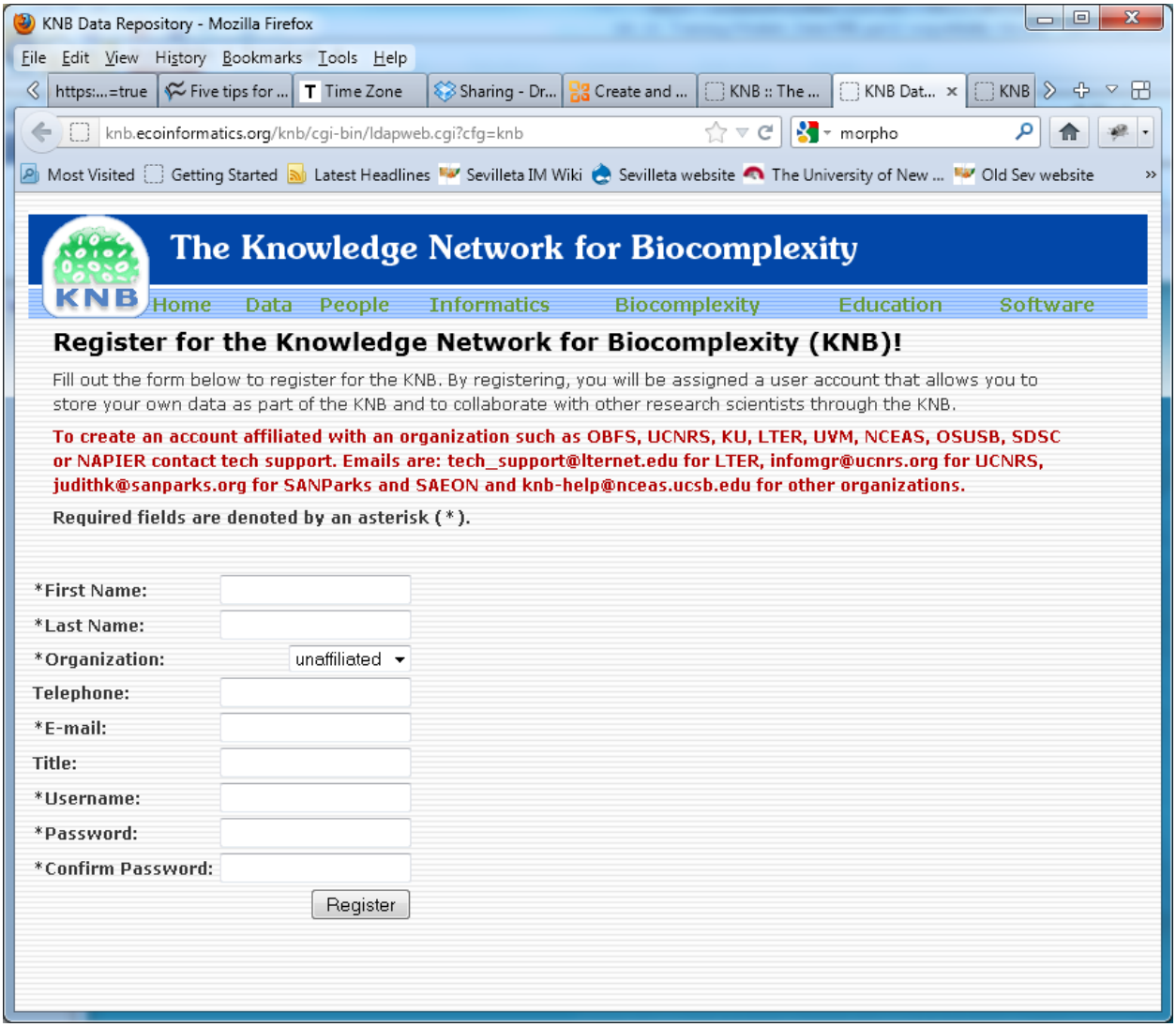
In order to use Morpho, you have to register with the Knowledge Network for Complexity. They created this software.

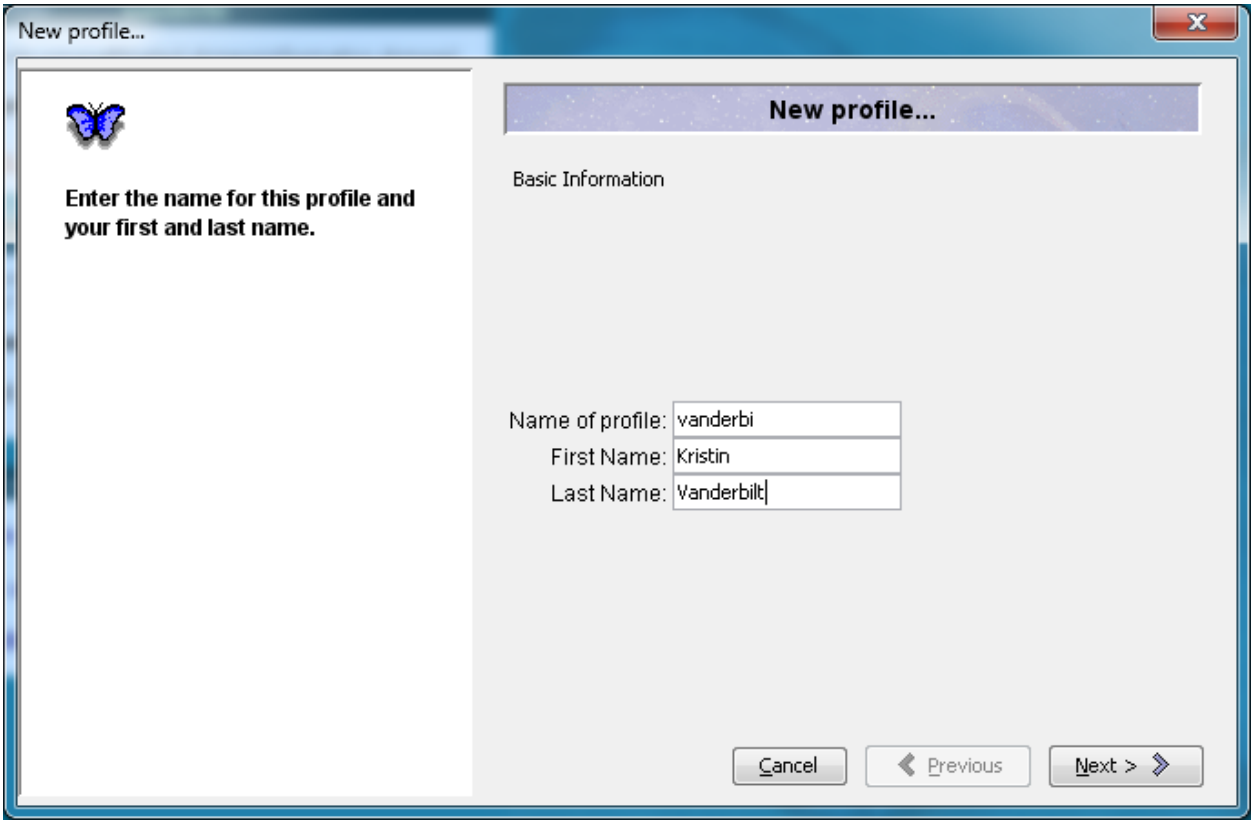
Go to: http://knb.ecoinformatics.org/index.jsp and scroll down to "Login and Registration". Select 'Create a New Account':

Register as an 'unaffiliated' Organization. **Be sure to write down your Username and Password!!!**

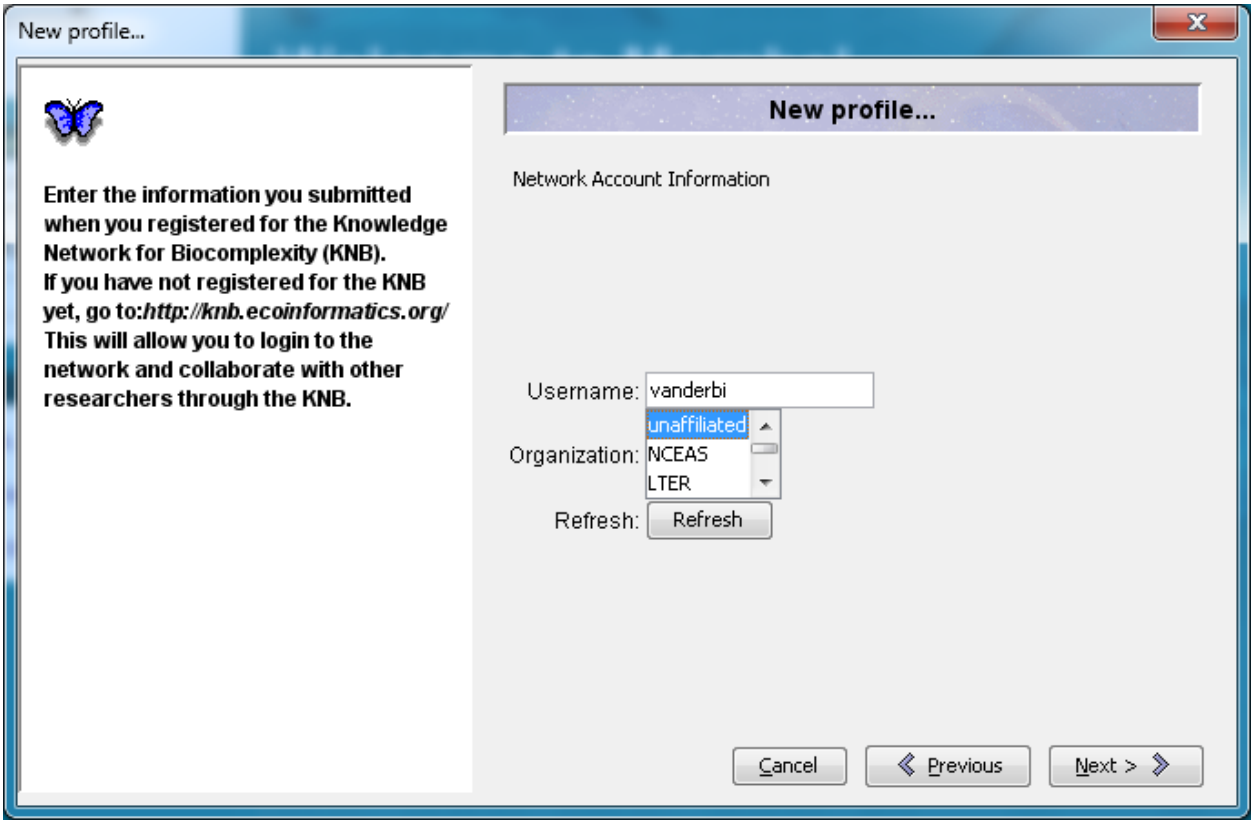


Then, open Morpho.

When you first open Morpho, you will be asked to create a user profile. This profile is used on your local machine to manage your data packages (which can consist of metadata, or data plus metadata). Enter a 'Name of Profile' of your choice (it can be anything), and your First Name and Last Name:



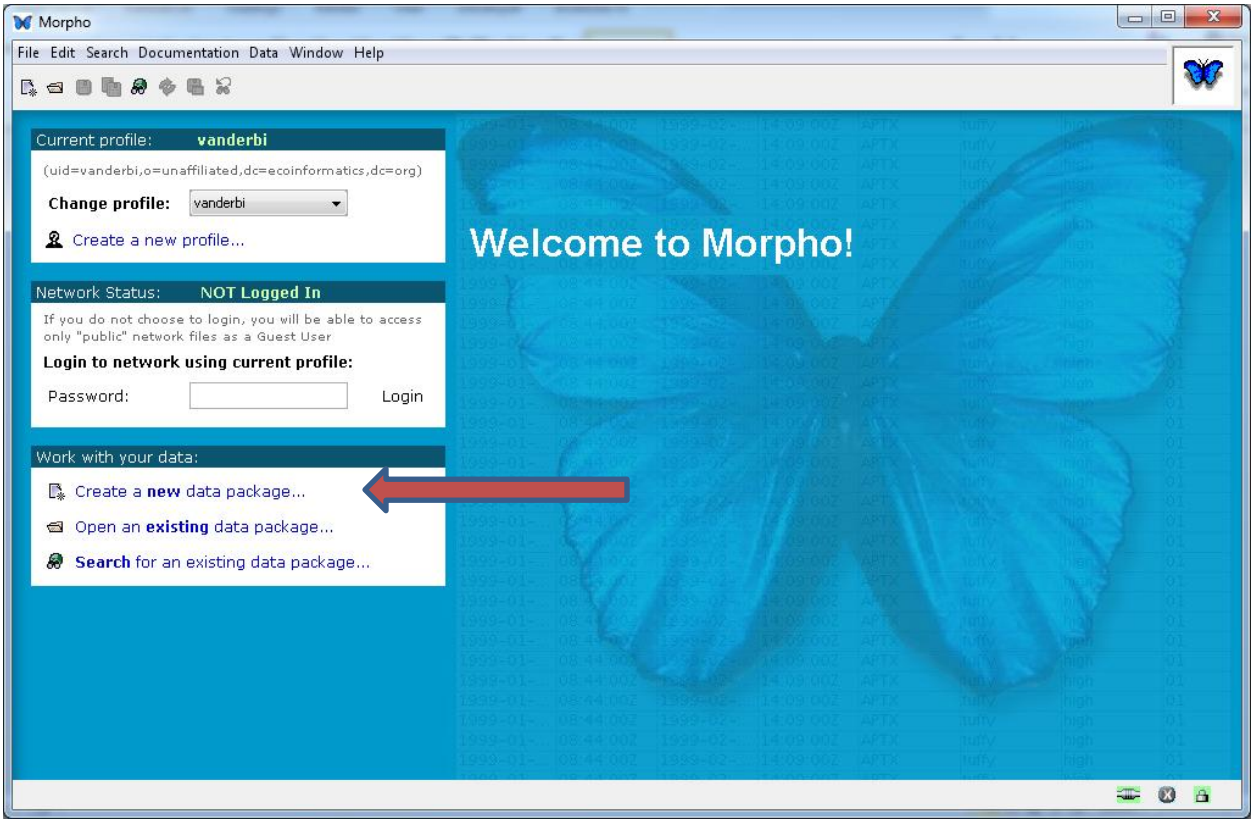
On the next screen, enter the ‘Username’ you chose when registering for the KNB and ‘LTER’ for your organization.



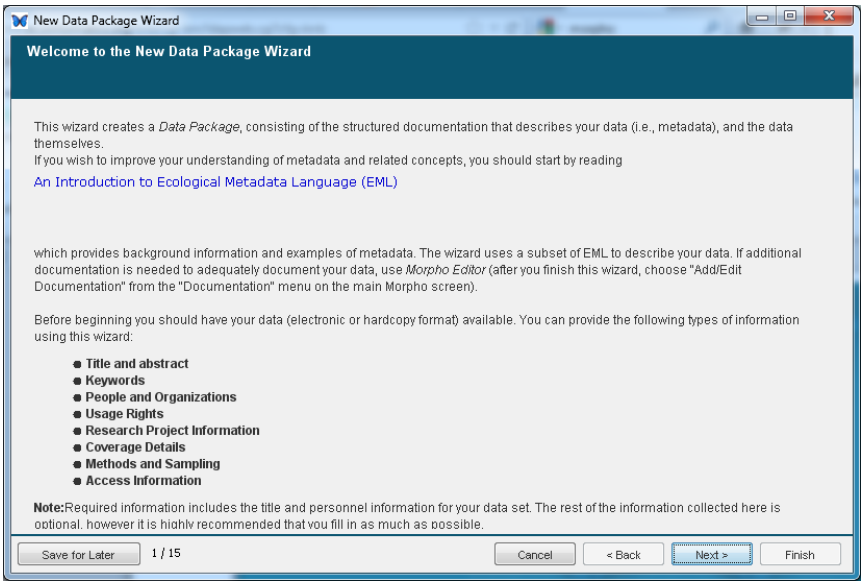
On the next screen, enter an Identifier Prefix for your data packages. This can be anything, and will be used to help name your data packages. You can use your profile name, for instance.

Then click ‘Finish’, and you will be taken back to this screen:

At this time, we will be working offline, and not connected to the KNB database, so click on the entry that says ‘Create a new data package’. (Arrow points to this link in above screenshot).

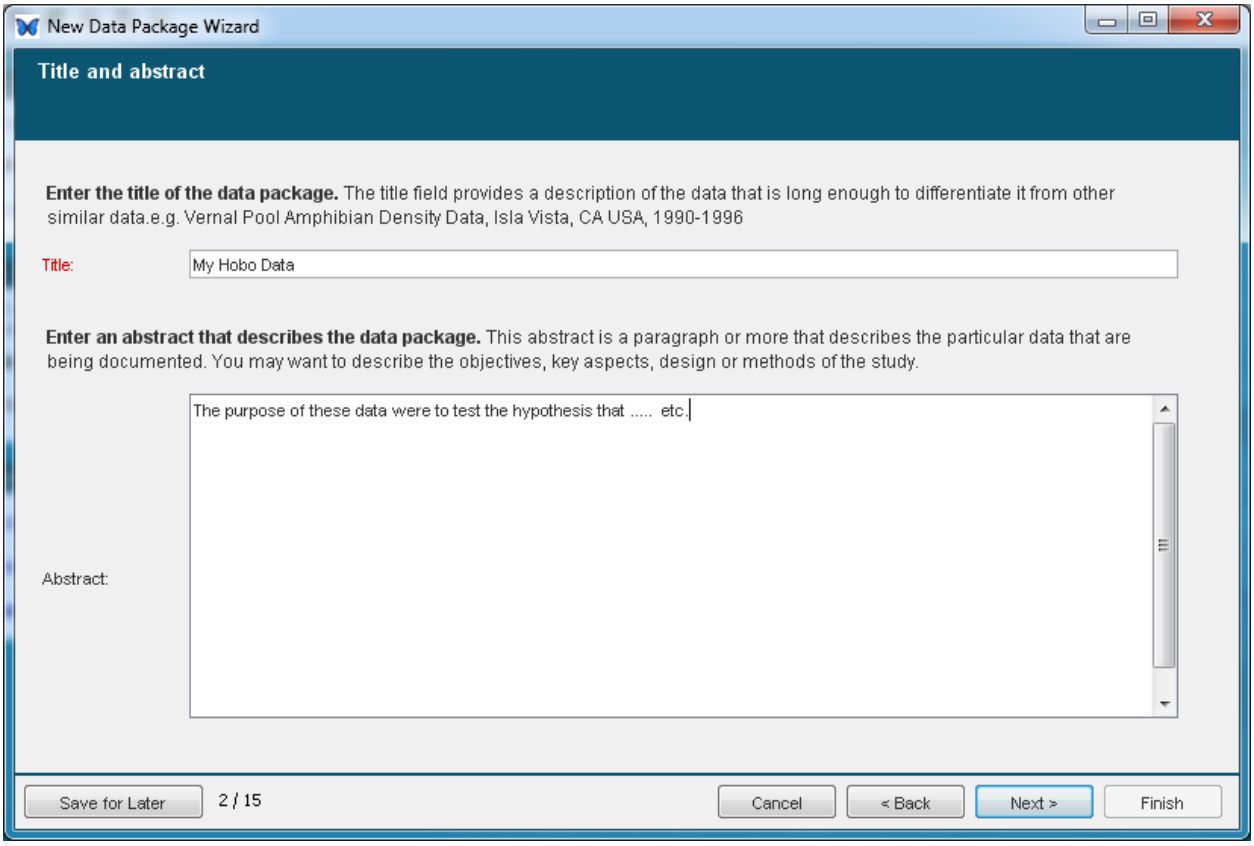


A Data Package wizard will open and tell you what kind of information you will be entering. Click ‘Next’.



On this screen, you will enter the title for your data package. The abstract is not a 'required' element, but you should enter an abstract briefly describing your Hobo study.

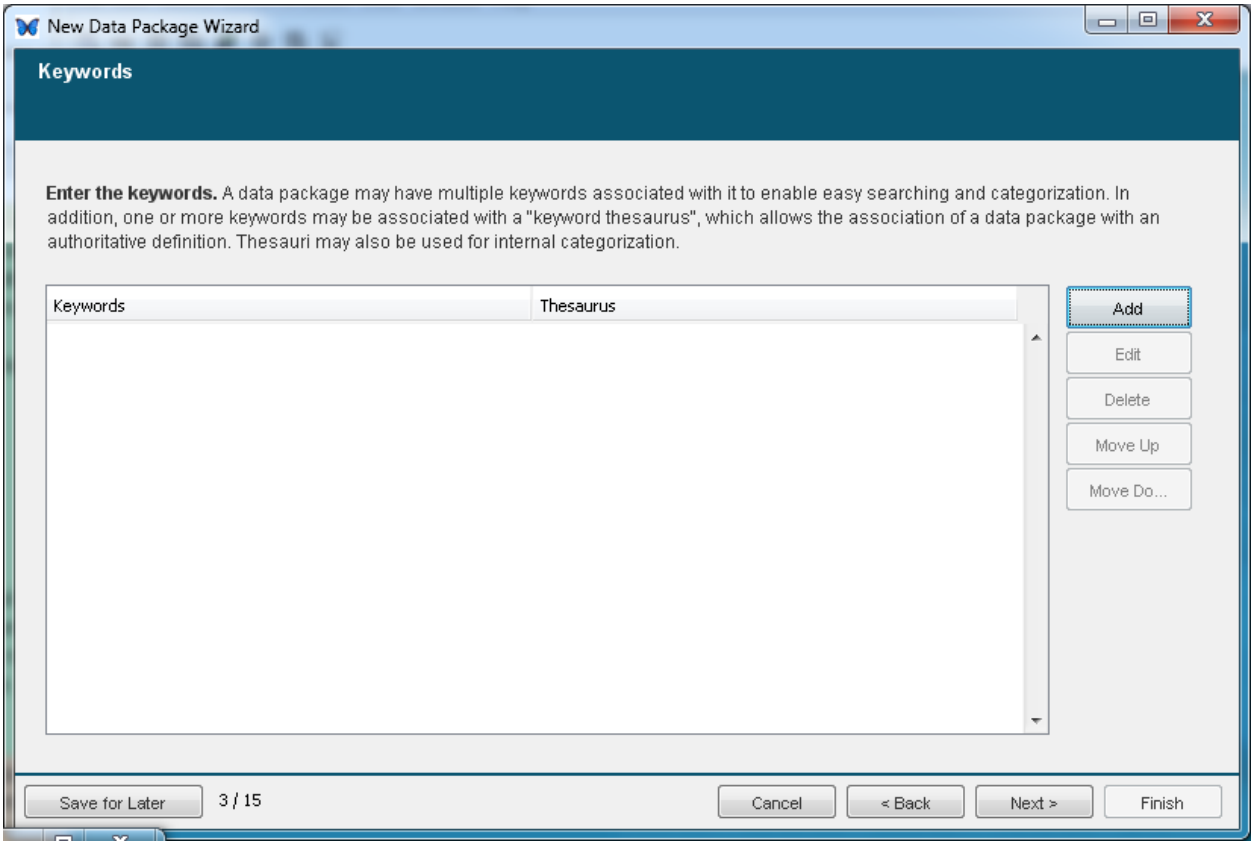
Click 'next'.



