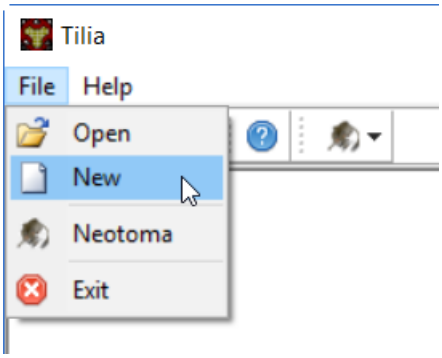
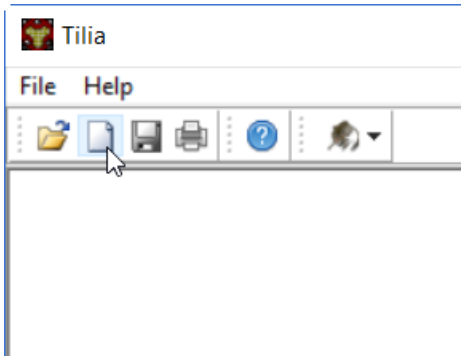
Entering Data in the Spreadsheet

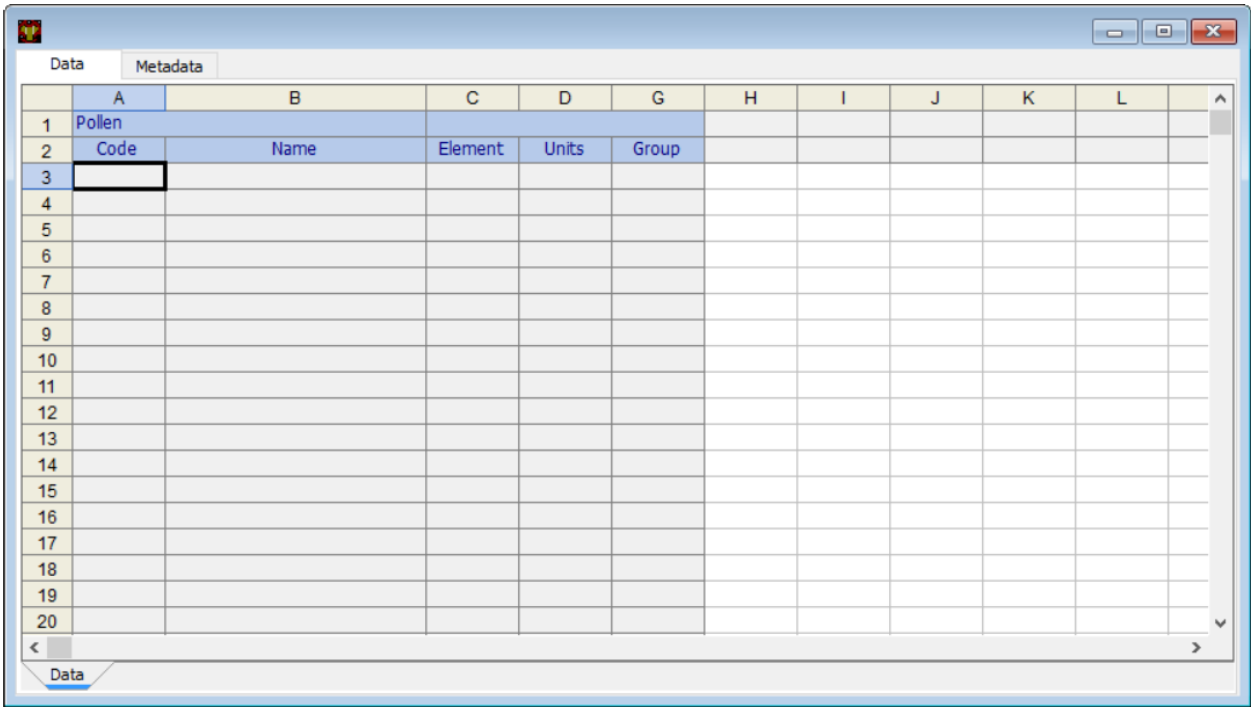
Creating a New File

To begin a new spreadsheet, click **File > New** or click the **New File tool button**.

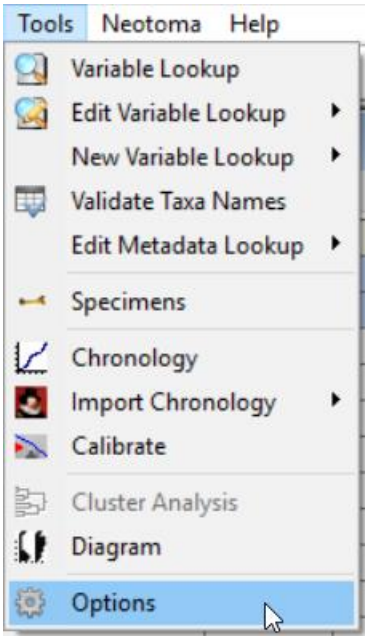




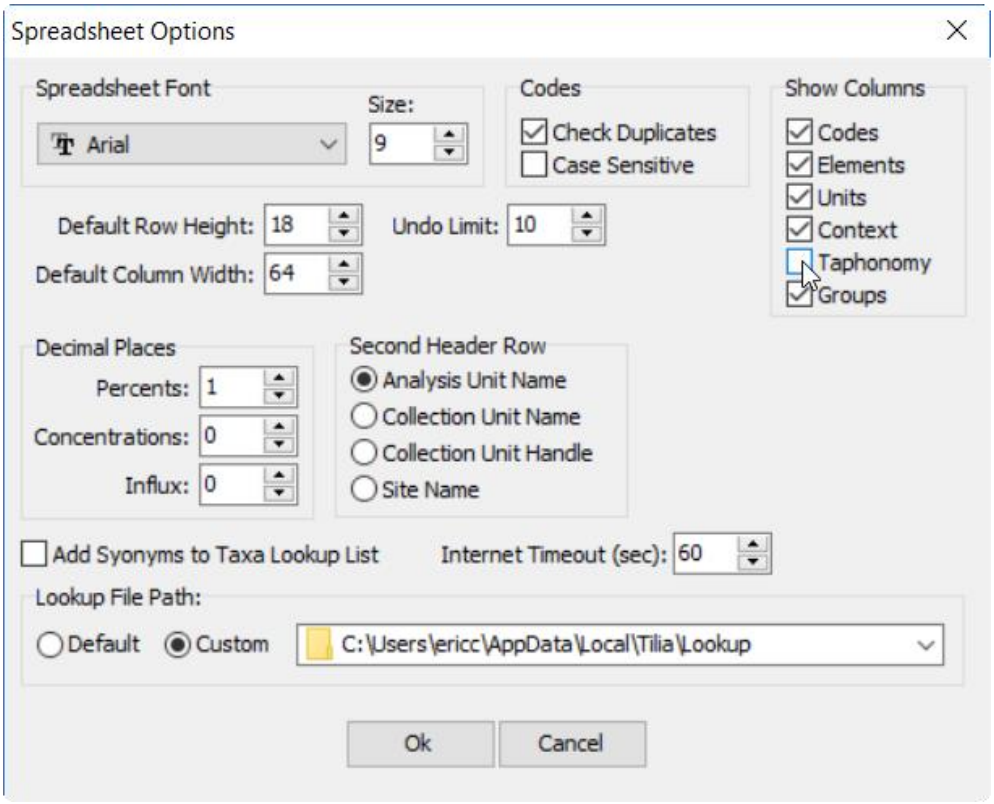
The first time you create a new spreadsheet, it will usually look like this:



