	11.80	5.02	3.16	0.268	1.630
		3	34.90	3.56	0.225	15.70	4.92	5.00	0.318	0.973
		4	33.10	2.81	0.181	15.20	5.06	4.23	0.279	1.110
		5	32.60	3.73	0.205	17.60	4.50	5.12	0.291	1.070
	310	1	66.90	5.27	0.295	16.80	7.60	5.76	0.343	1.100
		2	27.90	2.11	0.152	13.10	4.94	3.49	0.268	1.500
		3	24.90	2.13	0.132	15.50	4.25	3.59	0.232	1.280
		4	28.70	2.47	0.134	16.80	4.38	3.59	0.214	1.140
		5	23.80	2.20	0.140	15.00	3.96	3.61	0.241	1.250

Table C11. Soil data by sampling location (0-15 cm) (continued).

Pond number	Transect compass bearing	Landscape position†	THg	C	N	C:N	THg	C	N	Bulk density
	degrees		ng g^{-1}	--------%--------			mg m^{-2}	-----kg m^{-2}-----		g cm^{-3}
8	10	1	45.70	3.11	0.231	13.10	6.47	4.38	0.334	1.140
		2	45.00	7.05	0.418	16.20	4.60	6.43	0.397	0.796
		3	20.70	2.45	0.152	16.10	3.61	4.30	0.266	1.190
		4	22.30	2.15	0.127	16.70	3.70	3.55	0.213	1.200
		5	22.30	2.07	0.107	19.10	3.89	3.57	0.187	1.200
	80	1	52.70	4.10	0.308	12.30	6.74	4.71	0.382	1.070
		2	26.10	3.63	0.242	14.40	3.45	4.44	0.308	1.040
		3	18.00	2.58	0.159	16.10	2.81	3.88	0.240	1.060
		4	17.00	2.76	0.140	19.60	2.80	4.58	0.233	1.110
		5	16.50	2.15	0.103	20.70	2.68	3.53	0.170	1.130
	160	1	43.00	3.06	0.229	12.90	6.21	4.23	0.329	1.210
		2	35.60	3.23	0.210	15.20	4.93	4.41	0.290	0.993
		3	22.90	2.21	0.129	17.30	3.99	3.90	0.226	1.190
		4	17.70	1.94	0.104	18.40	3.17	3.51	0.191	1.260
		5	22.70	2.31	0.094	24.70	3.85	3.84	0.156	1.150
	230	1	67.60	4.63	0.343	13.10	8.24	5.33	0.407	1.080
		2	28.00	3.24	0.222	14.20	4.08	4.55	0.320	1.090
		3	21.00	2.54	0.152	16.30	3.17	3.74	0.230	1.070
		4	18.00	1.93	0.132	14.30	2.98	3.15	0.220	1.150
		5	20.90	2.52	0.153	16.00	3.01	3.53	0.220	1.100
	300	1	91.20	6.09	0.442	13.50	11.10	6.81	0.503	0.934
		2	25.00	3.41	0.226	14.50	3.65	4.79	0.329	1.090
		3	46.60	3.88	0.272	13.90	6.60	5.38	0.386	0.987
		4	25.70	2.55	0.168	15.10	4.15	4.07	0.270	1.140
		5	24.70	2.39	0.147	16.10	4.25	4.08	0.254	1.190
9	60	1	79.10	3.07	0.278	10.90	11.00	4.53	0.416	1.030
		2	93.60	10.00	0.592	16.30	8.29	8.28	0.509	0.722
		3	18.40	2.30	0.117	19.50	3.34	4.21	0.216	1.250
		4	27.40	2.61	0.150	17.10	4.54	4.35	0.255	1.140
		5	29.60	3.03	0.174	17.30	5.08	5.30	0.307	1.180
	120	1	80.60	3.44	0.340	10.10	11.10	4.90	0.487	0.975
		2	76.80	5.69	0.426	12.70	8.73	6.28	0.493	0.865
		3	26.10	2.36	0.147	15.60	4.39	3.96	0.254	1.230
		4	20.20	2.23	0.130	17.10	3.29	3.68	0.214	1.100
		5	20.80	2.48	0.164	14.90	3.72	4.43	0.297	1.300

Table C11. Soil data by sampling location (0-15 cm) (continued).

Pond number	Transect compass bearing	Landscape position†	THg	C	N	C:N	THg	C	N	Bulk density
	degrees		ng g^{-1}	--------%--------			mg m^{-2}	-----kg m^{-2}-----		g cm^{-3}
9	180	1	68.90	2.97	0.262	11.10	8.81	4.02	0.362	1.030
		2	69.60	4.96	0.342	13.90	7.85	5.34	0.385	1.100
		3	52.70	4.51	0.284	15.20	6.59	5.13	0.339	0.981
		4	40.20	3.04	0.204	14.50	5.97	4.51	0.311	1.110
		5	27.40	2.94	0.173	16.50	4.15	4.41	0.267	1.110
	250	1	48.30	2.34	0.230	9.59	6.85	3.43	0.357	1.180
		2	105.00	9.76	0.696	13.00	7.55	6.84	0.526	0.775
		3	55.50	6.26	0.349	16.10	5.50	5.65	0.352	0.907
		4	31.90	3.28	0.221	13.70	4.46	4.43	0.322	1.130
		5	28.80	2.70	0.183	14.10	4.15	3.78	0.269	1.020
	340	1	56.60	2.17	0.192	10.70	7.98	3.13	0.294	1.310
		2	58.20	6.68	0.435	15.10	5.58	6.20	0.411	0.815
		3	23.30	3.16	0.185	16.80	3.71	5.14	0.305	1.130
		4	24.50	2.93	0.169	17.30	3.95	4.75	0.274	1.080
		5	15.90	2.26	0.142	15.80	3.05	4.35	0.276	1.300
10	0	1	101.00	3.71	0.305	11.60	11.70	4.49	0.386	1.070
		2	122.00	10.60	0.629	16.20	8.38	7.14	0.441	0.661
		3	23.70	2.28	0.133	16.40	4.14	4.04	0.246	1.240
		4	23.30	2.98	0.155	19.00	2.99	3.98	0.210	1.020
		5	31.80	2.86	0.191	14.60	4.87	4.40	0.301	1.200
	70	1	83.80	3.11	0.257	11.50	12.40	4.70	0.410	1.160
		2	59.50	5.03	0.346	14.00	7.53	6.21	0.444	0.969
		3	27.40	2.35	0.152	15.10	4.77	4.05	0.269	1.250
		4	24.20	2.23	0.147	14.90	3.94	3.56	0.239	1.130
		5	29.70	3.00	0.182	15.90	4.37	4.39	0.276	1.120
	150	1	129.00	5.10	0.433	11.60	15.80	6.32	0.546	1.020
		2	69.20	6.49	0.463	13.70	6.85	6.28	0.457	0.877
		3	31.20	3.00	0.195	14.90	4.31	4.11	0.275	1.050
		4	32.30	3.09	0.192	15.30	4.57	4.47	0.293	1.140
		5	35.10	3.57	0.202	16.30	4.73	4.65	0.285	1.150
	210	1	59.40	2.42	0.217	10.70	8.95	3.73	0.348	1.300
		2	47.80	2.98	0.239	11.50	4.53	3.58	0.311	1.150
		3	38.70	3.80	0.237	15.80	6.12	5.92	0.374	1.100
		4	22.20	2.53	0.159	15.50	3.46	3.99	0.257	1.090
		5	22.10	2.16	0.137	15.20	3.41	3.31	0.217	1.110

Table C11. Soil data by sampling location (0-15 cm) (continued).

Pond number	Transect compass bearing	Landscape position†	THg	C	N	C:N	THg	C	N	Bulk density
	degrees		ng g^{-1}	--------%	--------		mg m^{-2}	-----kg m^{-2}-----		g cm^{-3}
10	280	1	115.00	3.77	0.316	11.40	14.20	4.82	0.424	1.130
		2	75.60	7.76	0.499	14.00	6.85	5.84	0.417	0.950
		3	41.90	4.54	0.290	15.40	5.48	5.96	0.386	0.965
		4	34.70	3.45	0.204	16.70	5.06	4.98	0.298	1.010
		5	32.70	3.03	0.176	16.30	5.29	4.76	0.293	1.220

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

APPENDIX D. SUPPLEMENTARY VEGETATION DATA

Table D1. Vegetation data by sampling location.

Pond number	Transect compass bearing	Landscape position†	Canopy openness	Tree basal area	Mean tree diameter	Mean tree height class midpoint	Surface water depth	Cover Class Midpoint							
								Bare ground	Water	Litter/ debris	Non-vascular	Graminoid	Forb	Shrub	Tree
	degrees		%	m^2 ha^{-1}	cm	m	cm	----------%----------							
1	0	1	10.10	32.10	40.30	16.30	41.00	0.00	97.50	97.50	0.00	0.00	2.50	0.00	85.0
		2	5.20	32.10	38.00	14.50	0.00	0.00	0.00	97.50	2.50	2.50	2.50	2.50	85.0
		3	5.20	23.00	32.40	15.00	0.00	2.50	0.00	85.00	0.00	62.50	62.50	2.50	85.0
		4	5.20	23.00	39.70	16.80	0.00	2.50	0.00	97.50	0.00	2.50	37.50	15.00	85.0
		5	3.90	39.00	23.60	10.70	0.00	0.00	0.00	97.50	0.00	15.00	15.00	0.00	97.5
	70	1	6.50	34.40	44.00	15.80	45.00	0.00	97.50	97.50	0.00	0.00	2.50	0.00	85.0
		2	3.90	45.90	34.10	13.80	0.00	2.50	0.00	85.00	2.50	15.00	15.00	2.50	97.5
		3	5.20	34.40	32.10	12.50	0.00	0.00	0.00	85.00	0.00	62.50	15.00	0.00	85.0
		4	5.72	25.30	29.70	11.10	0.00	2.50	0.00	97.50	0.00	0.00	37.50	2.50	97.5
		5	3.12	23.00	38.50	12.50	0.00	0.00	0.00	97.50	0.00	2.50	37.50	0.00	85.0
	140	1	8.06	25.30	41.00	15.70	42.00	0.00	97.50	97.50	0.00	0.00	2.50	0.00	62.5
		2	13.00	34.40	36.80	14.20	0.00	0.00	0.00	97.50	62.50	15.00	15.00	0.00	37.5
		3	7.28	39.00	34.40	13.30	4.00	2.50	0.00	85.00	2.50	2.50	37.50	15.00	62.5
		4	4.94	39.00	33.30	15.90	0.00	2.50	0.00	97.50	2.50	15.00	37.50	37.50	85.0
		5	4.68	25.30	30.90	16.80	0.00	2.50	0.00	85.00	0.00	15.00	15.00	15.00	85.0
	210	1	10.10	36.70	41.40	16.30	39.00	0.00	97.50	97.50	0.00	15.00	2.50	0.00	85.0
		2	8.32	34.40	39.60	18.30	0.00	2.50	0.00	85.00	15.00	2.50	2.50	37.50	85.0
		3	6.76	36.70	35.90	15.50	0.00	2.50	0.00	85.00	2.50	2.50	37.50	2.50	97.5
		4	5.98	34.40	37.60	20.80	0.00	2.50	0.00	97.50	2.50	2.50	37.50	37.50	97.5
		5	4.68	27.60	28.70	17.30	0.00	2.50	0.00	97.50	0.00	0.00	37.50	15.00	85.0
	290	1	5.20	34.40	42.60	15.80	43.00	0.00	97.50	97.50	0.00	0.00	2.50	0.00	85.0
		2	5.98	32.10	42.40	18.00	0.00	0.00	0.00	97.50	37.50	15.00	2.50	0.00	97.5
		3	4.94	36.70	32.20	15.50	0.00	2.50	0.00	97.50	0.00	2.50	15.00	2.50	97.5
		4	7.28	25.30	38.30	18.00	0.00	2.50	0.00	97.50	0.00	15.00	37.50	0.00	97.5
		5	6.24	34.40	32.00	18.30	0.00	2.50	0.00	97.50	0.00	2.50	37.50	2.50	97.5

Table D1. Vegetation data by sampling location (continued).

Pond number	Transect compass bearing	Landscape position†	Canopy openness	Tree basal area	Mean tree diameter	Mean tree height class midpoint	Surface water depth	Cover Class Midpoint: Bare ground	Water	Litter/ debris	Non-vascular	Graminoid	Forb	Shrub	Tree
	degrees		%	m^2 ha^{-1}	cm	m	cm	%							
2	0	1	9.36	11.50	24.90	15.00	0.00	2.50	0.00	85.00	37.50	0.00	2.50	0.00	85.0
		2	1.04	13.80	26.70	14.20	0.00	0.00	0.00	97.50	15.00	15.00	0.00	0.00	97.5
		3	5.98	25.30	30.40	13.40	0.00	2.50	0.00	62.50	0.00	0.00	85.00	2.50	97.5
		4	4.68	23.00	29.00	13.80	0.00	15.00	0.00	37.50	0.00	0.00	97.50	0.00	85.0
		5	3.38	27.60	25.60	13.10	0.00	2.50	0.00	85.00	0.00	0.00	62.50	2.50	97.5
	70	1	6.76	16.10	21.10	13.60	0.00	2.50	0.00	97.50	15.00	0.00	0.00	0.00	85.0
		2	4.16	16.10	24.20	11.80	0.00	2.50	0.00	97.50	2.50	2.50	0.00	2.50	97.5
		3	3.12	29.80	23.00	11.90	0.00	2.50	0.00	85.00	0.00	0.00	85.00	2.50	97.5
		4	3.90	32.10	19.00	10.90	0.00	2.50	0.00	85.00	0.00	2.50	85.00	15.00	85.0
		5	3.38	29.80	17.20	11.00	0.00	15.00	0.00	85.00	0.00	0.00	37.50	2.50	97.5
	140	1	4.68	23.00	20.40	12.50	0.00	2.50	0.00	97.50	15.00	0.00	0.00	0.00	97.5
		2	3.38	18.40	20.30	10.00	0.00	2.50	0.00	97.50	2.50	0.00	0.00	15.00	97.5
		3	3.64	27.60	26.60	12.10	0.00	15.00	0.00	62.50	0.00	2.50	62.50	2.50	97.5
		4	2.86	32.10	24.60	11.80	0.00	15.00	0.00	85.00	0.00	2.50	62.50	0.00	85.0
		5	2.60	34.40	30.00	14.20	0.00	15.00	0.00	85.00	0.00	0.00	15.00	37.50	85.0
	220	1	2.86	23.00	21.60	12.50	0.00	2.50	0.00	97.50	15.00	2.50	0.00	0.00	97.5
		2	3.12	27.60	19.80	12.10	0.00	2.50	0.00	97.50	15.00	15.00	0.00	15.00	97.5
		3	6.50	20.70	21.60	11.40	0.00	2.50	0.00	85.00	0.00	0.00	37.50	62.50	37.5
		4	10.10	18.40	22.20	10.00	0.00	2.50	0.00	62.50	0.00	2.50	37.50	15.00	85.0
		5	5.98	18.40	22.30	10.00	0.00	2.50	0.00	62.50	0.00	2.50	37.50	15.00	85.0
	300	1	3.90	18.40	19.90	12.30	0.00	0.00	0.00	97.50	15.00	0.00	0.00	0.00	97.5
		2	4.16	20.70	24.80	14.20	0.00	0.00	0.00	97.50	15.00	15.00	2.50	0.00	85.0
		3	4.42	20.70	27.20	15.60	0.00	2.50	0.00	62.50	0.00	2.50	85.00	15.00	85.0
		4	6.76	27.60	30.70	16.30	0.00	2.50	0.00	85.00	0.00	2.50	37.50	15.00	97.5
		5	3.64	25.30	26.40	14.50	0.00	2.50	0.00	62.50	0.00	2.50	37.50	15.00	85.0

Table D1. Vegetation data by sampling location (continued).