Next you will add keywords. Enter a few terms that would help other users of your data find it in a data catalog. Go to the NBII's Biocomplexity Thesaurus and find at least one term that applies:

http://www.usgs.gov/core_science_systems/csas/biocomplexity_thesaurus/index.html

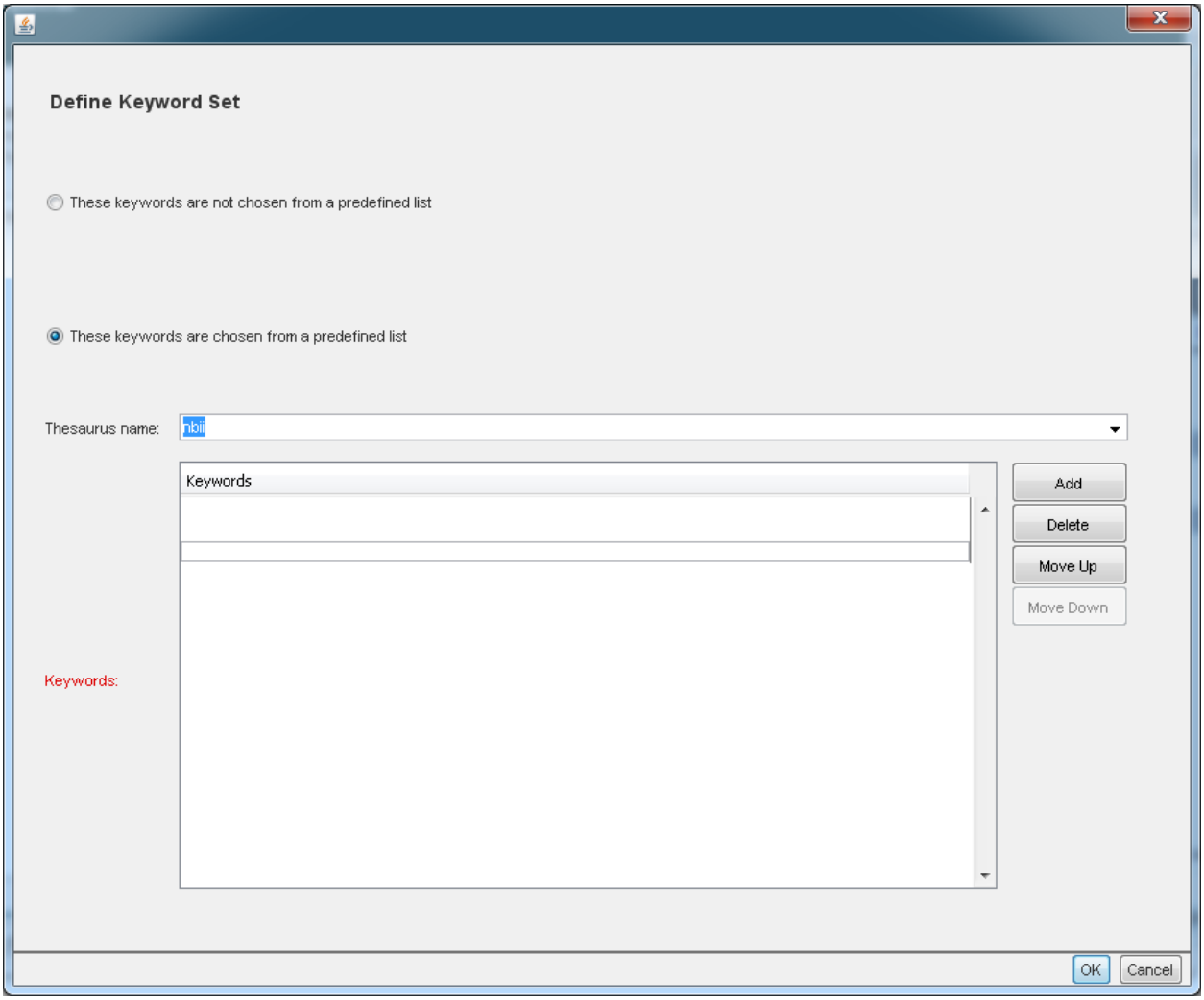
To add terms, click ‘Add’ on this screen:



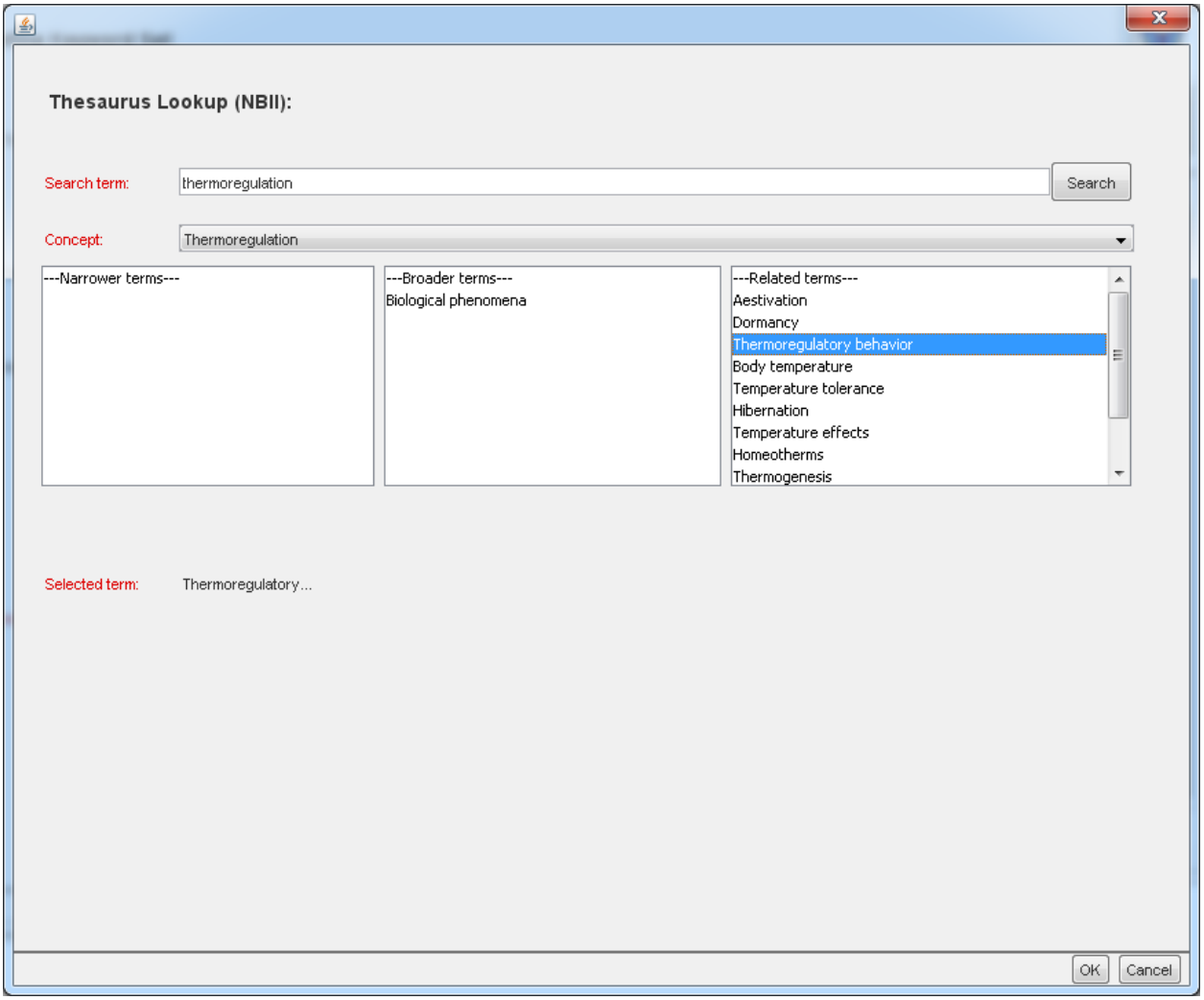
Then this screen will appear:

Select These keywords are chosen from a predefined list. From the dropdown list next to Thesaurus name, choose “nbii”

Thank click ‘Add’

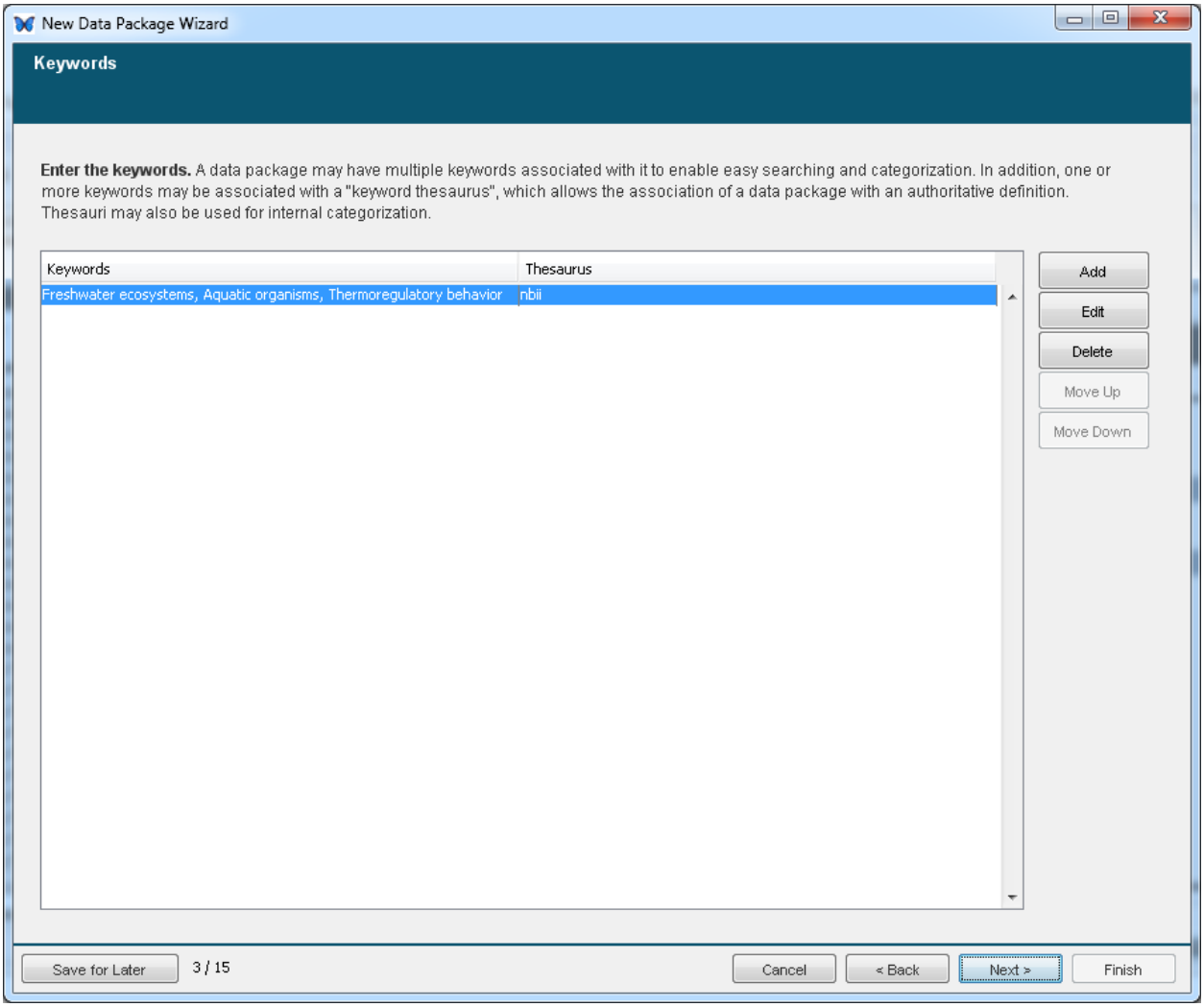


Add three appropriate keywords, and click OK when you are done.

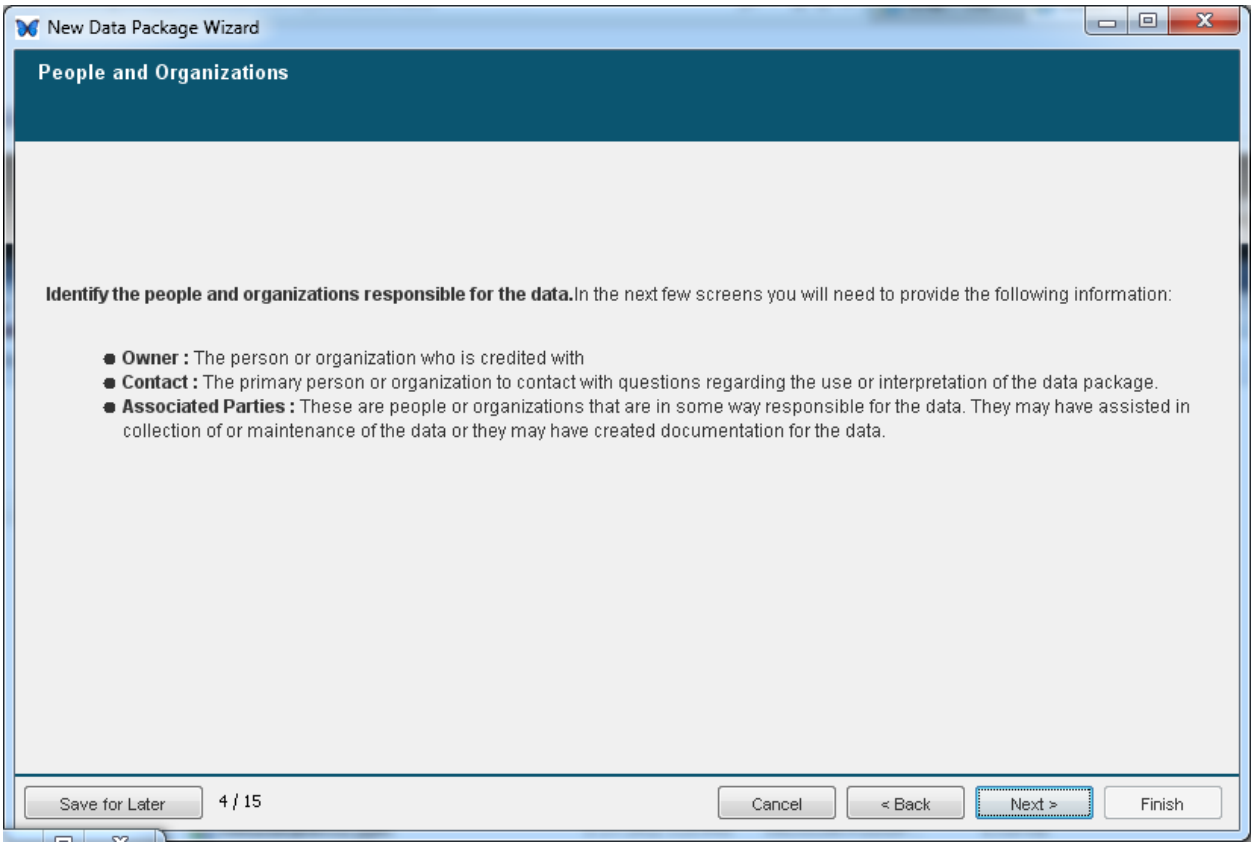


Here you can review or change what keywords you entered:

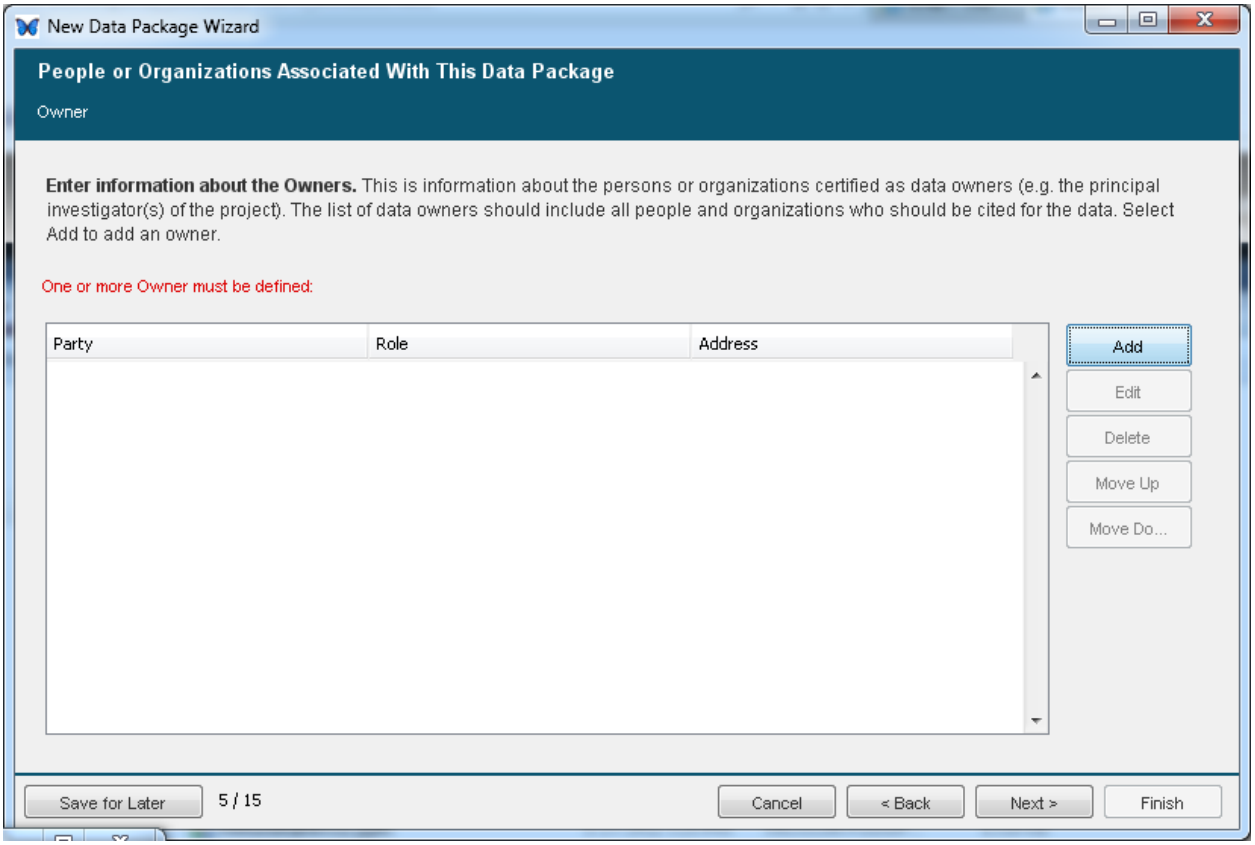
Click ‘Next’ when you are done:



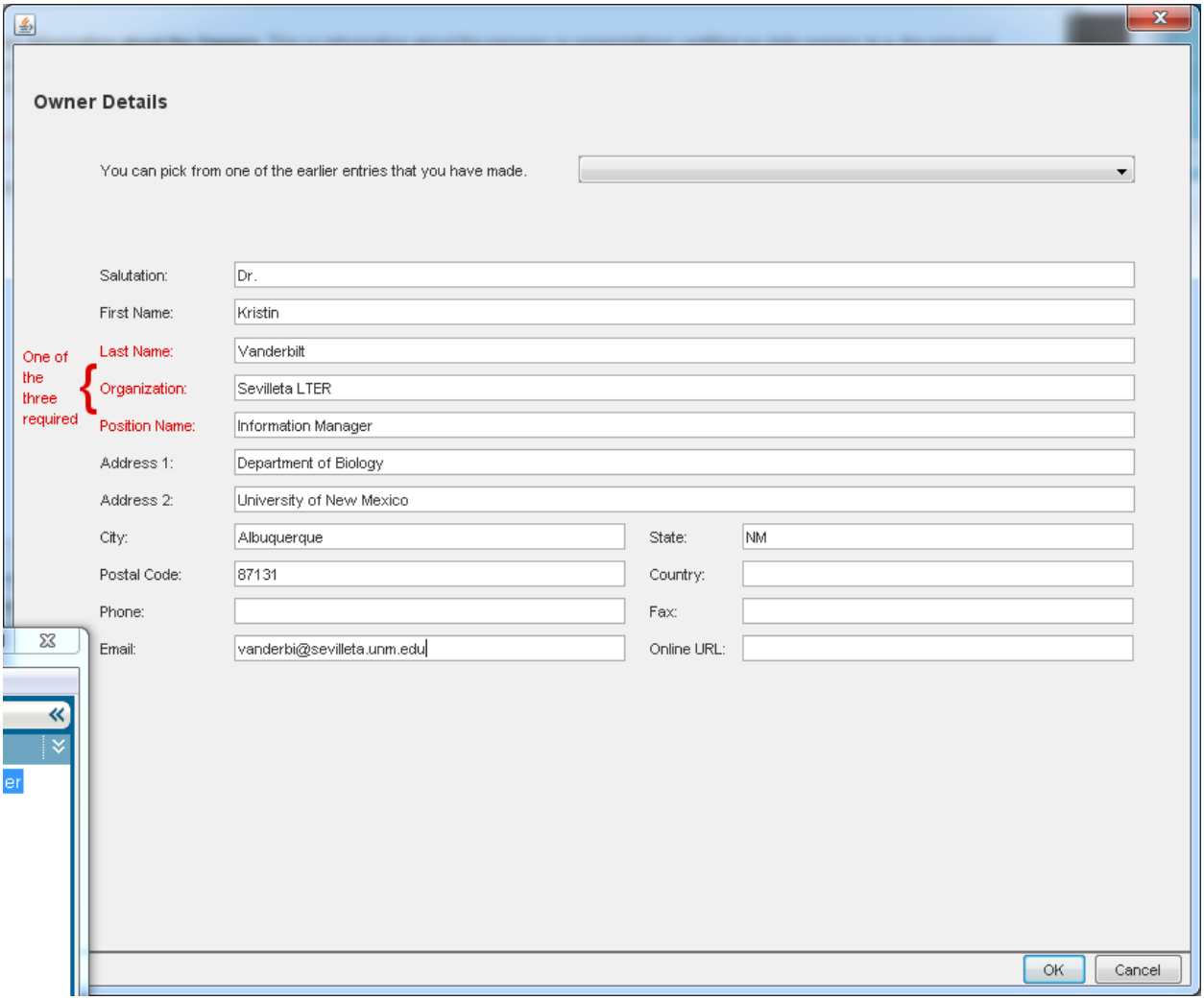
Next, you will enter information about the people associated with your dataset. Click ‘Next’ on this screen.



