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Figure DR1. Results of lignin phenol analyses of Lake Washington Mud reported in this study and by Goñi and Montgomery (2000), which includes values reported by the Hedges' lab for this same mud sample. Error bars span 2σ .

Table DR1. ^{14}C ages for core 1A. cmblf = cm below lake floor.

Table DR2. Locality information and common diatom taxa observed (x = present) from modern samples in the watershed above FLL.

Table DR3. Diatom species identified in core 1A, their basionyms (original scientific name), and the references used for their identification.

Table DR4. Diatom species count data for Fallen Leaf Lake core 1A sediments.

Table DR5. Lignin phenol concentrations of plant material collected from the Fallen Leaf Lake watershed. Locations of samples are shown in Fig. 1.

Table DR6. Lignin phenol concentrations of analyzed sediment samples from Fallen Leaf Lake core 1A.

Table DR7. Palynological count data for analyzed Fallen Leaf Lake core 1A sediments. Pollen taxa are represented as percentages of the total terrestrial pollen sum except for *Isoetes*, Cyperaceae, and Equisitaceae that are specific to wet environments likely close to the lake margin. *Isoetes*, Cyperaceae, Equisitaceae and the algae *Botryococcus* and *Pediastrum* are given in accumulation rate ($\text{grains cm}^{-2} \text{ yr}^{-1}$). The taxon Gymnosperms represents the sum of gymnosperm tree pollen (columns C – F) and the taxon Angiosperms represents the sum of angiosperm terrestrial pollen (columns H – AN).

Figure DR1. Results of lignin phenol analyses of Lake Washington Mud reported in this study and by Goñi and Montgomery (2000), which includes values reported by the Hedges' lab for this same mud sample. Error bars span 2σ . (Reference: Goñi, M.A., and Montgomery, S., 2000, Alkaline CuO Oxidation with a Microwave Digestion System: Lignin Analyses of Geochemical Samples: Analytical Chemistry, v. 72, 3116–3121.)

■ This Study ($n=4$)
 ■ Goñi & Montgomery (2000)
 ■ Hedges' Lab

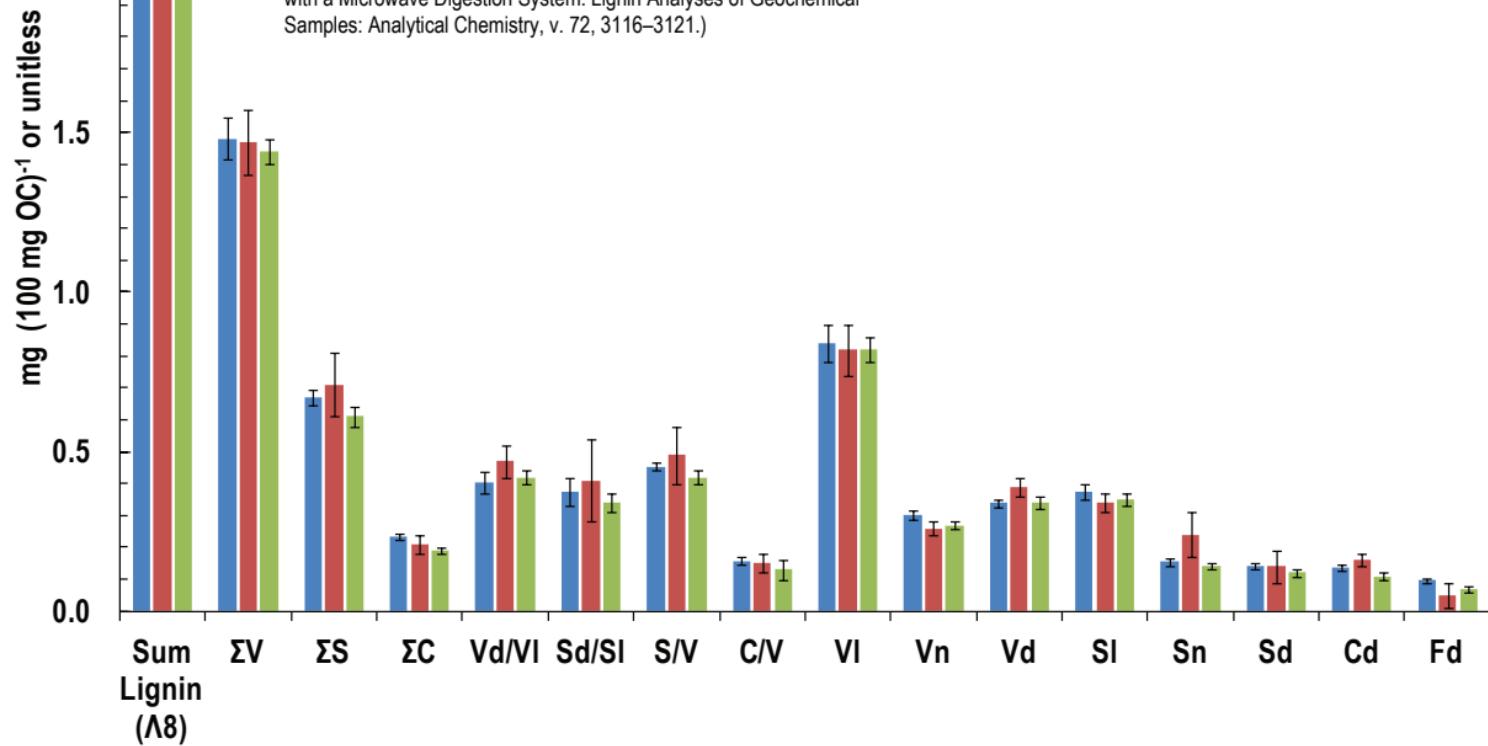


Table DR1. 14C ages for core 1A. cmlbf = cm below lake floor.

CAMS #	Sample Name	Sample Description	Depth (cm blf)	¹⁴ C Age (yrs)	± (1σ)	Calibrated Age (cal yr BP)	± (1σ)	± (2σ)
152537	BOLLY-1A1-53	pine needles	48	2020	30	1971	42	84
152538	BOLLY-1A1-77	small leaf	72	2170	90	2167	112	224
152541	BOLLY-1A1-120	pine needle	115	2485	30	2576	85	170
152539	BOLLY-1A1-121	pine needle	116	2480	30	2572	88	176
152540	BOLLY-1A3-12.5	pine needle	176	3095	35	3313	44	88
152695	BOLLY-1A3-65	twig	228.5	3735	30	4101	59.5	119
152542	BOLLY-1A5-22	connifer cone seed	410.5	4515	45	5166	87	174
152696	BOLLY-1A5-142	wood or pine needle fragment	529	6165	30	7068.75	47.375	94.75
152543	BOLLY-1A6-149	pine needle	686	8045	40	8917	87	174
152544	BOLLY-1A7-5.5	pine needle	693.5	8190	45	9148	78	156
152545	BOLLY-1A8-55	twig	894	10335	35	12184	100	200
152719	BOLLY-1A8-76	unspecif. organic fragments	915	10540	35	12547	77.75	155.5
152697	BOLLY-1A8-111	unspecif. organic fragments	950.5	11460	60	13316.25	54.875	109.75
152546	BOLLY-1A8-cc	unspecif. organic fragments	987	11070	90	13001	75	150

Table DR2. Locality information and common diatom taxa observed (x = present) from modern samples in the watershed above FLL.

Table DR3. Diatom species identified in core 1A, their basionyms (original scientific name), and the references used for their identification.