Pond number	Transect compass bearing	Landscape position†	Canopy openness	Tree basal area	Mean tree diameter	Mean tree height class midpoint	Surface water depth	Cover Class Midpoint: Bare ground	Water	Litter/ debris	Non-vascular	Graminoid	Forb	Shrub	Tree
	degrees		%	m^2 ha^{-1}	cm	m	cm	%							
3	60	1	10.70	16.10	17.20	9.11	2.00	0.00	0.00	2.50	62.50	15.00	15.00	0.00	97.5
		2	4.16	29.80	24.10	10.00	1.00	2.50	2.50	62.50	2.50	2.50	15.00	15.00	97.5
		3	8.06	20.70	32.60	11.40	0.00	15.00	0.00	62.50	0.00	2.50	62.50	2.50	97.5
		4	6.50	16.10	39.50	10.80	0.00	2.50	0.00	85.00	0.00	2.50	85.00	0.00	97.5
		5	7.02	18.40	34.40	10.80	0.00	2.50	0.00	85.00	0.00	0.00	97.50	15.00	85.0
	130	1	6.76	13.80	18.30	8.96	2.00	2.50	2.50	15.00	85.00	2.50	15.00	15.00	62.5
		2	1.82	29.80	23.10	11.40	2.00	2.50	2.50	62.50	0.00	15.00	15.00	15.00	97.5
		3	2.86	20.70	30.30	14.20	0.00	2.50	0.00	85.00	0.00	2.50	15.00	2.50	97.5
		4	3.38	23.00	27.90	13.80	0.00	2.50	0.00	85.00	0.00	2.50	62.50	2.50	85.0
		5	3.64	23.00	29.10	13.80	0.00	2.50	0.00	85.00	0.00	2.50	97.50	37.50	97.5
	200	1	17.40	16.10	16.90	8.21	1.00	2.50	2.50	15.00	85.00	2.50	15.00	15.00	37.5
		2	2.60	36.70	17.40	10.40	3.00	0.00	62.50	85.00	2.50	2.50	15.00	2.50	85.0
		3	5.72	20.70	34.80	14.20	0.00	2.50	0.00	85.00	0.00	0.00	62.50	15.00	85.0
		4	6.24	16.10	41.50	15.40	0.00	2.50	0.00	85.00	0.00	0.00	2.50	85.00	85.0
		5	3.12	29.80	31.00	12.90	0.00	15.00	0.00	62.50	0.00	0.00	62.50	37.50	85.0
	260	1	23.70	18.40	16.60	8.44	2.00	2.50	2.50	15.00	85.00	2.50	2.50	37.50	97.5
		2	3.38	16.10	21.10	10.00	1.00	2.50	2.50	97.50	0.00	2.50	15.00	15.00	85.0
		3	5.20	16.10	21.50	10.90	0.00	2.50	0.00	85.00	0.00	2.50	85.00	2.50	85.0
		4	10.40	13.80	36.50	16.30	0.00	2.50	0.00	97.50	0.00	0.00	37.50	85.00	62.5
		5	12.20	11.50	36.70	17.50	0.00	2.50	0.00	85.00	0.00	0.00	85.00	15.00	97.5
	340	1	7.80	13.80	19.00	10.00	5.00	0.00	2.50	2.50	85.00	2.50	15.00	0.00	62.5
		2	11.70	25.30	30.50	13.40	2.00	2.50	2.50	37.50	2.50	62.50	15.00	0.00	85.0
		3	4.16	39.00	28.10	11.50	0.00	2.50	0.00	37.50	0.00	2.50	85.00	62.50	85.0
		4	4.16	32.10	30.70	13.60	0.00	2.50	0.00	37.50	0.00	85.00	15.00	2.50	85.0
		5	8.84	36.70	38.00	14.70	0.00	2.50	0.00	85.00	0.00	2.50	37.50	37.50	85.0

Table D1. Vegetation data by sampling location (continued).

Pond number	Transect compass bearing	Landscape position†	Canopy openness	Tree basal area	Mean tree diameter	Mean tree height class midpoint	Surface water depth	Cover Class Midpoint: Bare ground	Water	Litter/ debris	Non-vascular	Graminoid	Forb	Shrub	Tree
	degrees		%	m^2 ha^{-1}	cm	m	cm	%							
4	20	1	6.76	27.60	20.00	21.50	6.00	0.00	85.00	85.00	2.50	15.00	15.00	0.00	85.0
		2	11.20	29.80	20.00	21.50	8.00	2.50	85.00	85.00	2.50	15.00	2.50	37.50	85.0
		3	5.72	36.70	18.90	20.20	0.00	37.50	0.00	15.00	2.50	2.50	2.50	62.50	85.0
		4	6.24	20.70	18.90	19.70	0.00	62.50	0.00	37.50	2.50	2.50	15.00	0.00	85.0
		5	5.98	23.00	22.90	21.30	0.00	15.00	0.00	62.50	2.50	2.50	15.00	0.00	85.0
	100	1	7.80	27.60	19.10	20.40	1.00	2.50	2.50	62.50	2.50	2.50	15.00	62.50	85.0
		2	10.40	29.80	27.40	19.60	0.00	2.50	0.00	97.50	2.50	0.00	15.00	15.00	85.0
		3	9.10	34.40	30.30	20.00	0.00	2.50	0.00	85.00	2.50	0.00	15.00	37.50	97.5
		4	5.98	34.40	31.40	21.70	0.00	2.50	0.00	85.00	0.00	15.00	15.00	37.50	85.0
		5	8.32	71.20	31.70	22.30	0.00	2.50	0.00	97.50	0.00	0.00	15.00	15.00	62.5
	170	1	6.76	27.60	19.80	21.50	7.00	0.00	62.50	97.50	15.00	2.50	15.00	0.00	85.0
		2	6.76	29.80	20.00	17.70	0.00	2.50	0.00	97.50	2.50	0.00	37.50	15.00	97.5
		3	7.02	13.80	26.20	20.40	0.00	2.50	0.00	97.50	2.50	0.00	2.50	0.00	97.5
		4	8.84	23.00	32.50	21.30	0.00	2.50	0.00	97.50	2.50	0.00	2.50	2.50	85.0
		5	4.94	27.60	34.10	21.50	0.00	2.50	0.00	97.50	0.00	2.50	2.50	15.00	97.5
	240	1	8.06	34.40	19.20	21.70	4.00	2.50	15.00	62.50	37.50	2.50	2.50	15.00	85.0
		2	8.32	29.80	28.80	19.10	1.00	2.50	2.50	85.00	2.50	0.00	15.00	37.50	85.0
		3	4.94	34.40	28.20	18.30	0.00	15.00	0.00	62.50	0.00	0.00	15.00	0.00	97.5
		4	7.02	36.70	27.80	17.80	0.00	2.50	0.00	97.50	0.00	0.00	15.00	15.00	97.5
		5	9.36	25.30	30.50	16.80	0.00	2.50	0.00	97.50	0.00	0.00	15.00	15.00	97.5
	310	1	8.84	39.00	18.90	21.80	8.00	2.50	62.50	37.50	15.00	15.00	15.00	0.00	85.0
		2	9.10	27.60	28.20	21.50	1.00	2.50	2.50	85.00	2.50	2.50	15.00	15.00	85.0
		3	4.42	23.00	29.40	22.50	0.00	2.50	0.00	97.50	2.50	0.00	2.50	62.50	85.0
		4	9.62	32.10	26.50	21.60	0.00	15.00	0.00	62.50	0.00	2.50	2.50	15.00	85.0
		5	9.36	50.50	25.30	21.40	0.00	2.50	0.00	97.50	0.00	0.00	15.00	2.50	97.5

Table D1. Vegetation data by sampling location (continued).

Pond number	Transect compass bearing	Landscape position†	Canopy openness	Tree basal area	Mean tree diameter	Mean tree height class midpoint	Surface water depth	Cover Class Midpoint: Bare ground	Water	Litter/ debris	Non-vascular	Graminoid	Forb	Shrub	Tree
	degrees		%	m^2 ha^{-1}	cm	m	cm	%							
5	40	1	5.72	11.50	14.10	10.00	1.00	2.50	15.00	37.50	15.00	0.00	15.00	15.00	85.0
		2	9.10	25.30	28.00	20.20	4.00	2.50	62.50	62.50	2.50	2.50	62.50	15.00	85.0
		3	7.80	29.80	33.30	21.50	0.00	2.50	0.00	85.00	2.50	2.50	15.00	2.50	97.5
		4	20.50	18.40	35.20	22.50	0.00	2.50	0.00	37.50	0.00	15.00	62.50	2.50	62.5
		5	22.10	20.70	39.40	22.50	0.00	0.00	0.00	37.50	0.00	85.00	62.50	37.50	85.0
	120	1	7.28	11.50	12.80	10.00	1.00	2.50	62.50	97.50	2.50	2.50	15.00	37.50	85.0
		2	14.80	20.70	35.80	22.50	20.00	0.00	97.50	85.00	0.00	2.50	62.50	0.00	62.5
		3	4.42	32.10	32.90	21.60	0.00	15.00	0.00	85.00	2.50	2.50	37.50	2.50	97.5
		4	5.98	41.30	29.70	20.40	0.00	2.50	0.00	97.50	0.00	15.00	2.50	0.00	97.5
		5	7.80	32.10	33.20	18.90	0.00	0.00	0.00	85.00	0.00	37.50	15.00	2.50	97.5
	190	1	6.24	9.18	12.90	8.44	1.00	0.00	85.00	97.50	2.50	0.00	37.50	62.50	62.5
		2	31.70	11.50	41.20	20.00	10.00	2.50	85.00	85.00	2.50	2.50	37.50	0.00	85.0
		3	10.70	18.40	29.10	16.30	0.00	15.00	0.00	85.00	0.00	2.50	15.00	0.00	85.0
		4	7.28	25.30	28.90	16.80	0.00	2.50	0.00	85.00	0.00	2.50	85.00	15.00	85.0
		5	8.32	25.30	29.80	18.00	0.00	2.50	0.00	85.00	0.00	2.50	15.00	37.50	97.5
	260	1	10.70	25.30	9.04	7.16	1.00	2.50	62.50	15.00	15.00	0.00	62.50	85.00	15.0
		2	22.10	23.00	28.30	16.30	15.00	2.50	85.00	85.00	2.50	2.50	37.50	37.50	62.5
		3	3.64	18.40	38.00	20.90	0.00	2.50	0.00	97.50	2.50	0.00	15.00	37.50	37.5
		4	8.32	18.40	35.60	20.90	0.00	2.50	0.00	97.50	0.00	0.00	15.00	62.50	85.0
		5	12.50	27.60	35.90	21.50	0.00	2.50	0.00	85.00	0.00	62.50	2.50	85.00	97.5
	330	1	5.72	20.70	9.93	7.92	1.00	0.00	85.00	15.00	85.00	0.00	15.00	15.00	97.5
		2	22.60	25.30	30.60	20.20	10.00	0.00	97.50	85.00	0.00	2.50	62.50	0.00	62.5
		3	6.50	32.10	34.90	21.60	0.00	15.00	0.00	62.50	2.50	62.50	15.00	0.00	97.5
		4	6.76	41.30	30.40	20.10	0.00	15.00	0.00	85.00	0.00	15.00	37.50	2.50	97.5
		5	4.42	23.00	29.70	20.00	0.00	15.00	0.00	62.50	0.00	15.00	37.50	37.50	85.0

Table D1. Vegetation data by sampling location (continued).