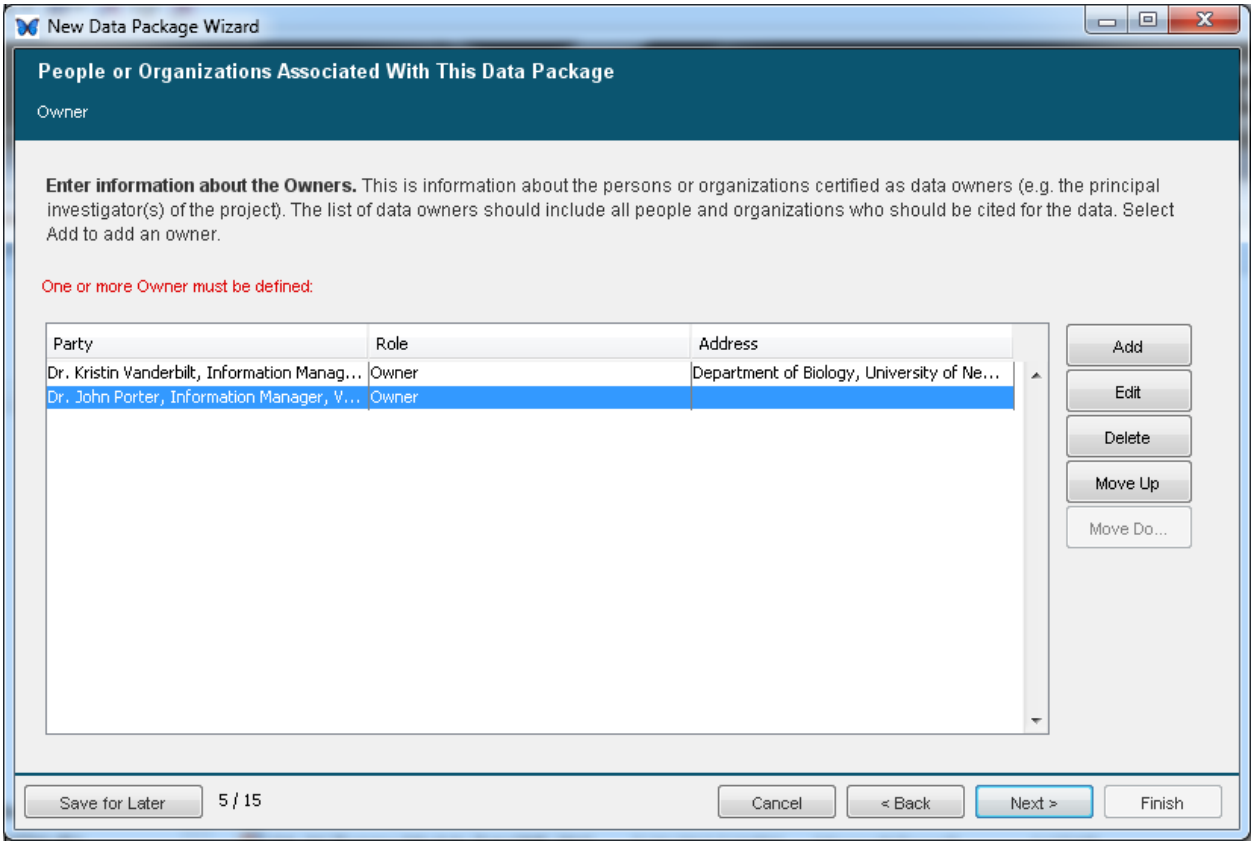
You should be considered Owner (principal investigator) on the project. Click ‘Add’



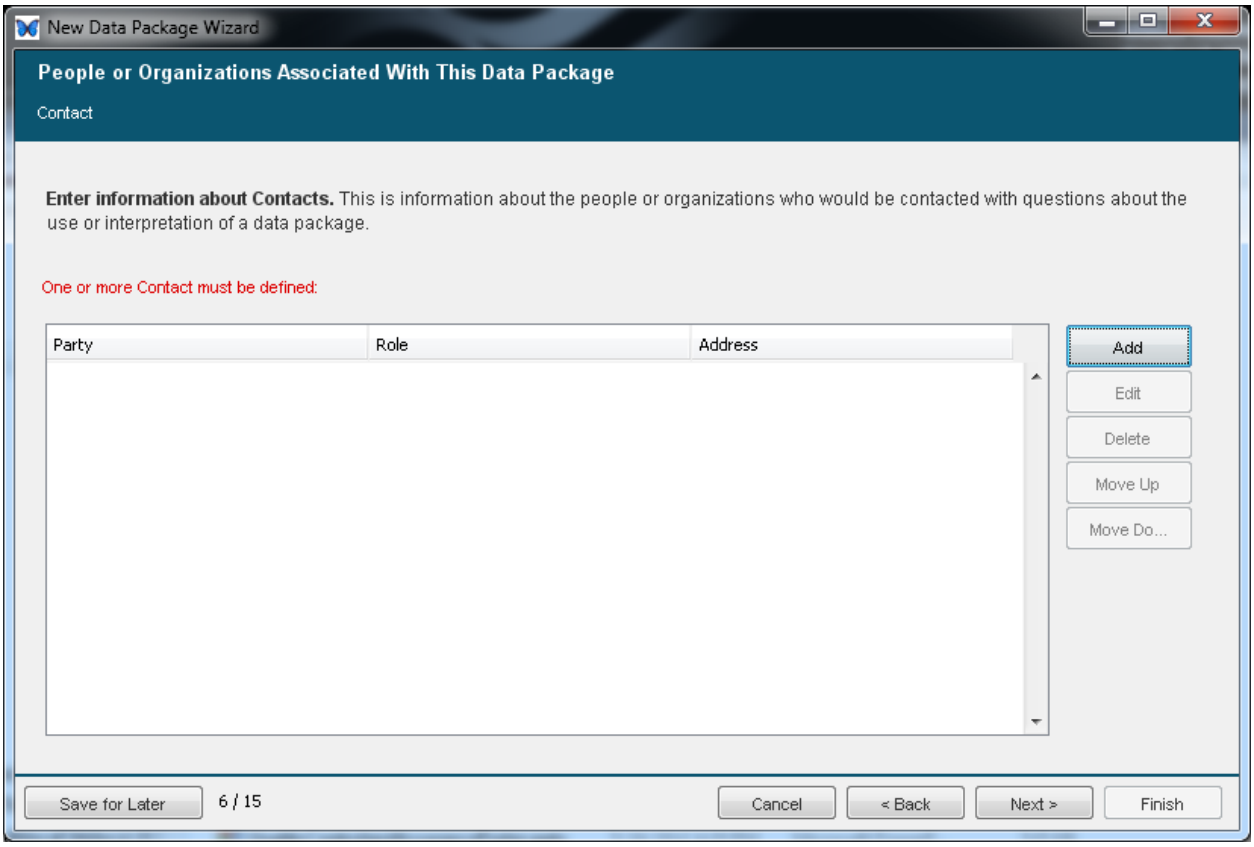
Enter the appropriate information in the screen, and click ‘OK’.



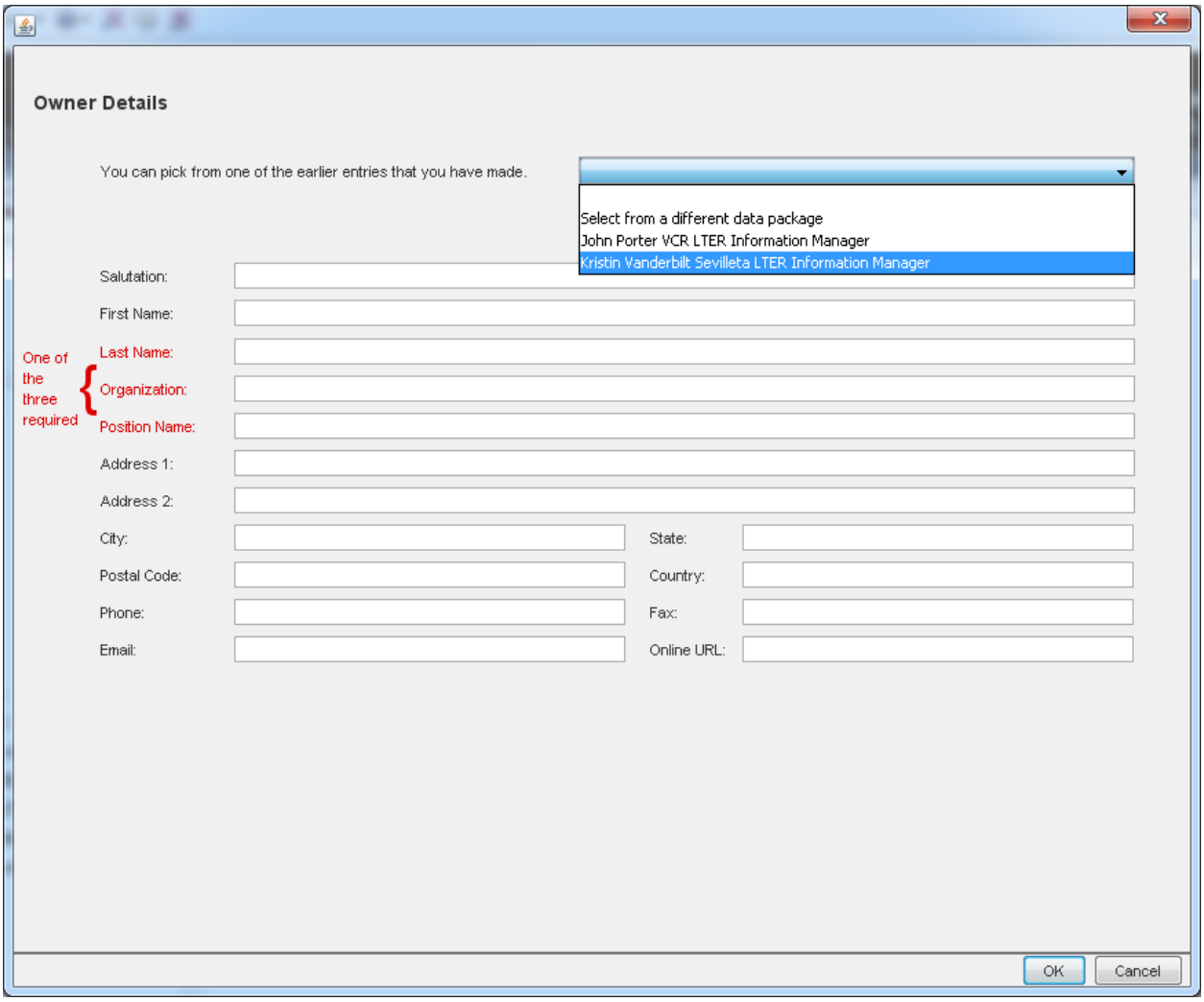
If you worked with other people, you can add them as Owners. Click ‘Next’ once you are done adding owners:



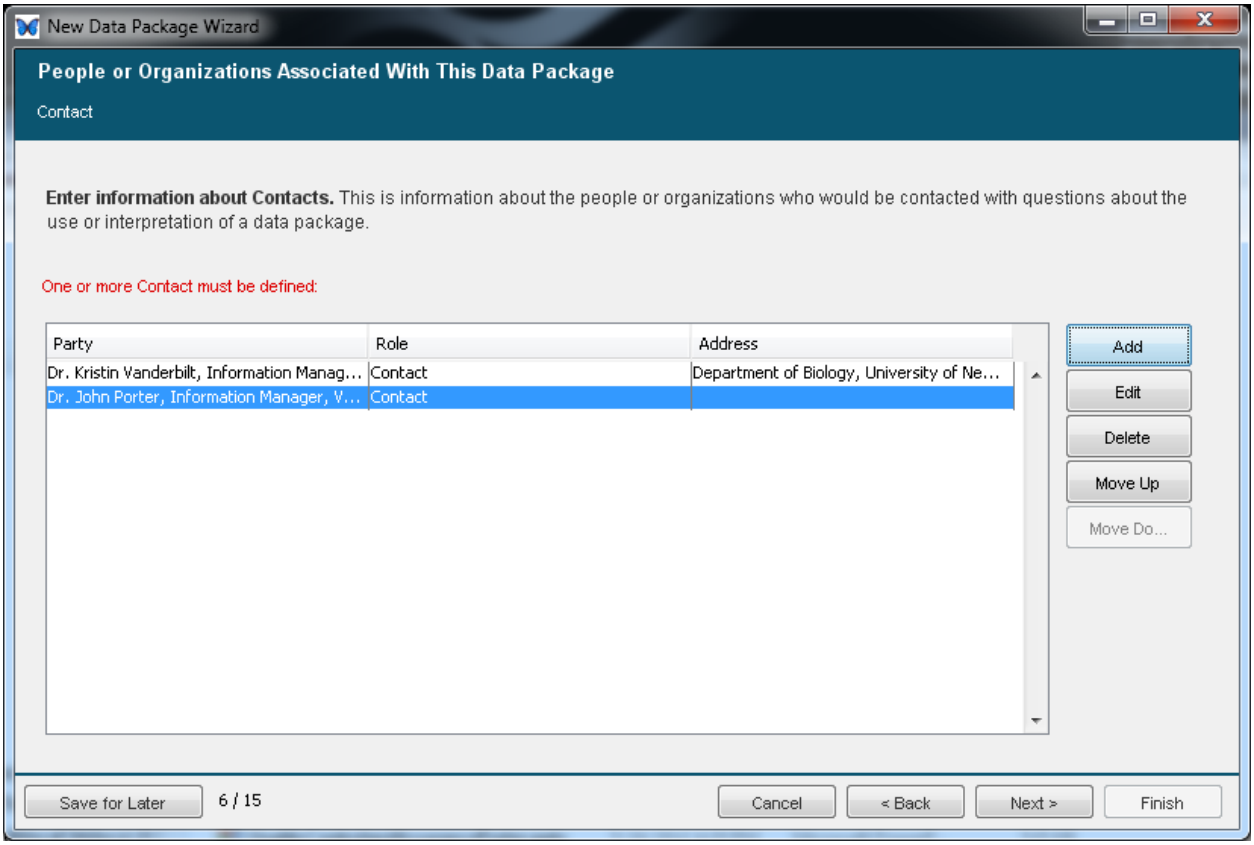
Now you will add contact information, to designate who should be contacted with questions about this dataset. Click ‘Add’ on this screen.



You are also probably the contact for this data set, so you can use the dropdown list in the upper right corner to select people who have already been entered. Add yourself and anyone else relevant:

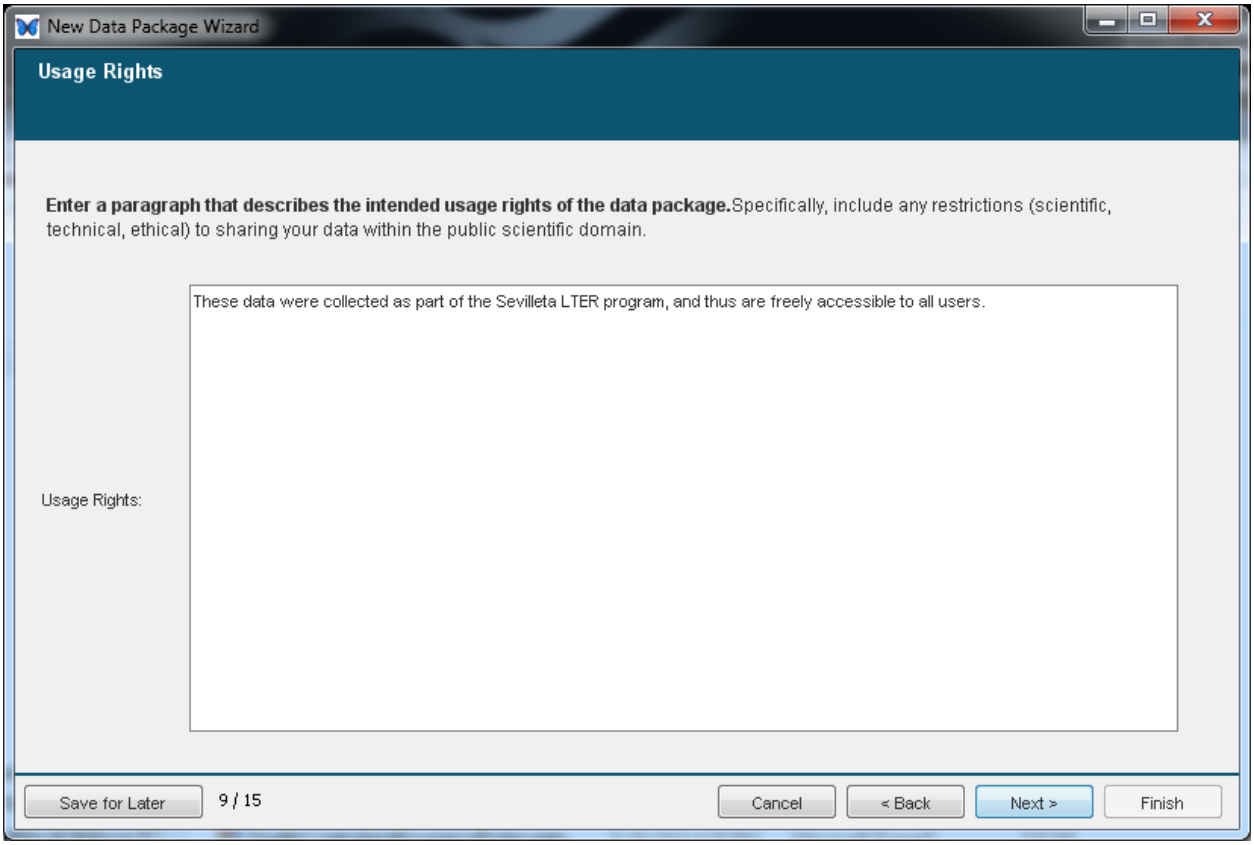


When you are done entering contacts, select ‘Next’ on this screen:

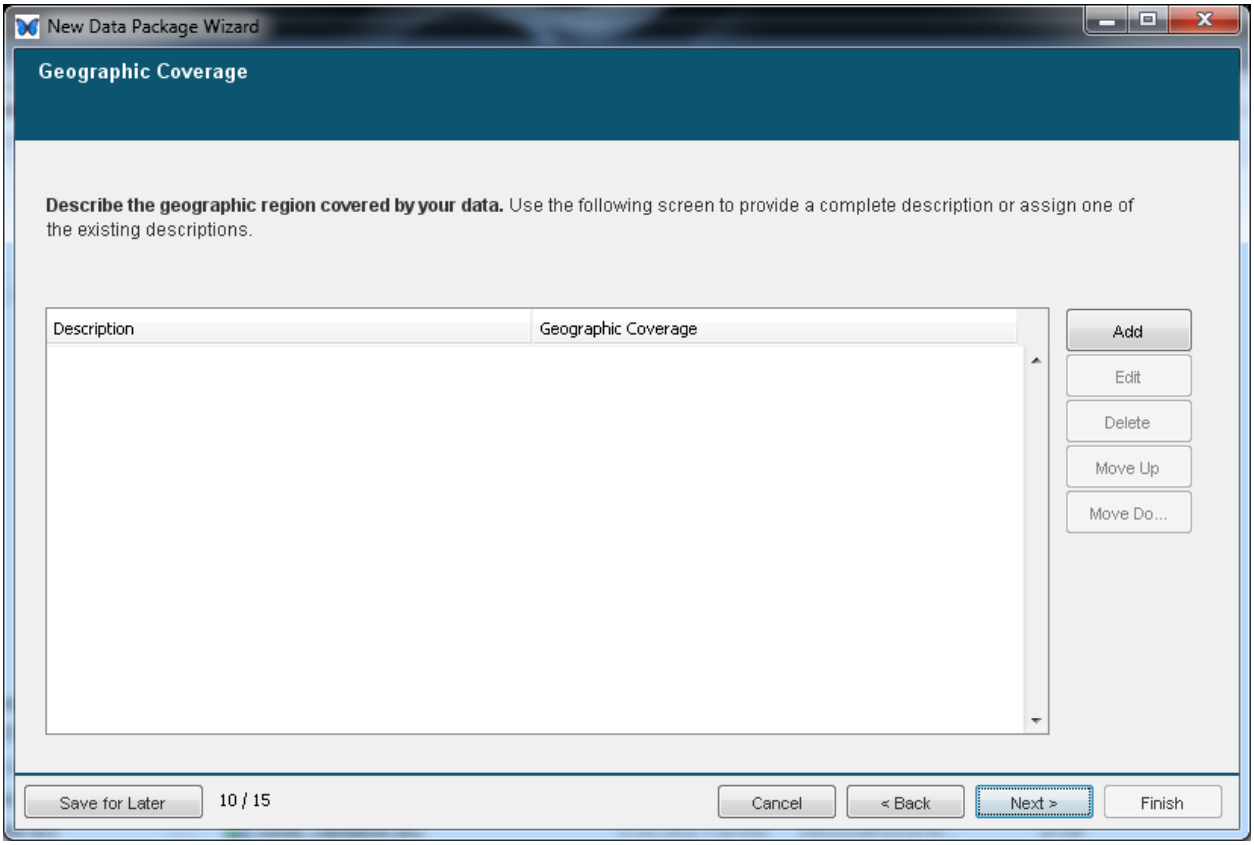


We are not going to enter Associated Parties or Research Project Information, so click ‘Next’ on the next two screens.