Araphids			
Species	Attribution	Basionym	Identifying Reference
<i>Asterionella formosa</i>	Hassall 1850	<i>Asterionella formosa</i> Hassall 1850	Patrick & Reimer (1966); Camburn & Charles (2000)
<i>Diatoma mesodon</i>	Kutzing 1844	<i>Diatoma mesodon</i> Kutzing 1844	Patrick & Reimer (1966); Potapova (2009a)
<i>Fragilaria gracilis</i>	Ostrup 1910	<i>Fragilaria gracilis</i> Ostrup 1910	Bloom (2001)
<i>Fragilaria nanana</i>	Lange-Bertalot 1991	<i>Synedra nana</i> Meister 1912	Krammer and Lange-Bertalot (1991a); Cumming et al. (1995)
<i>Fragilaria permixta</i>	(Grunow) Lange-Bertalot 2000	<i>Synedra capucina</i> var. <i>permixta</i> Grunow in Van Heurck 1881	Krammer & Lange-Bertalot (1991a)
<i>Fragilaria tenera</i>	(W. Smith) Lange-Bertalot 1980	<i>Synedra tenera</i> W. Smith 1856	Patrick & Reimer (1966)
<i>Fragilaria vaucheriae</i>	<i>Fragilaria vaucheriae</i> (Kutzing) Petersen 1938	<i>Exilaria vaucheriae</i> Kutzing 1833	Morales (2010a); Petersen (1938)
<i>Fragilariaformaviriscens</i>	(Ralfs) Williams & Round 1988	<i>Fragilaria virescens</i> Ralfs 1843	Morales & Spaulding (2011); Patrick & Reimer (1966)
<i>Pseudostaurosira brevistriata</i>	(Grunow) Williams et Round 1987	<i>Fragilaria brevistriata</i> Grunow in Van Heurck 1885	Spaulding et al. (2010b); Camburn & Charles (2000); Patrick & Reimer (1966)
<i>Pseudostaurosira parasitica</i>	(W. Smith) E. A. Morales 2003	<i>Odontidium parasiticum</i> W. Smith 1856	Morales (2010c); Patrick & Reimer (1966)
<i>Pseudostaurosira</i> sp. FLL 1	--	--	Mark Edlund (personal communication)
<i>Punctastriata lancettula</i> f. <i>subcapitata</i>	(Schumann) P.B. Hamilton & P.A. Siver 2008	<i>Fragilaria lancettula</i> Schumann 1867	Hamilton & Siver (2008); Camburn & Charles (2000)
<i>Staurosira construens</i> cf. var. <i>pumila</i>	(Grunow) J. C. Kingston 2000	<i>Fragilaria construens</i> var. <i>pumila</i> Grunow	Patrick & Reimer (1966); Camburn & Charles (2000)
<i>Staurosira construens</i> var. <i>venter</i>	(Ehrenberg) Hamilton 1992	<i>Fragilaria venter</i> Ehrenberg 1854	Patrick & Reimer (1966); Morales (2010d); Camburn & Charles (2000)
<i>Staurosira pseudoconstruens</i>	(Marciniak) Williams & Round 1987	<i>Fragilaria pseudoconstruens</i> Marciniak 1982	Bloom (2001); Krammer & Lange-Bertalot (1991a)

<i>Staurosirella lapponica</i>	(Grunow in Van Heurck Williams & Round 1987)	<i>Fragilaria lapponica</i> Grunow in Van Heurck 1881	Williams & Round (1987); Patrick & Reimer (1966)
<i>Staurosirella martyi</i>	(Héribaud) E.A. Morales & K.M. Manoylov 2006	<i>Opephora martyi</i> Héribaud 1902	Patrick & Reimer (1966); Morales & Manilov (2006)
<i>Staurosirella pinnata</i>	(Ehrenberg) Williams and Round 1987	<i>Fragilaria pinnata</i> Ehrenberg 1843	Camburn & Charles (2000); Morales (2010e)
<i>Synedra ulna</i>	(Nitzsch) Ehrenberg 1832	<i>Bacillaria ulna</i> Nitzsch 1817	Patrick & Reimer (1966); Bloom (2001)
<i>Tabellaria fenestrata</i>	(Longbye) Kutzing var. fenestrata Koppen 1975	<i>Diatoma fenestratum</i> Lyngbye 1819	Koppen (1975)
<i>Tabellaria flocculosa</i> var. (strain IIIp) sensu Koppen	sensu Koppen (Roth) Kutzing	<i>Conferva flocculosa</i> Roth 1797	Koppen (1975)
<i>Tabellaria flocculosa</i> var. (strain IV) sensu Koppen	sensu Koppen (Roth) Kutzing	<i>Conferva flocculosa</i> Roth 1797	Koppen (1975)

Asymmetrical Biraphids			
Species	Attribution	Basionym	Identifying Reference
<i>Amphora pediculus</i>	(Kützing) Grunow in Schmidt 1875	<i>Cymbella pediculus</i> Kützing 1844	Spaulding et al. (2010); Cumming et al. (1995)
<i>Cymbella janischii</i>	(A. Schmidt) De Toni 1891	<i>Coconema janischii</i> A. Schmidt 1881	Krammer (2002); Patrick & Reimer (1975)
<i>Encyonema lunatum</i>	<i>Encyonema lunatum</i> (Smith) Van Heurck	<i>Cymbella lunata</i> W. Smith 1855	Patrick & Reimer (1975); Camburn & Charles (2000)
<i>Cymbella neocistula</i>	Krammer 2002	<i>Cymbella neocistula</i> Krammer 2002	Krammer (2002)
<i>Cymbopleura cuspidata</i>	(Kützing) K. Krammer 2003	<i>Cymbella cuspidata</i> Kützing 1844	Patrick & Reimer (1975); Camburn & Charles (2000)
<i>Encyonema lunatum</i>	(W. Smith) Van Heurck 1896	<i>Cymbella lunata</i> W. Smith	Krammer & Lange-Bertalot (1986); Patrick & Reimer (1975)
<i>Encyonema minutum</i>	Hilse in Ravenhorst) Mann in Round, Crawford & Mann 1990	<i>Cymbella minuta</i> Hilse in Rabenhorst 1862	Antoniades et al. (2008)
<i>Encyonema reimieri</i>	Spaulding, Pool, et. Castro 2010	<i>Cymbella muelleri</i> Hustedt 1938	Spaulding et al. (2010); Patrick & Reimer (1975)

<i>Encyonema silesiacum</i>	(Bleisch in Rabenhorst) Mann in Round, Crawford & Mann 1990	<i>Cymbella silesiaca</i> Bleisch in Rabenhorst 1861-1882	Antoniades et al. (2008)
<i>Gomphonema acuminatum</i>	Ehrenberg 1831	<i>Gomphonema acuminatum</i> Ehrenberg 1831	Patrick & Reimer (1975)
<i>Gomphonema angustatum</i>	(Kutzing) Rabenhorst 1864	<i>Gomphonema angustatum</i> (Kutzing) Rabenhorst 1864	Patrick & Reimer (1975); Krammer & Lange-Bertalot (1986)
<i>Gomphonema clavatum</i>	Ehrenberg 1832	<i>Gomphonema clavatum</i> Ehrenberg 1832	Patrick & Reimer (1975) (as subclavatum); Krammer & Lange- Bertalot (1986)
<i>Gomphonema truncatum</i>	Ehrenberg 1832	<i>Gomphonema truncatum</i> Ehrenberg 1832	Krammer & Lange-Bertalot (1986)
<i>Gomphonema subtile</i>	Ehrenberg 1843	<i>Gomphonema subtile</i> Ehrenberg 1843	Patrick & Reimer (1975); Krammer & Lange-Bertalot (1986)

Centrics			
Species	Attribution	Basionym	Identifying Reference
<i>Aulacoseira pusilla</i>	(Meister) Tuji and Houki 2004	<i>Melosira pusilla</i> Meister 1913	Tuji & Houki (2004); Tuji & Williams (2007); Potapova (2010a)
<i>Aulacoseira humilis</i>	(Cleve-Euler) Genkal & Trifonova in Trifonova & Genkal 2001	<i>Melosira distans</i> var. <i>humilis</i> Cleve-Euler 1939	English & Potapova (2010); Siver & Kling (1997)
<i>Aulacoseira lacustris</i>	(Grunow in Van Heurck) Krammer 1991	<i>Melosira lyrata</i> var. <i>lacustris</i> Grunow in Van Heurck	Siver & Kling (1997); Camburn & Charles (2000)
<i>Aulacoseira lirata</i>	(Ehrenberg) R. Ross in Hartley 1986	<i>Gaillionella lirata</i> Ehrenberg 1843	Siver & Kling (1997); Camburn & Charles (2000)
<i>Aulacoseira perglabra</i>	(Oestrup) Haworth 1988	<i>Melosira perglabra</i> Ostrup	Siver & Kling (1997); Camburn & Charles (2000)
<i>Aulacoseira subarctica</i>	(Muller) Haworth 1988	<i>Melosira italicica</i> subsp. <i>subarctica f. recta</i> Muller 1906	Tuji & Houki (2004); Potapova & English (2010)
<i>Aulacoseira valida</i>	(Grunow in Van Heurck) Krammer 1991	<i>Melosira crenulata</i> var. <i>valida</i> Grunow in Van Heurck 1882	Camburn & Charles (2000)

<i>Cyclotella antiqua</i>	W. Smith 1853	<i>Cyclotella antiqua</i> W. Smith 1853	Camburn & Charles (2000)
<i>Lindavia rossii</i>	Hakansson 1990	<i>Cyclotella rossii</i> Hakansson 1990	Hakansson (1990); Cremer & Wagner (2001); Camburn & Charles (2000)
<i>Discostella stelligera</i>	(Cleve & Grunow) Houk & Klee 2004	<i>Cyclotella meneghiniana</i> v. <i>stelligera</i> Cleve & Grunow 1881	Houk & Klee (2004); Camburn & Charles (2000)
<i>Ellerbeckia aeraria</i>	(Moore ex Ralfs) Crawford 1988	<i>Melosira arenaria</i> Moore ex Ralfs 1843	Bahls (2012a); Krammer & Lange- Bertalot (1991a)
<i>Lindavia bodanica</i> v. <i>intermedia</i>	(Grunow in Schneider) Håkansson 2002	<i>Cyclotella bodanica</i> Grunow in Schneider	Hakansson (2002)
<i>Stephanodiscus alpinus</i>	Hustedt 1942	<i>Stephanodiscus alpinus</i> 1942	Hickel & Hakansson (1993)
<i>Stephanodiscus medius</i>	Hakansson 1986	<i>Stephanodiscus medius</i> 1986	Hakansson 1986