Note that columns E and F are hidden. To show all columns, click **Tools > Options**:

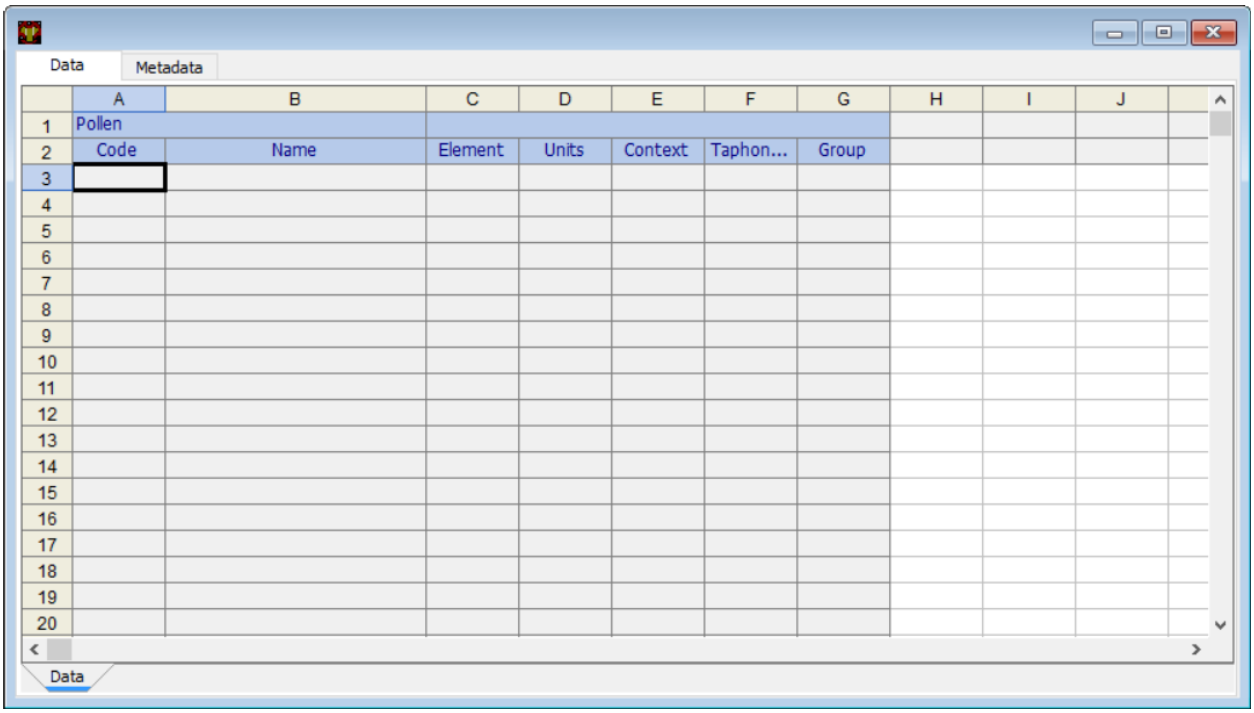


Which will show the **Spreadsheet Options** dialog box.



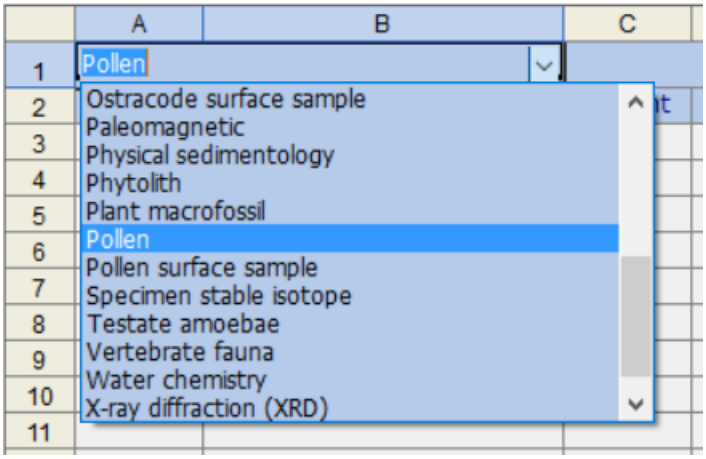
To show all columns, check all check boxes under **Show Columns**.

Now all columns are visible.



Dataset Type

The text in cell A1 indicates the type of dataset. While this entry is not essential, it does affect automatic data entry with defined taxa dictionaries. Select the dataset type by clicking the cell and selecting from the dropdown menu:

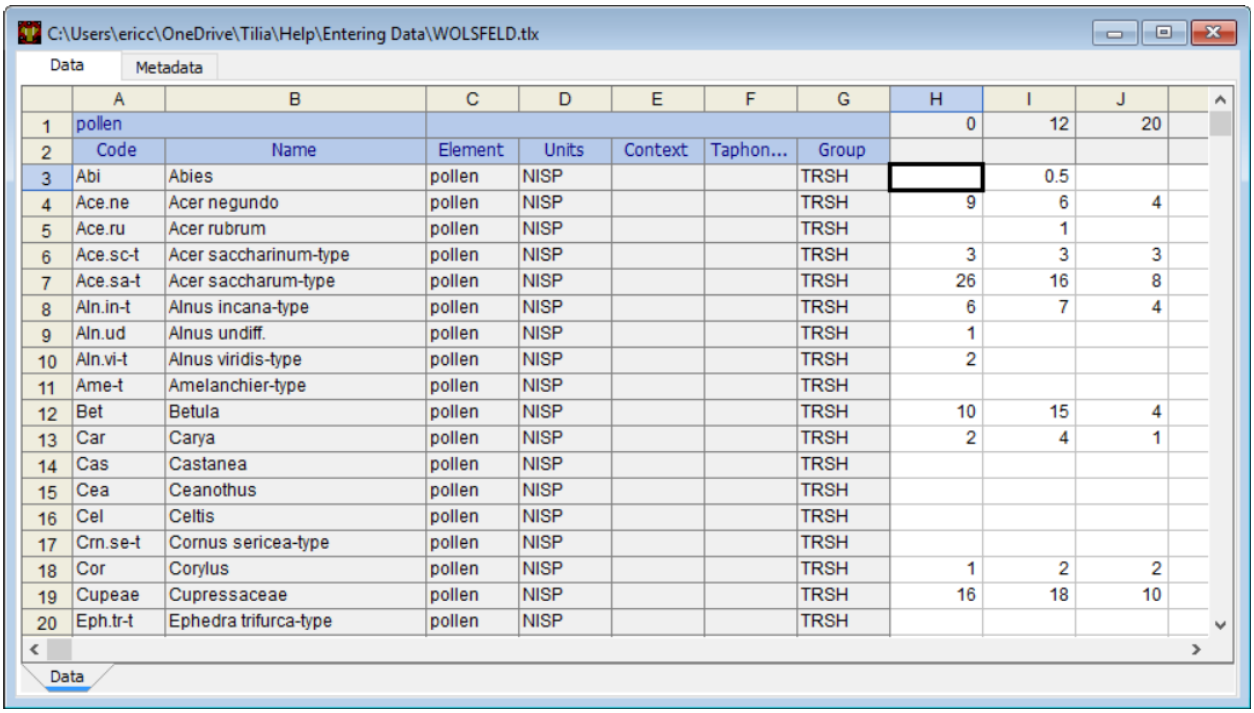


These dataset types are defined in the **Neotoma Paleoecology Database** www.neotomadb.org.