Pond number	Transect compass bearing	Landscape position†	Canopy openness	Tree basal area	Mean tree diameter	Mean tree height class midpoint	Surface water depth	Cover Class Midpoint: Bare ground	Water	Litter/ debris	Non-vascular	Graminoid	Forb	Shrub	Tree
	degrees		%	m^2 ha^{-1}	cm	m	cm	%							
6	10	1	12.20	39.00	31.50	21.50	47.00	0.00	97.50	97.50	0.00	0.00	37.50	0.00	15.0
		2	8.32	27.60	25.60	22.50	2.00	0.00	37.50	37.50	2.50	62.50	2.50	0.00	97.5
		3	8.32	36.70	27.90	20.90	0.00	37.50	0.00	15.00	0.00	2.50	2.50	2.50	97.5
		4	3.90	29.80	30.20	19.60	0.00	15.00	0.00	62.50	0.00	2.50	2.50	15.00	97.5
		5	4.42	18.40	33.30	20.90	0.00	15.00	0.00	37.50	0.00	15.00	0.00	0.00	97.5
	70	1	13.00	41.30	30.90	21.50	43.00	0.00	97.50	97.50	0.00	0.00	2.50	0.00	62.5
		2	9.10	29.80	32.90	22.50	3.00	2.50	15.00	62.50	2.50	2.50	15.00	0.00	97.5
		3	9.10	23.00	35.20	22.50	0.00	62.50	0.00	37.50	0.00	2.50	2.50	2.50	85.0
		4	9.10	20.70	29.70	22.50	0.00	2.50	0.00	85.00	0.00	0.00	2.50	85.00	85.0
		5	7.02	25.30	27.50	21.40	0.00	37.50	0.00	15.00	0.00	37.50	37.50	2.50	97.5
	140	1	12.50	29.80	35.40	23.10	44.00	0.00	97.50	97.50	0.00	0.00	2.50	0.00	62.5
		2	10.70	27.60	37.60	22.10	3.00	2.50	37.50	37.50	2.50	2.50	2.50	15.00	85.0
		3	10.10	27.60	41.50	23.10	0.00	15.00	0.00	62.50	0.00	2.50	15.00	2.50	97.5
		4	7.02	32.10	38.60	21.70	0.00	62.50	0.00	15.00	0.00	2.50	37.50	2.50	97.5
		5	10.90	32.10	33.80	21.60	0.00	15.00	0.00	62.50	0.00	0.00	15.00	37.50	85.0
	210	1	14.80	36.70	32.30	22.20	48.00	0.00	97.50	97.50	0.00	2.50	2.50	0.00	62.5
		2	11.20	36.70	29.20	19.80	1.00	0.00	15.00	85.00	2.50	15.00	15.00	15.00	85.0
		3	11.20	36.70	34.00	21.40	0.00	15.00	0.00	85.00	2.50	0.00	2.50	2.50	85.0
		4	8.32	34.40	34.70	23.00	0.00	2.50	0.00	97.50	0.00	0.00	2.50	0.00	85.0
		5	10.10	73.50	30.70	21.60	0.00	2.50	0.00	97.50	0.00	0.00	2.50	0.00	97.5
	280	1	12.50	39.00	31.50	22.20	34.00	0.00	97.50	97.50	0.00	0.00	2.50	0.00	85.0
		2	12.00	39.00	23.80	21.00	10.00	2.50	85.00	97.50	2.50	15.00	2.50	15.00	85.0
		3	9.36	29.80	26.00	20.60	0.00	0.00	0.00	97.50	2.50	0.00	2.50	2.50	85.0
		4	8.58	20.70	25.10	21.10	0.00	2.50	0.00	97.50	0.00	0.00	2.50	37.50	97.5
		5	8.84	23.00	29.60	22.50	0.00	15.00	0.00	85.00	0.00	0.00	15.00	37.50	85.0

Table D1. Vegetation data by sampling location (continued).

Pond number	Transect compass bearing	Landscape position†	Canopy openness	Tree basal area	Mean tree diameter	Mean tree height class midpoint	Surface water depth	Cover Class Midpoint							
								Bare ground	Water	Litter/ debris	Non-vascular	Graminoid	Forb	Shrub	Tree
	degrees		%	m^2 ha^{-1}	cm	m	cm	----------%----------							
7	10	1	10.10	36.70	28.80	20.20	13.00	0.00	97.50	97.50	0.00	0.00	0.00	0.00	97.5
		2	10.90	39.00	27.20	17.70	2.00	2.50	37.50	37.50	2.50	37.50	15.00	0.00	85.0
		3	5.72	39.00	29.50	19.60	0.00	15.00	0.00	62.50	0.00	2.50	37.50	37.50	97.5
		4	10.90	34.40	30.00	19.20	0.00	15.00	0.00	62.50	0.00	15.00	85.00	85.00	85.0
		5	5.20	29.80	30.40	20.60	0.00	2.50	0.00	85.00	0.00	2.50	15.00	85.00	85.0
	80	1	10.40	43.60	24.80	17.60	12.00	0.00	97.50	97.50	0.00	0.00	2.50	0.00	97.5
		2	16.90	27.60	30.20	20.40	3.00	2.50	37.50	62.50	2.50	37.50	15.00	37.50	15.0
		3	4.42	34.40	31.90	20.00	0.00	15.00	0.00	85.00	0.00	2.50	15.00	97.50	37.5
		4	6.24	27.60	29.50	19.40	0.00	15.00	0.00	37.50	0.00	2.50	15.00	85.00	62.5
		5	12.20	18.40	29.90	20.90	0.00	37.50	0.00	37.50	0.00	2.50	15.00	85.00	85.0
	160	1	8.84	39.00	27.30	19.20	15.00	0.00	97.50	97.50	0.00	0.00	2.50	0.00	85.0
		2	8.32	41.30	28.60	19.40	1.00	2.50	37.50	97.50	0.00	2.50	2.50	85.00	97.5
		3	7.54	34.40	30.50	20.80	0.00	15.00	0.00	85.00	0.00	2.50	15.00	62.50	97.5
		4	8.58	25.30	29.60	21.40	0.00	2.50	0.00	97.50	0.00	2.50	37.50	62.50	85.0
		5	11.20	25.30	32.70	21.40	0.00	15.00	0.00	85.00	0.00	2.50	62.50	0.00	97.5
	230	1	9.62	39.00	27.90	19.60	13.00	0.00	97.50	97.50	0.00	0.00	0.00	0.00	85.0
		2	8.84	45.90	26.80	18.00	1.00	2.50	15.00	85.00	2.50	2.50	62.50	0.00	97.5
		3	4.16	52.80	28.10	19.50	0.00	2.50	0.00	85.00	0.00	2.50	2.50	0.00	97.5
		4	2.08	39.00	29.00	18.50	0.00	2.50	0.00	85.00	0.00	37.50	15.00	0.00	85.0
		5	4.16	27.60	35.70	21.50	0.00	2.50	0.00	85.00	0.00	15.00	15.00	0.00	97.5
	310	1	10.10	39.00	27.90	19.60	5.00	2.50	85.00	85.00	0.00	2.50	2.50	0.00	85.0
		2	7.54	43.60	28.60	19.50	1.00	2.50	15.00	62.50	0.00	15.00	37.50	0.00	97.5
		3	5.72	43.60	28.50	19.50	0.00	15.00	0.00	62.50	0.00	2.50	15.00	37.50	97.5
		4	3.64	34.40	33.20	20.80	0.00	15.00	0.00	85.00	0.00	2.50	15.00	85.00	85.0
		5	4.68	27.60	37.50	22.50	0.00	15.00	0.00	85.00	0.00	2.50	15.00	97.50	62.5

Table D1. Vegetation data by sampling location (continued).

Pond number	Transect compass bearing	Landscape position†	Canopy openness	Tree basal area	Mean tree diameter	Mean tree height class midpoint	Surface water depth	Cover Class Midpoint: Bare ground	Water	Litter/ debris	Non-vascular	Graminoid	Forb	Shrub	Tree
	degrees		%	m^2 ha^{-1}	cm	m	cm	%							
8	10	1	3.90	29.80	34.00	14.80	0.00	2.50	0.00	97.50	2.50	0.00	0.00	0.00	85.0
		2	4.68	25.30	35.80	15.70	0.00	15.00	0.00	85.00	2.50	2.50	15.00	0.00	85.0
		3	2.60	32.10	28.90	13.60	0.00	2.50	0.00	97.50	2.50	2.50	15.00	0.00	85.0
		4	3.90	34.40	32.00	14.20	0.00	0.00	0.00	62.50	0.00	85.00	15.00	2.50	85.0
		5	17.90	29.80	34.60	13.80	0.00	2.50	0.00	85.00	0.00	2.50	37.50	37.50	85.0
	80	1	5.72	27.60	38.00	16.30	0.00	2.50	0.00	97.50	15.00	0.00	0.00	0.00	85.0
		2	4.42	34.40	31.90	14.20	0.00	2.50	0.00	85.00	0.00	15.00	2.50	0.00	97.5
		3	3.64	39.00	29.00	12.60	0.00	2.50	0.00	85.00	2.50	2.50	2.50	0.00	97.5
		4	2.86	32.10	33.00	13.60	0.00	0.00	0.00	97.50	0.00	2.50	15.00	0.00	85.0
		5	4.68	25.30	33.60	14.50	0.00	2.50	0.00	97.50	0.00	0.00	15.00	0.00	85.0
	160	1	7.28	25.30	37.10	15.70	0.00	2.50	0.00	97.50	2.50	2.50	0.00	0.00	85.0
		2	6.76	23.00	29.20	12.50	0.00	15.00	0.00	85.00	2.50	15.00	2.50	0.00	97.5
		3	3.12	25.30	26.30	11.10	0.00	0.00	0.00	97.50	0.00	2.50	15.00	0.00	85.0
		4	2.86	27.60	25.40	11.00	0.00	2.50	0.00	97.50	0.00	0.00	15.00	15.00	97.5
		5	1.56	18.40	25.60	10.80	0.00	0.00	0.00	97.50	0.00	0.00	15.00	15.00	85.0
	230	1	4.68	29.80	13.00	14.80	0.00	2.50	0.00	97.50	15.00	15.00	0.00	0.00	85.0
		2	4.16	27.60	35.50	14.20	0.00	15.00	0.00	62.50	2.50	2.50	37.50	0.00	85.0
		3	4.16	36.70	31.20	12.30	0.00	2.50	0.00	97.50	0.00	0.00	15.00	0.00	85.0
		4	3.38	27.60	26.70	12.10	0.00	15.00	0.00	85.00	0.00	2.50	15.00	0.00	85.0
		5	3.38	29.80	23.40	11.00	0.00	2.50	0.00	97.50	0.00	0.00	15.00	0.00	97.5
	300	1	3.90	27.60	39.00	16.30	0.00	0.00	0.00	97.50	15.00	0.00	0.00	0.00	85.0
		2	3.90	34.40	35.40	15.00	0.00	15.00	0.00	85.00	2.50	2.50	0.00	0.00	85.0
		3	5.20	39.00	34.10	14.00	0.00	2.50	0.00	85.00	0.00	15.00	15.00	0.00	97.5
		4	3.64	34.40	33.00	14.20	0.00	2.50	0.00	97.50	0.00	2.50	15.00	0.00	85.0
		5	3.38	34.40	25.80	13.30	0.00	0.00	0.00	85.00	0.00	2.50	62.50	0.00	85.0

Table D1. Vegetation data by sampling location (continued).

Pond number	Transect compass bearing	Landscape position†	Canopy openness	Tree basal area	Mean tree diameter	Mean tree height class midpoint	Surface water depth	Cover Class Midpoint: Bare ground	Water	Litter/ debris	Non-vascular	Graminoid	Forb	Shrub	Tree
	degrees		%	m^2 ha^{-1}	cm	m	cm	%							
9	60	1	12.20	13.80	42.10	22.50	19.00	0.00	97.50	85.00	0.00	15.00	97.50	0.00	15.0
		2	7.80	32.10	31.40	18.50	0.00	2.50	0.00	85.00	2.50	2.50	2.50	2.50	85.0
		3	7.80	18.40	35.10	19.40	0.00	2.50	0.00	85.00	2.50	2.50	15.00	37.50	97.5
		4	3.90	32.10	36.00	21.60	0.00	15.00	0.00	85.00	0.00	2.50	37.50	15.00	85.0
		5	9.62	29.80	37.70	22.50	0.00	15.00	0.00	37.50	0.00	2.50	15.00	85.00	85.0
	120	1	15.30	16.10	41.80	22.50	16.00	0.00	97.50	85.00	0.00	15.00	97.50	0.00	15.0
		2	5.72	32.10	35.00	20.70	0.00	2.50	0.00	85.00	2.50	2.50	15.00	15.00	85.0
		3	8.06	32.10	36.80	21.60	0.00	2.50	0.00	97.50	2.50	2.50	2.50	15.00	85.0
		4	6.24	20.70	24.00	21.10	0.00	2.50	0.00	85.00	0.00	15.00	2.50	37.50	85.0
		5	4.42	27.60	21.10	20.40	0.00	2.50	0.00	85.00	0.00	0.00	2.50	2.50	97.5
	180	1	22.10	16.10	38.20	22.50	20.00	0.00	97.50	85.00	0.00	2.50	97.50	0.00	62.5
		2	7.80	32.10	35.10	21.60	0.00	2.50	0.00	62.50	15.00	2.50	2.50	0.00	85.0
		3	5.72	25.30	33.70	20.20	0.00	15.00	0.00	85.00	2.50	2.50	2.50	15.00	85.0
		4	3.90	29.80	38.90	22.50	0.00	15.00	0.00	85.00	0.00	2.50	2.50	15.00	85.0
		5	7.28	25.30	31.00	20.20	0.00	2.50	0.00	97.50	0.00	2.50	37.50	2.50	85.0
	250	1	22.10	18.40	36.00	20.90	20.00	0.00	97.50	85.00	0.00	15.00	97.50	0.00	85.0
		2	7.54	23.00	32.90	21.30	0.00	2.50	0.00	85.00	2.50	2.50	2.50	37.50	85.0
		3	6.24	20.70	40.40	22.50	0.00	2.50	0.00	97.50	2.50	2.50	2.50	15.00	97.5
		4	5.72	43.60	32.00	20.50	0.00	15.00	0.00	85.00	0.00	2.50	0.00	2.50	97.5
		5	7.80	41.30	32.30	22.50	0.00	2.50	0.00	97.50	2.50	2.50	15.00	15.00	85.0
	340	1	14.60	13.80	37.90	22.50	29.00	0.00	97.50	85.00	0.00	15.00	97.50	0.00	0.0
		2	3.90	25.30	27.10	18.00	0.00	2.50	0.00	62.50	2.50	37.50	15.00	15.00	97.5
		3	4.42	20.70	27.40	14.90	0.00	15.00	0.00	85.00	0.00	2.50	15.00	15.00	85.0
		4	1.82	29.80	29.00	16.30	0.00	2.50	0.00	85.00	0.00	15.00	15.00	0.00	97.5
		5	1.82	29.80	34.80	20.60	0.00	15.00	0.00	85.00	0.00	2.50	2.50	15.00	97.5

Table D1. Vegetation data by sampling location (continued).