Epithemiods			
Species	Attribution	Basionym	Identifying Reference
<i>Epithemia adnata</i>	(Kutzing) Brebisson 1838	<i>Frustulia adnata</i> Kutzing 1838	Lowe (2010); Patrick & Reimer 1975
<i>Epithemia sorex</i>	Kutzing 1844	<i>Epithemia sorex</i> Kutzing 1844	Patrick & Reimer (1975)
<i>Epithemia turgida</i> var. <i>westermannii</i>	(Ehrenberg) Grunow 1862	<i>Navicula westermannii</i> Ehrenberg 1835	Patrick & Reimer (1975); Krammer & Lange-Bertalot (1988)
<i>Rhopalodia gibba</i>	(Ehrenberg) Otto Müller 1895	<i>Navicula gibba</i> Ehrenberg 1830	Patrick & Reimer (1975)

Eunotioids			
Species	Attribution	Basionym	Identifying Reference
<i>Eunotia incisa</i>	W. Smith ex Gregory 1854	<i>Eunotia incisa</i> W. Smith ex Gregory 1854	Patrick & Reimer (1966); Camburn & Charles (2000)
<i>Eunotia naegelii</i>	Migula 1907	<i>Eunotia naegelii</i> Migula 1907	Patrick & Reimer (1966); Camburn & Charles (2000)
<i>Eunotia pectinalis</i>	(Kützing) Rabenhorst 1864	<i>Himantidium pectinale</i> Kützing 1844	Patrick & Reimer (1966); Camburn & Charles (2000)

<i>Eunotia praerupta</i>	Ehrenberg 1843	<i>Eunotia praeruptamonus</i> var. <i>praeruptamonus f. polaris</i> A. Berg	Patrick & Reimer (1966); Camburn & Charles (2000)
<i>Eunotia praerupta</i> var. <i>monodon f. polaris</i>	(A. Berg) Symoens 1960	--	Camburn & Charles (2000)

Monoraphids			
Species	Attribution	Basionym	Identifying Reference
<i>Achanthes obliqua</i>	(Gregory) Hustedt 1924	<i>Stauroneis obliqua</i> Gregory 1856	Krammer & Lange-Bertalot (1991b)
<i>Achnanthes stolida</i>	(Krasske) Krasske 1949	<i>Navicula stolida</i> Krasske 1939	Krammer & Lange-Bertalot (1991b); Bloom (2001)
<i>Achnanthidium gracillimum</i>	(Meister) Lange-Bertalot in Krammer & Lange-Bertalot 2004	<i>Microneis gracillima</i> Meister 1912	Potapova (2010c)
<i>Achnanthidium minutissimum</i>	(Kützing) Czarnecki 1994	<i>Achnanthes minutissima</i> Kützing 1833	Potapova (2009c)
<i>Cocconeis placentula</i>	Ehrenberg 1838	<i>Cocconeis placentula</i> Ehrenberg 1838	Patrick & Reimer (1966)
<i>Cocconeis placentula</i> var. <i>euglypta</i>	(Ehrenburg) Cleve 1895	<i>Cocconeis euglypta</i> Ehrenberg 1854	Patrick & Reimer (1966)
<i>Eucocconeis alpestris</i>	(Brun) Lange-Bertalot in Lange-Bertalot & Genkal 1999	<i>Achnanthes flexella</i> var. <i>alpestris</i> Brun 1880	Potapova (2010d); Patrick & Reimer (1966)
<i>Karayevia amoena</i>	(Hustedt) Bukhtiyarova 2006	<i>Achnanthes amoena</i> Hustedt 1952	Potapova (2010e); Krammer & Lange-Bertalot (1991b)
<i>Karayevia clevei</i>	(Grunow) Bukhtiyarova 1999	<i>Achnanthes clevei</i> Grunow in Cleve & Grunow 1880.	Potapova (2010f); Patrick & Reimer (1966)
<i>Karayevia laterostrata</i>	(Hustedt) Bukhtiyarova 1999	<i>Achnanthes laterostrata</i> Hustedt 1933	Potapova (2010g); Krammer & Lange-Bertalot 1991
<i>Karayevia suchlandtii</i>	(Hustedt) Bukhtiyarova	<i>Achnanthes suchlandtii</i> Hustedt 1933	Potapova (2010h); Patrick & Reimer (1966)

<i>Planothidium apiculatum</i>	(Patrick) Lange-Bertalot 1999	<i>Achnanthes lanceolata</i> var. <i>apiculata</i> Patrick 1945	Patrick & Reimer (1966); Potapova (2010i)
<i>Planothidium calcar</i>	(Cleve) M.B. Edlund in M.B. Edlund, N. Soninkhishig, R.M. Williams, & E.F. Stoermer 2001	<i>Achnanthes calcar</i> Cleve 1891	Bahls (2005); Krammer & Lange- Bertalot (1991b)
<i>Planothidium frequentissimum</i>	(Lange-Bertalot in Krammer & Lange- Bertalot) Lange- Bertalot 1999	<i>Achnanthes lanceolata</i> subsp. <i>Frequentissima</i> Lange- Bertalot 1993	Potapova (2010j); Patrick & Reimer (1966)
<i>Planothidium haynaldii</i>	(Schaarschmidt) Lange- Bertalot 1999	<i>Achnanthes haynaldii</i> Schaarschmidt 1881	Potapova (2011a)
<i>Planothidium oestrupii</i>	(Cleve-Euler) M.B. Edlund 2001	<i>Achnanthes lanceolata</i> var. <i>oestrupii</i> Cleve-Euler	Krammer & Lange-Bertalot (1991b)
<i>Planothidium peragallii</i>	(Brun & Héribaud) Round et Bukhtiyarova 1996	<i>Achnanthes peragallii</i> Brun & Héribaud	Patrick & Reimer (1966); Krammer & Lange Bertalot (1991b)
<i>Planothidium</i> sp. 1	--	--	--
<i>Platessa hustedtii</i>	(Krasske) Lange-Bertalot in Krammer & Lange- Bertalot 2004	<i>Cocconeis hustedtii</i> Krasske 1923	Potapova (2011b)
<i>Platessa stewartii</i>	(Patrick) Potapova 2004	<i>Achnanthes stewartii</i> Patrick 1945	Potapova (2010k)
<i>Psammothidium curtissimum</i>	(Carter) Aboal in Aboal, Alvarez-Cobelas, Cambra & Ector 2003	<i>Achnanthes curtissima</i> Carter 1963	Potapova (2010l); Bloom (2001)
<i>Psammothidium didymum</i>	(Hustedt) Bukhtiyarova et Round 1996	<i>Achnanthes didyma</i> Hustedt 1933	Potapova (2010m); Bloom (2001)
<i>Psammothidium levanderi</i>	(Hustedt) Bukhtiyarova & Round 1996	<i>Achnanthes levanderi</i> Hustedt 1933	Potapova (2010n); Camburn & Charles 2000; Bloom (2001)
<i>Psammothidium marginulatum</i>	(Grunow) Bukhtiyarove et Round 1996	<i>Achnanthes marginulata</i> Grunow in Cleve & Grunow 1880	Potapova (2010o); Krammer & Lange- Bertalot (1991b)

<i>Psammothidium ventralis</i>	(Krasske) Bukhtiyarova et Round 1996	<i>Navicula ventralis</i> Krasske	Krammer & Lange-Bertalot (1986); Camburn & Charles (2000)
<i>Rossithidium pusillum</i>	(Grunow) Round et Bukhtiyarova 1996	<i>Achnanthes pusilla</i> Grunow 1880	Potapova (2009d); Bloom (2001); Camburn & Charles (2000)