The default dataset type is **Pollen**, but your spreadsheet will open with the dataset type of the last file you saved.

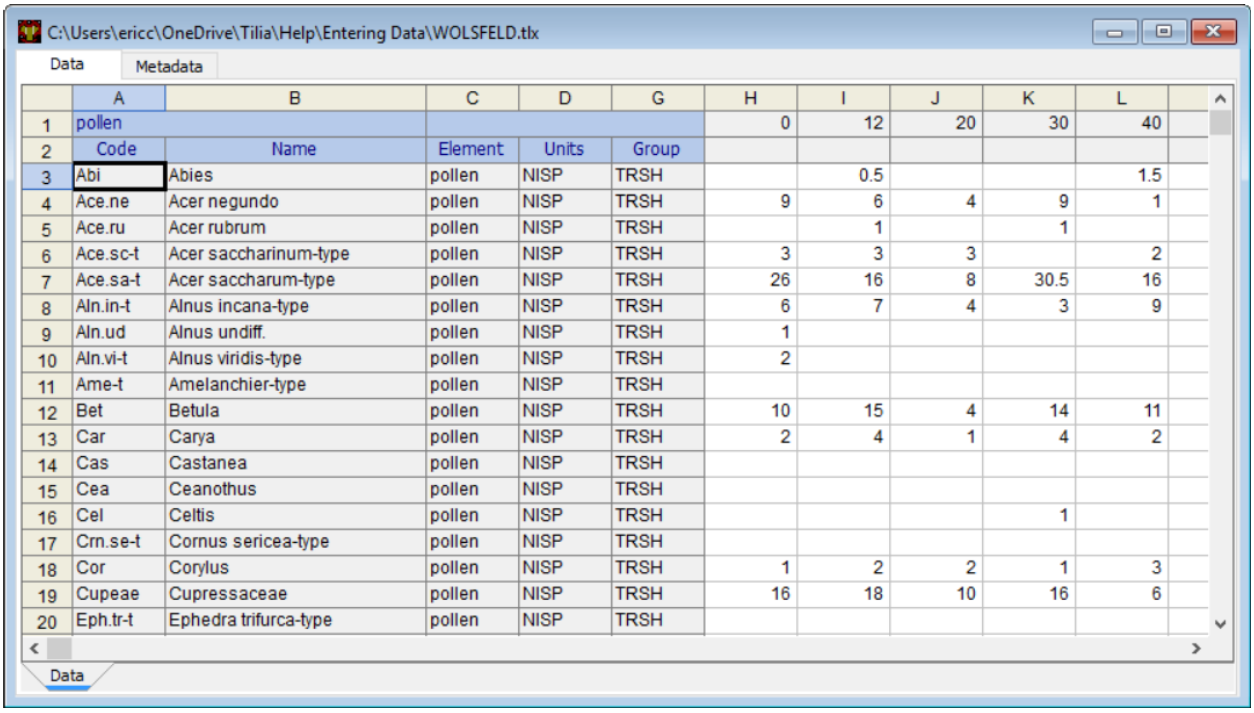
Variables

In a Tilia spreadsheet, rows are variables and columns are samples. Variables comprise several components: **Code, Name, Element, Units, Context, Taphonomy, and Group**. For making stratigraphic diagrams, only the **Code** and **Name** are required; however, **Group** is usually very useful. Variables in the **Neotoma Paleoecology Database** also require **Element** and **Units**.



	A	B	C	D	E	F	G	H	I	J
1	pollen							0	12	20
2	Code	Name	Element	Units	Context	Taphon...	Group			
3	Abi	Abies	pollen	NISP			TRSH		0.5	
4	Ace.ne	Acer negundo	pollen	NISP			TRSH	9	6	4
5	Ace.ru	Acer rubrum	pollen	NISP			TRSH		1	
6	Ace.sc-t	Acer saccharinum-type	pollen	NISP			TRSH	3	3	3
7	Ace.sa-t	Acer saccharum-type	pollen	NISP			TRSH	26	16	8
8	Aln.in-t	Alnus incana-type	pollen	NISP			TRSH	6	7	4
9	Aln.ud	Alnus undiff.	pollen	NISP			TRSH	1		
10	Aln.vi-t	Alnus viridis-type	pollen	NISP			TRSH	2		
11	Ame-t	Amelanchier-type	pollen	NISP			TRSH			
12	Bet	Betula	pollen	NISP			TRSH	10	15	4
13	Car	Carya	pollen	NISP			TRSH	2	4	1
14	Cas	Castanea	pollen	NISP			TRSH			
15	Cea	Ceanothus	pollen	NISP			TRSH			
16	Cel	Celtis	pollen	NISP			TRSH			
17	Crn.se-t	Cornus sericea-type	pollen	NISP			TRSH			
18	Cor	Corylus	pollen	NISP			TRSH	1	2	2
19	Cupeae	Cupressaceae	pollen	NISP			TRSH	16	18	10
20	Eph.tr-t	Ephedra trifurca-type	pollen	NISP			TRSH			

Context and **Taphonomy** are used less often, and will be discussed later, so those columns will now be hidden.



	A	B	C	D	G	H	I	J	K	L
1	pollen					0	12	20	30	40
2	Code	Name	Element	Units	Group					
3	Abi	Abies	pollen	NISP	TRSH		0.5			1.5
4	Ace.ne	Acer negundo	pollen	NISP	TRSH	9	6	4	9	1
5	Ace.ru	Acer rubrum	pollen	NISP	TRSH		1		1	
6	Ace.sc-t	Acer saccharinum-type	pollen	NISP	TRSH	3	3	3		2
7	Ace.sa-t	Acer saccharum-type	pollen	NISP	TRSH	26	16	8	30.5	16
8	Aln.in-t	Alnus incana-type	pollen	NISP	TRSH	6	7	4	3	9
9	Aln.ud	Alnus undiff.	pollen	NISP	TRSH	1				
10	Aln.vi-t	Alnus viridis-type	pollen	NISP	TRSH	2				
11	Ame-t	Amelanchier-type	pollen	NISP	TRSH					
12	Bet	Betula	pollen	NISP	TRSH	10	15	4	14	11
13	Car	Carya	pollen	NISP	TRSH	2	4	1	4	2
14	Cas	Castanea	pollen	NISP	TRSH					
15	Cea	Ceanothus	pollen	NISP	TRSH					
16	Cel	Celtis	pollen	NISP	TRSH				1	
17	Crn.se-t	Cornus sericea-type	pollen	NISP	TRSH					
18	Cor	Corylus	pollen	NISP	TRSH	1	2	2	1	3
19	Cupeae	Cupressaceae	pollen	NISP	TRSH	16	18	10	16	6
20	Eph.tr-t	Ephedra trifurca-type	pollen	NISP	TRSH					

Name is the name of the taxon.