Pond number	Transect compass bearing	Landscape position†	Canopy openness	Tree basal area	Mean tree diameter	Mean tree height class midpoint	Surface water depth	Cover Class Midpoint: Bare ground	Water	Litter/ debris	Non-vascular	Graminoid	Forb	Shrub	Tree
	degrees		%	m^2 ha^{-1}	cm	m	cm	%							
10	0	1	4.42	39.00	27.10	18.50	0.00	97.50	0.00	2.50	0.00	2.50	2.50	0.00	97.5
		2	1.82	16.10	28.30	20.70	0.00	2.50	0.00	97.50	0.00	2.50	15.00	15.00	97.5
		3	1.04	20.70	29.30	19.70	0.00	15.00	0.00	85.00	0.00	2.50	37.50	15.00	97.5
		4	2.86	25.30	26.50	19.10	0.00	2.50	0.00	97.50	0.00	2.50	15.00	2.50	97.5
		5	2.34	27.60	31.00	17.80	0.00	0.00	0.00	37.50	0.00	62.50	37.50	85.00	62.5
	70	1	5.20	39.00	28.80	20.00	0.00	97.50	0.00	85.00	0.00	2.50	0.00	0.00	97.5
		2	3.64	18.40	26.90	17.80	0.00	2.50	0.00	85.00	2.50	37.50	15.00	15.00	97.5
		3	2.34	18.40	33.70	22.50	0.00	0.00	0.00	97.50	0.00	0.00	15.00	0.00	97.5
		4	1.56	20.70	32.30	18.30	0.00	2.50	0.00	97.50	0.00	15.00	15.00	0.00	97.5
		5	2.34	34.40	37.50	19.20	0.00	0.00	0.00	97.50	0.00	2.50	37.50	0.00	97.5
	150	1	3.12	39.00	28.60	18.90	0.00	37.50	0.00	85.00	0.00	0.00	0.00	0.00	97.5
		2	3.38	32.10	26.30	16.30	0.00	2.50	0.00	85.00	0.00	2.50	15.00	15.00	37.5
		3	5.46	36.70	28.50	13.90	0.00	15.00	0.00	85.00	0.00	15.00	37.50	2.50	97.5
		4	2.08	29.80	27.80	11.90	0.00	2.50	0.00	97.50	0.00	2.50	37.50	37.50	85.0
		5	4.68	32.10	28.40	12.70	0.00	2.50	0.00	97.50	0.00	0.00	15.00	0.00	97.5
	210	1	5.46	39.00	29.30	19.30	0.00	15.00	0.00	85.00	0.00	2.50	0.00	0.00	97.5
		2	2.60	41.30	27.40	16.00	0.00	15.00	0.00	97.50	2.50	2.50	2.50	2.50	85.0
		3	1.56	39.00	26.60	15.10	0.00	2.50	0.00	85.00	0.00	15.00	15.00	0.00	97.5
		4	1.56	36.70	30.00	15.50	0.00	0.00	0.00	85.00	0.00	37.50	15.00	15.00	97.5
		5	4.42	36.70	30.00	15.50	0.00	2.50	0.00	85.00	0.00	37.50	2.50	37.50	97.5
	280	1	7.02	43.60	29.40	18.90	0.00	2.50	0.00	62.50	0.00	37.50	15.00	0.00	37.5
		2	4.42	23.00	31.60	18.30	0.00	0.00	0.00	85.00	0.00	15.00	0.00	15.00	85.0
		3	1.30	32.10	33.50	17.70	0.00	0.00	0.00	62.50	0.00	62.50	15.00	0.00	97.5
		4	2.08	32.10	28.70	16.30	0.00	0.00	0.00	37.50	0.00	62.50	15.00	0.00	85.0
		5	3.90	29.80	32.40	16.30	0.00	0.00	0.00	15.00	0.00	62.50	37.50	0.00	85.0

† Landscape position 1 = 1 m from pond center, 2 = 1 m inside pond edge, 3 = toe slope, 4 = back slope, and 5 = shoulder.