Nitzschiodids			
Species	Attribution	Basionym	Identifying Reference
<i>Nitzschia bacillum</i>	Hustedt 1922	<i>Nitzschia bacillum</i> Hustedt 1922	Krammer and Lange-Bertalot (1988)
<i>Nitzschia dissipata</i>	(Kützing) Grunow 1862	<i>Synedra dissipata</i> Kützing 1844	Manoylov (2010); Krammer and Lange-Bertalot (1988)
<i>Nitzschia fonticola</i>	(Grunow) Grunow in Van Heurck 1881	<i>Nitzschia palea</i> var. <i>fonticola</i> Grunow 1880	Krammer and Lange-Bertalot (1988)
<i>Nitzschia gracilis</i>	Hantzsch 1860	<i>Nitzschia gracilis</i> Hantzsch 1860	Krammer and Lange-Bertalot (1988)
<i>Nitzschia hantzschiana</i>	Rabenhorst 1860	<i>Nitzschia hantzschiana</i> Rabenhorst 1860	Krammer and Lange-Bertalot (1988)
<i>Nitzschia innominata</i>	Sovereign 1958	<i>Nitzschia innominata</i> Sovereign 1958	Sovereign (1958)
<i>Nitzschia liebetrichii</i>	Rabenhorst 1864	--	Krammer and Lange-Bertalot (1988)
<i>Nitzschia paleacea</i>	Grunow in Van Heurck 1881	<i>Nitzschia paleacea</i> Grunow in Van Heurck 1881	Kocielek (2011b); Krammer and Lange-Bertalot (1988)
<i>Nitzschia perminuta</i>	(Grunow in Van Heurck) Peragallo 1903	<i>Nitzschia frustulum</i> var. <i>perminuta</i> Grunow in Van Heurck 1881	Krammer and Lange-Bertalot (1988)
<i>Nitzschia tubicola</i>	Grunow in Cleve & Grunow 1880	<i>Nitzschia tubicola</i> Grunow in Cleve & Grunow 1880	Krammer and Lange-Bertalot (1988)

Symmetrical Biraphids			
Species	Attribution	Basionym	Identifying Reference

<i>Adlafia miniscula</i>	Grunow) H. Lange-Bertalot in H. Lange-Bertalot and S.I. Genkal 1999	<i>Navicula minuscula</i> Grunow in Van Heurck 1880	Krammer and Lange-Bertalot 1986
<i>Amphipleura pellucida</i>	Kutzing 1844	<i>Frustulia pellucida</i> Kutzing 1833	Patrick & Reimer (1966)
<i>Brachysira brebissonii</i>	Ross in Hartley 1986	<i>Navicula aponica</i> var. <i>brachysira</i> Breb. Ex. Kützing 1849	Hamilton (2010)
<i>Caloneis (cf. fasciata)</i>	(Lagerstedt) Cleve 1894	<i>Navicula fasciata</i> Lagerstedt 1873	Antoniades et al. (2008)
<i>Caloneis undosa</i>	(Gregory) Krammer 1985	<i>Pinnularia undulata</i> Gregory 1854	Camburn & Charles (2000)
<i>Cavinula cocconeiformis</i>	(Gregory ex Greville) Mann & Stickle in Round, Crawford & Mann 1990	<i>Navicula cocconeiformis</i> Gregory ex Greville 1855	Patrick and Reimer (1966); Camburn & Charles (2000); Otu & Spaulding (2011a)
<i>Cavinula jaernefeltii</i>	(Hustedt) D.G. Mann & A.J. Stickle 1990	<i>Navicula jaernefeltii</i> Hustedt 1942	Antoniades et al. (2008)
<i>Cavinula pseudoscutiformis</i>	(Hustedt) Mann & Stickle in Round, Crawford & Mann 1990	<i>Navicula pseudoscutiformis</i> Hustedt in Pasch. 1939	Patrick and Reimer (1966); Antoniades et al. (2008); Otu & Spaulding (2011b)
<i>Diploneis elliptica</i>	(Kützing) Cleve 1891	<i>Navicula elliptica</i> Kützing 1844	Patrick & Reimer (1966)
<i>Diploneis marginestriata</i>	Hustedt 1922	<i>Diploneis marginestriata</i> Hustedt 1922	Camburn and Charles (2000); Patrick and Reimer (1966)
<i>Frustulia amphipleuroides</i>	(Grunow) Cleve-Euler 1934	<i>Navicula rhombooides</i> var. <i>amphipleurooides</i> Grunow 1880	Kociolek & Graeff (2011a)
<i>Frustulia saxonica</i>	Rabenhorst 1850	<i>Frustulia saxonica</i> Rabenhorst 1853	Kociolek & Graeff (2011b)
<i>Geissleria kreigeri</i>	(Krasske) Lange-Bertalot in Lange-Bertalot & Metzeltin 1996	<i>Navicula kriegeri</i> Krasske 1943	Potapova (2010p)
<i>Navicula</i> spp.	--	--	--
<i>Navicula absoluta</i>	Hustedt 1950	<i>Navicula absoluta</i> Hustedt 1950	Krammer & Lange-Bertalot (1986); Camburn & Charles (2000)

<i>Navicula aurora</i>	Sovereign 1958	<i>Navicula aurora</i> Sovereign 1958	Patrick & Reimer (1966); Sovereign (1958)
<i>Navicula cf. leptostrata</i>	Jørgensen 1948	<i>Navicula leptostriata</i> Jørgensen 1948	Lange-Bertalot (2001)
<i>Navicula costulata</i>	Grunow in Cleve & Grunow 1880	<i>Navicula costulata</i> Grunow 1880	Patrick & Reimer (1966); Krammer 2001
<i>Navicula detenta</i>	Hustedt 1943	<i>Navicula detenta</i> Hustedt 1943	Krammer & Lange-Bertalot (1986)
<i>Navicula minima</i> (<i>Eolimnia minima</i>)	Grunow in Van Heurck 1880	<i>Navicula minima</i> Grunow 1880	Camburn & Charles (2000); Krammer & Lange-Bertalot (1986)
<i>Navicula pseudolanceolata</i> <i>a</i>	Lange-Bertalot 1980	<i>Navicula pseudolanceolata</i> Lange-Bertalot 1980	Lange-Bertalot (2001)
<i>Navicula pseudoventralis</i>	Hustedt in Schmidt et al. 1936	<i>Navicula pseudoventralis</i> Hustedt in Schmidt et al. 1936	Cumming et al. (1995); Krammer & Lange-Bertalot (1986)
<i>Navicula rhynchocephala</i>	Kützing 1844	<i>Navicula rhynchocephala</i> Kützing 1844	Krammer & Lange-Bertalot (1986)
<i>Navicula seminuloides</i>	Hustedt 1937	<i>Navicula seminuloides</i> Hustedt 1937	Camburn & Charles (2000)
<i>Sellaphora seminulum</i>	(Grunow) D.G. Mann 1989	<i>Navicula seminulum</i> Grunow 1860	Patrick & Reimer (1966); Camburn & Charles (2000)
<i>Nupela carolina</i>	Potapova & Clason in Potapova et al. 2003	<i>Nupela carolina</i> Potapova and Clason 2003	Potapova (2010q); Potapova et al. (2003)
<i>Nupela neogracillima</i>	M. Kulikovskiy, H. Lange- Bertalot & A. Witkowski 2009	<i>Achnanthes gracillima</i> Hustedt 1927	Foged (1981)
<i>Nupela spp.</i>	--	--	--
<i>Nupela</i> sp. FLL 1	--	--	--
<i>Nupela</i> sp. FLL 2	--	--	--
<i>Navicula farta</i>	Hustedt in Schmidt et al. 1934	<i>Navicula farta</i> Hustedt in Schmidt et al. 1934	Foged (1981)
<i>Pinnularia abaujensis</i> var. <i>linearis</i>	(Hustedt) Patrick 1966	<i>Pinnularia gibba</i> var. <i>linearis</i> Hustedt 1930	Patrick & Reimer (1966)

<i>Pinnularia neomajor</i> var. <i>inflata</i>	K. Krammer 2000	<i>Pinnularia neomajor</i> var. <i>inflata</i> K. Krammer 2000	Krammer (2000)
<i>Pinnularia termitina</i>	(Ehrenberg) Patrick 1966	<i>Pinnularia termitina</i> Ehrenberg 1854	Patrick & Reimer (1966); Camburn & Charles (2000)
<i>Placoneis porifera</i>	(Hustedt) E.J. Cox 2003	<i>Navicula porifera</i> Hustedt 1944	Krammer & Lange-Bertalot (1986)
<i>Sellaphora bacillum</i>	(Ehrenberg) D.G. Mann 1989	<i>Navicula bacillum</i> Ehrenberg	Patrick & Reimer (1966)
<i>Sellaphora pupula</i>	(Kützing) Mereschkowsky 1902	<i>Navicula pupula</i> Kützing 1844	Lange-Bertalot (2001); Patrick & Reimer (1966)
<i>Sellaphora</i> <i>seminulum</i>	(Grunow) D.G. Mann 1989	<i>Navicula seminulum</i> Grunow 1860	Patrick & Reimer (1966); Krammer & Lange-Bertalot (1986)
<i>Sellaphora</i> <i>vitabunda</i>	Navicula vitabunda Hustedt 1930 (Hustedt) D.G. Mann 1989	<i>Navicula vitabunda</i> Hustedt 1930	Krammer & Lange-Bertalot (1986)
<i>Stauroneis anceps</i> f. <i>gracilis</i>	Rabenhorst 1864	<i>Stauroneis anceps</i> f. <i>gracilis</i> Rabenhorst 1864	Cumming et al. (1995)
<i>Stauroneis anceps</i>	Ehrenberg 1843	<i>Stauroneis anceps</i> Ehrenberg 1843	Patrick & Reimer (1966); Bahls (2011)

Surirelloids			
Species	Attribution	Basionym	Identifying Reference
<i>Stenopterobia</i> <i>curvula</i>	(W. Smith) Krammer ex Krammer & Lange- Bertalot 1987	<i>Nitzschia curvula</i> W. Smith 1856	Camburn & Charles (2000)
<i>Stenopterobia</i> spp.	--	--	--
<i>Surirella</i> spp.	--	--	--
<i>Surirella linearis</i>	W. Smith 1853	<i>Surirella linearis</i> W. Smith 1853	Foged (1981)
<i>Surirella linearis</i> var. <i>lacuskarluki</i>	Manguin ex Kociolek & Reviers 1996	<i>Surirella linearis</i> var. <i>lacuskarluki</i> Manguin 1961	Foged (1981)

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Table DR4. Diatom species count data for Fallen Leaf Lake core 1A sediments.