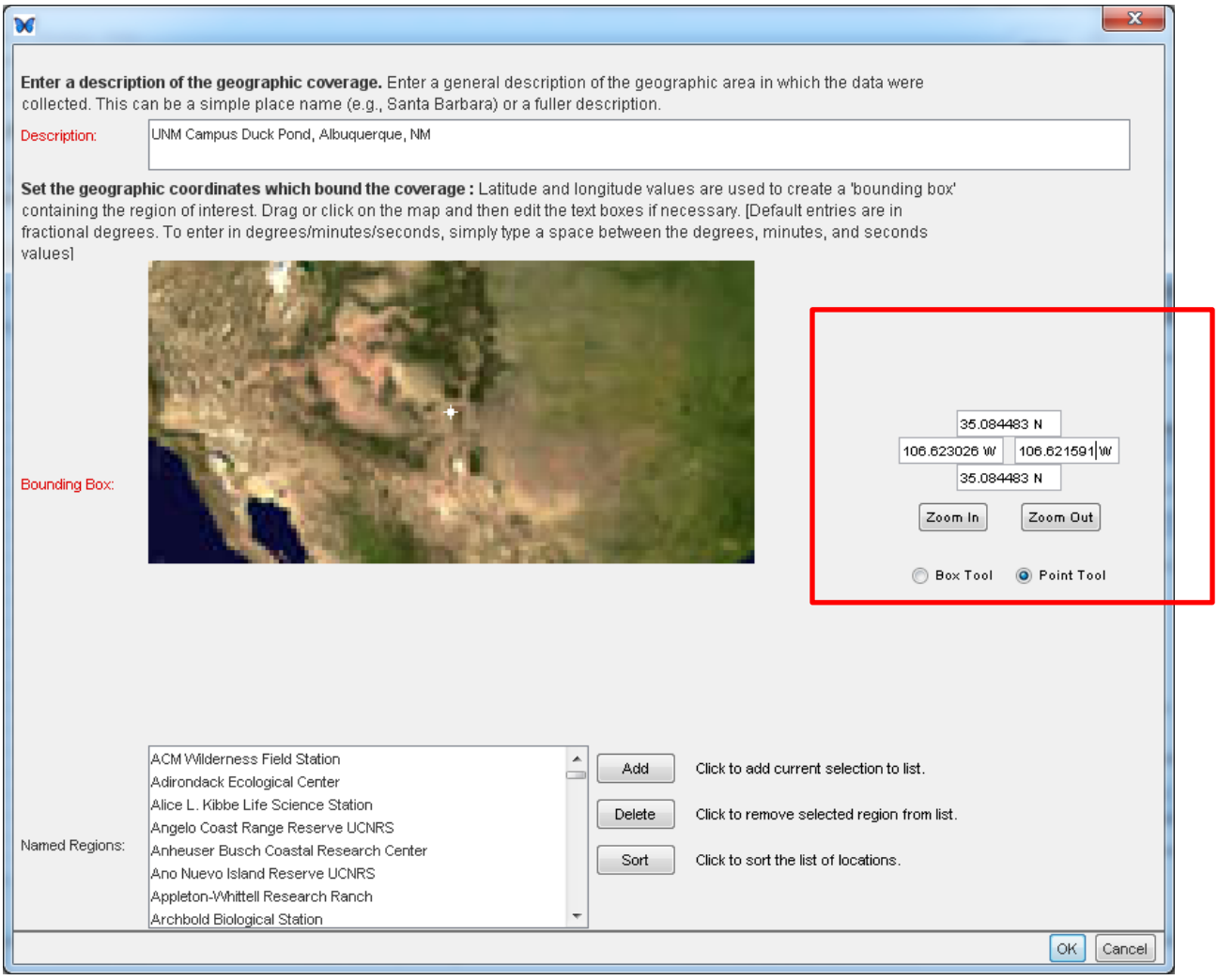
On the Usage Rights screen, indicate any restrictions that you want on the use of your data.



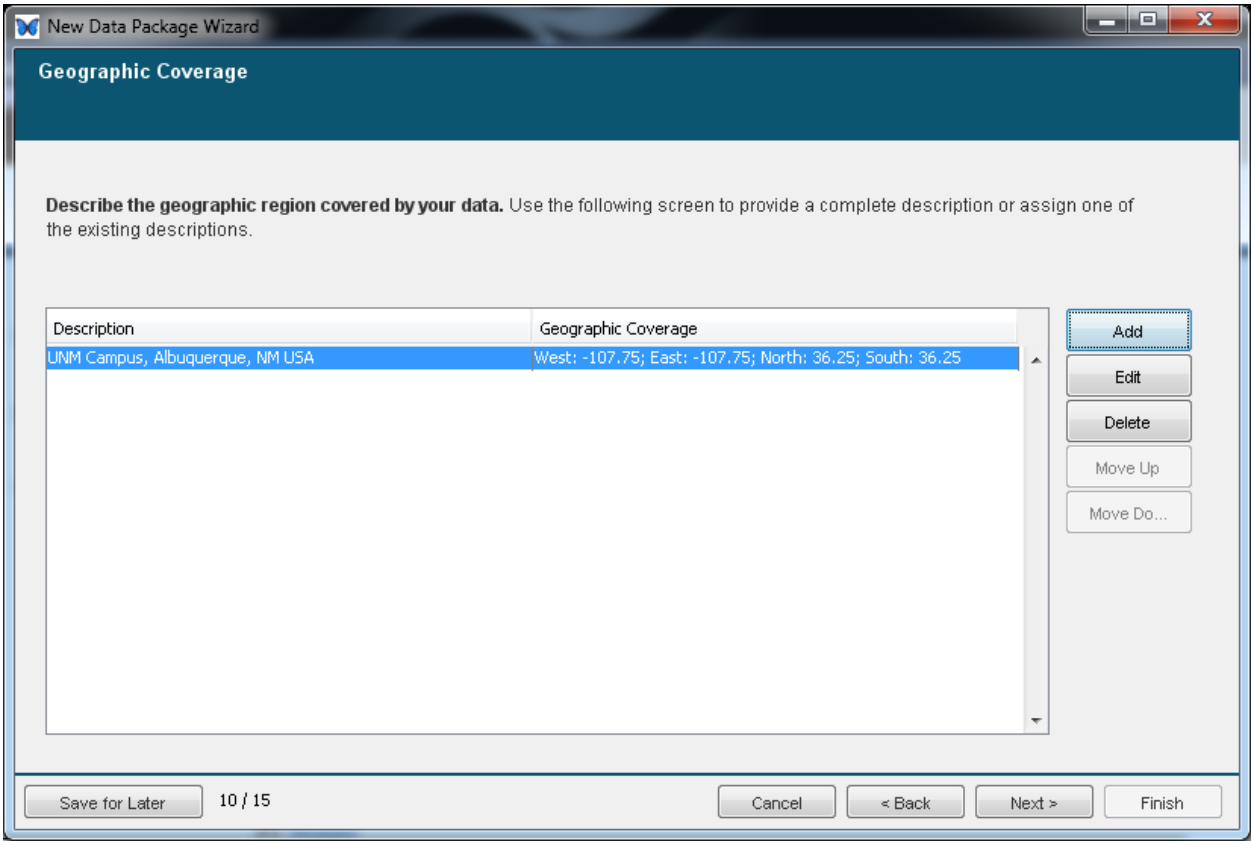
Next, you can describe the Geographic Coverage of your data. Click ‘Add’ on this screen:



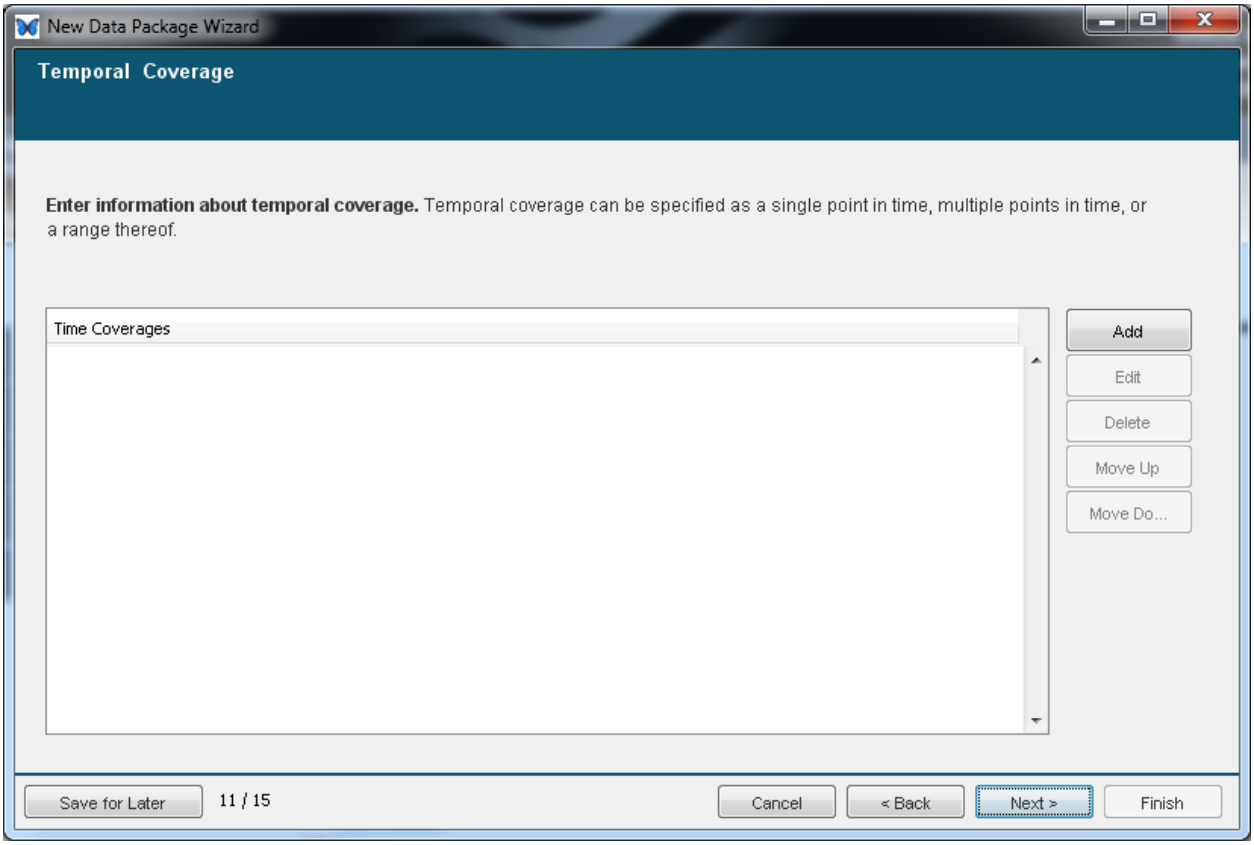
On this screen, enter a description of the study location. A bounding box for the duck pond area is entered below. Click 'OK' when you have entered the coordinates.



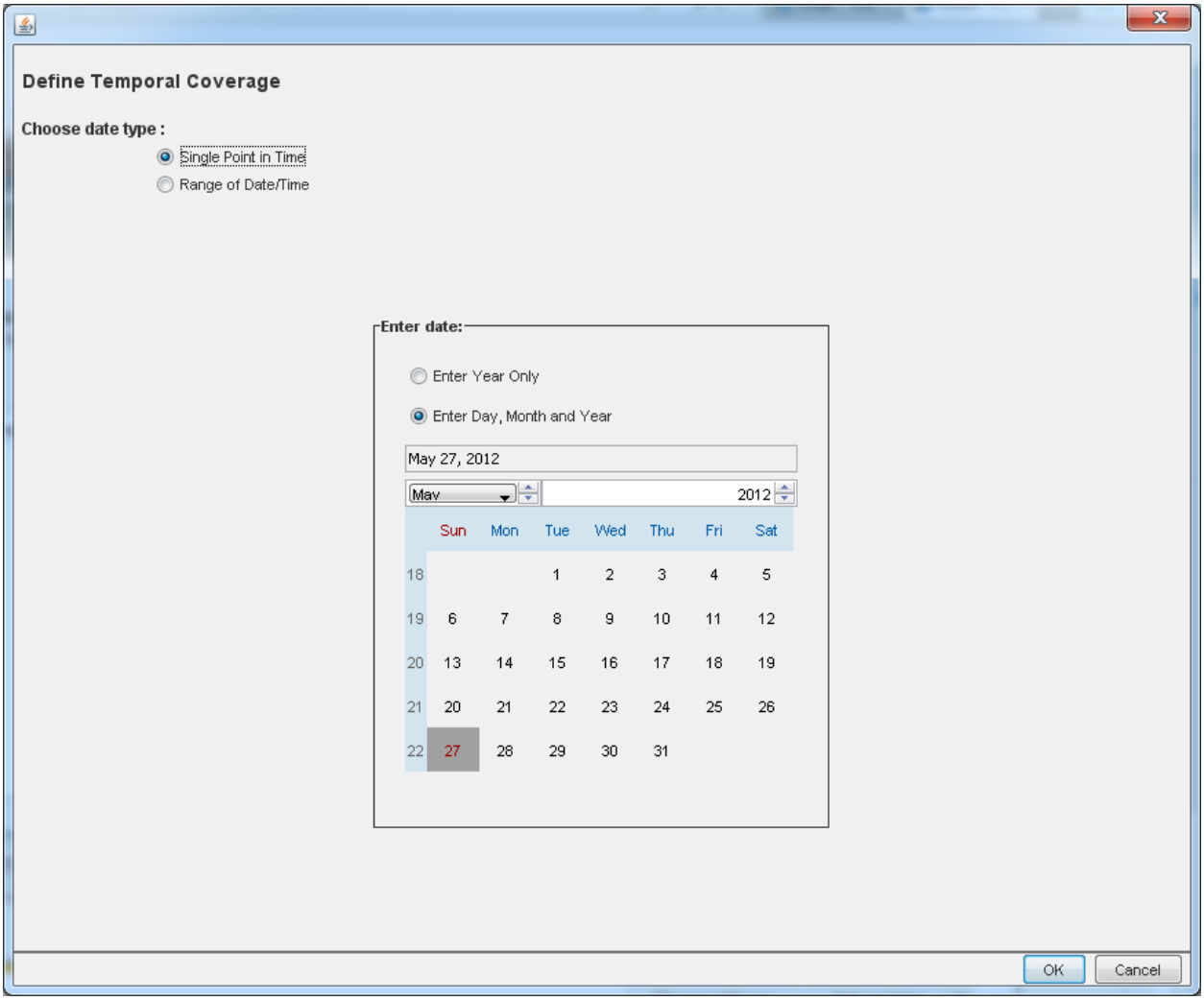
Enter ‘Next’ on this screen:



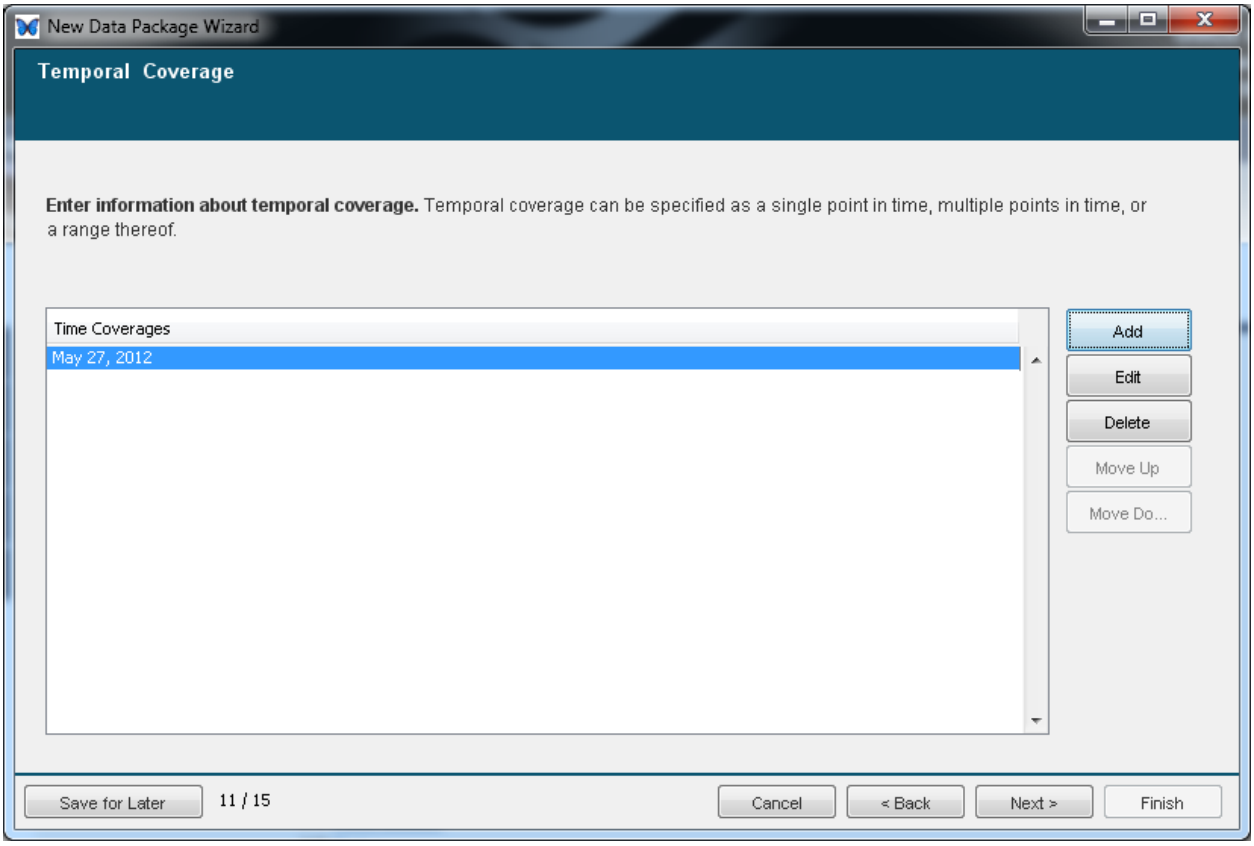
Now you will enter the temporal coverage. Click ‘Add’ on this screen:



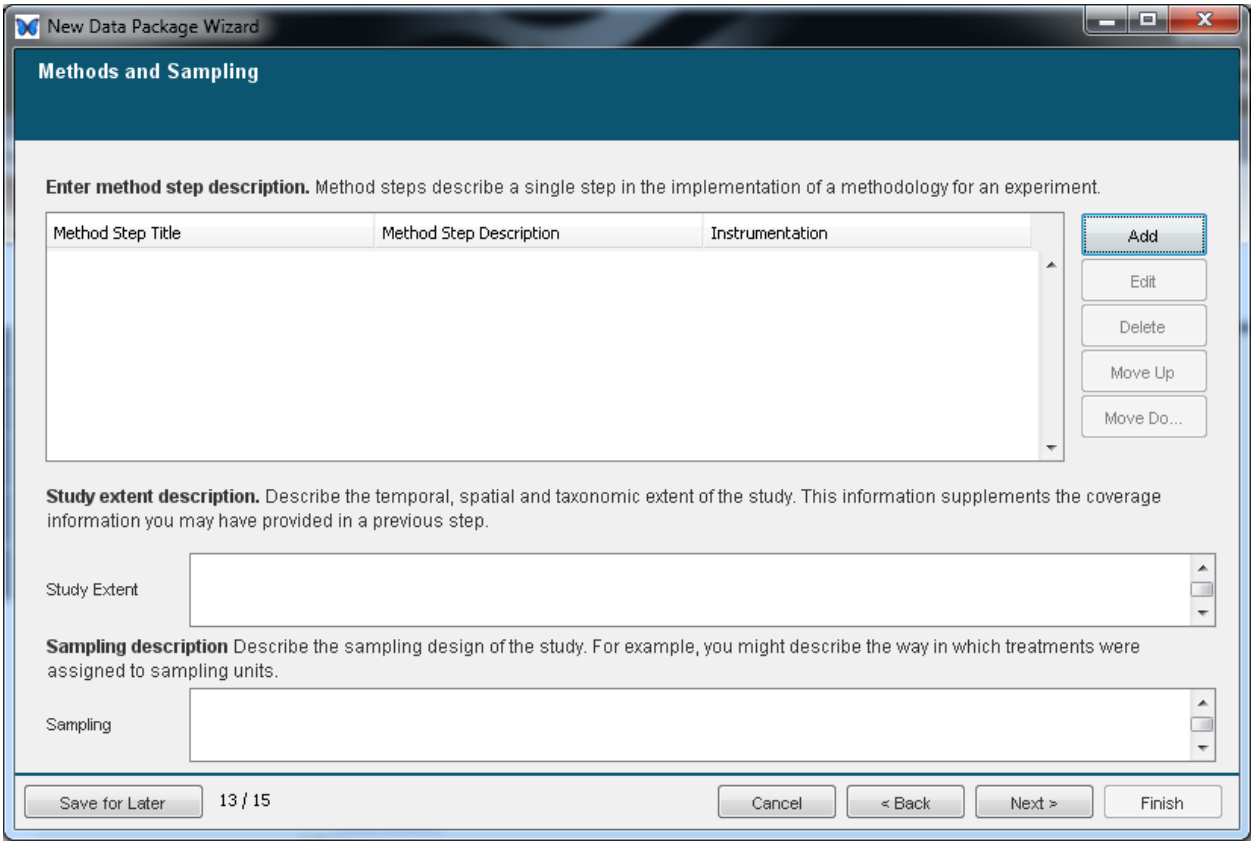
Enter the Date of your data Collection and select ‘OK’.