APPENDIX E. SAS CODE

```
/*importing data*/
	proc import out=work.ds4
	datafile="c:\users\pos pc\desktop\boche project data.xlsx"
	dbms=excel replace;
	sheet="sample locations$";
	getnames=yes;
	range="a1:bc251";
	mixed=no;
	scantext=yes;
	usedate=yes;
	scantime=yes;
	run;
	proc import out=work.ds1
	datafile="c:\users\pos pc\desktop\boche project data.xlsx"
	dbms=excel replace;
	sheet="increments$";
	getnames=yes;
	mixed=no;
	scantext=yes;
	usedate=yes;
	scantime=yes;
	run;

/*deleting empty rows*/
	data ds5; set ds4;
	if pond_number=. then delete;
	run;
	data ds2; set ds1;
	if pond_number=. then delete;
	run;

/*averaging pseudoreplicates*/
	proc sort data=ds5; by pond_number landscape_position;
	proc means mean n noprint;
	var THg_STOCK_PER_0_15_CM__mg_m2_ C_STOCK_PER_0_15_CM__kg_m2_
	N_STOCK_PER_0_15_CM__kg_m2_
	C_N_RATIO_PER_0_15_CM THg_CONC_PER_0_15_CM__ng_g___DRY
	__TOTAL_C_PER_0_15_CM__OVEN_DRY_
	__TOTAL_N_PER_0_15_CM__OVEN_DRY_ THg_MASS_PER_VOLUME_PER_0_15_CM_
	C_MASS_PER_VOLUME_PER_0_15_CM__g
	N_MASS_PER_VOLUME_PER_0_15_CM__g;
	by pond_number landscape_position;
	output out=ds6 mean= MEAN_THg_STK_PER_0_15_CM__mg_m2_
	MEAN_C_STOCK_PER_0_15_CM__kg_m2_
	MEAN_N_STOCK_PER_0_15_CM__kg_m2_ MEAN_C_N_RATIO_PER_0_15_CM
	MEAN_THg_CONC_PER_0_15_CM__ng_g_
	MEAN__TOT_C_PER_0_15_CM_ MEAN__TOT_N_PER_0_15_CM_
	MEAN_THg_MASS_PER_VOL_IN_0_15_CM
	MEAN_C_MASS_PER_VOL_PER_0_15_CM_
	MEAN_N_MASS_PER_VOL_PER_0_15_CM_
```

```
        n=THgStock_0_15_cmAREAn CStock_0_15_cmAREAn NStock_0_15_cmAREAn
        CNRatio_0_15_cmn
        THgConc_0_15_cmMASSn CConc_0_15cmMASSn NConc_0_15cmMASSn
        THgDense_0_15_cmVOLn
        CDense_0_15cmVOLn NDense_0_15cmVOLn;
        run;
        proc sort data=ds2; by pond_number landscape_position sample_depth_code;
        proc means mean n noprint;
        var THg_STOCK_PER_INCREMENT__mg_m2_ C_STOCK_PER_INCREMENT__kg_m2_
        N_STOCK_PER_INCREMENT__kg_m2_
        C_N_RATIO_PER_INCREMENT THg_CONC_PER_INCREMENT__ng_g_
        __TOTAL_C_PER_INCREMENT__OVEN_DR
        __TOTAL_N_PER_INCREMENT__OVEN_DR
        THg_MASS_PER_VOLUME_PER_INCREMEN
        C_MASS_PER_VOLUME_PER_INCREMENT_
        N_MASS_PER_VOLUME_PER_INCREMENT_;
        by pond_number landscape_position sample_depth_code;
        output out=ds3 mean= MEAN_THg_STOCK_PER_INC__mg_m2_
        MEAN_C_STOCK_PER_INC__kg_m2_
        MEAN_N_STOCK_PER_INC__kg_m2_ MEAN_C_N_RATIO_PER_INC
        MEAN_THg_CONC_PER_INC__ng_g_
        MEAN__TOT_C_PER_INCR MEAN__TOT_N_PER_INCR
        MEAN_THg_MASS_PER_VOL_IN_INCR
        MEAN_C_MASS_PER_VOL_PER_INCR MEAN_N_MASS_PER_VOL_PER_INCR
        n=THgStockIncrAREAn CStockIncrAREAn NStockIncrAREAn CNRatioIncrn
        THgConcMASSn CConcMASSn
        NConcMASSn THgDenseIncrVOLn CDenseIncrVOLn NDenseIncrVOLn;
        run;

/*examining data sets*/
        title 'all 0-15cm';
        proc print data=ds5;
        proc contents varnum data=ds5;
        run;
        title 'mean 0-15cm';
        proc print data=ds6;
        proc contents varnum data=ds6;
        run;
        title 'all increments';
        proc sort data=ds2; by landscape_position sample_depth_code;
        proc print data=ds2;
        proc contents varnum data=ds2;
        run;
        title 'mean increments';
        proc print data=ds3;
        proc contents varnum data=ds3;
        run;

/*univariate analysis to examine distribution of response variables*/
        title '1a. UA non-mean 0-15cm by landscape position';
        ods rtf file='C:\users\pos pc\desktop\1a UA non-mean 0-15cm by landscape
        position.rtf';
        ods graphics on;
```

```
proc sort data=ds5; by landscape_position;
proc univariate data=ds5 normal plot;
by landscape_position;
*var THg_STOCK_PER_0_15_CM__mg_m2_;
*var C_STOCK_PER_0_15_CM__kg_m2_;
*var N_STOCK_PER_0_15_CM__kg_m2_;
*var C_N_RATIO_PER_0_15_CM;
*var THg_CONC_PER_0_15_CM__ng_g___DRY;
*var __TOTAL_C_PER_0_15_CM__OVEN_DRY_;
*var __TOTAL_N_PER_0_15_CM__OVEN_DRY_;
*var THg_MASS_PER_VOLUME_PER_0_15_CM_;
*var C_MASS_PER_VOLUME_PER_0_15_CM__g:
*var N_MASS_PER_VOLUME_PER_0_15_CM__g;
histogram /normal;
histogram /gamma;
run;
ods rtf close;
ods graphics off;

title '1b. UA non-mean 0-15cm by pond number'
ods rtf file='C:\users\pos pc\desktop\1b UA non-mean 0-15cm by pond number.rtf';
ods graphics on;
proc sort data=ds5; by pond_number;
proc univariate data=ds5 normal plot;
by pond_number;
*var THg_STOCK_PER_0_15_CM__mg_m2_;
*var C_STOCK_PER_0_15_CM__kg_m2_;
*var N_STOCK_PER_0_15_CM__kg_m2_;
*var C_N_RATIO_PER_0_15_CM;
*var THg_CONC_PER_0_15_CM__ng_g___DRY;
*var __TOTAL_C_PER_0_15_CM__OVEN_DRY_;
*var __TOTAL_N_PER_0_15_CM__OVEN_DRY_;
*var THg_MASS_PER_VOLUME_PER_0_15_CM_;
*var C_MASS_PER_VOLUME_PER_0_15_CM__g:
*var N_MASS_PER_VOLUME_PER_0_15_CM__g;
histogram /normal;
histogram /gamma;
run;
ods rtf close;
ods graphics off;

title '2. UA mean 0-15cm';
ods rtf file='C:\users\pos pc\desktop\2 UA mean 0-15cm.rtf';
ods graphics on;
proc sort data=ds6; by landscape_position;
proc univariate data=ds6 normal plot;
*var MEAN_THg_STK_PER_0_15_CM__mg_m2_;
*var MEAN_C_STOCK_PER_0_15_CM__kg_m2_;
*var MEAN_N_STOCK_PER_0_15_CM__kg_m2_;
*var MEAN_C_N_RATIO_PER_0_15_CM;
*var MEAN_THg_CONC_PER_0_15_CM__ng_g_;
*var MEAN__TOT_C_PER_0_15_CM_;
*var MEAN__TOT_N_PER_0_15_CM_;
```

```
*var MEAN_THg_MASS_PER_VOL_IN_0_15_CM;
*var MEAN_C_MASS_PER_VOL_PER_0_15_CM_;
*var MEAN_N_MASS_PER_VOL_PER_0_15_CM_;
histogram /normal;
histogram /gamma;
run;
ods rtf close;
ods graphics off;

title '3a. UA mean increment by landscape position';
ods rtf file='C:\users\pos pc\desktop\3a UA mean increment by landscape
position.rtf';
ods graphics on;
proc sort data=ds3; by landscape_position;
proc univariate data=ds3 normal plot;
by landscape_position;
*var MEAN_THg_STOCK_PER_INC__mg_m2_;
*var MEAN_C_STOCK_PER_INC__kg_m2_;
*var MEAN_N_STOCK_PER_INC__kg_m2_;
*var MEAN_C_N_RATIO_PER_INC;
*var MEAN_THg_CONC_PER_INC__ng_g_;
*var MEAN__TOT_C_PER_INCR;
*var MEAN__TOT_N_PER_INCR;
*var MEAN_THg_MASS_PER_VOL_IN_INCR;
*var MEAN_C_MASS_PER_VOL_PER_INCR;
*var MEAN_N_MASS_PER_VOL_PER_INCR;
histogram /normal;
histogram /gamma;
run;
ods rtf close;
ods graphics off;

title '3b. UA mean increment by increment';
ods rtf file='C:\users\pos pc\desktop\3b UA mean increment by increment.rtf';
ods graphics on;
proc sort data=ds3; by sample_depth_code;
proc univariate data=ds3 normal plot;
by sample_depth_code;
*var MEAN_THg_STOCK_PER_INC__mg_m2_;
*var MEAN_C_STOCK_PER_INC__kg_m2_;
*var MEAN_N_STOCK_PER_INC__kg_m2_;
*var MEAN_C_N_RATIO_PER_INC;
*var MEAN_THg_CONC_PER_INC__ng_g_;
*var MEAN__TOT_C_PER_INCR;
*var MEAN__TOT_N_PER_INCR;
*var MEAN_THg_MASS_PER_VOL_IN_INCR;
*var MEAN_C_MASS_PER_VOL_PER_INCR;
*var MEAN_N_MASS_PER_VOL_PER_INCR;
histogram /normal;
histogram /gamma;
run;
ods rtf close;
ods graphics off;
```

```
/*glimmix models to compare basins, landscape positions, depth increments*/
	title '1a. basin comparisons per landscape position';
	ods rtf file='C:\users\pos pc\desktop\1a basin comparisons per landscape
	position.rtf';
	ods graphics on;
	proc sort data=ds5; by landscape_position pond_number;
	data ds105; set ds5;
	proc glimmix data=ds105 maxopt=1000 pconv=1e-6 plots=all;
	by landscape_position;
	class pond_number;
	*model THg_STOCK_PER_0_15_CM__mg_m2_=pond_number/dist=normal
	link=identity;
	*model C_STOCK_PER_0_15_CM__kg_m2_=pond_number/dist=normal
	link=identity;
	*model N_STOCK_PER_0_15_CM__kg_m2_=pond_number/dist=normal
	link=identity;
	*model C_N_RATIO_PER_0_15_CM=pond_number/dist=normal link=identity;
	*model THg_CONC_PER_0_15_CM__ng_g___DRY=pond_number/dist=normal
	link=identity;
	model __TOTAL_C_PER_0_15_CM__OVEN_DRY_=pond_number/dist=normal
	link=identity;
	*model __TOTAL_N_PER_0_15_CM__OVEN_DRY_=pond_number/dist=normal
	link=identity;
	*model THg_MASS_PER_VOLUME_PER_0_15_CM_=pond_number/dist=normal
	link=identity;
	*model C_MASS_PER_VOLUME_PER_0_15_CM__g=pond_number/dist=normal
	link=identity;
	*model N_MASS_PER_VOLUME_PER_0_15_CM__g=pond_number/dist=normal
	link=identity;
	output out=ds205 pearson(blup)=resid pred=pred;
	lsmeans pond_number/ilink cl lines diff adjust=tukey plots=meanplot(descending
	ilink);
	run;
	ods graphics off;
	ods rtf close;

	title '1b. landscape position comparisons per basin';
	ods rtf file='C:\users\pos pc\desktop\1b landscape position comparisons per
	basin.rtf';
	ods graphics on;
	proc sort data=ds5; by pond_number landscape_position;
	data ds109; set ds5;
	proc glimmix data=ds109 maxopt=1000 pconv=1e-6 plots=all;
	by pond_number;
	class landscape_position;
	*model THg_STOCK_PER_0_15_CM__mg_m2_=landscape_position/dist=normal
	link=identity;
	*model C_STOCK_PER_0_15_CM__kg_m2_=landscape_position/dist=normal
	link=identity;
	*model N_STOCK_PER_0_15_CM__kg_m2_=landscape_position/dist=normal
	link=identity;
	*model C_N_RATIO_PER_0_15_CM=landscape_position/dist=normal link=identity;
```

```
*model THg_CONC_PER_0_15_CM__ng_g___DRY=landscape_position/dist=normal
link=identity;
model __TOTAL_C_PER_0_15_CM__OVEN_DRY_=landscape_position/dist=normal
link=identity;
*model __TOTAL_N_PER_0_15_CM__OVEN_DRY_=landscape_position/dist=normal
link=identity;
*model THg_MASS_PER_VOLUME_PER_0_15_CM_=landscape_position/dist=normal
link=identity;
*model C_MASS_PER_VOLUME_PER_0_15_CM__g=landscape_position/dist=normal
link=identity;
*model N_MASS_PER_VOLUME_PER_0_15_CM__g=landscape_position/dist=normal
link=identity;
output out=ds209 pearson(blup)=resid pred=pred;
lsmeans landscape_position/ilink cl lines diff adjust=tukey
plots=meanplot(descending ilink);
run;
ods graphics off;
ods rtf close;

title '2. landscape position comparison across basins';
ods rtf file='C:\users\pos pc\desktop\2 landscape position comparison across
basins.rtf';
ods graphics on;
proc sort data=ds6; by landscape_position;
data ds107; set ds6;
proc glimmix data=ds107 maxopt=1000 pconv=1e-6 plots=all;
class pond_number landscape_position;
*model MEAN_THg_STK_PER_0_15_CM__mg_m2_=landscape_position/dist=normal
link=identity;
*model MEAN_C_STOCK_PER_0_15_CM__kg_m2_=landscape_position/dist=normal
link=identity;
*model MEAN_N_STOCK_PER_0_15_CM__kg_m2_=landscape_position/dist=normal
link=identity;
*model MEAN_C_N_RATIO_PER_0_15_CM=landscape_position/dist=normal
link=identity;
*model MEAN_THg_CONC_PER_0_15_CM__ng_g_=landscape_position/dist=normal
link=identity;
model MEAN__TOT_C_PER_0_15_CM_=landscape_position/dist=normal
link=identity;
*model MEAN__TOT_N_PER_0_15_CM_=landscape_position/dist=normal
link=identity;
*model MEAN_THg_MASS_PER_VOL_IN_0_15_CM=landscape_position/dist=normal
link=identity;
*model MEAN_C_MASS_PER_VOL_PER_0_15_CM_=landscape_position/dist=normal
link=identity;
*model MEAN_N_MASS_PER_VOL_PER_0_15_CM_=landscape_position/dist=normal
link=identity;
output out=ds207 pearson(blup)=resid pred=pred;
lsmeans  landscape_position/ilink cl lines diff adjust=tukey;
run;
ods graphics off;
ods rtf close;
```

```
title '3a. depth increment comparisons across basins per landscape position';
ods rtf file='C:\users\pos pc\desktop\3a across ponds, per ls pos, are depths diff.rtf';
ods graphics on;
proc sort data=ds3; by landscape_position pond_number sample_depth_code;
data ds106; set ds3;
proc glimmix data=ds106 maxopt=1000 pconv=1e-6 plots=all;
by landscape_position;
class pond_number sample_depth_code;
*model MEAN_THg_STOCK_PER_INC__mg_m2_=sample_depth_code
pond_number/dist=normal link=identity;
*model MEAN_C_STOCK_PER_INC__kg_m2_=sample_depth_code
pond_number/dist=normal link=identity;
*model MEAN_N_STOCK_PER_INC__kg_m2_=sample_depth_code
pond_number/dist=normal link=identity;
*model MEAN_C_N_RATIO_PER_INC=sample_depth_code
pond_number/dist=normal link=identity;
*model MEAN_THg_CONC_PER_INC__ng_g_=sample_depth_code
pond_number/dist=normal link=identity;
model MEAN__TOT_C_PER_INCR=sample_depth_code pond_number/dist=normal
link=identity;
*model MEAN__TOT_N_PER_INCR=sample_depth_code pond_number/dist=normal
link=identity;
*model MEAN_THg_MASS_PER_VOL_IN_INCR=sample_depth_code
pond_number/dist=normal link=identity;
*model MEAN_C_MASS_PER_VOL_PER_INCR=sample_depth_code
pond_number/dist=normal link=identity;
*model MEAN_N_MASS_PER_VOL_PER_INCR=sample_depth_code
pond_number/dist=normal link=identity;
output out=ds206 pearson(blup)=resid pred=pred;
lsmeans  sample_depth_code/ilink cl lines diff adjust=tukey;
run;
ods graphics off;
ods rtf close;

title '3b. landscape position comparisions across ponds per increment';
ods rtf file='C:\users\pos pc\desktop\3b landscape position comparisions across
ponds per increment.rtf';
ods graphics on;
proc sort data=ds3; by sample_depth_code pond_number landscape_position;
data ds108; set ds3;
proc glimmix data=ds108 maxopt=1000 pconv=1e-6 plots=all;
by sample_depth_code;
class pond_number landscape_position;
*model MEAN_THg_STOCK_PER_INC__mg_m2_=landscape_position/dist=normal
link=identity;
*model MEAN_C_STOCK_PER_INC__kg_m2_=landscape_position/dist=normal
link=identity;
*model MEAN_N_STOCK_PER_INC__kg_m2_=landscape_position/dist=normal
link=identity;
*model MEAN_C_N_RATIO_PER_INC=landscape_position/dist=normal link=identity;
*model MEAN_THg_CONC_PER_INC__ng_g_=landscape_position/dist=normal
link=identity;
model MEAN__TOT_C_PER_INCR=landscape_position/dist=normal link=identity;
```

```
        *model MEAN__TOT_N_PER_INCR=landscape_position/dist=normal link=identity;