Depth (cmblf)	AGE (cal yr BP)	<i>Aulacoseira pusilla</i>	<i>Aulacoseira humilis</i>	<i>Aulacoseira lacustris</i>	<i>Aulacoseira lirata</i>	<i>Aulacoseira perglabra</i>	<i>Aulacoseira subarctica</i>	<i>Aulacoseira valida</i>	<i>Aulacoseira aff.distans</i>	<i>Lindavia rossii- ocellata grp</i>	<i>Cyclotella aff. comta</i>	<i>Cylotella sp.</i>	<i>Discostella woltereckii</i>	<i>Discostella stelligera</i>	<i>Lindavia bodanica v. intermedia</i>	<i>Stephanodiscus alpinus</i>	<i>Stephanodiscus medius</i>
688	8993	9	0	0	1	0	336	0	0	7	0	0	0	2	7	10	4
708	9379	20	1	0	1	0	336	0	0	8	0	0	0	4	8	7	6
728	9684	3	2	0	1	0	317	0	0	9	0	0	0	1	9	2	18
748	9989	3	1	0	3	0	326	0	0	7	0	0	6	11	3	1	6
768	10295	0	0	0	0	0	396	0	0	4	0	0	0	3	6	0	1
788	10600	0	0	0	0	0	349	0	0	0	0	0	1	6	15	1	5
808	10905	1	7	0	8	0	368	0	0	2	0	0	2	6	6	0	2
828	11210	4	2	0	0	2	277	0	2	6	0	0	1	2	9	3	1
839	11378	10	0	2	2	0	203	8	3	12	0	0	6	5	10	1	1
859	11683	20	1	0	3	1	215	0	1	11	1	0	14	36	12	3	1
879	11989	67	3	0	1	0	50	4	1	51	5	0	9	90	1	4	0
889	12141	106	0	1	1	0	8	0	3	52	0	0	28	56	1	3	0
899	12299	75	0	0	0	4	16	0	0	40	1	3	31	127	0	12	0
909	12460	82	0	0	0	0	8	0	0	91	10	0	10	48	0	7	3
919	12546	110	0	0	0	0	19	0	2	48	0	1	26	60	4	3	2
939	13075	127	0	0	1	0	7	0	0	29	0	0	23	69	3	5	2
959	13533	58	1	0	0	0	11	0	0	38	0	0	39	133	2	5	1
969	13781	123	2	2	2	0	42	0	2	45	6	0	30	8	8	12	13

<i>unknown centric</i>	<i>Asterionella formosa</i>	<i>Diatoma mesodon</i>	<i>Fragilaria tenera</i>	<i>Fragilaria gracilis</i>	<i>Fragilaria permixta</i>	<i>Fragilaria vaucheriae</i>	<i>Fragilariaform a viriscens</i>	<i>Fragilaria crotonensis</i>	<i>Pseudostaurosira brevistriata</i>	<i>Pseudostaurosira parasitica</i>	<i>Pseudostaurosira sp FL1</i>	<i>Punctastriata (?) lancettula f. subcapitata</i>	<i>Staurosira construens cf. var. pumila</i>	<i>Staurosira construens</i>	<i>Staurosira psuedoconstru ens</i>	<i>Staurosirella lapponica</i>
0	10	1	1.5	0	0	0	0	0	33	0	1	1	1	1	5	0
0	17.5	0	0.5	0	1	0	1	0	22	0	0	0	4	3	1	0
0	39.5	0	0.5	0	1	0	1	0	32	0	0	0	6	2	3	0
0	8.5	0	0.5	0	2	0	0	0	26	1	0	0	8	5	1	0
0	12.5	0	0	1	0	0	0	0	18	0	2	0	3	3	2	0
0	4.5	0	0	0	0	1	0	0	21	0	1	0	0	12	10	0
3	14	0	0	0	0	1	0	0	9	0	0	0	5	1	10	0
0	2	0	0	0	1	0	1	0	34	2	3	2	8	9	16	2
0	3	0	0	0	5	1	1	0	59	1	3	3	11	5	7	0
0	7.5	0	0.5	0	25	1	0	0	28	1	0	0	6	1	13	1
0	17	0	4	1	50	0	3	0	28	0	2	0	2	2	8	0
0	22.5	0	2.5	25	32	0	0	0	35	0	2	0	0	0	13	0
0	9	0	6.5	6	27	0	2	1	20	3	1	1	7	5	8	0
0	5.5	0	1.5	6	16	1	6	0	34	0	0	0	3	0	8	0
0	17	0	1.5	1	22	1	2	0	46	0	2	1	14	0	21	0
0	23	0	4	4	36	0	2	0	32	0	1	5	5	0	19	0
0	22	0	6	2	58	2	0	0	19	2	3	0	12	3	4	1
0	42	0	22	27	0	0	0	0	23	0	2	5	14	0	9	0

<i>Staurosirella martyi</i>	<i>Staurosirella pinnata group</i>	<i>Synedra ulna</i>	<i>Tabellaria fenestrata</i>	<i>Tabellaria flocculosa var. (strain IIlp)</i>	<i>Tabellaria flocculosa var. (strain IV)</i>	<i>Mantle view araphid chain, unknown</i>	<i>Fragilaria subsalina</i>	<i>Achanthes obliqua</i>	<i>Achanthes stolida</i>	<i>Achnanthidium gracillimum</i>	<i>Achnanthidium minutissimum</i>	<i>Coccineis placentula</i>	<i>Coccineis placentula var. euglypta</i>	<i>Karayevia amoena</i>	<i>Karayevia clevei</i>	<i>Karayevia cf. laterostrata</i>	<i>Karayevia laterostrata</i>	<i>Karayevia suchlandtii</i>
1	23	0	0	0	0	3	0	0	1	1	1	1	0	0	0	7	0	0
3	9	0	1	0	0	3	0	0	0	0	2	2	0	0	0	2	0	1
0	15	0	0	0	0	4	0	0	0	1	3	1	0	0	0	3	0	1
2	26	0	3	0	0	6	0	0	2	1	4	0	0	0	0	1	0	2
0	17	0	4	0	0	0	0	0	1	0	0	0	1	0	0	1	1	0
0	15	0	0	0	0	5	0	0	1	1	0	1	0	0	0	1	0	1
0	12	0	1	0	0	2	0	0	0	3	1	1	0	0	0	2	0	0
1	13	0	5	0	1	1	0	0	1	2	7	3	2	0	0	2	1	2
1	19	0	7	0	0	8	1	0	6	2	0	0	1	1	0	2	2	1
0	17	0	2	0	0	9	0	0	2	2	1	0	0	1	0	3	0	0
2	14	0	3	0	1	1	3	0	4	0	3	1	0	0	0	6	0	1
0	27	1	0	0	0	5	4	0	6	2	1	1	0	1	0	0	0	3
1	5	0	1	0	0	23	0	0	5	0	6	1	1	1	0	1	0	2
0	18	1	0	0	0	1	0	0	0	3	14	0	1	0	0	7	0	0
0	29	0	0	0	1	5	0	0	0	0	0	4	1	0	0	0	4	0
2	9	1	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0
0	2	0	0	0	1	3	0	1	1	0	2	0	0	0	2	7	0	7
0	0	1	2	0	0	1	0	0	0	2	3	0	0	0	0	1	0	0