Code is a unique code for each taxon. Codes can be anything you want; the only requirement is that they be unique within the spreadsheet. The codes shown in this example are those used in the **Neotoma Paleoecology Database**.

Element is the element identified. As this is a pollen dataset, most elements will be **pollen** or **spore**. However, others are possible, such as **stomate**. Other dataset types may have many kinds of elements. For example, plant macrofossil datasets may have **leaf, needle, seed, bud scale**, and so on. The elements may optionally appear in a diagram, e.g. ***Picea* needle**, ***Picea* seed**.

Units are the measurement units for the variable. **NISP** = Number of Identified Specimens, in other words, a count.

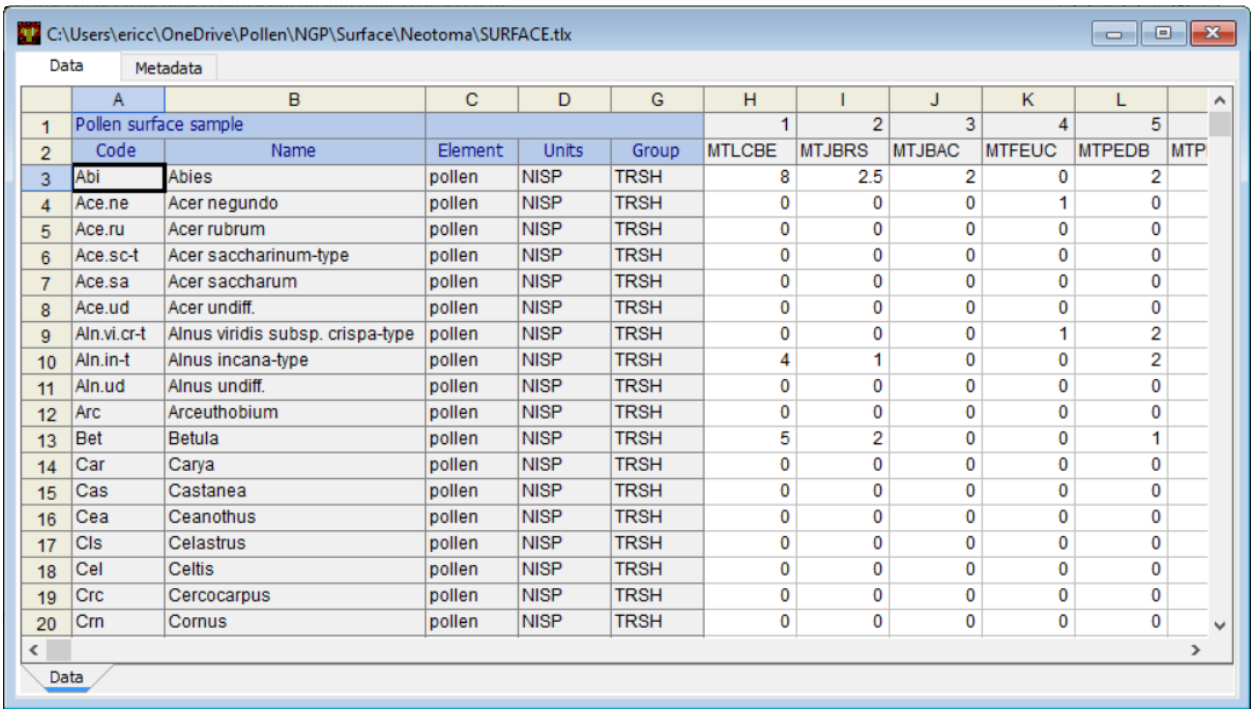
Group is a code for any grouping scheme. The codes shown here are the default codes for pollen datasets from the **Neotoma Paleoecology Database**:

TRSH	Trees and Shrubs
PALM	Palms
MANG	Mangroves
UPHE	Upland Herbs
VACR	Vascular Cryptogams
UPBR	Upland Bryophytes
AQVP	Aquatic Vascular Plants
AQBR	Aquatic Bryophytes
FUNG	Fungi
ALGA	Algae
UNID	Unknown and Indeterminable

It is not necessary to use these codes; you may use any codes you like. However, if these codes are suitable for your data, they make calculation of percentages somewhat easier.

Samples

Samples begin in column H. Row 1 is for sample depths. Row 2 is for sample names. For stratigraphic diagrams, you must have depths. Sample names are optional, and they may be shown on the diagram. Surface samples commonly have names. The example below is a **Pollen surface sample** dataset. The depths are pseudo depths that will set the spacing between samples on a diagram.


C:\Users\ericc\OneDrive\Pollen\NGP\Surface\Neotoma\SURFACE.tlx

Data | Metadata

	A	B	C	D	G	H	I	J	K	L	
1	Pollen surface sample					1	2	3	4	5	
2	Code	Name	Element	Units	Group	MTLCBE	MTJBRS	MTJBAC	MTFEUC	MTPEDB	MTP
3	Abi	Abies	pollen	NISP	TRSH	8	2.5	2	0	2	
4	Ace.ne	Acer negundo	pollen	NISP	TRSH	0	0	0	1	0	
5	Ace.ru	Acer rubrum	pollen	NISP	TRSH	0	0	0	0	0	
6	Ace.sc-t	Acer saccharinum-type	pollen	NISP	TRSH	0	0	0	0	0	
7	Ace.sa	Acer saccharum	pollen	NISP	TRSH	0	0	0	0	0	
8	Ace.ud	Acer undiff.	pollen	NISP	TRSH	0	0	0	0	0	
9	Aln.vi.cr-t	Alnus viridis subsp. crispa-type	pollen	NISP	TRSH	0	0	0	1	2	
10	Aln.in-t	Alnus incana-type	pollen	NISP	TRSH	4	1	0	0	2	
11	Aln.ud	Alnus undiff.	pollen	NISP	TRSH	0	0	0	0	0	
12	Arc	Arceuthobium	pollen	NISP	TRSH	0	0	0	0	0	
13	Bet	Betula	pollen	NISP	TRSH	5	2	0	0	1	
14	Car	Carya	pollen	NISP	TRSH	0	0	0	0	0	
15	Cas	Castanea	pollen	NISP	TRSH	0	0	0	0	0	
16	Cea	Ceanothus	pollen	NISP	TRSH	0	0	0	0	0	
17	Cls	Celastrus	pollen	NISP	TRSH	0	0	0	0	0	
18	Cel	Celtis	pollen	NISP	TRSH	0	0	0	0	0	
19	Crc	Cercocarpus	pollen	NISP	TRSH	0	0	0	0	0	
20	Crn	Cornus	pollen	NISP	TRSH	0	0	0	0	0	