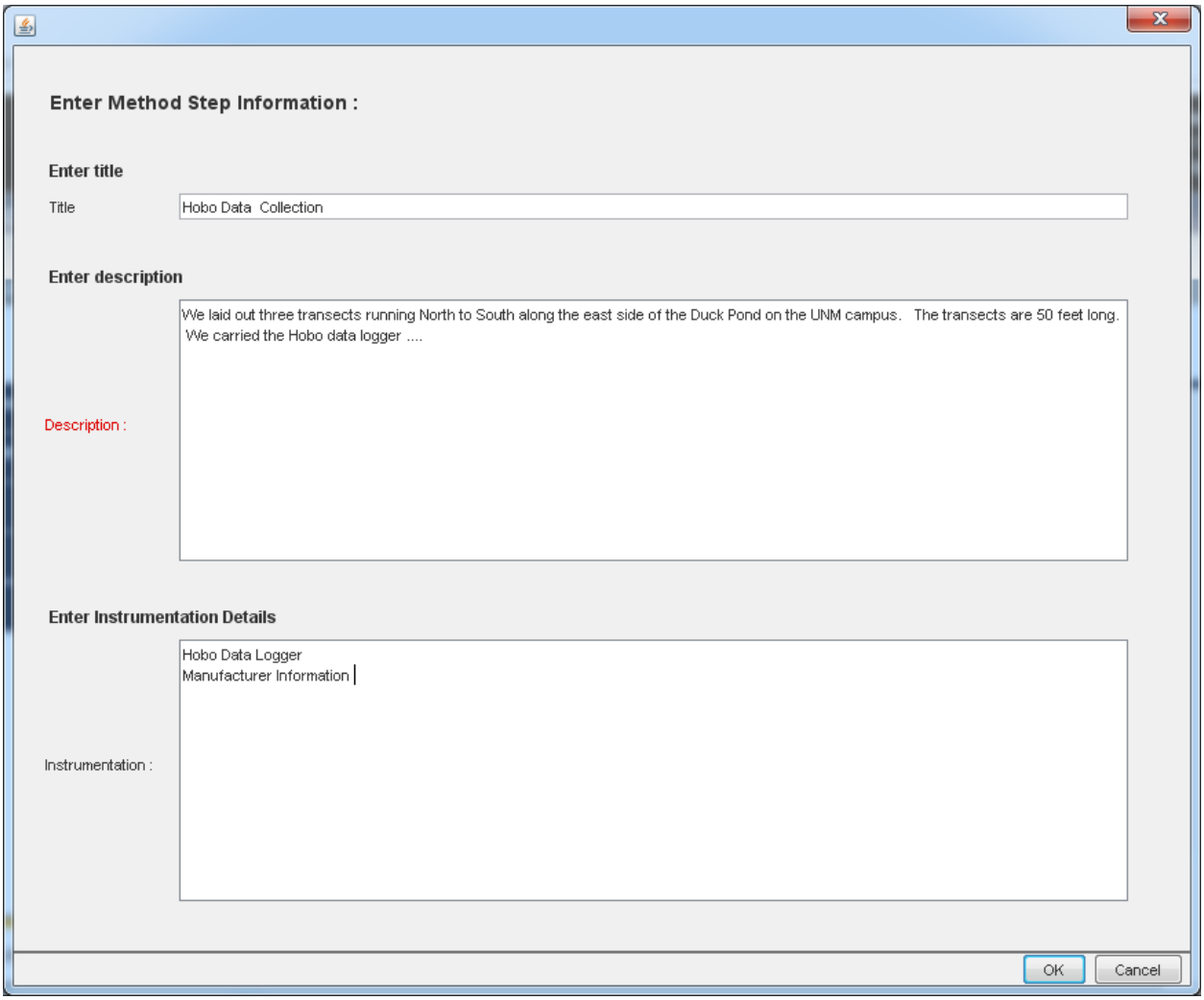
Click ‘Next’ on this screen. We are not going to enter taxonomic Coverage data, so click ‘Next’ on the Taxonomic Coverage screen.



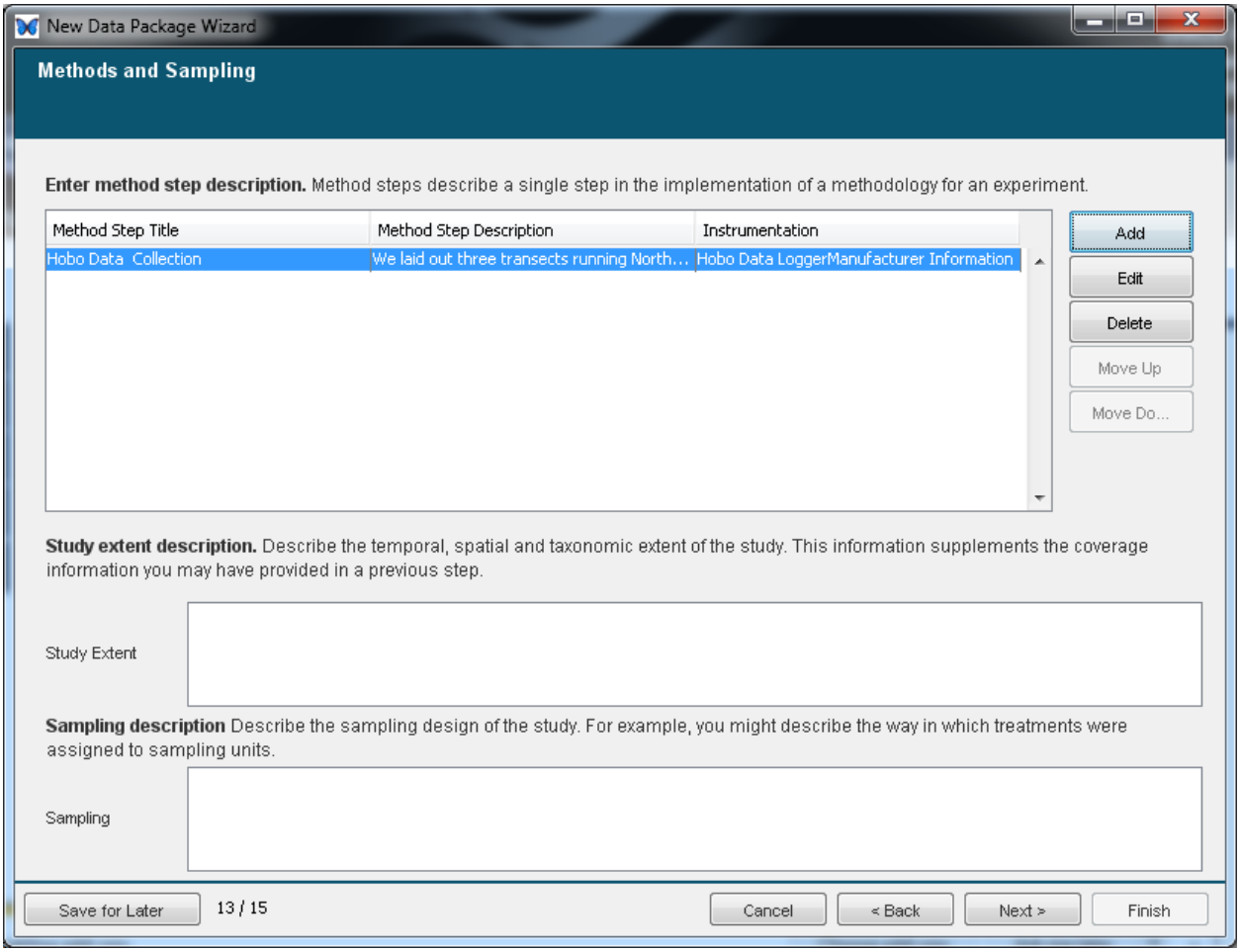
Now you will enter your methods. Click ‘Add’ on this screen:



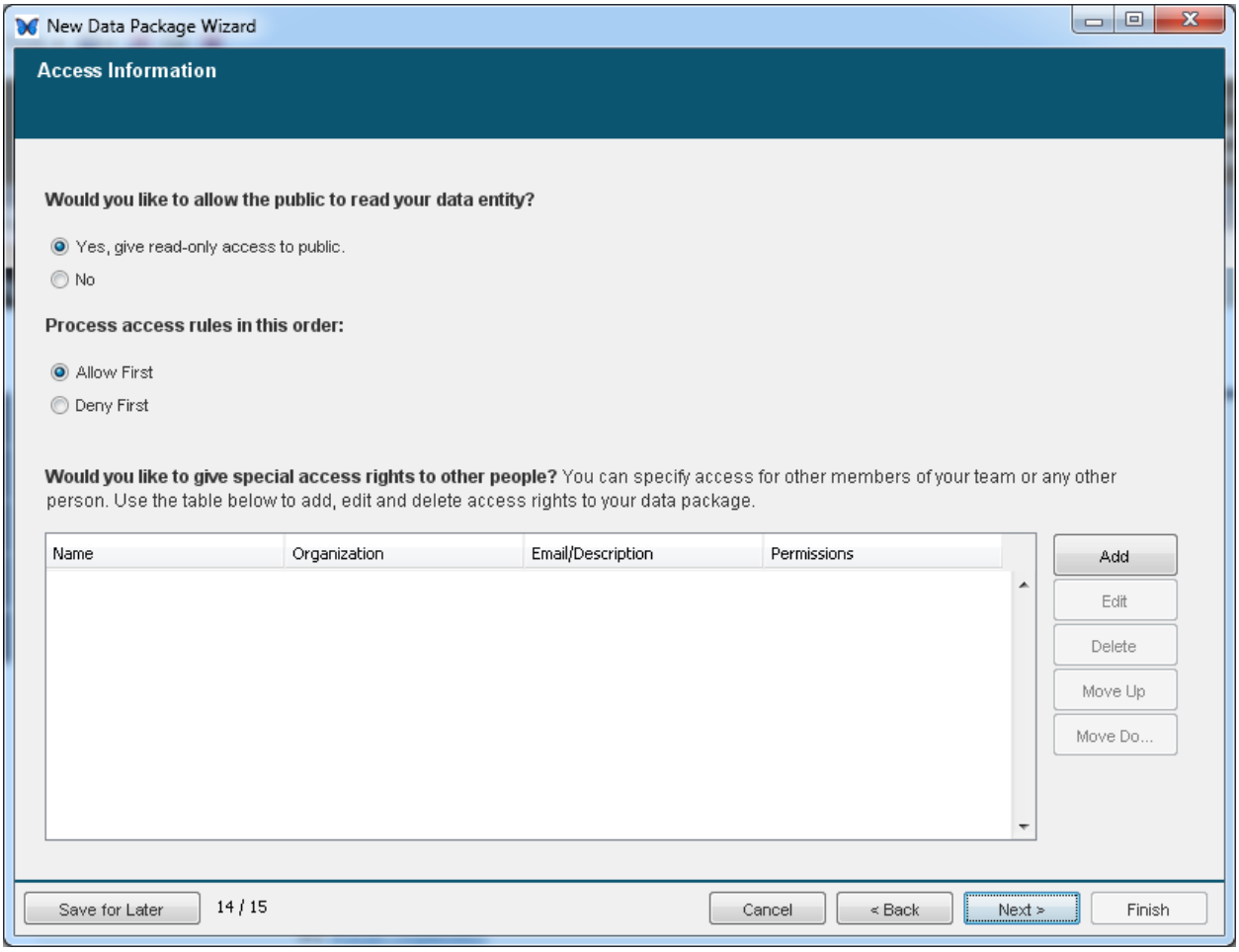
You can have several method steps. Use as many as you need to describe what you did. It would be a good idea to enter information about the Instrument you are using. Click 'OK' after entering each Method Step.



For our purposes, there is no need to enter Study Extent Description and Sampling Description. Click 'Next':

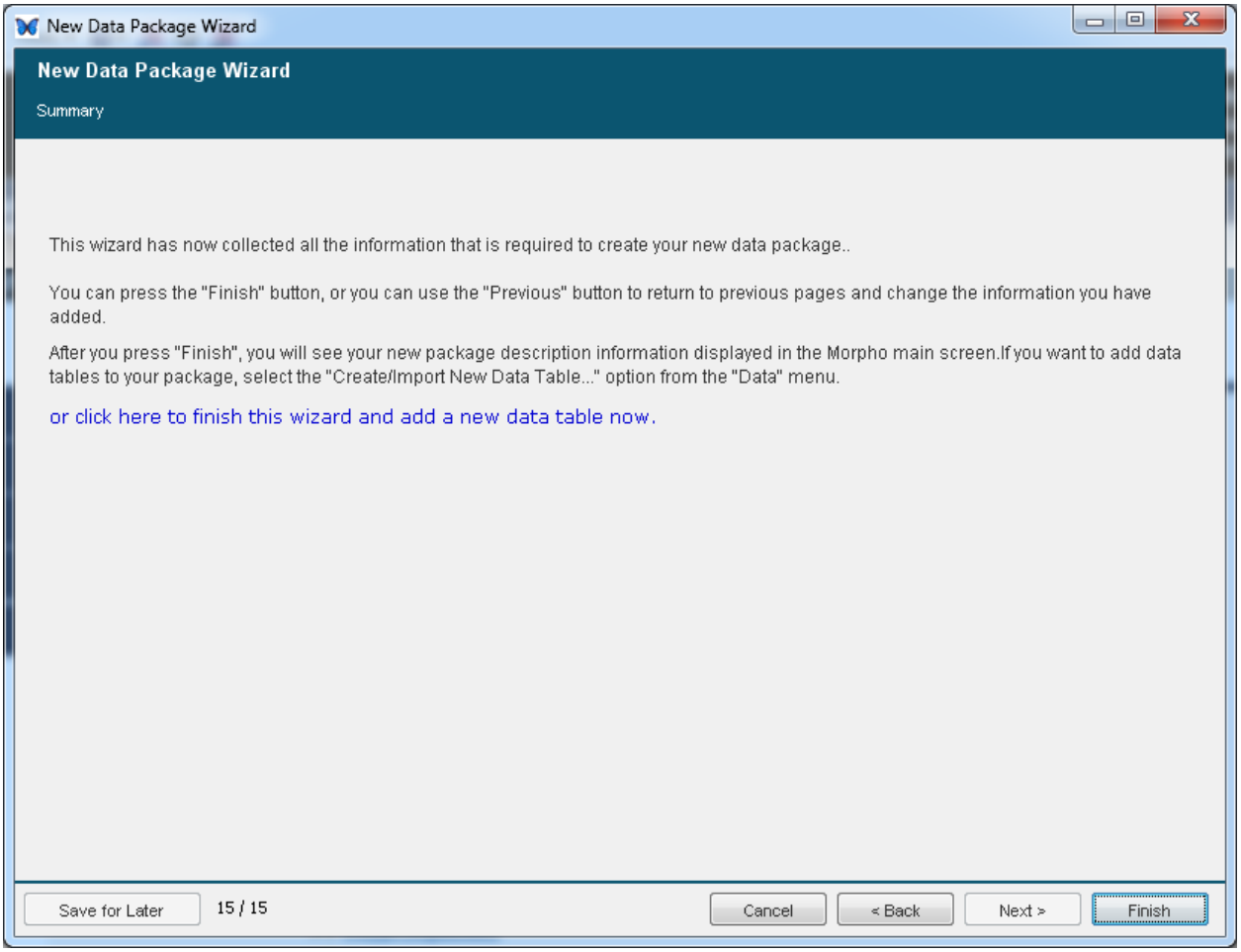


Now, decide if you want your data to be publicly accessible if it was added to a Metacat, such as the KNB metacat. Yes is the default. Then, choose 'Next':



Now you will be able to add your data table to the metadata package.

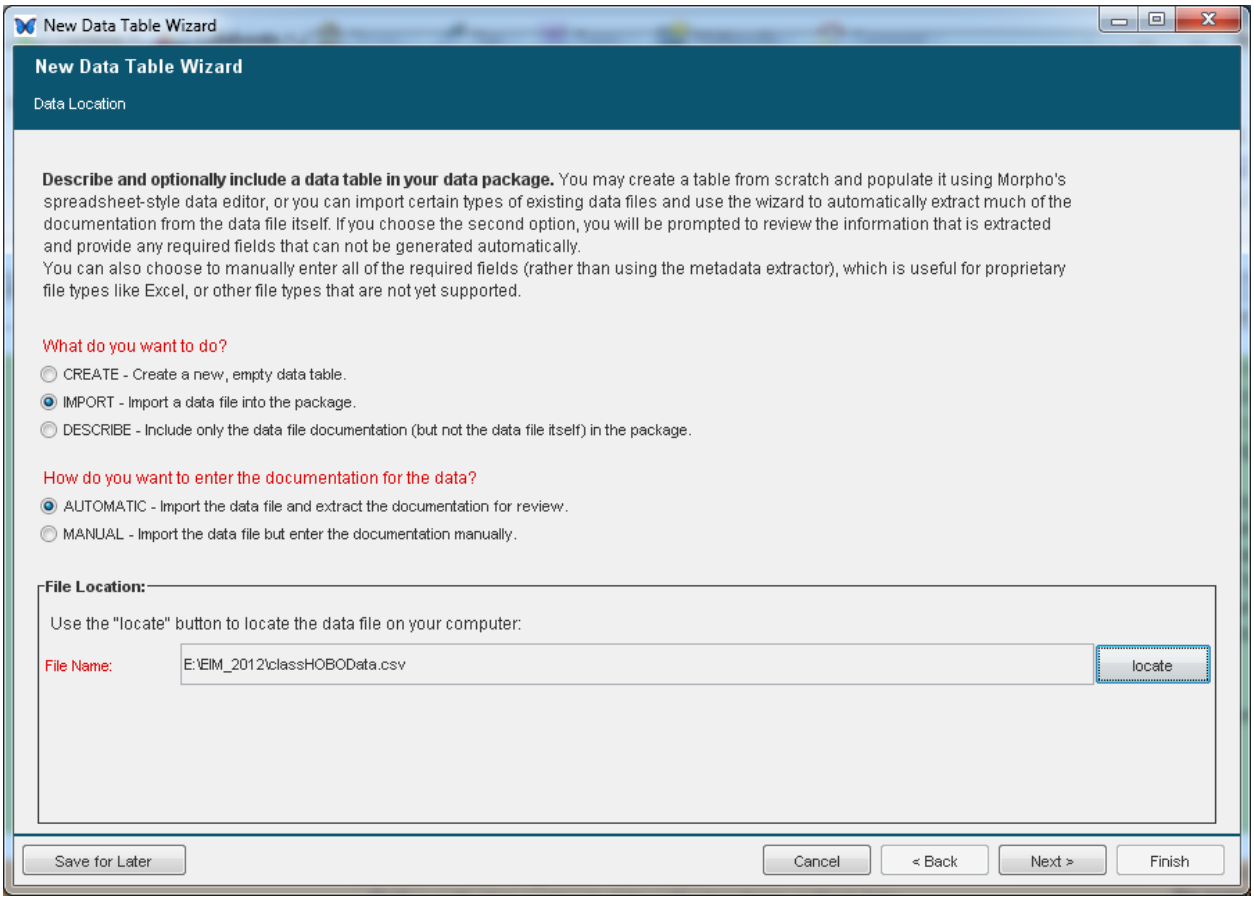
Click on the Link (in blue) to “finish this wizard and add a new data table now.”



Select ‘Import’ and ‘Automatic’ on this screen.