<i>Planothidium apiculatum</i>	<i>Planothidium calcar</i>	<i>Planothidium frequentissimum</i>	<i>Planothidium haynaldii</i>	<i>Planothidium cf. oestrupii</i>	<i>Planothidium oestrupii</i>	<i>Planothidium peragallii</i>	<i>Planothidium species 1</i>	<i>Platessa hustedtii</i>	<i>Platessa stewartii</i>	<i>Psammothidium levanderi-curtissimum group</i>	<i>Psammothidium didymum</i>	<i>Psammothidium marginulatum</i>	<i>Psammothidium ventralis</i>	<i>Rossithidium pusillum</i>	<i>Planothidium lanceolatum</i>
0	0	5	0	0	2	0	0	0	0	8	0	0	3	6	0
0	2	2	0	0	0	0	0	0	0	8	0	0	3	3	0
0	2	0	0	0	1	0	0	0	0	4	0	0	1	3	0
0	0	0	0	2	1	0	0	0	0	15	0	1	3	7	0
0	0	1	0	0	0	0	0	0	0	6	0	0	1	3	0
0	0	1	0	0	0	0	0	0	0	12	1	5	4	3	0
0	0	1	0	0	0	0	0	0	0	8	0	4	0	2	0
0	0	1	0	0	0	0	0	0	0	10	4	0	1	15	1
1	3	5	0	3	0	0	0	1	1	19	2	1	2	14	0
0	1	1	0	7	1	0	0	0	0	17	0	0	7	10	0
0	0	2	0	1	0	0	0	0	0	18	1	2	2	5	1
0	2	1	0	0	0	2	0	1	0	23	3	4	2	4	0
0	0	0	0	2	0	0	0	0	2	11	1	9	1	6	0
0	0	3	1	4	0	1	0	0	1	21	0	4	5	26	0
1	1	1	1	1	1	2	2	2	2	2	2	2	2	0	0
0	0	1	0	0	1	0	0	0	0	36	1	12	2	7	0
0	1	7	0	0	0	0	0	0	2	8	1	1	0	5	0
0	0	0	0	0	0	0	0	0	1	3	0	0	1	4	0

<i>Amphipleura pellucida</i>	<i>Caloneis cf. fasciata</i>	<i>Caloneis undosa</i>	<i>Cavinula cocconeiformis</i>	<i>Cavinula jaernefeltii</i>	<i>Cavinula pseudoscutiformis</i>	<i>Diploaneis elliptica</i>	<i>Diploaneis marginestriata</i>	<i>Frustulia amphipleuroides</i>	<i>Adlafia miniscula</i>	<i>Navicula absoluta</i>	<i>Navicula aurora</i>	<i>Navicula cf. leptostrigata</i>	<i>Navicula costulata</i>	<i>Navicula detenta</i>	<i>Navicula minima (Eolimnia minima)</i>	<i>Navicula pseudolanceolata</i>
2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0
0	0	0	1	0	0	0	0	0	3	1	1	0	0	0	1	1
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
0	0	0	0	1	0	0	0	0	0	3	0	1	0	0	0	0
0	0	0	0	1	1	1	0	0	0	1	0	1	0	0	2	0
0	0	0	0	0	0	0	0	0	0	1	2	1	2	0	0	0
0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	1	0	3	0	0	0	1	2	0	0	0	0	3	0
0	0	0	2	1	3	2	0	0	4	3	0	0	0	2	1	0
0	0	0	0	0	3	0	0	0	1	2	0	0	0	1	0	2
0	0	0	0	1	0	0	0	0	1	5	0	0	0	0	0	0
0	0	0	2	0	0	0	0	0	0	3	0	1	0	0	1	0
0	0	1	0	0	0	0	0	0	0	1	0	1	0	2	0	0
0	1	2	3	2	0	0	0	0	0	6	0	1	1	0	0	0
0	0	0	2	1	0	0	0	0	0	2	0	0	0	0	0	0
0	0	0	0	1	1	0	0	0	2	3	0	0	0	1	0	0
0	0	0	2	0	1	0	0	1	0	4	0	0	0	1	0	0
0	0	0	1	0	1	0	0	1	0	6	0	1	0	0	0	1

<i>Navicula pseudoventralis</i>	<i>Navicula rhynchocephala</i>	<i>Navicula seminuloides</i>	<i>Sellaphora seminulum</i>	<i>Nupela carolina</i>	<i>Nupela neogracillima</i>	<i>Nupela sp. FLL 1 cf. wellneri</i>	<i>Nupela sp. FLL 2</i>	<i>Navicula farta</i>	<i>Pinnularia termitina</i>	<i>Sellaphora vitabunda</i>	<i>Sellaphora pupula</i>	<i>Stauroneis anceps. F. gracilis</i>	<i>Placoneis porifera</i>	<i>Unknown biraphid</i>	<i>Amphora ovalis var. affinis</i>	<i>Amphora pediculus</i>
0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0
0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0
0	0	7	0	1	1	0	0	0	0	0	0	0	0	0	0	0
0	0	3	0	1	0	0	0	0	0	0	1	0	0	0	0	0
0	1	1	1	1	0	0	2	0	0	0	0	0	0	0	0	0
0	1	2	1	0	1	0	0	0	0	1	0	0	0	0	0	0
0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	2	0	1	0	0	0	0	1	0	2	0	0	0	0	0	1
0	0	2	0	0	0	0	0	0	0	1	0	0	1	2	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	2	4	0	1	0	0	3	2	0	0
0	1	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0
0	3	3	0	0	0	0	3	0	0	0	0	1	0	0	0	0
1	2	8	7	0	0	0	0	0	0	2	0	0	0	0	0	0

<i>Cymbella janischii</i>	<i>Encyonema lunatum</i>	<i>Cymbella neocistula</i>	<i>Cymbopleura cuspidata</i>	<i>Encyonema minutum</i>	<i>Encyonema reimeri</i>	<i>Encyonema silesiacum</i>	<i>Gomphonema acuminatum</i>	<i>Gomphonema angustatum</i>	<i>Gomphonema clavatum group</i>	<i>Gomphonema truncatum</i>	<i>Gomphonema subtile</i>	<i>Gomphonema girdle view unknown</i>	<i>Nitzschia bacillum</i>	<i>Nitzschia dissipata</i>
0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
0	0	0	0	1	1	0	0	1	0	0	0	0	0	0
0	0	0	1	2	0	0	0	1	1	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	2	0
0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	1	0	0	0	0	0	1	0	0	7	0
0	0	0	0	0	2	0	0	1	0	0	0	0	5	0
0	0	0	0	3	0	0	0	0	0	0	0	0	1	2
0	0	1	0	0	0	0	0	0	0	3	0	0	0	4
0	0	0	0	2	0	0	0	0	0	0	0	0	2	0
0	0	0	0	0	0	0	0	1	0	0	0	0	3	0
0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
0	0	0	0	0	0	1	0	1	0	0	0	0	2	0
0	3	0	0	5	0	0	0	2	0	0	0	0	1	0
1	0	0	0	0	1	0	0	0	0	0	1	0	2	1
0	0	0	0	2	0	0	0	0	0	1	0	0	1	0
0	0	0	0	2	1	0	0	2	0	0	0	0	0	0

<i>Nitzschia fonticola</i>	<i>Nitzschia gracilis</i>	<i>Nitzschia hantzschiana</i>	<i>Nitzschia innominata</i>	<i>Nitzschia liebetruthii</i>	<i>Nitzschia paleacea</i>	<i>Nitzschia perminuta</i>	<i>Nitzschia tubicola</i>	<i>Eunotia naegelii</i>	<i>Eunotia pectinalis</i>	<i>Eunotia praerupta</i>	<i>Eunotia praerupta var. monodon f. polaris</i>	<i>Epithemia adnata</i>	<i>Epithemia sorex</i>	<i>Rhopalodia gibba</i>	<i>Surirella linearis</i>	<i>Surirella linearis var. lacus-karluki</i>
0	0	3	2	0	0	1	0	0	0	2	0	0	0	0	0	0
0	0	2	3	0	0	0	0	0	0	2	0	0	1	0	0	0
0	3	0	3	0	0	0	0	0	0	2	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
0	0	0	2	0	0	1	1	0	0	0	0	0	0	0	0	0
0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	1	1
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
1	1	1	5	0	1	4	0	0	0	1	0	0	0	0	0	0
0	2	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
0	4	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0
0	3	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0	2	5	0	0	0	0	0	0	1	1	0	1	0	0	2	0
0	0	6	5	0	1	0	5	0	0	0	2	0	0	0	0	0
0	0	4	0	1	0	2	0	0	0	1	0	0	0	1	1	0
0	2	2	0	3	0	1	1	0	0	0	0	1	0	0	0	0
1	2	1	1	0	0	1	0	0	0	1	0	0	0	0	0	0
0	4	1	1	3	0	2	0	0	0	1	0	0	0	1	0	0

TABLE DR5. LIGNIN PHENOL CONCENTRATIONS OF PLANTS IN THE FALLEN LEAF LAKE WATERSHED
Locations of samples are shown in Fig. 1.