Data

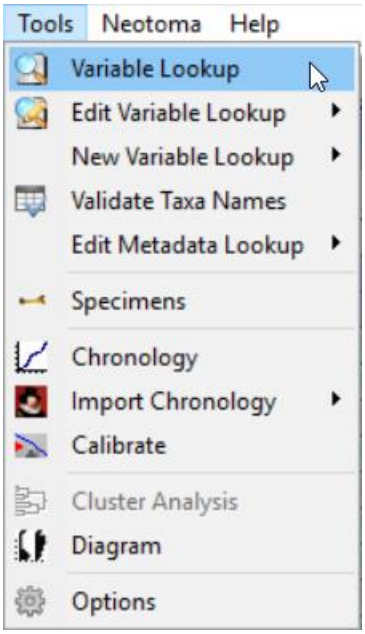
Data

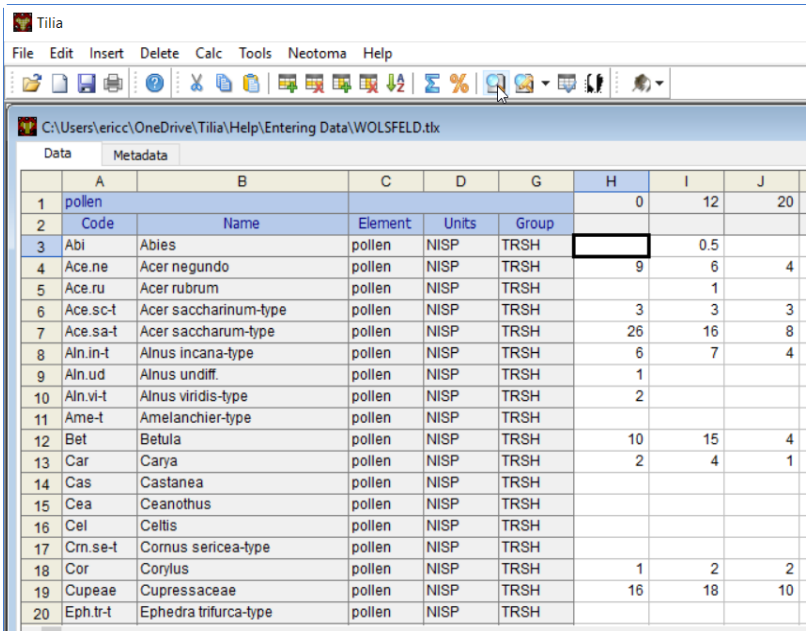
The actual data begin in cell H3. In all the examples so far, zero values can be represented by a 0 in the cell or by leaving the cell blank. However, if cells are left blank, you will be asked if they should be converted to zero for the diagram. In some cases, blank cells may indicate no data rather than a zero values. For example, of pollen and loss-on-ignition (LOI) data are in the same spreadsheet, and some depths have LOI data and not pollen data, then the pollen cells should be left blank for the LOI-only depths, and zero values should be entered for the pollen samples.

Variable Lookup Files

Taxa names may be entered directly, copied and pasted from another spreadsheet, or chosen from an external lookup file. Tilia is distributed with a number of variable lookup files, which may be updated periodically from the **Neotoma Paleoecology Database**.

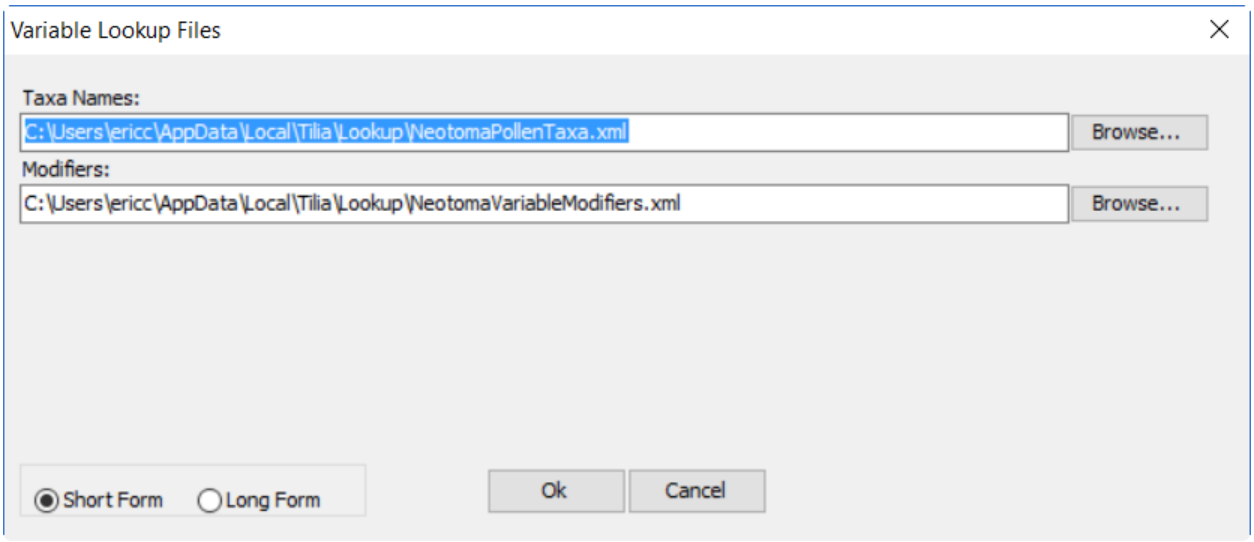
To open a lookup file, either click **Tools > Variable Lookup** or click the **Variable Lookup tool button**.





	A	B	C	D	G	H	I	J
1	pollen					0	12	20
2	Code	Name	Element	Units	Group			
3	Abi	Abies	pollen	NISP	TRSH		0.5	
4	Ace.ne	Acer negundo	pollen	NISP	TRSH	9	6	4
5	Ace.ru	Acer rubrum	pollen	NISP	TRSH		1	
6	Ace.sc-t	Acer saccharinum-type	pollen	NISP	TRSH	3	3	3
7	Ace.sa-t	Acer saccharum-type	pollen	NISP	TRSH	26	16	8
8	Aln.in-t	Alnus incana-type	pollen	NISP	TRSH	6	7	4
9	Aln.ud	Alnus undiff.	pollen	NISP	TRSH	1		
10	Aln.vi-t	Alnus viridis-type	pollen	NISP	TRSH	2		
11	Ame-t	Amelanchier-type	pollen	NISP	TRSH			
12	Bet	Betula	pollen	NISP	TRSH	10	15	4
13	Car	Carya	pollen	NISP	TRSH	2	4	1
14	Cas	Castanea	pollen	NISP	TRSH			
15	Cea	Ceanothus	pollen	NISP	TRSH			
16	Cel	Celtis	pollen	NISP	TRSH			
17	Crn.se-t	Cornus sericea-type	pollen	NISP	TRSH			
18	Cor	Corylus	pollen	NISP	TRSH	1	2	2
19	Cupeae	Cupressaceae	pollen	NISP	TRSH	16	18	10
20	Eph.tr-t	Ephedra trifurca-type	pollen	NISP	TRSH			