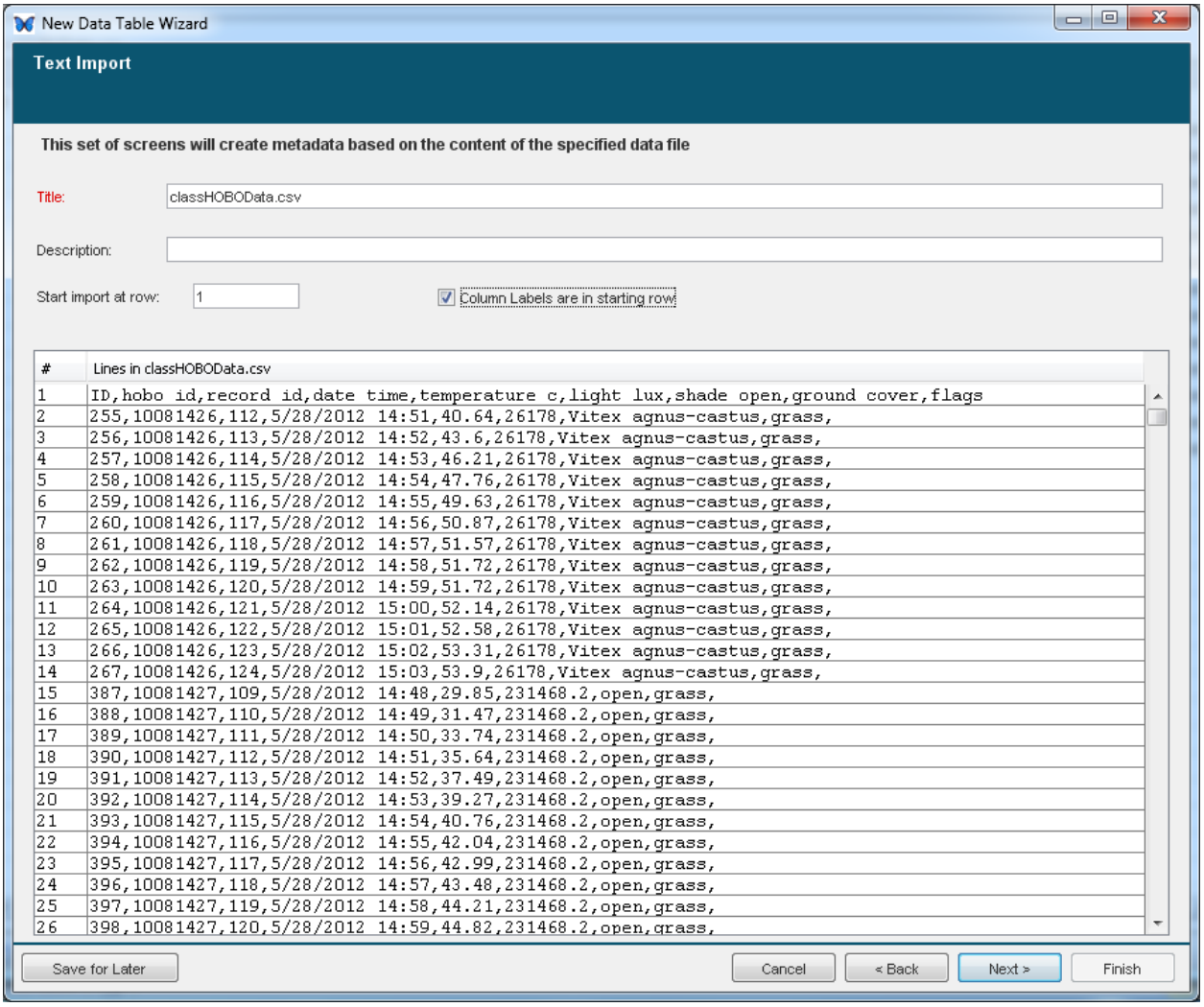
Click on Locate, and find the file classHOBOData.csv.

Click ‘Next’



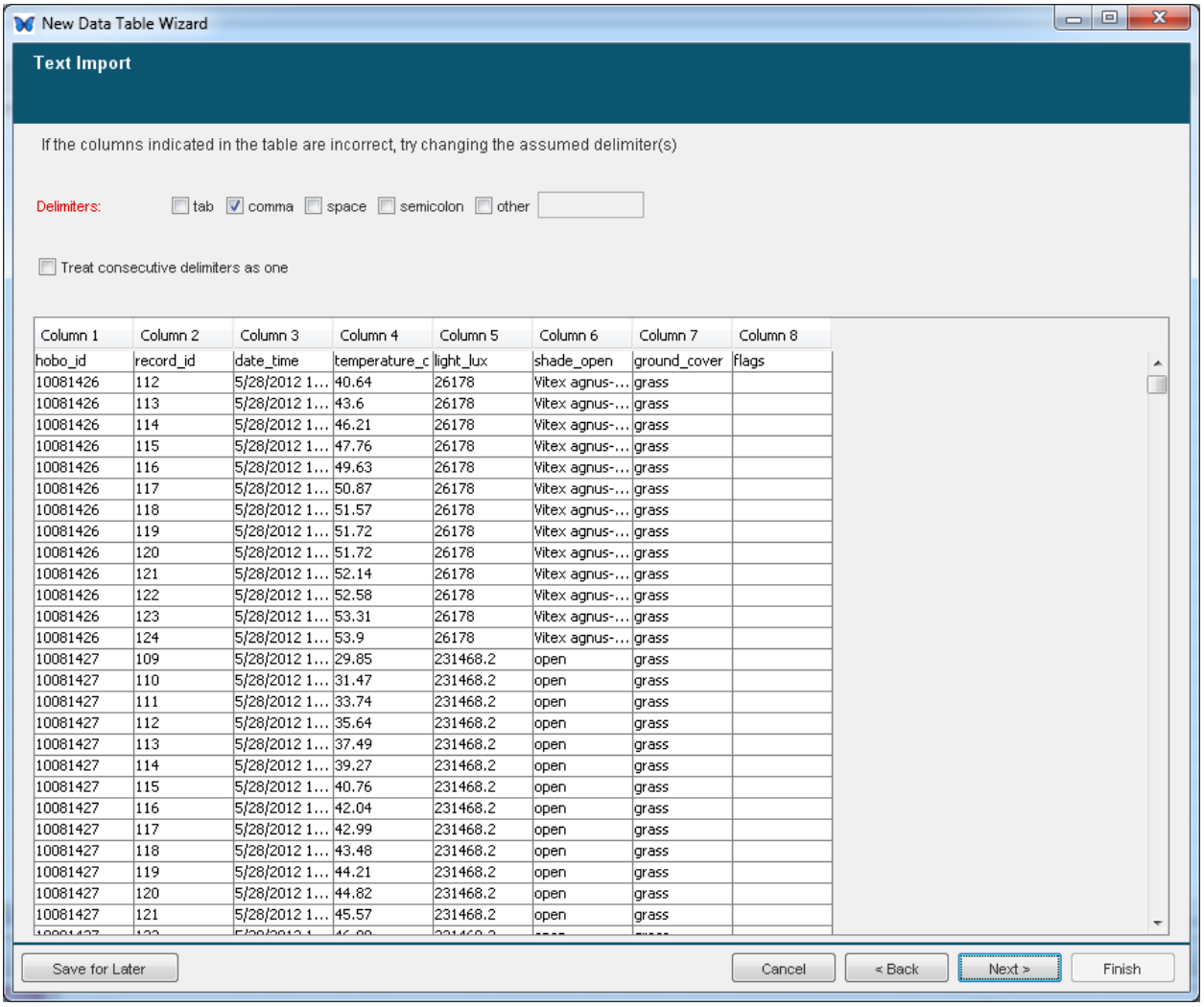
Check the “Column Labels are in starting row” box on this screen:

Then click ‘next’.



Ensure Delimiters = Comma is checked on this screen:

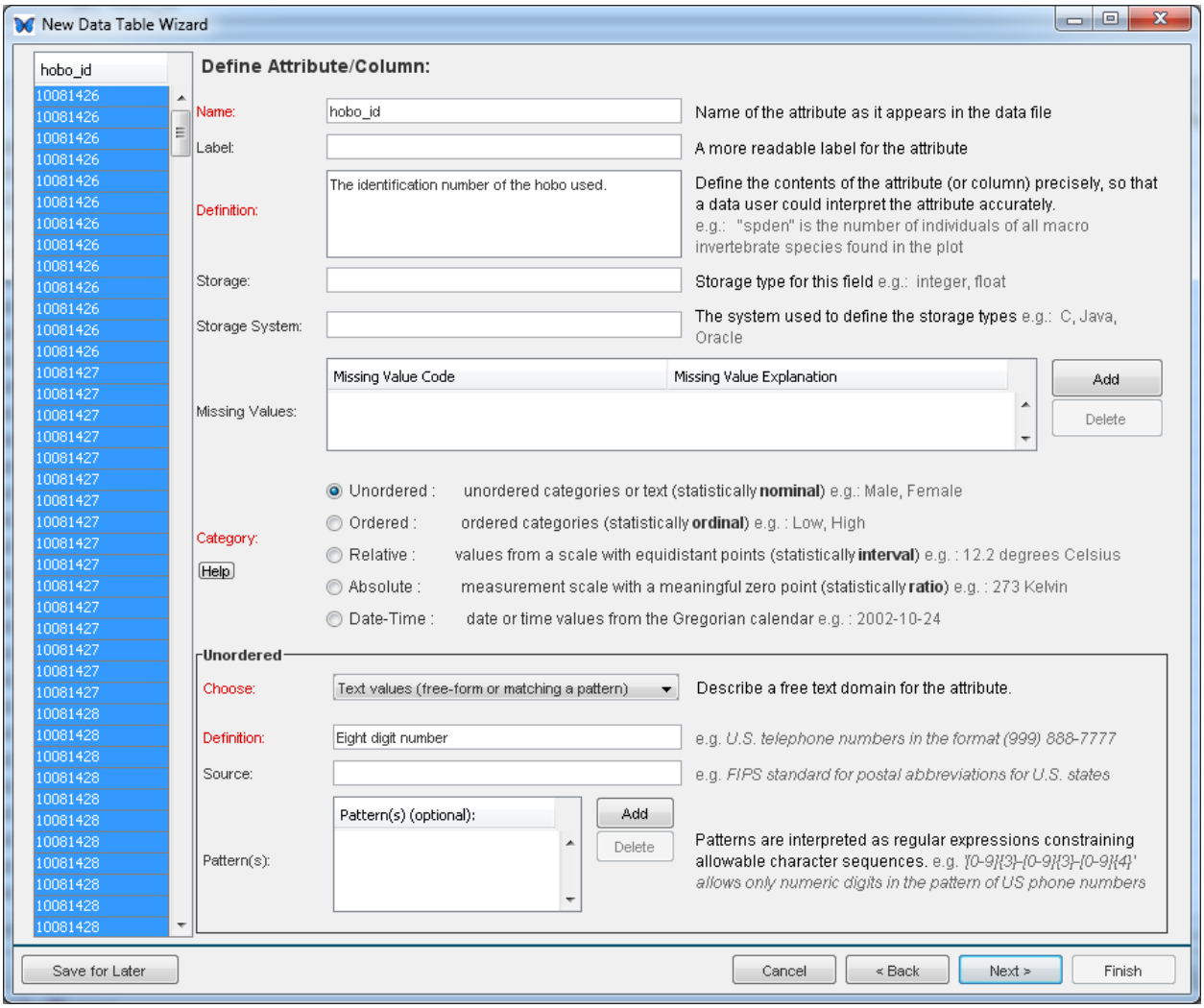
Then click ‘next’:



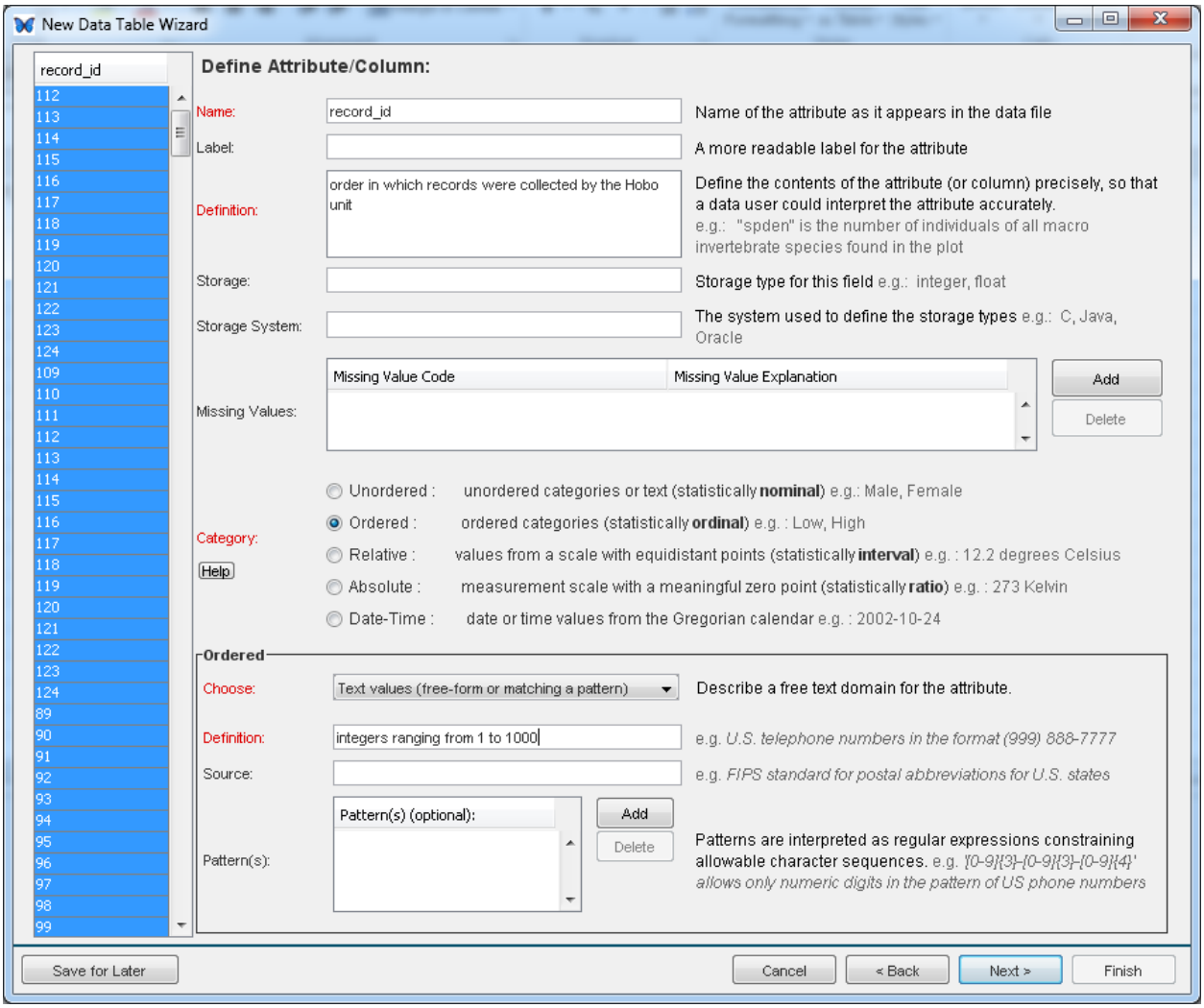
Now, you will define Metadata for Each Attribute/Column. You will need to enter something for every field marked in red.

Below is what I would enter for hobo_id. The id is just a label, which is why I chose 'nominal' as the category of variable.

Click next when you have finished entering the metadata for hobo_id.



Record_id


New Data Table Wizard
record_id
112
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111
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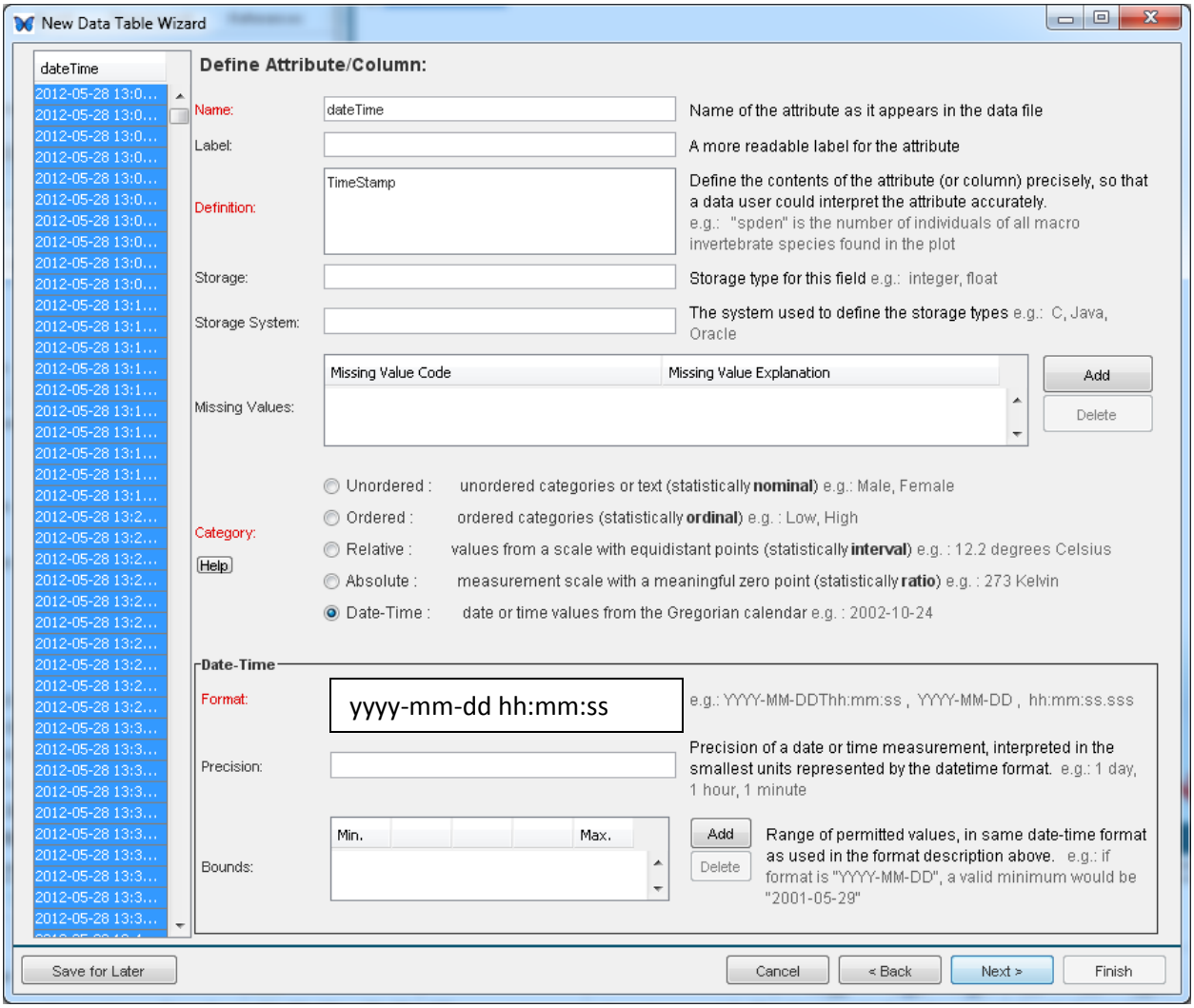
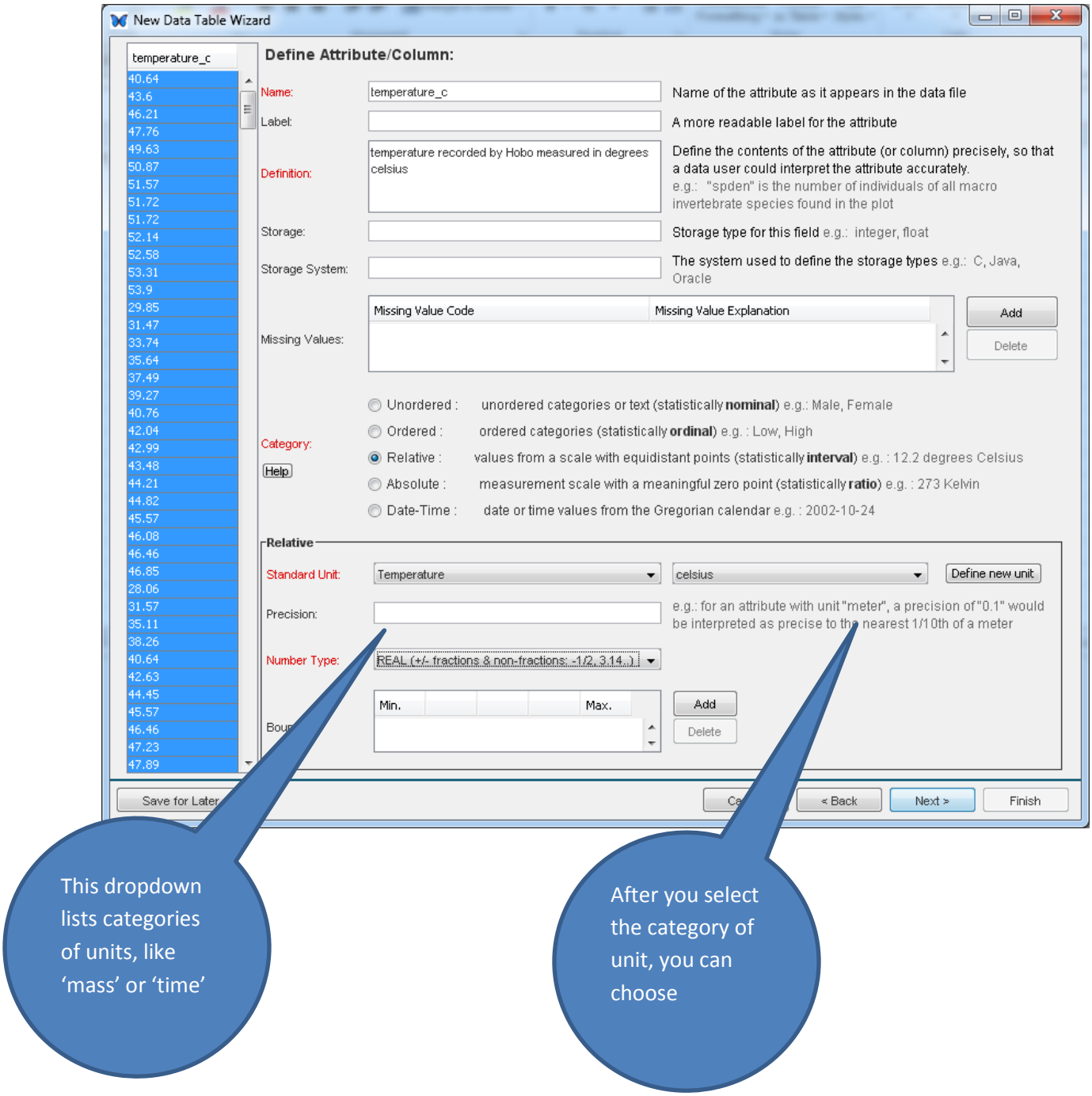
113
114
115
116
117
118
119
120
121
122
123
124
89
90
91
92
93
94
95
96
97
98
99
Define Attribute/Column:
Name:
record_id
Name of the attribute as it appears in the data file
Label:
A more readable label for the attribute
Definition:
order in which records were collected by the Hobo unit
Define the contents of the attribute (or column) precisely, so that a data user could interpret the attribute accurately.
e.g.: "spden" is the number of individuals of all macro invertebrate species found in the plot
Storage:
Storage type for this field e.g.: integer, float
Storage System:
The system used to define the storage types e.g.: C, Java, Oracle
Missing Values:
Missing Value Code
Missing Value Explanation
Add
Delete
Category:
Help
Unordered : unordered categories or text (statistically nominal) e.g.: Male, Female
Ordered : ordered categories (statistically ordinal) e.g. : Low, High
Relative : values from a scale with equidistant points (statistically interval) e.g. : 12.2 degrees Celsius
Absolute : measurement scale with a meaningful zero point (statistically ratio) e.g. : 273 Kelvin
Date-Time : date or time values from the Gregorian calendar e.g. : 2002-10-24
Ordered
Choose:
Text values (free-form or matching a pattern)
Describe a free text domain for the attribute.
Definition:
integers ranging from 1 to 1000
e.g. U.S. telephone numbers in the format (999) 888-7777
Source:
e.g. FIPS standard for postal abbreviations for U.S. states
Pattern(s):
Pattern(s) (optional):
Add
Delete
Patterns are interpreted as regular expressions constraining allowable character sequences. e.g. '[0-9]{3}-[0-9]{3}-[0-9]{4}' allows only numeric digits in the pattern of US phone numbers
Save for Later
Cancel
< Back
Next >
Finish