        *model MEAN_THg_MASS_PER_VOL_IN_INCR=landscape_position/dist=normal
        link=identity;
        *model MEAN_C_MASS_PER_VOL_PER_INCR=landscape_position/dist=normal
        link=identity;
        *model MEAN_N_MASS_PER_VOL_PER_INCR=landscape_position/dist=normal
        link=identity;
        output out=ds208 pearson(blup)=resid pred=pred;
        lsmeans landscape_position/ilink cl lines diff adjust=tukey;
        run;
        ods graphics off;
        ods rtf close;

/*determining collinear upland predictor variables*/
        title 'determining upland collinear variables';
        ods rtf file='C:\users\pos pc\desktop\upland collinear variables.rtf';
        ods graphics on;
        proc sort data=ds5; by landscape_position;
        data ds113; set ds5;
        proc contents varnum data=ds5; run;
        proc corr data=ds113;
        where landscape_position='2';
        var
        UPLAND_MEAN_THg_STOCK_PER_0_15_C
        /*UPLAND_MEAN_C_STOCK_PER_0_15_CM_
        UPLAND_MEAN_N_STOCK_PER_0_15_CM_*/
        UPLAND_MEAN_C_N_RATIO_PER_0_15_C
        UPLAND_SLOPE_GRADE____
        UPLAND_SLOPE_LENGTH__m_
        TRANSECT_COMPASS_BEARING__degree
        BASIN_AREA__m2_
        UPLAND_MEAN_CANOPY_OPENNESS____
        UPLAND_MEAN_BARE_GROUND_COVER_CL
        UPLAND_MEAN_LITTER_DEBRIS_COVER_
        UPLAND_MEAN_NON_VASCULAR_COVER_C
        UPLAND_MEAN_GRAMMINOID_COVER_CLA
        UPLAND_MEAN_FORB_COVER_CLASS_MID
        UPLAND_MEAN_SHRUB_COVER_CLASS_MI
        UPLAND_MEAN_TREE_COVER_CLASS_MID
        UPLAND_MEAN_MEAN_BASAL_AREA_TREE
        UPLAND_MEAN_MEAN_TREE_DIAMETER__
        UPLAND_MEAN_MEAN_TREE_HEIGHT_CLA;
        run;
        ods graphics off;
        ods rtf close;
        /*none > 0.9, so all kept in for stepwise regression*/

/*stepwise regression*/
        title 'stepwise linear regression predicting THg at pond edge';
        ods rtf file='C:\users\pos pc\desktop\stepwise linear regression predicting THg at
        pond edge.rtf';
        ods graphics on;
        proc reg data=ds5;
```

```
where landscape_position='2' and SAMPLE_LOCATION_ID_NUMBER__ARBIT ^=147
and SAMPLE_LOCATION_ID_NUMBER__ARBIT ^=2
and SAMPLE_LOCATION_ID_NUMBER__ARBIT ^=237;
model THg_STOCK_PER_0_15_CM__mg_m2_=
UPLAND_MEAN_THg_STOCK_PER_0_15_C
UPLAND_MEAN_C_N_RATIO_PER_0_15_C
UPLAND_SLOPE_GRADE____
UPLAND_SLOPE_LENGTH__m_
BASIN_AREA__m2_
UPLAND_MEAN_CANOPY_OPENNESS____
UPLAND_MEAN_BARE_GROUND_COVER_CL
UPLAND_MEAN_LITTER_DEBRIS_COVER_
UPLAND_MEAN_NON_VASCULAR_COVER_C
UPLAND_MEAN_GRAMMINOID_COVER_CLA
UPLAND_MEAN_FORB_COVER_CLASS_MID
UPLAND_MEAN_SHRUB_COVER_CLASS_MI
UPLAND_MEAN_TREE_COVER_CLASS_MID
UPLAND_MEAN_MEAN_BASAL_AREA_TREE
UPLAND_MEAN_MEAN_TREE_DIAMETER__
UPLAND_MEAN_MEAN_TREE_HEIGHT_CLA
/selection=stepwise sle=.15 sls=.15;
output out=ds506 residual=rstudent;
run;

ods graphics off;
ods rtf close;
data ds606; set ds506;
if rstudent>2 or rstudent<-2;
proc print data=ds606;
title 'selected var linear regression predicting THg at pond edge';
ods rtf file='C:\users\pos pc\desktop\selected var linear regression predicting THg at
pond edge.rtf';
ods graphics on;
proc reg data=ds5;
where landscape_position='2' and SAMPLE_LOCATION_ID_NUMBER__ARBIT ^=2
and
SAMPLE_LOCATION_ID_NUMBER__ARBIT ^=147 and
SAMPLE_LOCATION_ID_NUMBER__ARBIT ^=237;
model THg_STOCK_PER_0_15_CM__mg_m2_=
UPLAND_SLOPE_LENGTH__m_
UPLAND_MEAN_GRAMMINOID_COVER_CLA
BASIN_AREA__m2_
UPLAND_MEAN_MEAN_TREE_HEIGHT_CLA
UPLAND_MEAN_THg_STOCK_PER_0_15_C;
output out=ds505 residual=rstudent;
run;
ods graphics off;
ods rtf close;
data ds605; set ds505;
if rstudent>2 or rstudent<-2;
proc print data=ds605;
run;
```

```
/*C Simple linear regression*/

/*0-15 cm THg vs C Concentrations*/
	title '2-5 ls pos THg vs C Concs 0-15cm';
	ods rtf file='C:\users\pos pc\desktop\2-5 ls pos THg vs C Concs 0-15cm.rtf';
	ods graphics on;
	proc reg data=ds5;
	*where landscape_position='1';
	where landscape_position ^= '1';
	*where landscape_position='1' and (pond_number=5 or pond_number=7 or
	pond_number=8 or
	 pond_number=11);
	*where landscape_position='1' and (pond_number^=5 and pond_number^=7 and
	pond_number^=8 and
	 pond_number^=11);
	model THg_CONC_PER_0_15_CM__ng_g___DRY =
	__TOTAL_C_PER_0_15_CM__OVEN_DRY_;
	run;
	ods graphics off;
	ods rtf close;
	quit;

/*0-15 cm THg vs C pools*/
	title '2-5 ls pos THg vs C pools 0-15 cm';
	ods rtf file='C:\users\pos pc\desktop\2-5 ls pos THg vs C pools 0-15 cm.rtf';
	ods graphics on;
	proc reg data=ds5 ;
	*where landscape_position='1';
	where landscape_position ^= '1';
	*where landscape_position='1' and (pond_number=5 or pond_number=7 or
	pond_number=8 or
	 pond_number=11);
	*where landscape_position='1' and (pond_number^=5 and pond_number^=7 and
	pond_number^=8 and
	 pond_number^=11);
	model THg_STOCK_PER_0_15_CM__mg_m2_ =
	C_STOCK_PER_0_15_CM__kg_m2_;
	run;
	ods graphics off;
	ods rtf close;
	quit;

/*Increments THg vs C Concentrations*/
	title '2-5 ls pos THg vs C Concs increments';
	ods rtf file='C:\users\pos pc\desktop\2-5 ls pos THg vs C Concs increments.rtf';
	ods graphics on;
	proc reg data=ds2;
	*where landscape_position = '1' and sample_id_number ^= 665;
	where landscape_position ^= '1' and sample_id_number ^= 665;
	*where sample_id_number ^= 665 and landscape_position='1' and
	(pond_number=5 or pond_number=7
	or pond_number=8 or pond_number=11);
```

```
        *where sample_id_number ^= 665 and landscape_position='1' and
        (pond_number^=5 and pond_number^=7
        and pond_number^=8 and pond_number^=11);
        model THg_CONC_PER_INCREMENT__ng_g_ =
        __TOTAL_C_PER_INCREMENT__OVEN_DR;
        run;
        ods graphics off;
        ods rtf close;
        quit;

/*Increments THg vs C Density*/
        title '2-5 ls pos THg vs C density increments';
        ods rtf file='C:\users\pos pc\desktop\2-5 ls pos THg vs C density increments.rtf';
        ods graphics on;
        proc reg data=ds2;
        *where landscape_position = '1' and sample_id_number ^= 665;
        where landscape_position ^= '1' and sample_id_number ^= 665;
        *where sample_id_number ^= 665 and landscape_position='1' and
        (pond_number=5 or pond_number=7
        or pond_number=8 or pond_number=11);
        *where sample_id_number ^= 665 and landscape_position='1' and
        (pond_number^=5 and pond_number^=7
        and pond_number^=8 and pond_number^=11);
        model THg_MASS_PER_VOLUME_PER_INCREMEN =
        C_MASS_PER_VOLUME_PER_INCREMENT_;
        run;
        ods graphics off;
        ods rtf close;
        quit;

/*THg vs C Regression line plots*/

/*ls pos 1-5 0-15 cm THg vs C Concs*/
        goptions reset=all cback=white htext=14pt;
        axis7 label=("C (%)") minor=(n=4);
        axis8 order=(0 to 300 by 50) label=(angle=90 "THg (ng g-1)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Landscape position:") repeat=1
        value=("Pond center" "Pond edge" "Toe slope" "Backslope" "Shoulder");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1-5 THg vs C concs to 15
        cm.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds5;
        plot THg_CONC_PER_0_15_CM__ng_g___DRY *
        __TOTAL_C_PER_0_15_CM__OVEN_DRY_= landscape_position /
        haxis=axis7 vaxis=axis8 legend=legend1;
```

```
        plot2 THg_CONC_PER_0_15_CM__ng_g___DRY *
        __TOTAL_C_PER_0_15_CM__OVEN_DRY_ / noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 1-5 0-15 cm THg vs C pools*/
        goptions reset=all cback=white htext=14pt;
        axis8 /*order=(0 to 15 by 5)*/ label=("C (kg m-2)") minor=none;
        axis9 order=(0 to 20 by 5)label=(angle=90 "THg (g m-2)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Landscape position:") repeat=1
        value=("Pond center" "Pond edge" "Toe slope" "Backslope" "Shoulder");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1-5 THg vs C Pools to 15
        cm.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds5;
        plot THg_STOCK_PER_0_15_CM__mg_m2_ * C_STOCK_PER_0_15_CM__kg_m2_=
        landscape_position /
        haxis=axis8 vaxis=axis9 legend=legend1 ;
        plot2 THg_STOCK_PER_0_15_CM__mg_m2_ * C_STOCK_PER_0_15_CM__kg_m2_ /
        noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 1-5 incr THg vs C Concs*/
        goptions reset=all cback=white htext=14pt;
        axis7label=("C (%)") minor=(n=4);
        axis8 label=(angle=90 "THg (ng g-1)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Landscape position:") repeat=1
        value=("Pond center" "Pond edge" "Toe slope" "Backslope" "Shoulder");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1-5 THg vs C concs all incr.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds2;
        plot THg_CONC_PER_INCREMENT__ng_g_ *
        __TOTAL_C_PER_INCREMENT__OVEN_DR= landscape_position /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_CONC_PER_INCREMENT__ng_g_ *
        __TOTAL_C_PER_INCREMENT__OVEN_DR / noaxis vaxis=axis8;
        run;
        quit;
```

```
/*ls pos 1-5 incr THg vs C densities*/
        goptions reset=all cback=white htext=14pt;
        axis7 order=(0 to .10 by .02) label=("C (g cm-3)") minor=(n=1);
        axis8 order=(0 to 150 by 25) label=(angle=90 "THg (ng cm-3)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Landscape position:") repeat=1
        value=("Pond center" "Pond edge" "Toe slope" "Backslope" "Shoulder");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1-5 THg vs C densities all
        incr.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds2;
        plot THg_MASS_PER_VOLUME_PER_INCREMEN *
        C_MASS_PER_VOLUME_PER_INCREMENT_= landscape_position /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_MASS_PER_VOLUME_PER_INCREMEN *
        C_MASS_PER_VOLUME_PER_INCREMENT_ / noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 1 0-15 cm THg vs C Concs*/
        goptions reset=all cback=white htext=14pt;
        axis7 label=("C (%)") minor=(n=4);
        axis8 order=(0 to 300 by 50) label=(angle=90 "THg (ng g-1)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green;;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1 THg vs C concs to 15 cm.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds5;
        where landscape_position='1';
        plot THg_CONC_PER_0_15_CM__ng_g___DRY *
        __TOTAL_C_PER_0_15_CM__OVEN_DRY_= pond_number /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_CONC_PER_0_15_CM__ng_g___DRY *
        __TOTAL_C_PER_0_15_CM__OVEN_DRY_ / noaxis vaxis=axis8;
        run;
```

```
        quit;

/*ls pos 1 0-15 cm THg vs C pools*/
        goptions reset=all cback=white htext=14pt;
        axis8 /*order=(0 to 15 by 5)*/ label=("C (kg m-2)") minor=(n=4);
        axis9 order=(0 to 20 by 5) label=(angle=90 "THg (g m-2)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1 THg vs C Pools to 15 cm.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds5;
        where landscape_position='1';
        plot THg_STOCK_PER_0_15_CM__mg_m2_ * C_STOCK_PER_0_15_CM__kg_m2_=
        pond_number /
        haxis=axis8 vaxis=axis9 legend=legend1 ;
        plot2 THg_STOCK_PER_0_15_CM__mg_m2_ * C_STOCK_PER_0_15_CM__kg_m2_ /
        noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 1 incr THg vs C Concs*/
        goptions reset=all cback=white htext=14pt;
        axis7label=("C (%)") minor=(n=4);
        axis8 label=(angle=90 "THg (ng g-1)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green; ;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1 THg vs C concs all incr.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds2;
```

```
        where landscape_position='1';
        plot THg_CONC_PER_INCREMENT__ng_g_ *
        __TOTAL_C_PER_INCREMENT__OVEN_DR= pond_number /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_CONC_PER_INCREMENT__ng_g_ *
        __TOTAL_C_PER_INCREMENT__OVEN_DR / noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 1 incr THg vs C densities*/
        goptions reset=all cback=white htext=14pt;
        axis7 /*order=(0 to .10 by .02)*/ label=("C (g cm-3)") minor=(n=1);
        axis8 order=(0 to 150 by 25) label=(angle=90 "THg (ng cm-3)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1 THg vs C densities all incr.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds2;
        where landscape_position='1';
        plot THg_MASS_PER_VOLUME_PER_INCREMEN *
        C_MASS_PER_VOLUME_PER_INCREMENT_= pond_number /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_MASS_PER_VOLUME_PER_INCREMEN *
        C_MASS_PER_VOLUME_PER_INCREMENT_ / noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 2-5 0-15 cm THg vs C Concs*/
        goptions reset=all cback=white htext=14pt;
        axis7 order=(0 to 35 by 5) label=("C (%)") minor=(n=4);
        axis8 order=(0 to 200 by 50) label=(angle=90 "THg (ng g-1)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
```

```
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 2-5 THg vs C concs to 15
        cm.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds5;
        where landscape_position^='1';
        plot THg_CONC_PER_0_15_CM__ng_g___DRY *
        __TOTAL_C_PER_0_15_CM__OVEN_DRY_= pond_number /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_CONC_PER_0_15_CM__ng_g___DRY *