Sample	Pl ±1σ	Pn ±1σ	Pd ±1σ	Vl ±1σ	Vn ±1σ	Vd ±1σ	Sl ±1σ	Sn ±1σ	Sd ±1σ	Cd ±1σ	Fd ±1σ
1. <i>Pinus jeffreyi</i> * needles	0.272 0.109	0.074 0.004	0.318 0.015	4.405 0.326	0.667 0.059	0.679 0.122	0.016 0.003	0.017 0.024	0.000 0.000	0.553 0.004	0.331 0.003
2. <i>Abies concolor</i> * needles	0.132 0.039	0.055 0.004	0.200 0.009	3.100 0.159	0.447 0.023	0.498 0.012	0.098 0.015	0.042 0.002	0.037 0.004	0.496 0.016	0.143 0.006
3. <i>Abies concolor</i> * cone	0.266 0.017	0.065 0.006	0.094 0.010	3.268 0.183	0.627 0.049	0.665 0.065	0.021 0.000	0.022 0.003	0.007 0.000	0.341 0.016	0.136 0.008
4. <i>Quercus vaccinifolia</i> † leaf	0.225 0.018	0.053 0.003	0.338 0.004	2.117 0.137	0.358 0.004	0.431 0.042	1.926 0.189	0.438 0.019	0.397 0.051	0.629 0.030	0.169 0.002
5. <i>Pinus jeffreyi</i> * bark	0.437 0.012	0.106 0.003	0.106 0.001	5.488 0.006	1.158 0.007	1.072 0.021	0.018 0.002	0.022 0.006	0.000 0.000	0.027 0.003	0.566 0.006
6. <i>Pinus jeffreyi</i> * cone	0.359 0.032	0.078 0.000	0.133 0.030	4.865 0.079	0.877 0.069	1.070 0.336	0.020 0.001	0.020 0.001	0.000 0.000	0.030 0.017	0.125 0.022
7. <i>Arctostaphylos patula</i> † leaf	0.042 0.006	0.035 0.001	0.092 0.005	0.354 0.007	0.066 0.004	0.071 0.004	0.685 0.005	0.186 0.010	0.126 0.024	0.800 0.015	0.053 0.001
8. <i>Arctostaphylos patula</i> † twig	0.080 0.017	0.336 0.047	0.092 0.014	0.924 0.099	0.156 0.021	0.151 0.019	2.466 0.091	0.288 0.091	0.425 0.345	0.407 0.039	0.142 0.064
9. <i>Quercus vaccinifolia</i> † twig	0.073 0.002	0.017 0.002	0.083 0.003	2.175 0.154	0.365 0.013	0.377 0.061	4.641 0.663	1.029 0.043	0.835 0.144	0.171 0.001	0.363 0.007
10. Forest litter GAC§ coarse material	0.307 0.047	0.095 0.010	0.144 0.011	4.203 0.296	0.891 0.050	0.931 0.044	0.045 0.029	0.045 0.002	0.038 0.023	0.163 0.011	0.199 0.005
11. Forest litter LL§ fine material	0.127 0.020	0.045 0.001	0.085 0.001	0.909 0.022	0.278 0.006	0.360 0.010	0.201 0.008	0.084 0.002	0.072 0.001	0.142 0.004	0.093 0.000
12. Forest litter LL§ coarse material	0.163 0.040	0.054 0.004	0.122 0.005	2.102 0.018	0.474 0.003	0.546 0.014	0.587 0.078	0.181 0.023	0.147 0.008	0.189 0.004	0.177 0.000
13. Pollen mixture FLL§ skimmed from lake	0.392 0.049	0.078 0.012	0.193 0.039	1.436 0.107	0.360 0.022	0.486 0.002	0.562 0.059	0.198 0.014	0.171 0.019	1.618 0.070	0.215 0.071

Note: Concentrations are mg per 100 mg organic carbon (OC) assuming dried samples are 50% OC by weight.

$\Sigma (\%V + \%S + \%C) = 100\%$. $\Lambda_8 = \Sigma V + \Sigma S + \Sigma C$. Errors shown are based on duplicate oxidations. Pl = p-hydroxy benzaldehyde, Pn = p-hydroxy acetophenone, Pd = p-hydroxy benzoic acid, Vl = vanillin, Vn = acetovanillin, Vd = vanillic acid, Sl = syringaldehyde, Sn = acetosyringone, Sd = syringic acid, Cd = p-coumaric acid, Fd = ferulic acid.

*gymnosperm

†angiosperm

§GAC = Glen Alpine Creek; LL = Lily Lake; FLL = Fallen Leaf Lake

TABLE DR6. LIGNIN PHENOL CONCENTRATIONS OF FALLEN LEAF LAKE SEDIMENTS

Depth cmblf	Age cal yr BP	TOC %	Pl ±1σ	Pn ±1σ	Pd ±1σ	Vl ±1σ	Vn ±1σ	Vd ±1σ	Sl ±1σ	Sn ±1σ	Sd ±1σ	Cd ±1σ	Fd ±1σ
688 <i>n=2</i>	8993	4.42	0.14 0.00	0.03 0.00	0.23 0.03	0.67 0.02	0.21 0.00	0.22 0.01	0.16 0.01	0.08 0.01	0.05 0.01	0.57 0.03	0.06 0.01
708 <i>n=2</i>	9379	4.39	0.15 0.00	0.03 0.00	0.22 0.00	0.63 0.03	0.20 0.01	0.21 0.01	0.15 0.01	0.08 0.00	0.05 0.00	0.57 0.00	0.06 0.00
728 <i>n=2</i>	9684	4.29	0.14 0.00	0.03 0.00	0.19 0.01	0.56 0.04	0.18 0.00	0.19 0.01	0.14 0.01	0.09 0.00	0.05 0.00	0.53 0.01	0.05 0.01
748 <i>n=2</i>	9989	3.17	0.14 0.01	0.03 0.00	0.19 0.01	0.63 0.05	0.20 0.01	0.21 0.01	0.16 0.01	0.09 0.00	0.05 0.00	0.48 0.03	0.06 0.01
768 <i>n=2</i>	10295	4.13	0.16 0.01	0.02 0.00	0.22 0.02	0.55 0.02	0.18 0.01	0.20 0.02	0.14 0.00	0.09 0.01	0.04 0.01	0.61 0.03	0.04 0.00
788 <i>n=2</i>	10600	4.76	0.16 0.03	0.02 0.00	0.20 0.03	0.47 0.12	0.17 0.01	0.21 0.04	0.11 0.02	0.08 0.00	0.04 0.02	0.54 0.01	0.04 0.01
808 <i>n=2</i>	10905	3.61	0.17 0.01	0.02 0.00	0.20 0.02	0.65 0.02	0.20 0.01	0.23 0.02	0.20 0.00	0.11 0.01	0.05 0.01	0.56 0.01	0.04 0.00
828 <i>n=2</i>	11210	3.49	0.20 0.03	0.03 0.00	0.31 0.04	0.52 0.05	0.20 0.00	0.24 0.03	0.13 0.01	0.08 0.01	0.06 0.01	0.78 0.03	0.06 0.01
839 <i>n=2</i>	11378	2.70	0.20 0.03	0.03 0.00	0.31 0.02	0.53 0.01	0.19 0.01	0.21 0.02	0.14 0.01	0.07 0.01	0.05 0.01	0.95 0.08	0.05 0.01
859 <i>n=3</i>	11683	2.50	0.18 0.02	0.02 0.01	0.23 0.04	0.45 0.03	0.19 0.00	0.23 0.02	0.12 0.00	0.08 0.01	0.06 0.00	0.64 0.05	0.04 0.00
879 <i>n=2</i>	11989	2.19	0.16 0.01	0.03 0.00	0.28 0.00	0.43 0.01	0.15 0.01	0.16 0.01	0.08 0.00	0.05 0.00	0.03 0.00	1.14 0.06	0.04 0.00
899 <i>n=2</i>	12299	1.63	0.16 0.01	0.03 0.00	0.29 0.02	0.31 0.03	0.12 0.00	0.13 0.01	0.06 0.00	0.05 0.00	0.03 0.00	1.01 0.03	0.04 0.00
919 <i>n=2</i>	12646	1.23	0.21 0.04	0.03 0.01	0.27 0.00	0.95 0.08	0.32 0.01	0.42 0.08	0.09 0.00	0.05 0.00	0.04 0.01	0.76 0.04	0.05 0.00
939 <i>n=3</i>	13075	1.33	0.15 0.01	0.03 0.01	0.27 0.04	0.97 0.02	0.30 0.03	0.30 0.03	0.08 0.01	0.06 0.01	0.03 0.01	0.70 0.05	0.06 0.00
959 <i>n=2</i>	13533	1.49	0.14 0.00	0.03 0.01	0.23 0.03	0.40 0.01	0.14 0.00	0.16 0.01	0.08 0.01	0.05 0.01	0.03 0.00	0.89 0.02	0.05 0.01

Note: Concentrations are mg per 100 mg organic carbon (OC). Pl = p-hydroxy benzaldehyde, Pn = p-hydroxy acetophenone, Pd = p-hydroxy benzoic acid, Vl = vanillin, Vn = acetovanillin, Vd = vanillic acid, Sl = syringaldehyde, Sn = acetosyringone, Sd = syringic acid, Cd = p-coumaric acid, Fd = ferulic acid.