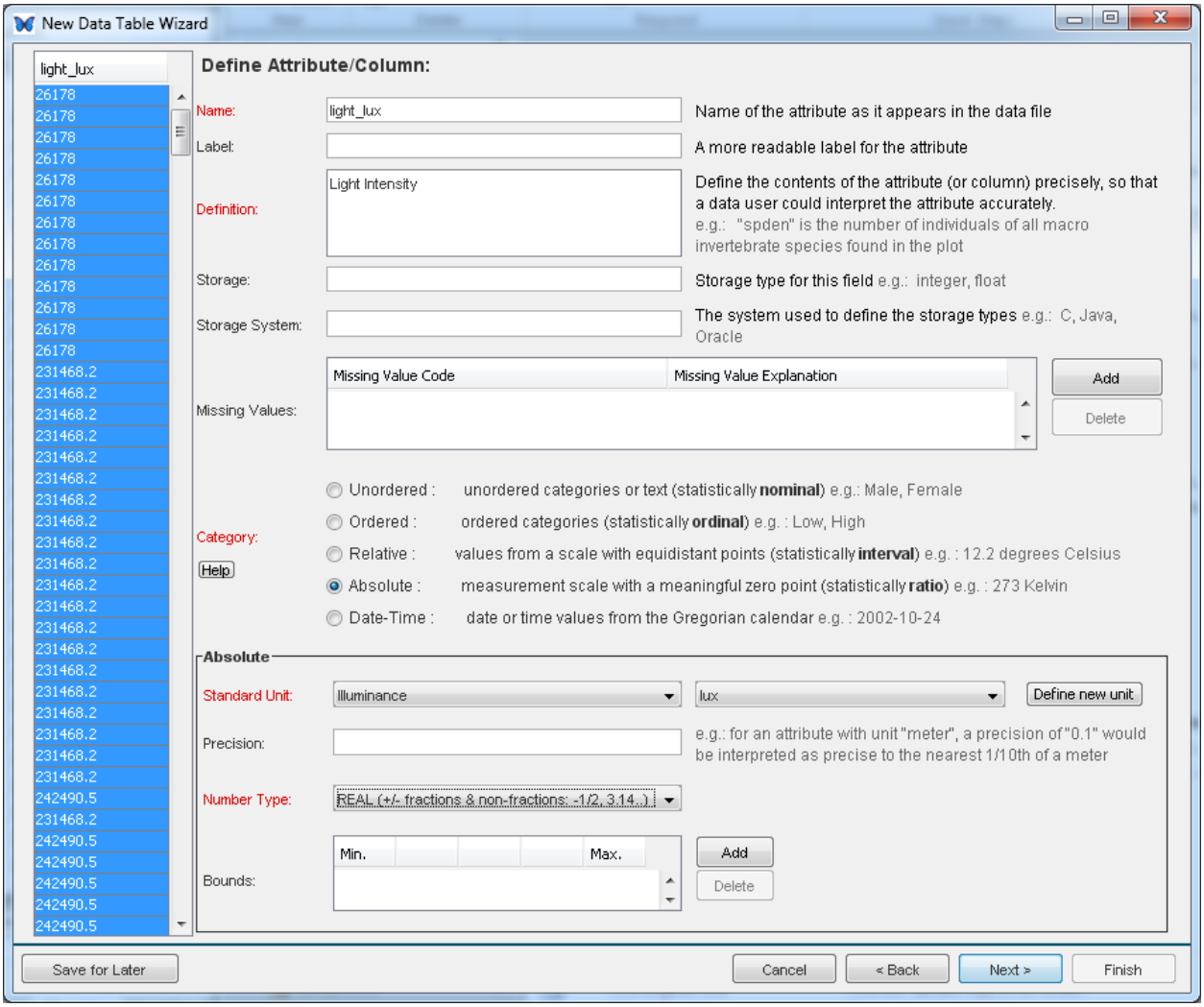
dateTime attribute:



temperature attribute: For this attribute, you have to choose the category of Unit, and then the unit itself:



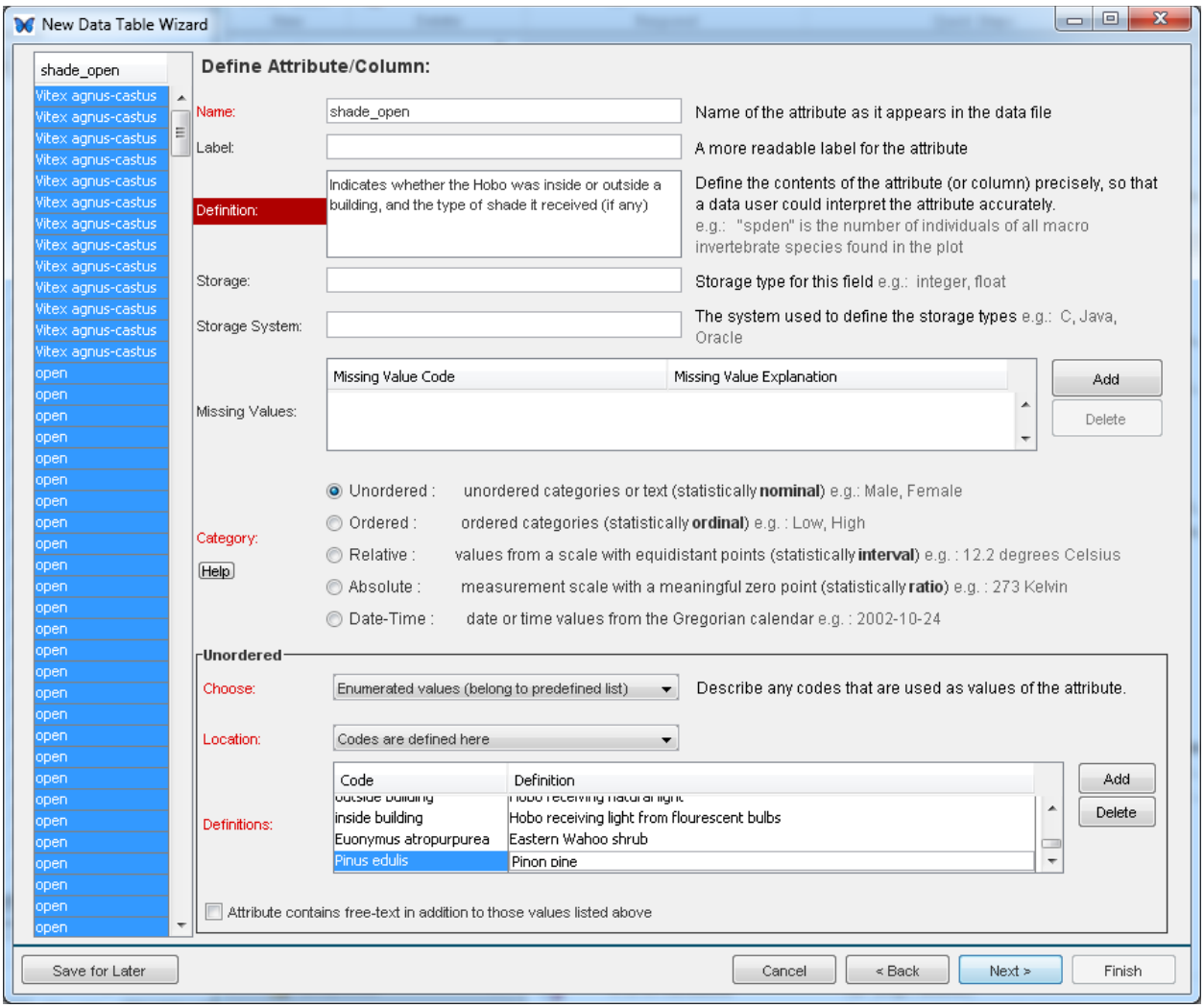
intensityLight attribute: StandardUnit = Illuminance; Unit = lux.



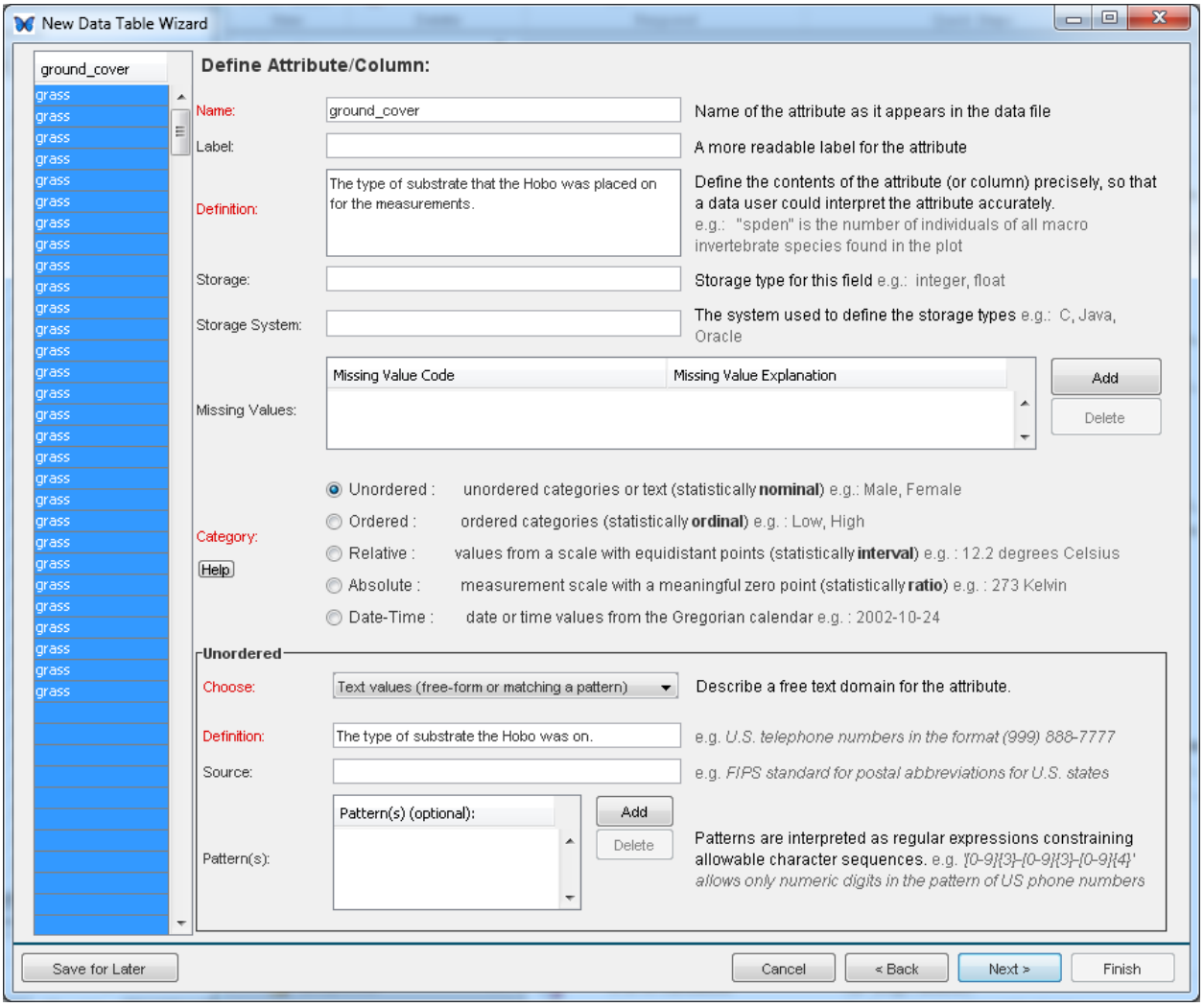
Shade_open attribute:

If this were an EML document you were going to keep, you would define the codes for the trees. I recommend that you make this easy and define the codes as:

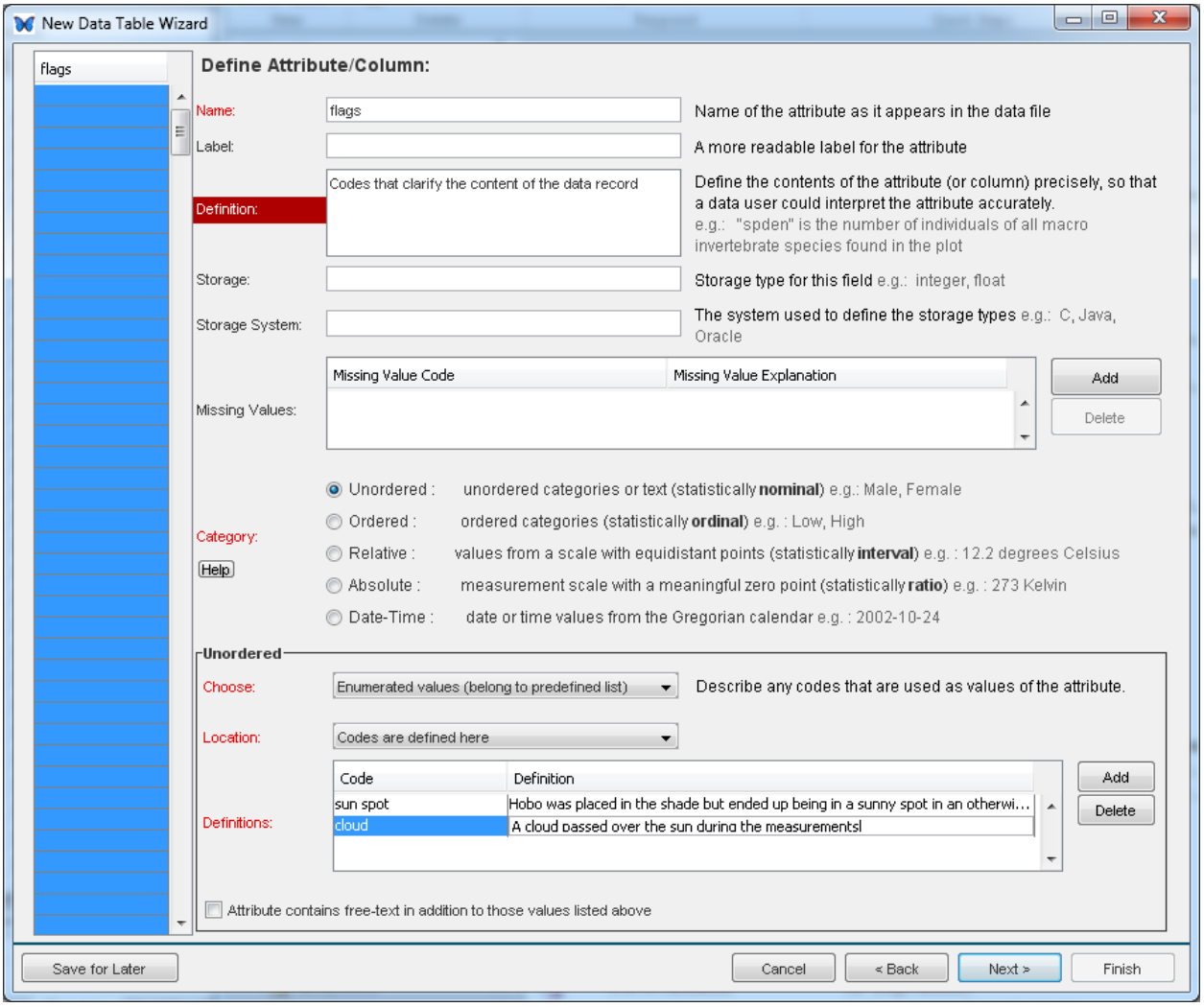
Vitex: shrub
Open: Unshaded
Celtis occidentalis: shrub
Platanus hybrida: tree
Styphnolobium: tree
Outside building: Hobo receiving natural light
Inside building: Hobo receiving light from fluorescent bulbs
Euonymus: shrub
Pinus edulis: tree



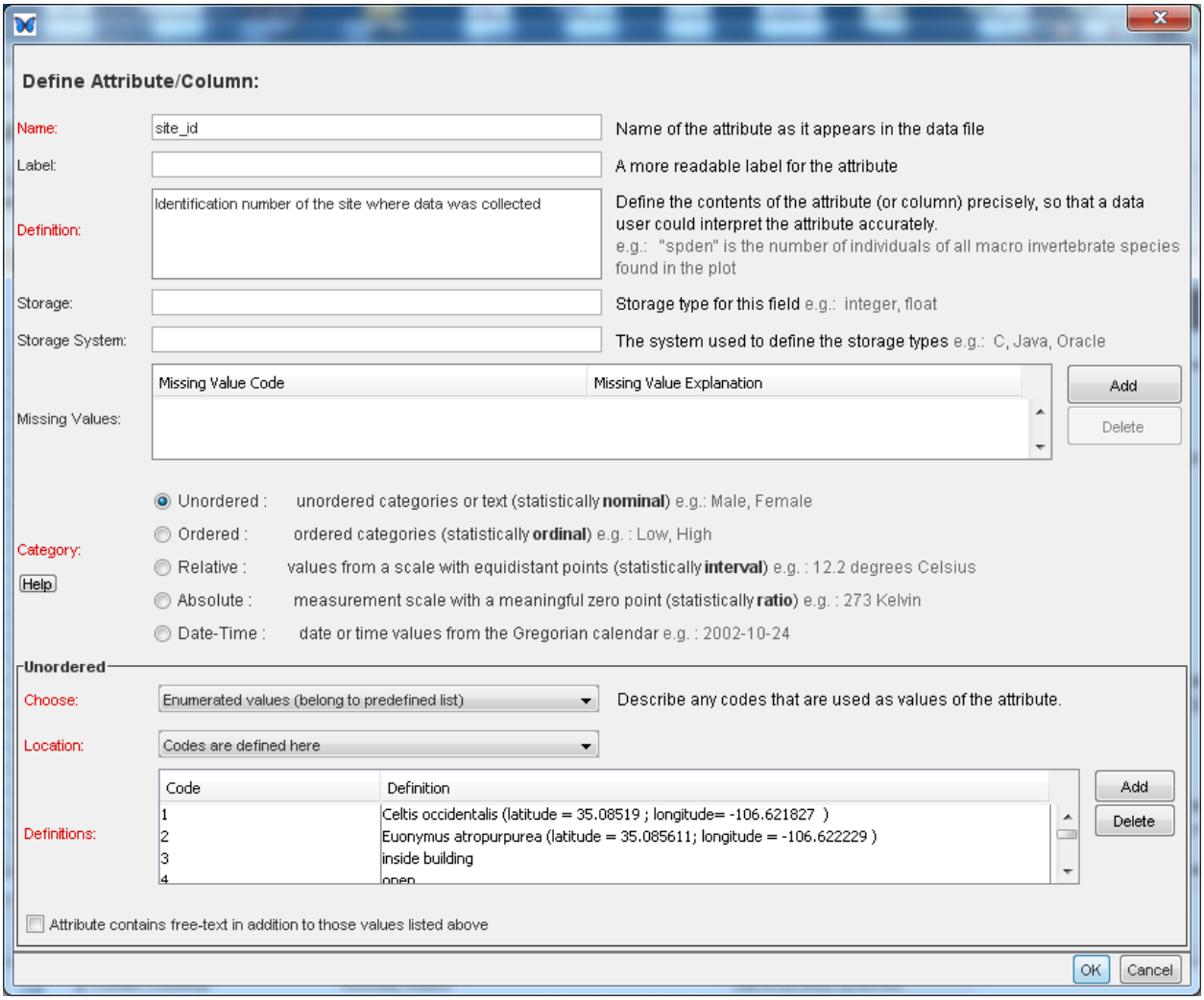
Ground_cover



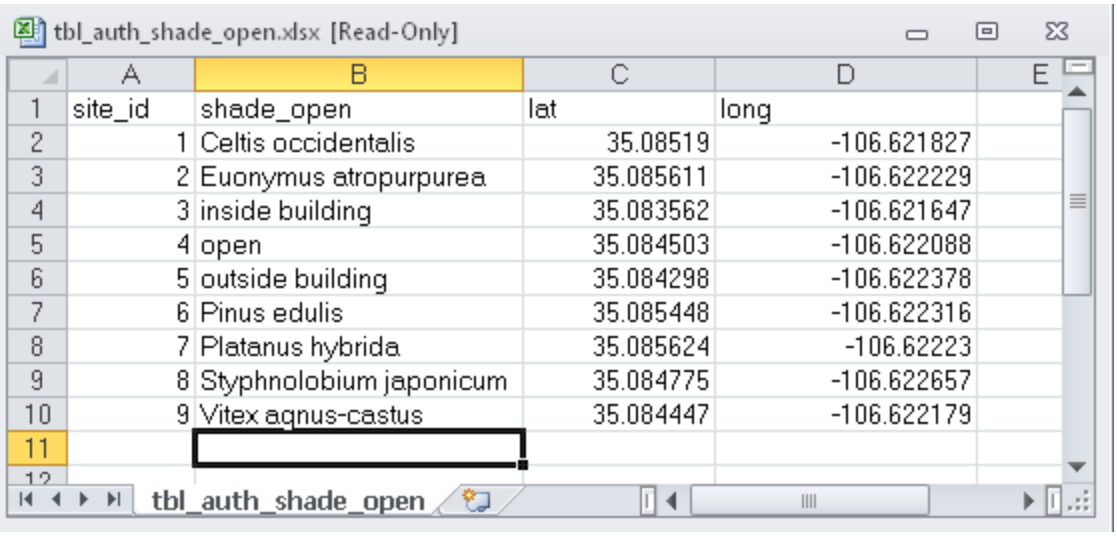
Flags:


New Data Table Wizard
flags
Define Attribute/Column:
Name:
flags
Name of the attribute as it appears in the data file
Label:
A more readable label for the attribute
Definition:
Codes that clarify the content of the data record
Define the contents of the attribute (or column) precisely, so that a data user could interpret the attribute accurately.
e.g.: "spden" is the number of individuals of all macro invertebrate species found in the plot
Storage:
Storage type for this field e.g.: integer, float
Storage System:
The system used to define the storage types e.g.: C, Java, Oracle
Missing Value Code
Missing Value Explanation
Missing Values:
Add
Delete
Category:
Help
Unordered : unordered categories or text (statistically nominal) e.g.: Male, Female
Ordered : ordered categories (statistically ordinal) e.g. : Low, High
Relative : values from a scale with equidistant points (statistically interval) e.g. : 12.2 degrees Celsius
Absolute : measurement scale with a meaningful zero point (statistically ratio) e.g. : 273 Kelvin
Date-Time : date or time values from the Gregorian calendar e.g. : 2002-10-24
Unordered
Choose:
Enumerated values (belong to predefined list)
Describe any codes that are used as values of the attribute.
Location:
Codes are defined here
Code
Definition
sun spot
Hobo was placed in the shade but ended up being in a sunny spot in an otherwi...
cloud
A cloud passed over the sun during the measurementsl
Definitions:
Add
Delete
Attribute contains free-text in addition to those values listed above
Save for Later
Cancel
« Back
Next »
Finish

Site_id:

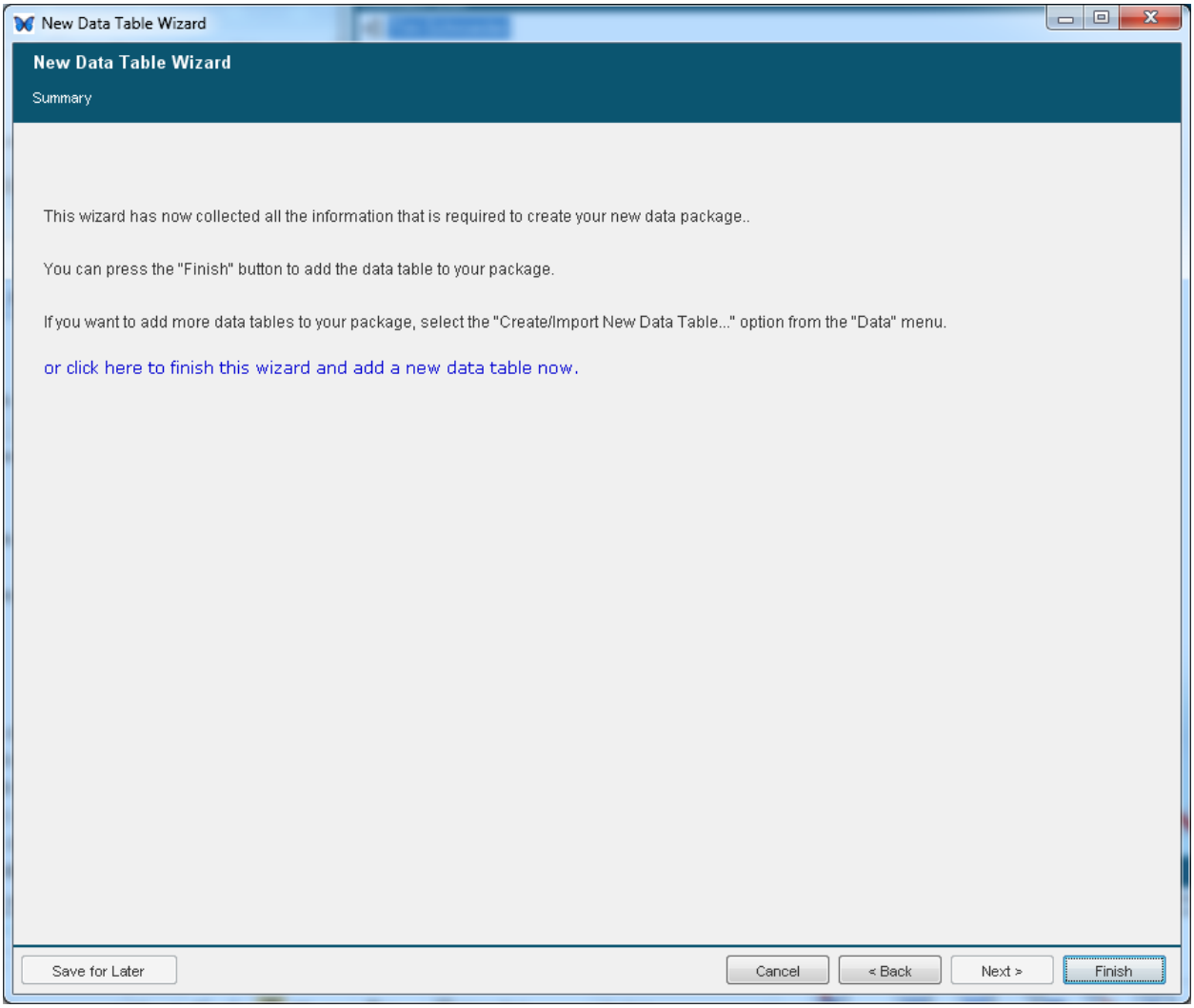


Here is a table of Site_id and definitions. You don't need to enter all the latitudes and longitudes.

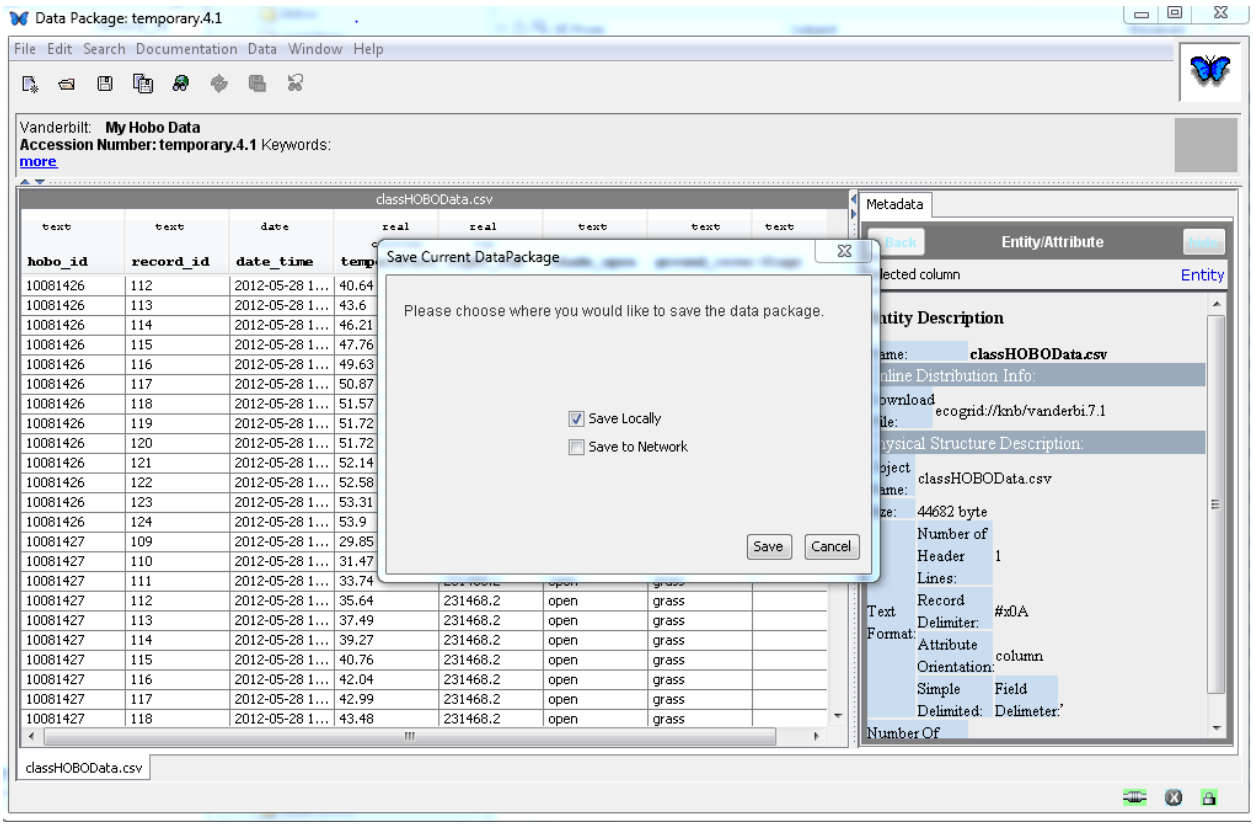


	A	B	C	D	E
1	site_id	shade_open	lat	long	
2	1	Celtis occidentalis	35.08519	-106.621827	
3	2	Euonymus atropurpurea	35.085611	-106.622229	
4	3	inside building	35.083562	-106.621647	
5	4	open	35.084503	-106.622088	
6	5	outside building	35.084298	-106.622378	
7	6	Pinus edulis	35.085448	-106.622316	
8	7	Platanus hybrida	35.085624	-106.62223	
9	8	Styphnolobium japonicum	35.084775	-106.622657	
10	9	Vitex agnus-castus	35.084447	-106.622179	
11					

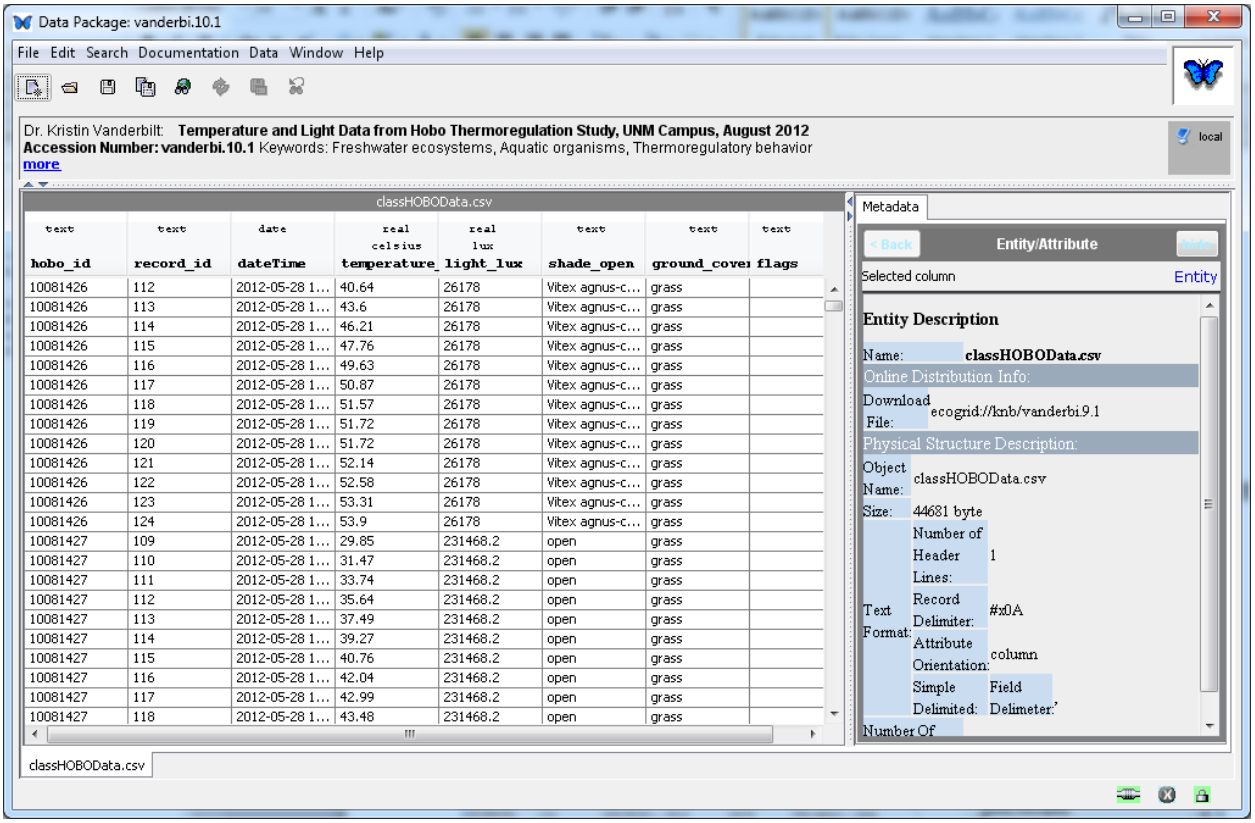
Yay!!! You are done. Click Finish on this screen:


New Data Table Wizard
New Data Table Wizard
Summary
This wizard has now collected all the information that is required to create your new data package..
You can press the "Finish" button to add the data table to your package.
If you want to add more data tables to your package, select the "Create/Import New Data Table..." option from the "Data" menu.
or click here to finish this wizard and add a new data table now.
Save for Later
Cancel
< Back
Next >
Finish

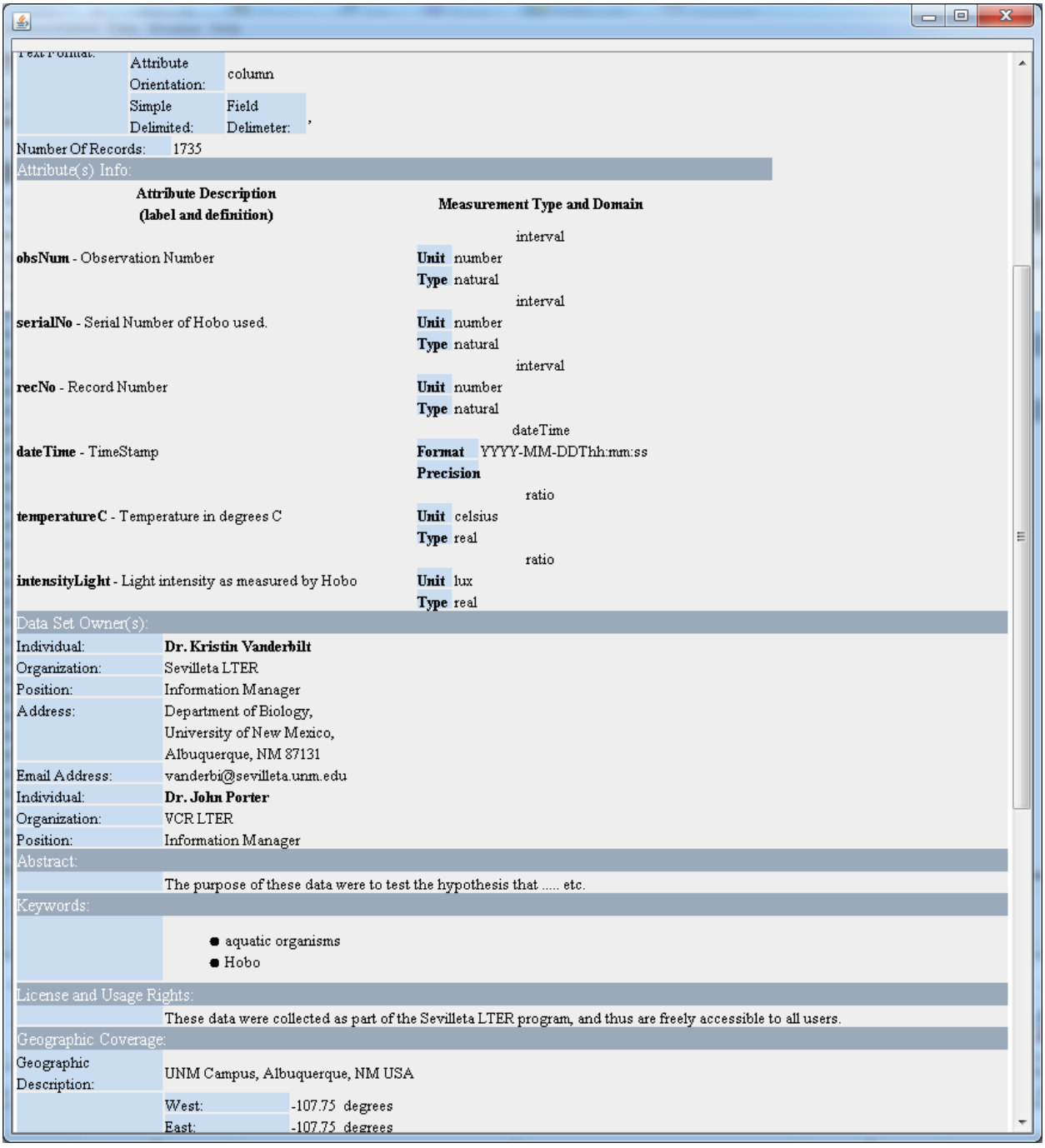
On this screen, go to File -> SAVE. Save the DataPackage Locally.



On this screen, select Documentation -> View Documentation. Then you can look at all the metadata you entered.



Scroll down to see all the metadata that you entered:



Text Format:

Attribute Orientation:	column
Simple Delimited:	Field Delimeter: ,

Number Of Records: 1735

Attribute(s) Info:

Attribute Description (label and definition)	Measurement Type and Domain	
		interval
obsNum - Observation Number	**Unit**	number
	Type	natural
		interval
serialNo - Serial Number of Hobo used.	**Unit**	number
	Type	natural
		interval
recNo - Record Number	**Unit**	number
	Type	natural
		dateTime
dateTime - TimeStamp	**Format**	YYYY-MM-DDThh:mm:ss
	Precision	
		ratio
temperatureC - Temperature in degrees C	**Unit**	celsius
	Type	real
		ratio
intensityLight - Light intensity as measured by Hobo	**Unit**	lux
	Type	real

Data Set Owner(s):

Individual:	**Dr. Kristin Vanderbilt**
Organization:	Sevilleta LTER
Position:	Information Manager
Address:	Department of Biology, University of New Mexico, Albuquerque, NM 87131
Email Address:	vanderbi@sevilleta.unm.edu
Individual:	**Dr. John Porter**
Organization:	VCR LTER
Position:	Information Manager

Abstract:

The purpose of these data were to test the hypothesis that ..... etc.

Keywords:

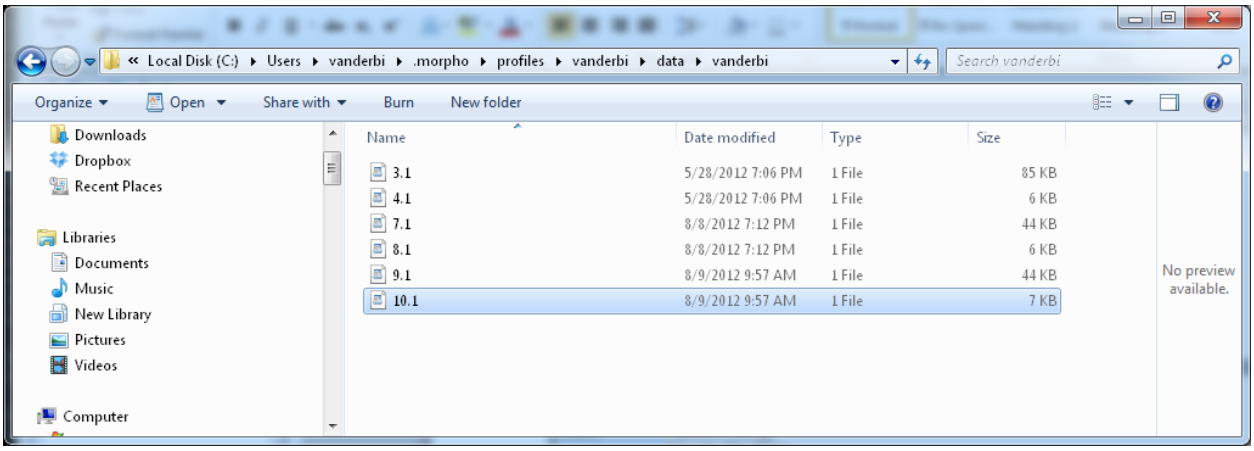
- aquatic organisms
- Hobo

License and Usage Rights:

These data were collected as part of the Sevilleta LTER program, and thus are freely accessible to all users.

Geographic Coverage:

Geographic Description:	UNM Campus, Albuquerque, NM USA	
	West:	-107.75 degrees
	East:	-107.75 degrees

The actual EML file is stored in:

If you double-click on it, it should open in Notepad and you can see the XML structure.