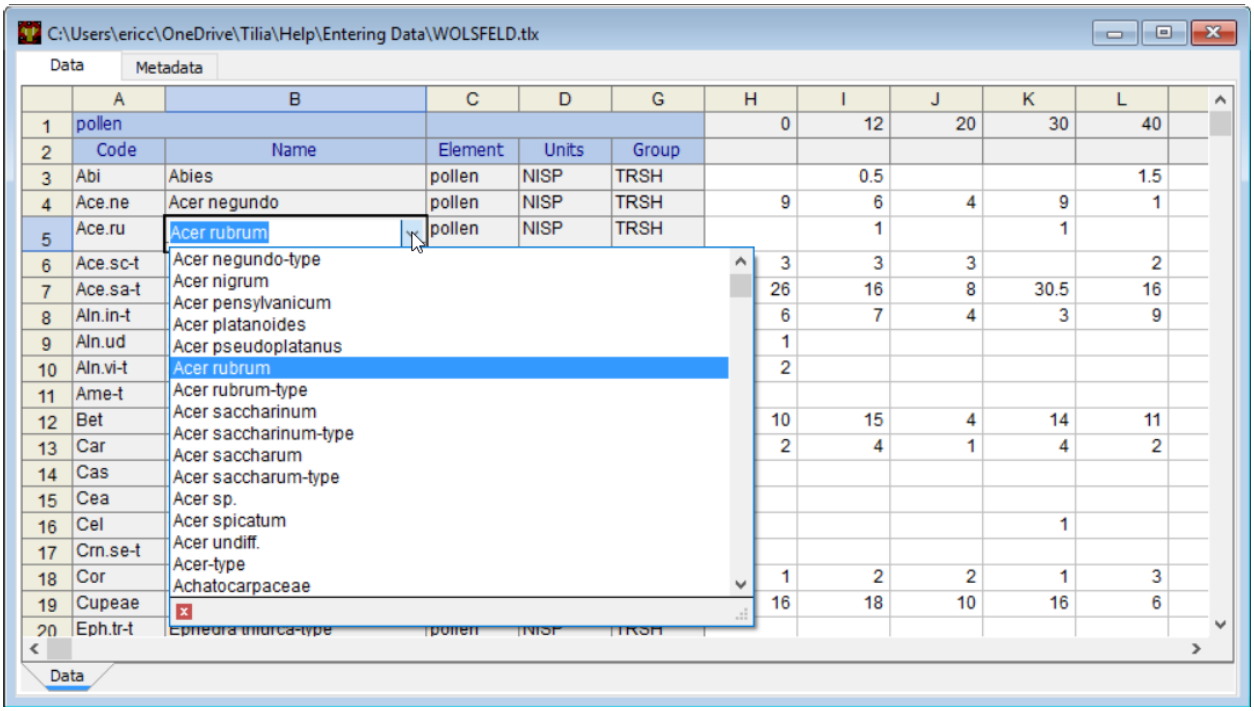
Which will show the **Variable Lookup Files** dialog box:



You can select which lookup file by selecting the **Browse…** button. By default, the variable lookup files are stored in the directory **C:\Users\[User Name]\AppData\Local\Tilia\Lookup**. The lookup files all have the .xml extension, e.g. **NeotomaPollenTaxa.xml**.

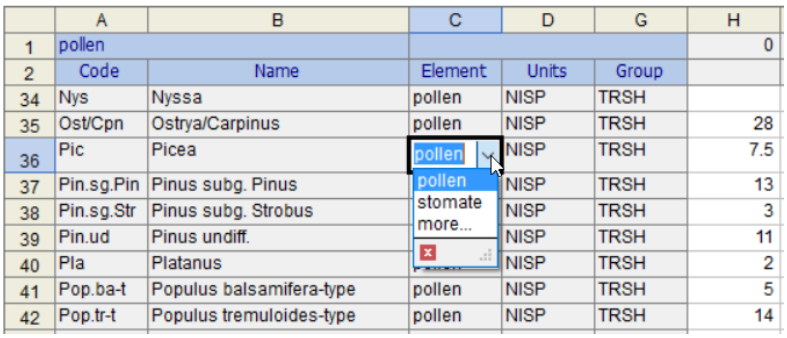
The modifiers (Element, Units, etc.) are stored in a separate file, which ordinarily would always be the default file name **NeotomaVariableModifiers.xml**.

After a variable lookup file is opened, taxa names can be selected from the dropdown list. You can also start typing a name, and the matching names will appear. If a name is not in the list, you can type in a new name.



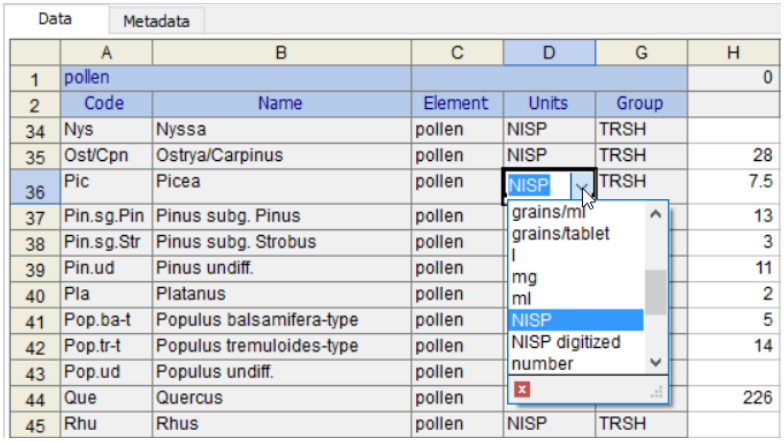
The names in the lookup file are from the **Neotoma Paleoecology Database**. Thus, the **NeotomaPollenTaxa.xml** lookup file has all the names that appear in Neotoma pollen datasets.

If you select a taxon from the dropdown list, the **Code** and default **Group** will be automatically entered. If the taxon has only one element in the database, then it will also be entered. Otherwise, the element can also be selected from a dropdown list:



The elements listed are those currently in **Neotoma** for the **pollen** dataset type. The **more…** selection indicates there are more elements in another dataset type, in this case in **plant macrofossil** datasets. If you click **more…**, those additional elements will appear.

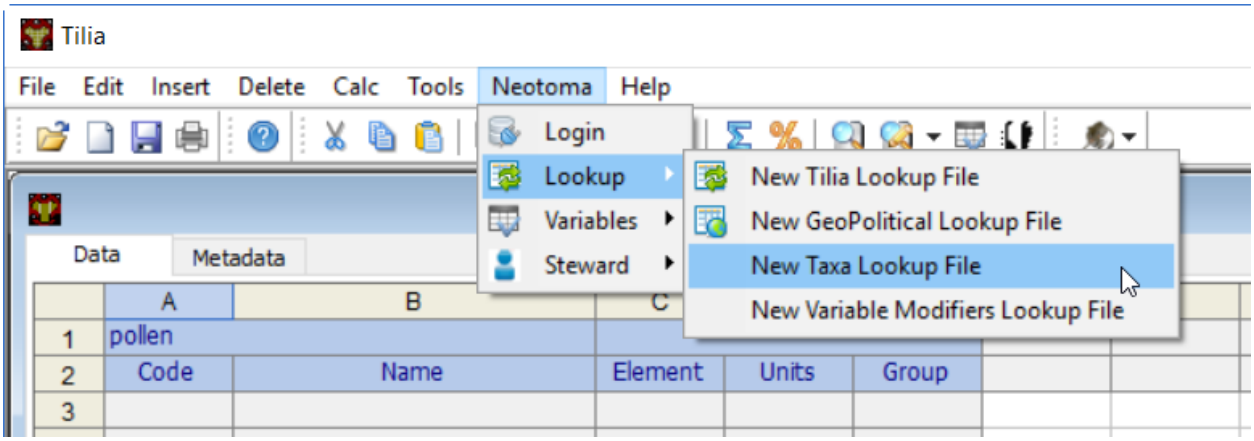
Units can also be selected from a dropdown list. All units for the dataset type will be listed:



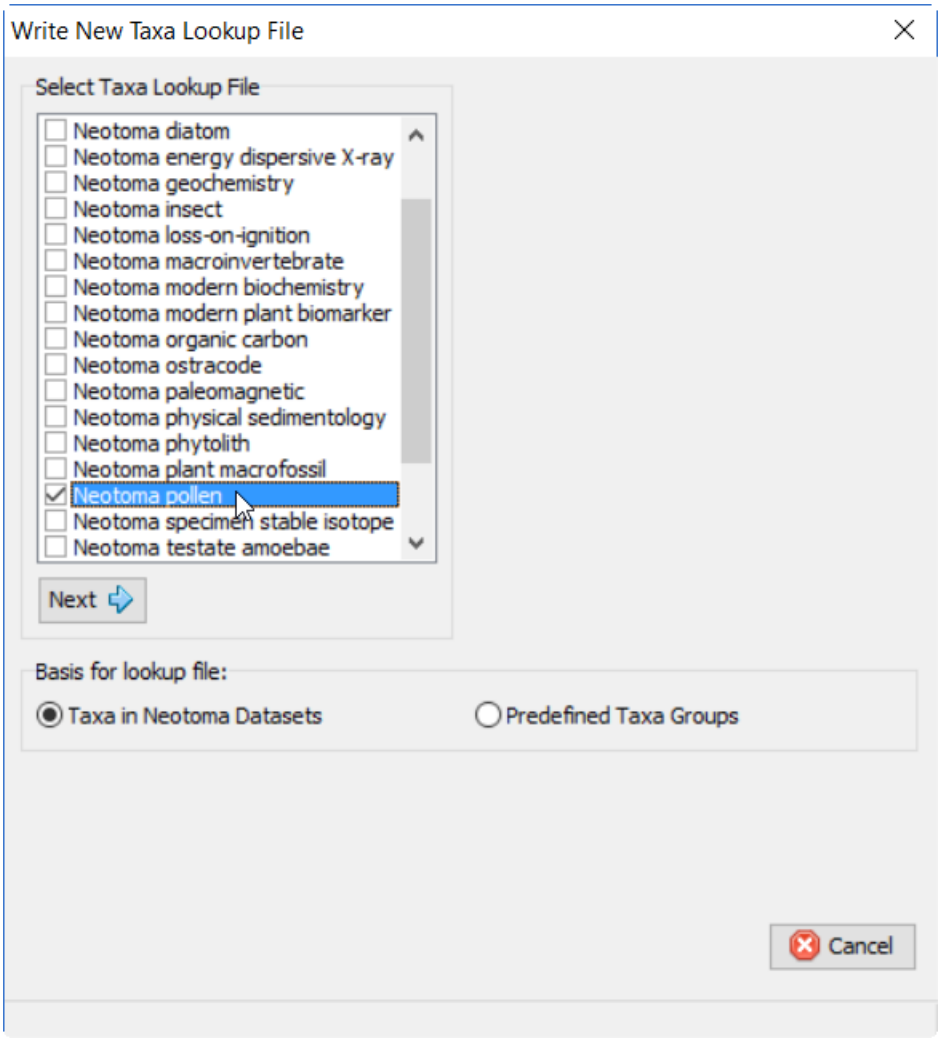
	A	B	C	D	G	H
1	pollen					0
2	Code	Name	Element	Units	Group	
34	Nys	Nyssa	pollen	NISP	TRSH	
35	Ost/Cpn	Ostrya/Carpinus	pollen	NISP	TRSH	28
36	Pic	Picea	pollen	NISP	TRSH	7.5
37	Pin.sg.Pin	Pinus subg. Pinus	pollen			13
38	Pin.sg.Str	Pinus subg. Strobus	pollen			3
39	Pin.ud	Pinus undiff.	pollen			11
40	Pla	Platanus	pollen			2
41	Pop.ba-t	Populus balsamifera-type	pollen			5
42	Pop.tr-t	Populus tremuloides-type	pollen			14
43	Pop.ud	Populus undiff.	pollen			
44	Que	Quercus	pollen			226
45	Rhu	Rhus	pollen	NISP	TRSH	

Updating Variable Lookup Files

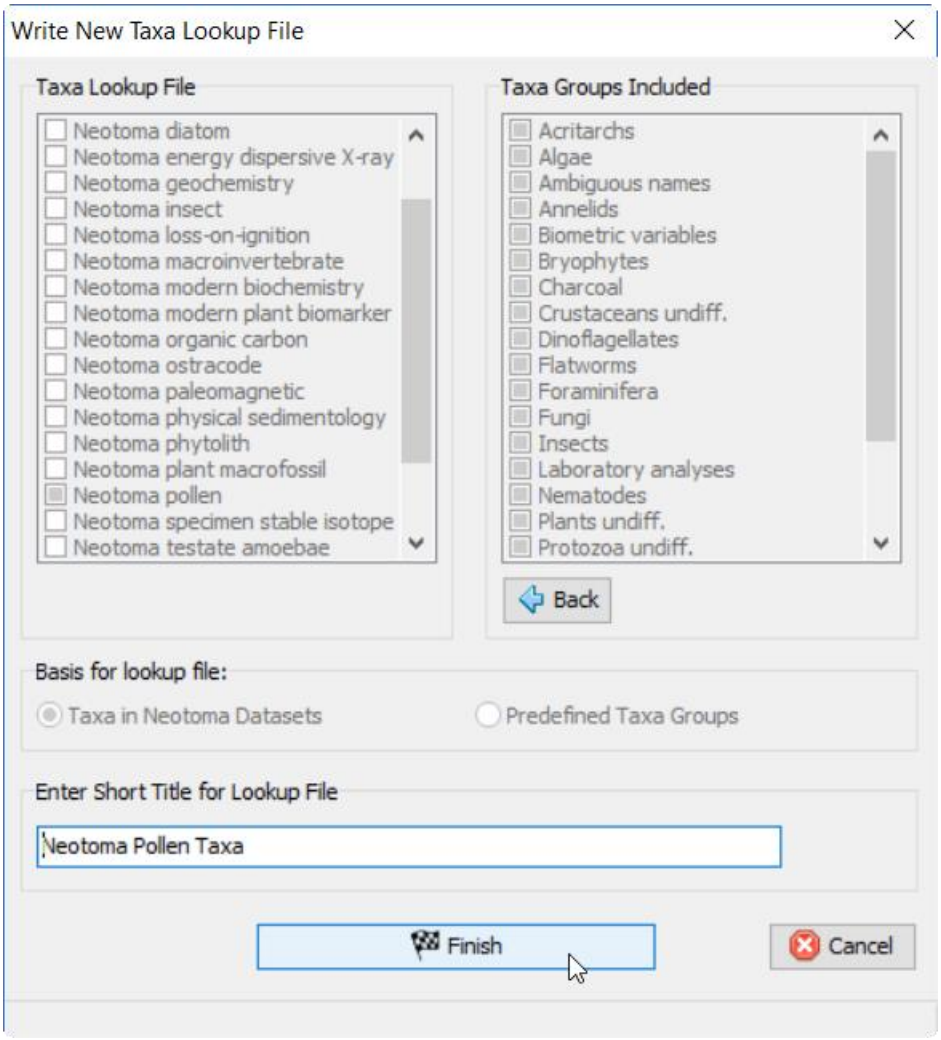
To update your local Tilia lookup file from **Neotoma**, click **Neotoma > Lookup > New Taxa Lookup File**.