Table DR7. Palynological count data for analyzed Fallen Leaf Lake core 1A sediments.

Depth (cm blf)	Age (cal yr BP)	Quercus		Quercus		Alnus	Cercocarpus	Salix	Aspen	Acer	Betula	Fagaceae	Ulmus	Artemisia	Ambrosia	Asteracea HS	Ephedra vir	Ericaceae	Sheperdia	Ceanothus
		Pinus	Abies	Tsuga	Cupressaceae	Gymnosperms (rough)	(smooth)													
638	8300	63.2	3.4	0.0	4.7	71.3	0.8	0.0	3.7	0.0	0.0	0.0	0.0	0.0	4.7	0.3	0.5	0.0	0.0	0.0
658	8524	55.8	2.5	0.0	7.1	65.4	0.5	0.5	3.9	0.0	0.2	0.0	0.0	0.0	2.2	0.2	1.2	0.0	0.0	0.0
690	9025	55.5	2.8	0.0	14.3	72.6	1.4	0.5	3.5	0.0	0.2	0.0	0.0	0.5	0.0	3.9	0.0	1.2	0.0	0.0
709	9379	58.5	1.2	0.0	6.5	66.2	2.2	0.2	5.8	0.0	0.2	0.2	0.0	0.0	0.2	0.0	5.8	0.7	0.5	0.0
729	9684	61.3	2.0	0.0	7.8	71.0	1.3	0.0	3.8	0.0	0.0	0.0	0.0	0.0	3.5	0.0	1.5	0.0	0.0	0.0
747	9959	58.6	0.9	0.0	8.2	67.8	2.1	0.2	4.5	0.0	0.2	0.2	0.0	0.2	0.0	4.2	0.5	2.1	0.0	0.0
769	10295	63.7	1.2	0.0	7.0	71.9	2.4	0.5	2.9	0.0	0.0	0.0	0.2	0.2	0.0	4.4	0.5	1.9	0.0	0.0
789	10600	59.4	3.3	0.0	5.3	67.9	1.5	0.5	5.8	0.0	0.0	0.0	0.0	0.0	3.8	0.3	2.3	0.0	0.0	0.5
809	10905	60.0	1.2	0.0	3.7	64.9	2.6	0.5	3.7	0.0	0.7	0.0	0.0	0.0	4.9	0.2	2.8	0.0	0.0	0.5
829	11210	63.4	4.5	0.0	2.8	70.7	1.2	0.5	4.7	0.0	0.5	0.0	0.0	0.5	0.0	3.1	0.2	2.8	0.0	0.2
849	11516	59.5	3.9	0.0	4.8	68.2	1.3	0.2	4.3	0.0	0.4	0.0	0.0	0.0	3.0	0.2	1.9	0.2	0.0	0.0
869	11821	67.6	2.0	0.3	3.6	73.5	1.0	0.3	4.3	0.0	0.3	0.0	0.0	0.3	0.0	0.8	0.3	2.0	0.0	0.0
889	12126	76.3	3.2	0.7	1.8	81.9	0.2	0.2	1.1	0.0	0.5	0.0	0.0	0.0	0.0	2.9	0.2	1.4	0.0	0.2
899	12283	71.6	3.2	0.0	2.5	77.3	1.2	1.0	0.7	0.0	0.0	0.0	0.0	0.5	0.2	3.2	0.0	1.2	0.0	0.2
929	12839	75.5	1.2	0.0	1.4	78.1	0.7	0.5	0.9	0.2	0.9	0.0	0.0	0.0	0.0	4.7	0.0	0.5	0.0	0.0
949	13267	73.6	2.2	0.0	1.7	77.5	1.0	0.2	0.7	0.0	0.7	0.0	0.0	0.2	0.0	2.6	0.0	1.4	0.0	0.0
969	13756	67.6	1.9	0.0	4.3	73.8	1.2	0.0	0.9	0.0	0.5	0.0	0.0	0.0	0.2	0.0	1.7	0.0	1.2	0.0

Pollen taxa are represented as percentages of the total terrestrial pollen sum except for Isoetes, Cyperaceae, and Equisitaceae that are specific to wet environments likely close to the lake margin. Isoetes, Cyperaceae, Equisitaceae and the algae Botryococcus and Pediastrum are given in accumulation rate (grains cm⁻² yr⁻¹). The taxon Gymnosperms represents the sum of gymnosperm tree pollen (columns C – F) and the taxon Angiosperms represents the sum of angiosperm terrestrial pollen (columns H – AN).

Brassicaceae	Lamiaceae	Ranunculaceae	Cyperaceae	Fabaceae	Apiaceae	Rosaceae	Cornus	Poaceae	Sambucus	Amaranthaceae	Ribes	Sarcobatus	Rhamnaceae	Geraniaceae	Onagraceae	Angio	Pteridium	Trilete	Monolete	Unknown	Indeterminate
0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.3	0.0	1.1	0.0	0.3	0.0	0.0	0.0	12.4	0.0	0.3	0.3	0.0	15.8
0.2	0.0	0.0	0.7	0.0	0.0	0.7	0.0	0.5	0.0	1.2	0.0	0.5	0.0	0.0	0.0	12.8	0.0	1.0	0.5	0.2	20.1
0.2	0.0	0.0	0.5	0.0	0.2	1.2	0.0	0.5	0.0	1.6	0.2	0.7	0.2	0.0	0.0	16.4	0.2	1.4	0.2	0.9	8.3
0.2	0.0	0.2	0.2	0.0	0.2	1.7	0.0	0.5	0.0	1.0	0.0	0.2	0.0	0.0	0.0	20.5	0.0	2.9	0.2	0.7	9.4
0.8	0.0	0.0	0.5	0.0	0.3	0.8	0.0	1.0	0.0	1.3	0.0	1.0	0.0	0.0	0.0	15.5	0.0	1.8	0.0	0.5	11.3
0.2	0.0	0.0	0.7	0.0	0.2	1.2	0.0	0.0	0.0	1.2	0.2	0.5	0.0	0.0	0.0	18.8	0.0	4.2	0.7	0.7	7.8
0.0	0.0	0.0	0.2	0.0	0.0	0.7	0.0	0.2	0.0	1.9	0.0	0.2	0.0	0.2	0.0	17.2	0.0	3.4	0.2	0.0	7.3
0.3	0.0	0.0	0.3	0.0	0.0	2.5	0.0	1.5	0.0	1.8	0.3	0.5	0.0	0.0	0.0	21.6	0.0	1.5	0.3	0.0	8.8
0.5	0.2	0.0	0.2	0.2	0.0	0.9	0.0	0.2	0.2	2.1	0.0	0.9	0.0	0.0	0.0	21.4	0.0	2.8	0.2	0.0	10.7
0.5	0.0	0.0	0.5	0.0	0.0	1.7	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	16.8	0.0	2.4	0.5	0.2	9.5
0.2	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	1.1	1.3	0.4	0.0	0.0	0.0	16.0	0.0	3.5	0.6	0.0	11.7
0.5	0.0	0.5	0.5	0.0	0.0	1.0	0.0	0.8	0.0	0.5	0.3	0.3	0.0	0.0	0.0	13.5	0.0	2.0	0.3	0.3	10.5
0.2	0.0	0.5	0.2	0.0	0.2	0.5	0.2	1.4	0.2	0.2	0.2	0.2	0.0	0.0	0.0	10.8	0.0	0.7	0.2	0.0	6.3
0.0	0.0	0.2	0.5	0.2	0.2	0.7	0.0	0.5	0.2	0.2	0.2	0.2	0.0	0.0	0.0	12.1	0.0	2.2	0.7	0.7	6.9
0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.2	0.0	0.7	0.0	0.2	0.0	0.0	0.0	11.3	0.0	1.6	0.5	0.2	8.2
0.2	0.0	0.0	1.2	0.0	0.0	1.0	0.0	0.2	0.0	1.7	0.0	0.0	0.0	0.0	0.0	11.8	0.0	1.2	0.7	0.5	8.4
0.5	0.0	0.0	0.5	0.0	0.5	1.7	0.0	0.0	0.0	1.7	0.0	0.7	0.0	0.0	0.0	11.1	0.2	0.2	0.9	0.2	13.5

Equisetaceae	Isoetes	Cyperaceae	Botryococcus	Pediastrum
1492	8952	746	41030	746
551	11565	1652	42955	0
2054	17803	1369	6847	5478
3414	15703	683	10924	12289
2531	23413	1266	6961	8226
1009	17651	1513	12608	13616
564	17484	564	18612	10152
744	20078	744	14872	7436
565	14134	565	26007	7915
0	9760	1502	25527	6757
1782	5347	891	57929	1782
0	3396	1698	5094	3396
0	0	831	4155	3324
0	3166	1583	5541	3958
0	2853	0	2378	1427
0	4827	3017	1207	3620
0	5487	1219	8535	3048