        __TOTAL_C_PER_0_15_CM__OVEN_DRY_ / noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 2-5 0-15 cm THg vs C pools*/
        goptions reset=all cback=white htext=14pt;
        axis8 /*order=(0 to 15 by 5)*/ label=("C (kg m-2)") minor=none;
        axis9 order=(0 to 15 by 5) label=(angle=90 "THg (g m-2)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 2-5 THg vs C Pools to 15
        cm.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds5;
        where landscape_position^='1';
        plot THg_STOCK_PER_0_15_CM__mg_m2_ * C_STOCK_PER_0_15_CM__kg_m2_=
        pond_number /
        haxis=axis8 vaxis=axis9 legend=legend1 ;
        plot2 THg_STOCK_PER_0_15_CM__mg_m2_ * C_STOCK_PER_0_15_CM__kg_m2_ /
        noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 2-5 incr THg vs C Concs*/
        goptions reset=all cback=white htext=14pt;
        axis7 label=("C (%)") minor=(n=4);
        axis8 order=(0 to 300 by 50) label=(angle=90 "THg (ng g-1)") minor=(n=4);
        run;
```

```
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green; 0;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 2-5 THg vs C concs all incr.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds2;
        where landscape_position^='1';
        plot THg_CONC_PER_INCREMENT__ng_g_ *
        __TOTAL_C_PER_INCREMENT__OVEN_DR= pond_number /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_CONC_PER_INCREMENT__ng_g_ *
        __TOTAL_C_PER_INCREMENT__OVEN_DR / noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 2-5 incr THg vs C densities*/
        goptions reset=all cback=white htext=14pt;
        axis7 /*order=(0 to .10 by .02)*/ label=("C (g cm-3)") minor=(n=1);
        axis8 order=(0 to 125 by 25) label=(angle=90 "THg (ng cm-3)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 2-5 THg vs C densities all
        incr.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds2;
        where landscape_position^='1';
        plot THg_MASS_PER_VOLUME_PER_INCREMEN *
        C_MASS_PER_VOLUME_PER_INCREMENT_= pond_number /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_MASS_PER_VOLUME_PER_INCREMEN *
        C_MASS_PER_VOLUME_PER_INCREMENT_ / noaxis vaxis=axis8;
```

```
run;
quit;

/*linear regression with dummy variable for high C % ponds (5,7,8,11) versus low
(3,4,18,19,21,26)*/

data ds7; set ds5;
CoreConcDUM_LowC_HighC = LowC_ponds_0_HighC_ponds_1 *
__TOTAL_C_PER_0_15_CM__OVEN_DRY_;
CorePoolDUM_LowC_HighC = LowC_ponds_0_HighC_ponds_1 *
C_STOCK_PER_0_15_CM__kg_m2_;
run;
data ds8; set ds2;
IncrConcDUM_LowC_HighC = LowC_ponds_0_HighC_ponds_1 *
__TOTAL_C_PER_INCREMENT__OVEN_DR;
IncrDensDUM_LowC_HighC = LowC_ponds_0_HighC_ponds_1 *
C_MASS_PER_VOLUME_PER_INCREMENT_;
run;

title 'all 0-15cm plus DUM';
proc print data=ds7;
proc contents varnum data=ds7;
run;

title 'all increments plus DUM';
proc sort data=ds8; by landscape_position sample_depth_code;
proc print data=ds8;
proc contents varnum data=ds8;
run;

goptions reset=all cback=white htext=14pt;
title 'ls pos 1 DUM lowC HighC THg vs C Concs 0-15';
ods rtf file='C:\users\pos pc\desktop\ls pos 1 DUM lowC HighC THg vs C Concs 0-
15.rtf';
ods graphics on;
proc reg data = ds7;
where landscape_position = '1';
model THg_CONC_PER_0_15_CM__ng_g___DRY =
__TOTAL_C_PER_0_15_CM__OVEN_DRY_ LowC_ponds_0_HighC_ponds_1
CoreConcDUM_LowC_HighC;
plot r.*p.;
output out=new2 p=pre2 r=res2;
run;
ods graphics off;
ods rtf close;
quit;
goptions reset=all cback=white htext=14pt;
axis7 label=("C (%)") minor=(n=4);
axis8 order=(0 to 300 by 50) label=(angle=90 "THg (ng g-1)") minor=(n=4);
run;
legend1 position = (bottom center outside) label=("Pond number") repeat=1
value=("1, 2, 7, 8, 9 and 10" "3, 4, 5 and 6");
```

```
filename graphout 'C:\users\pos pc\desktop\ls pos 1 DUM lowC HighC THg vs C
Concs 0-15.png';
goptions device=png gsfname=graphout;
proc gplot;
plot THg_CONC_PER_0_15_CM__ng_g___DRY *
__TOTAL_C_PER_0_15_CM__OVEN_DRY_ = LowC_ponds_0_HighC_ponds_1 /
haxis=axis7 vaxis=axis8 legend=legend1;
symbol1 v=dot i=rl c=red;
symbol2 v=circle i=rl c=blue;
plot2 THg_CONC_PER_0_15_CM__ng_g___DRY *
__TOTAL_C_PER_0_15_CM__OVEN_DRY_ / noaxis vaxis=axis8;
symbol3 i=rl c=black line=2;
run; quit;

goptions reset=all cback=white htext=14pt;
title 'ls pos 1 DUM lowC HighC THg vs C Pools 0-15';
ods rtf file='C:\users\pos pc\desktop\ls pos 1 DUM lowC HighC THg vs C Pools 0-
15.rtf';
ods graphics on;
proc reg data = ds7;
where landscape_position = '1';
model THg_STOCK_PER_0_15_CM__mg_m2_ = C_STOCK_PER_0_15_CM__kg_m2_
LowC_ponds_0_HighC_ponds_1 CorePoolDUM_LowC_HighC;
plot r.*p.;
output out=new2 p=pre2 r=res2;
run;
ods graphics off;
ods rtf close;
quit;
goptions reset=all cback=white htext=14pt;
axis8 /*order=(0 to 15 by 5)*/ label=("C (kg m-2)") minor=none;
axis9 order=(0 to 20 by 5) label=(angle=90 "THg (g m-2)") minor=(n=4);
run;
legend1 position = (bottom center outside) label=("Pond number:") repeat=1
value=("1, 2, 7, 8, 9 and 10" "3, 4, 5 and 6");
filename graphout 'C:\users\pos pc\desktop\ls pos 1 DUM lowC HighC THg vs C Pools
0-15.png';
goptions device=png gsfname=graphout;
proc gplot;
plot THg_STOCK_PER_0_15_CM__mg_m2_ * C_STOCK_PER_0_15_CM__kg_m2_ =
LowC_ponds_0_HighC_ponds_1 /
haxis=axis8 vaxis=axis9 legend=legend1;
symbol1 v=dot i=rl c=red;
symbol2 v=circle i=rl c=blue;
plot2 THg_STOCK_PER_0_15_CM__mg_m2_ * C_STOCK_PER_0_15_CM__kg_m2_ /
noaxis vaxis=axis8;
symbol3 i=rl c=black line=2;
run; quit;

goptions reset=all cback=white htext=14pt;
title 'ls pos 1 DUM lowC HighC THg vs C Concs increments';
ods rtf file='C:\users\pos pc\desktop\ls pos 1 DUM lowC HighC THg vs C Concs
increments.rtf';
```

```
ods graphics on;
proc reg data = ds8;
where landscape_position = '1';
model THg_CONC_PER_INCREMENT__ng_g_ =
__TOTAL_C_PER_INCREMENT__OVEN_DR LowC_ponds_0_HighC_ponds_1
IncrConcDUM_LowC_HighC;
plot r.*p.;
output out=new2 p=pre2 r=res2;
run;
ods graphics off;
ods rtf close;
quit;
goptions reset=all cback=white htext=14pt;
axis7label=("C (%)") minor=(n=4);
axis8 label=(angle=90 "THg (ng g-1)") minor=(n=4);
run;
legend1 position = (bottom center outside) label=("Pond number:") repeat=1
value=("1, 2, 7, 8, 9 and 10" "3, 4, 5 and 6");
filename graphout 'C:\users\pos pc\desktop\ls pos 1 DUM lowC HighC THg vs C
Concs increments.png';
goptions device=png gsfname=graphout;
proc gplot;
plot THg_CONC_PER_INCREMENT__ng_g_ *
__TOTAL_C_PER_INCREMENT__OVEN_DR = LowC_ponds_0_HighC_ponds_1 /
haxis=axis7 vaxis=axis8 legend=legend1;;
symbol1 v=dot i=rl c=red;
symbol2 v=circle i=rl c=blue;
plot2 THg_CONC_PER_INCREMENT__ng_g_ *
__TOTAL_C_PER_INCREMENT__OVEN_DR / noaxis vaxis=axis8;
symbol3 i=rl c=black line=2;
run; quit;

goptions reset=all cback=white htext=14pt;
title 'ls pos 1 DUM lowC HighC THg vs C Densities increments';
ods rtf file='C:\users\pos pc\desktop\ls pos 1 DUM lowC HighC THg vs C Densities
increments.rtf';
ods graphics on;
proc reg data = ds8;
where landscape_position = '1';
model THg_MASS_PER_VOLUME_PER_INCREMEN =
C_MASS_PER_VOLUME_PER_INCREMENT_ LowC_ponds_0_HighC_ponds_1
IncrDensDUM_LowC_HighC;
plot r.*p.;
output out=new2 p=pre2 r=res2;
run;
ods graphics off;
ods rtf close;
quit;
goptions reset=all cback=white htext=14pt;
axis7 /*order=(0 to .10 by .02)*/ label=("C (g cm-3)") minor=(n=1);
axis8 order=(0 to 150 by 25) label=(angle=90 "THg (ng cm-3)") minor=(n=4);
run;
legend1 position = (bottom center outside) label=("Pond number:") repeat=1
```

```
        value=("1, 2, 7, 8, 9 and 10" "3, 4, 5 and 6");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1 DUM lowC HighC THg vs C
        Densities increments.png';
        goptions device=png gsfname=graphout;
        proc gplot;
        plot THg_MASS_PER_VOLUME_PER_INCREMEN *
        C_MASS_PER_VOLUME_PER_INCREMENT_ = LowC_ponds_0_HighC_ponds_1 /
        haxis=axis7 vaxis=axis8 legend=legend1;
        symbol1 v=dot i=rl c=red;
        symbol2 v=circle i=rl c=blue;
        plot2 THg_MASS_PER_VOLUME_PER_INCREMEN *
        C_MASS_PER_VOLUME_PER_INCREMENT_ / noaxis vaxis=axis8;
        symbol3 i=rl c=black line=2;
        run; quit;

/*N Simple linear regression*/

/*0-15 cm THg vs N Concentrations*/
        title '1 ls pos THg vs N Concs 0-15cm';
        ods rtf file='C:\users\pos pc\desktop\1 ls pos THg vs N Concs 0-15cm.rtf';
        ods graphics on;
        proc reg data=ds5;
        where landscape_position='1';
        *where landscape_position ^= '1';
        *where landscape_position='1' and (pond_number=5 or pond_number=7 or
        pond_number=8 or
         pond_number=11);
        *where landscape_position='1' and (pond_number^=5 and pond_number^=7 and
        pond_number^=8 and
         pond_number^=11);
        model THg_CONC_PER_0_15_CM__ng_g___DRY =
        __TOTAL_N_PER_0_15_CM__OVEN_DRY_;
        run;
        ods graphics off;
        ods rtf close;
        quit;

/*0-15 cm THg vs N pools*/
        title '1 ls pos THg vs N pools 0-15 cm';
        ods rtf file='C:\users\pos pc\desktop\1 ls pos THg vs N pools 0-15 cm.rtf';
        ods graphics on;
        proc reg data=ds5 ;
        where landscape_position='1';
        *where landscape_position ^= '1';
        *where landscape_position='1' and (pond_number=5 or pond_number=7 or
        pond_number=8 or
         pond_number=11);
        *where landscape_position='1' and (pond_number^=5 and pond_number^=7 and
        pond_number^=8 and
         pond_number^=11);
        model THg_STOCK_PER_0_15_CM__mg_m2_ =
        N_STOCK_PER_0_15_CM__kg_m2_;
        run;
```

```
	ods graphics off;
	ods rtf close;
	quit;

/*Increments THg vs N Concentrations*/
	title '1 ls pos THg vs N Concs increments';
	ods rtf file='C:\users\pos pc\desktop\1 ls pos THg vs N Concs increments.rtf';
	ods graphics on;
	proc reg data=ds2;
	where landscape_position = '1' and sample_id_number ^= 665;
	*where landscape_position ^= '1' and sample_id_number ^= 665;
	*where sample_id_number ^= 665 and landscape_position='1' and
	(pond_number=5 or pond_number=7
	or pond_number=8 or pond_number=11);
	*where sample_id_number ^= 665 and landscape_position='1' and
	(pond_number^=5 and pond_number^=7
	and pond_number^=8 and pond_number^=11);
	model THg_CONC_PER_INCREMENT__ng_g_ =
	__TOTAL_N_PER_INCREMENT__OVEN_DR;
	run;
	ods graphics off;
	ods rtf close;
	quit;

/*Increments THg vs N Density*/
	title '1 ls pos THg vs N density increments';
	ods rtf file='C:\users\pos pc\desktop\1 ls pos THg vs N density increments.rtf';
	ods graphics on;
	proc reg data=ds2;
	where landscape_position = '1' and sample_id_number ^= 665;
	*where landscape_position ^= '1' and sample_id_number ^= 665;
	*where landscape_position = '1' and sample_id_number ^= 665;
	*where sample_id_number ^= 665 and landscape_position='1' and
	(pond_number=5 or pond_number=7
	or pond_number=8 or pond_number=11);
	*where sample_id_number ^= 665 and landscape_position='1' and
	(pond_number^=5 and pond_number^=7
	and pond_number^=8 and pond_number^=11);
	model THg_MASS_PER_VOLUME_PER_INCREMEN =
	N_MASS_PER_VOLUME_PER_INCREMENT_;
	run;
	ods graphics off;
	ods rtf close;
	quit;

/*THg vs N Regression line plots*/

/*ls pos 1-5 0-15 cm THg vs N Concs*/
	goptions reset=all cback=white htext=14pt;
	axis7 /*order=(0 to 2 by 0.5)*/ label=("N (%)") minor=(n=4);
	axis8 order=(0 to 300 by 50) label=(angle=90 "THg (ng g-1)") minor=(n=4);
	run;
	symbol1 v=dot c=red;
```

```
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Landscape position:") repeat=1
        value=("Pond center" "Pond edge" "Toe slope" "Backslope" "Shoulder");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1-5 THg vs N concs to 15
        cm.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds5;
        plot THg_CONC_PER_0_15_CM__ng_g___DRY *
        __TOTAL_N_PER_0_15_CM__OVEN_DRY_= landscape_position /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_CONC_PER_0_15_CM__ng_g___DRY *
        __TOTAL_N_PER_0_15_CM__OVEN_DRY_ / noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 1-5 0-15 cm THg vs N pools*/
        goptions reset=all cback=white htext=14pt;
        axis8 /*order=(0 to 0.7 by .1)*/ label=("N (kg m-2)") minor=(n=1);
        axis9 order=(0 to 20 by 5)label=(angle=90 "THg (g m-2)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Landscape position:") repeat=1
        value=("Pond center" "Pond edge" "Toe slope" "Backslope" "Shoulder");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1-5 THg vs N Pools to 15
        cm.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds5;
        plot THg_STOCK_PER_0_15_CM__mg_m2_ * N_STOCK_PER_0_15_CM__kg_m2_=
        landscape_position /
        haxis=axis8 vaxis=axis9 legend=legend1 ;
        plot2 THg_STOCK_PER_0_15_CM__mg_m2_ * N_STOCK_PER_0_15_CM__kg_m2_/
        noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 1-5 incr THg vs N Concs*/
        goptions reset=all cback=white htext=14pt;
        axis7 order=0 to 2.5 by 0.5 label=("N (%)") minor=(n=4);
        axis8 label=(angle=90 "THg (ng g-1)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
```

```
        symbol5 v=circle c=blue;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Landscape position:") repeat=1
        value=("Pond center" "Pond edge" "Toe slope" "Backslope" "Shoulder");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1-5 THg vs N concs all incr.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds2;