Which will show the **Write New Taxa Lookup File** dialog box.



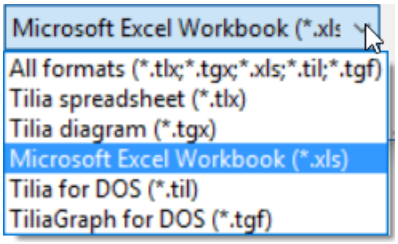
Check the lookup file you want to update, which in this example is the pollen lookup. Click the **Next** button.



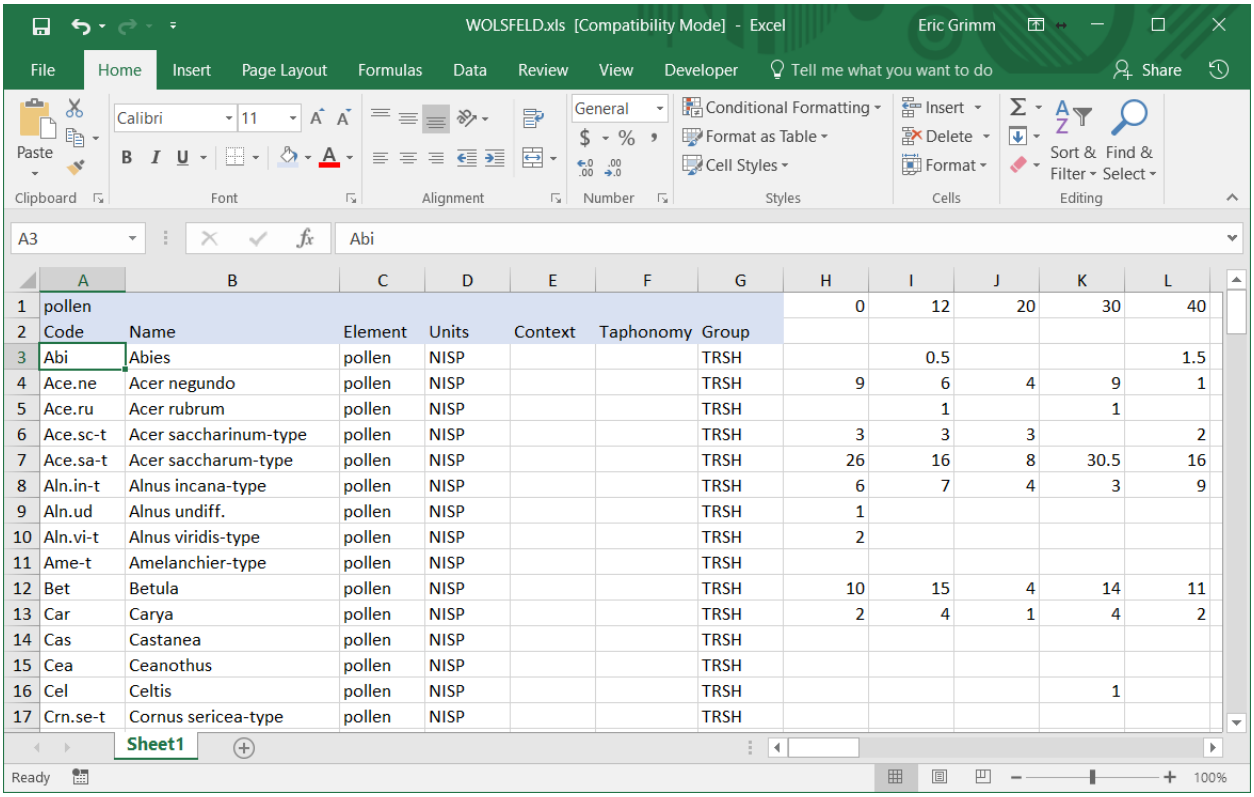
A panel will appear on the right with the taxa groups that will be included in this lookup file. This list cannot be edited; it's solely informative. Click the **Finish** button to write the new file. You will be asked whether you want to replace your existing lookup file. Ordinarily, you would click **Yes**.

Importing Data from Excel

Data may be imported from Excel by either opening an .xls file (not .xlsx) or by copying and pasting. To open an .xls file, click **File > Open** and in the lower right corner of the open file dialog box, select **Microsoft Excel Workbook (*.xls)** to show the available files. Ensure that the file is not open in Excel before attempting to open in Tilia.



Tilia reads the Excel file cell for cell. Hidden columns in Tilia will still be recognized in the Excel file. Consequently, the Excel file must be formatted exactly the same as the Tilia file, as below:



	A	B	C	D	E	F	G	H	I	J	K	L
1	pollen							0	12	20	30	40
2	Code	Name	Element	Units	Context	Taphonomy	Group					
3	Abi	Abies	pollen	NISP			TRSH		0.5			1.5
4	Ace.ne	Acer negundo	pollen	NISP			TRSH	9	6	4	9	1
5	Ace.ru	Acer rubrum	pollen	NISP			TRSH		1		1	
6	Ace.sc-t	Acer saccharinum-type	pollen	NISP			TRSH	3	3	3		2
7	Ace.sa-t	Acer saccharum-type	pollen	NISP			TRSH	26	16	8	30.5	16
8	Aln.in-t	Alnus incana-type	pollen	NISP			TRSH	6	7	4	3	9
9	Aln.ud	Alnus undiff.	pollen	NISP			TRSH	1				
10	Aln.vi-t	Alnus viridis-type	pollen	NISP			TRSH	2				
11	Ame-t	Amelanchier-type	pollen	NISP			TRSH					
12	Bet	Betula	pollen	NISP			TRSH	10	15	4	14	11
13	Car	Carya	pollen	NISP			TRSH	2	4	1	4	2
14	Cas	Castanea	pollen	NISP			TRSH					
15	Cea	Ceanothus	pollen	NISP			TRSH					
16	Cel	Celtis	pollen	NISP			TRSH				1	
17	Crn.se-t	Cornus sericea-type	pollen	NISP			TRSH					

The cells in blue will be ignored when Tilia reads the worksheet. You will be prompted as to which worksheet you want to import.

In general, it is easier to copy and paste data from Excel rather than read the file, although you may need to transpose the worksheet first so that columns are samples and rows are variables. Simply copy and paste the taxa names to column B starting in cell A3, the sample depths to row 1 staring in cell H1, and the data starting in cell H3. Copying and pasting is the only way to import data from an .xlsx file, other than saving to a .xls file.