        plot THg_CONC_PER_INCREMENT__ng_g_ *
        __TOTAL_N_PER_INCREMENT__OVEN_DR= landscape_position /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_CONC_PER_INCREMENT__ng_g_ *
        __TOTAL_N_PER_INCREMENT__OVEN_DR / noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 1-5 incr THg vs N densities*/
        goptions reset=all cback=white htext=14pt;
        axis7 label=("N (g cm-3)") minor=(n=1);
        axis8 order=(0 to 150 by 25) label=(angle=90 "THg (ng cm-3)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Landscape position:") repeat=1
        value=("Pond center" "Pond edge" "Toe slope" "Backslope" "Shoulder");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1-5 THg vs N densities all
        incr.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds2;
        plot THg_MASS_PER_VOLUME_PER_INCREMEN *
        N_MASS_PER_VOLUME_PER_INCREMENT_= landscape_position /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_MASS_PER_VOLUME_PER_INCREMEN *
        N_MASS_PER_VOLUME_PER_INCREMENT_ / noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 1 0-15 cm THg vs N Concs*/
        goptions reset=all cback=white htext=14pt;
        axis7 order=0 to 2 by 0.5 label=("N (%)") minor=(n=4);
        axis8 order=(0 to 300 by 50) label=(angle=90 "THg (ng g-1)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
```

```
        symbol9 v=plus c=black;
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1 THg vs N concs to 15 cm.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds5;
        where landscape_position='1';
        plot THg_CONC_PER_0_15_CM__ng_g___DRY *
        __TOTAL_N_PER_0_15_CM__OVEN_DRY_= pond_number /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_CONC_PER_0_15_CM__ng_g___DRY *
        __TOTAL_N_PER_0_15_CM__OVEN_DRY_ / noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 1 0-15 cm THg vs N pools*/
        goptions reset=all cback=white htext=14pt;
        axis8 /*order=(0 to 0.7 by .1)*/ label=("N (kg m-2)") minor=(n=4);
        axis9 order=(0 to 20 by 5) label=(angle=90 "THg (g m-2)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1 THg vs N Pools to 15 cm.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds5;
        where landscape_position='1';
        plot THg_STOCK_PER_0_15_CM__mg_m2_ * N_STOCK_PER_0_15_CM__kg_m2_=
        pond_number /
        haxis=axis8 vaxis=axis9 legend=legend1 ;
        plot2 THg_STOCK_PER_0_15_CM__mg_m2_ * N_STOCK_PER_0_15_CM__kg_m2_ /
        noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 1 incr THg vs N Concs*/
        goptions reset=all cback=white htext=14pt;
        axis7 order= 0 to 2.5 by 0.5 label=("N (%)") minor=(n=4);
        axis8 label=(angle=90 "THg (ng g-1)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
```

```
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1 THg vs N concs all incr.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds2;
        where landscape_position='1';
        plot THg_CONC_PER_INCREMENT__ng_g_ *
        __TOTAL_N_PER_INCREMENT__OVEN_DR= pond_number /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_CONC_PER_INCREMENT__ng_g_ *
        __TOTAL_N_PER_INCREMENT__OVEN_DR / noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 1 incr THg vs N densities*/
        goptions reset=all cback=white htext=14pt;
        axis7 order=0 to 0.005 by 0.001 label=("N (g cm-3)") minor=(n=1);
        axis8 order=(0 to 150 by 25) label=(angle=90 "THg (ng cm-3)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 1 THg vs N densities all incr.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds2;
        where landscape_position='1';
        plot THg_MASS_PER_VOLUME_PER_INCREMEN *
        N_MASS_PER_VOLUME_PER_INCREMENT_= pond_number /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_MASS_PER_VOLUME_PER_INCREMEN *
        N_MASS_PER_VOLUME_PER_INCREMENT_ / noaxis vaxis=axis8;
        run;
        quit;
```

```
/*ls pos 2-5 0-15 cm THg vs N Concs*/
        goptions reset=all cback=white htext=14pt;
        axis7 order=0 to 1.5 by 0.25 label=("N (%)") minor=(n=4);
        axis8 order=(0 to 200 by 50) label=(angle=90 "THg (ng g-1)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 2-5 THg vs N concs to 15
        cm.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds5;
        where landscape_position^='1';
        plot THg_CONC_PER_0_15_CM__ng_g___DRY *
        __TOTAL_N_PER_0_15_CM__OVEN_DRY_= pond_number /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_CONC_PER_0_15_CM__ng_g___DRY *
        __TOTAL_N_PER_0_15_CM__OVEN_DRY_ / noaxis vaxis=axis8;
        run;
        quit;

/*ls pos 2-5 0-15 cm THg vs N pools*/
        goptions reset=all cback=white htext=14pt;
        axis8 /*order=0 to 0.7 by 0.1*/ label=("N (kg m-2)") minor=(n=1);
        axis9 order=(0 to 15 by 5) label=(angle=90 "THg (g m-2)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 2-5 THg vs N Pools to 15
        cm.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds5;
```

```
        where landscape_position^='1';
        plot THg_STOCK_PER_0_15_CM__mg_m2_ * N_STOCK_PER_0_15_CM__kg_m2_=
        pond_number /
        haxis=axis8 vaxis=axis9 legend=legend1;
        plot2 THg_STOCK_PER_0_15_CM__mg_m2_ * N_STOCK_PER_0_15_CM__kg_m2_ /
        noaxis vaxis=axis9;
        run;
        quit;

/*ls pos 2-5 incr THg vs N Concs*/
        goptions reset=all cback=white htext=14pt;
        axis7 order=0 to 2 by 0.25 label=("N (%)") minor=(n=4);
        axis8 order=(0 to 300 by 50) label=(angle=90 "THg (ng g-1)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 2-5 THg vs N concs all incr.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds2;
        where landscape_position^='1';
        plot THg_CONC_PER_INCREMENT__ng_g_ *
        __TOTAL_N_PER_INCREMENT__OVEN_DR= pond_number /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_CONC_PER_INCREMENT__ng_g_ *
        __TOTAL_N_PER_INCREMENT__OVEN_DR / noaxis;
        run;
        quit;

/*ls pos 2-5 incr THg vs N densities*/
        goptions reset=all cback=white htext=14pt;
        axis7 label=("N (g cm-3)") minor=(n=1);
        axis8 order=(0 to 125 by 25) label=(angle=90 "THg (ng cm-3)") minor=(n=4);
        run;
        symbol1 v=dot c=red;
        symbol2 v=circle c=red;
        symbol3 v=plus c=red;
        symbol4 v=dot c=blue;
        symbol5 v=circle c=blue;
        symbol6 v=plus c=blue;
        symbol7 v=dot c=black;
        symbol8 v=circle c=black;
        symbol9 v=plus c=black;
```

```
        symbol10 v=dot c=green;
        symbol11 interpol=rl value=none color=black;
        legend1 position = (bottom center outside) label=("Pond number:") repeat=1
        value=("1" "2" "3" "4" "5" "6" "7" "8" "9" "10");
        filename graphout 'C:\users\pos pc\desktop\ls pos 2-5 THg vs N densities all
        incr.png';
        goptions device=png gsfname=graphout;
        proc gplot data=ds2;
        where landscape_position^='1';
        plot THg_MASS_PER_VOLUME_PER_INCREMEN *
        N_MASS_PER_VOLUME_PER_INCREMENT_= pond_number /
        haxis=axis7 vaxis=axis8 legend=legend1;
        plot2 THg_MASS_PER_VOLUME_PER_INCREMEN *
        N_MASS_PER_VOLUME_PER_INCREMENT_ / noaxis vaxis=axis8;
        run;
        quit;

/*linear regression with dummy variable for high N % ponds (5,7,8,11) versus low
        (3,4,18,19,21,26)*/

        data ds7; set ds5;
        CoreConcDUM_LowN_HighN = LowC_ponds_0_HighC_ponds_1 *
        __TOTAL_N_PER_0_15_CM__OVEN_DRY_;
        CorePoolDUM_LowN_HighN = LowC_ponds_0_HighC_ponds_1 *
        N_STOCK_PER_0_15_CM__kg_m2_;
        run;
        data ds8; set ds2;
        IncrConcDUM_LowN_HighN = LowC_ponds_0_HighC_ponds_1 *
        __TOTAL_N_PER_INCREMENT__OVEN_DR;
        IncrDensDUM_LowN_HighN = LowC_ponds_0_HighC_ponds_1 *
        N_MASS_PER_VOLUME_PER_INCREMENT_;
        run;

        title 'all 0-15cm plus DUM';
        proc print data=ds7;
        proc contents varnum data=ds7;
        run;

        title 'all increments plus DUM';
        proc sort data=ds8; by landscape_position sample_depth_code;
        proc print data=ds8;
        proc contents varnum data=ds8;
        run;

        goptions reset=all cback=white htext=14pt;
        title 'ls pos 1 DUM lowN HighN THg vs C Concs 0-15';
        ods rtf file='C:\users\pos pc\desktop\ls pos 1 DUM lowN HighN THg vs N Concs 0-
        15.rtf';
        ods graphics on;
        proc reg data = ds7;
        where landscape_position = '1';
```

```
model THg_CONC_PER_0_15_CM__ng_g___DRY =
__TOTAL_N_PER_0_15_CM__OVEN_DRY_ LowC_ponds_0_HighC_ponds_1
CoreConcDUM_LowN_HighN;
plot r.*p.;
output out=new2 p=pre2 r=res2;
run;
ods graphics off;
ods rtf close;
quit;
goptions reset=all cback=white htext=14pt;
axis7 order=0 to 2 by 0.5 label=("N (%)") minor=(n=4);
axis8 order=(0 to 300 by 50) label=(angle=90 "THg (ng g-1)") minor=(n=4);
run;
legend1 position = (bottom center outside) label=("Pond number") repeat=1
value=("1, 2, 7, 8, 9 and 10" "3, 4, 5 and 6");
filename graphout 'C:\users\pos pc\desktop\ls pos 1 DUM lowN HighN THg vs N
Concs 0-15.png';
goptions device=png gsfname=graphout;
proc gplot;
plot THg_CONC_PER_0_15_CM__ng_g___DRY *
__TOTAL_N_PER_0_15_CM__OVEN_DRY_ = LowC_ponds_0_HighC_ponds_1 /
haxis=axis7 vaxis=axis8 legend=legend1;
symbol1 v=dot i=rl c=red;
symbol2 v=circle i=rl c=blue;
plot2 THg_CONC_PER_0_15_CM__ng_g___DRY *
__TOTAL_N_PER_0_15_CM__OVEN_DRY_ / noaxis vaxis=axis8;
symbol3 i=rl c=black line=2;
run; quit;

goptions reset=all cback=white htext=14pt;
title 'ls pos 1 DUM lowN HighN THg vs N Pools 0-15';
ods rtf file='C:\users\pos pc\desktop\ls pos 1 DUM lowN HighN THg vs N Pools 0-
15.rtf';
ods graphics on;
proc reg data = ds7;
where landscape_position = '1';
model THg_STOCK_PER_0_15_CM__mg_m2_ = N_STOCK_PER_0_15_CM__kg_m2_
LowC_ponds_0_HighC_ponds_1 CorePoolDUM_LowN_HighN;
plot r.*p.;
output out=new2 p=pre2 r=res2;
run;
ods graphics off;
ods rtf close;
quit;
goptions reset=all cback=white htext=14pt;
axis8 /*order=0 to 0.7 by 0.1*/ label=("N (kg m-2)") minor=none;
axis9 order=(0 to 20 by 5) label=(angle=90 "THg (g m-2)") minor=(n=4);
run;
legend1 position = (bottom center outside) label=("Pond number:") repeat=1
value=("1, 2, 7, 8, 9 and 10" "3, 4, 5 and 6");
filename graphout 'C:\users\pos pc\desktop\ls pos 1 DUM lowN HighN THg vs N
Pools 0-15.png';
goptions device=png gsfname=graphout;
```

```
proc gplot;
plot THg_STOCK_PER_0_15_CM__mg_m2_ * N_STOCK_PER_0_15_CM__kg_m2_ =
LowC_ponds_0_HighC_ponds_1 /
haxis=axis8 vaxis=axis9 legend=legend1;
symbol1 v=dot i=rl c=red;
symbol2 v=circle i=rl c=blue;
plot2 THg_STOCK_PER_0_15_CM__mg_m2_ * N_STOCK_PER_0_15_CM__kg_m2_ /
noaxis vaxis=axis8;
symbol3 i=rl c=black line=2;
run; quit;

goptions reset=all cback=white htext=14pt;
title 'ls pos 1 DUM lowC HighC THg vs N Concs increments';
ods rtf file='C:\users\pos pc\desktop\ls pos 1 DUM lowN HighN THg vs N Concs
increments.rtf';
ods graphics on;
proc reg data = ds8;
where landscape_position = '1';
model THg_CONC_PER_INCREMENT__ng_g_ =
__TOTAL_N_PER_INCREMENT__OVEN_DR LowC_ponds_0_HighC_ponds_1
IncrConcDUM_LowN_HighN;
plot r.*p.;
output out=new2 p=pre2 r=res2;
run;
ods graphics off;
ods rtf close;
quit;
goptions reset=all cback=white htext=14pt;
axis7 order= 0 to 2.5 by 0.5 label=("N (%)") minor=(n=4);
axis8 label=(angle=90 "THg (ng g-1)") minor=(n=4);
run;
legend1 position = (bottom center outside) label=("Pond number:") repeat=1
value=("1, 2, 7, 8, 9 and 10" "3, 4, 5 and 6");
filename graphout 'C:\users\pos pc\desktop\ls pos 1 DUM lowN HighN THg vs N
Concs increments.png';
goptions device=png gsfname=graphout;
proc gplot;
plot THg_CONC_PER_INCREMENT__ng_g_ *
__TOTAL_N_PER_INCREMENT__OVEN_DR = LowC_ponds_0_HighC_ponds_1 /
haxis=axis7 vaxis=axis8 legend=legend1;;
symbol1 v=dot i=rl c=red;
symbol2 v=circle i=rl c=blue;
plot2 THg_CONC_PER_INCREMENT__ng_g_ *
__TOTAL_N_PER_INCREMENT__OVEN_DR / noaxis vaxis=axis8;
symbol3 i=rl c=black line=2;
run; quit;

goptions reset=all cback=white htext=14pt;
title 'ls pos 1 DUM lowC HighC THg vs N Densities increments';
ods rtf file='C:\users\pos pc\desktop\ls pos 1 DUM lowC HighC THg vs N Densities
increments.rtf';
ods graphics on;
proc reg data = ds8;
```

```
where landscape_position = '1';
model THg_MASS_PER_VOLUME_PER_INCREMEN =
N_MASS_PER_VOLUME_PER_INCREMENT_ LowC_ponds_0_HighC_ponds_1
IncrDensDUM_LowN_HighN;
plot r.*p.;
output out=new2 p=pre2 r=res2;
run;
ods graphics off;
ods rtf close;
quit;
goptions reset=all cback=white htext=14pt;
axis7 order=0 to 0.005 by 0.001 label=("N (g cm-3)") minor=(n=1);
axis8 order=(0 to 150 by 25) label=(angle=90 "THg (ng cm-3)") minor=(n=4);
run;
legend1 position = (bottom center outside) label=("Pond number:") repeat=1
value=("1, 2, 7, 8, 9 and 10" "3, 4, 5 and 6");
filename graphout 'C:\users\pos pc\desktop\ls pos 1 DUM lowN HighN THg vs N
Densities increments.png';
goptions device=png gsfname=graphout;
proc gplot;
plot THg_MASS_PER_VOLUME_PER_INCREMEN *
N_MASS_PER_VOLUME_PER_INCREMENT_ = LowC_ponds_0_HighC_ponds_1 /
haxis=axis7 vaxis=axis8 legend=legend1;
symbol1 v=dot i=rl c=red;
symbol2 v=circle i=rl c=blue;
plot2 THg_MASS_PER_VOLUME_PER_INCREMEN *
N_MASS_PER_VOLUME_PER_INCREMENT_ / noaxis vaxis=axis8;
symbol3 i=rl c=black line=2;
run; quit;
```