DIVA-GIS v3 - Tutorial

June 2003

This tutorial guides you through some commands in DIVA-GIS, in order to become familiar with the program. The data used in this tutorial can be downloaded from the Internet at <u>http://www.diva-gis.org</u>. They can be placed in any folder, but here we assume they are in the "C:\Program Files\DIVA\tutor" folder.

1. Shapefiles

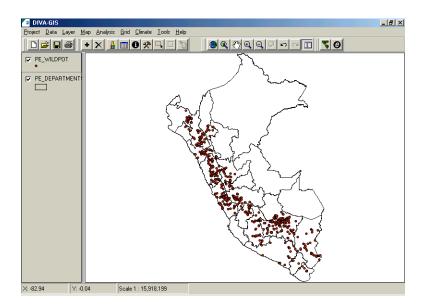
- \Rightarrow Start DIVA-GIS
- \Rightarrow Click on *Layer Add* in the menu bar

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1 DIVA-GIS
Project Data Layer Map Analysis Grid Climate Iools Help
Open Image: Construct of the construction of the constructio

The "Open" window appears. In this window, go to the folder "<DIVA dir>\DIVA\tutor", and select the file pe_departments.shp and press the Open button. (<DIVA dir> refers to the folder where DIVA was installed, typically this in "C:\Program Files\DIVA").

Again do Layer-Add and select the file pe_wilpot.shp and press "Open".

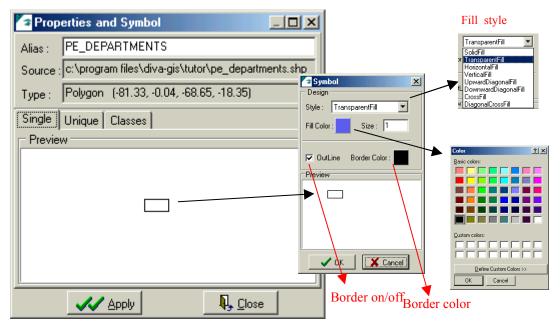
Two "layers" should now be present in the legend (left hand side of the window) of DIVA. You can see these layers on the map, by clicking on the checkboxes next to their names in the legend. After that, your screen should show a map of Peru indicating areas where wild potatoes have been observed. This map was created by adding two "shapefiles" to the map. Shapefiles are files of points, (poly)lines, or polygons (areas) and associated data.



Now try out zooming in and out, and "pan" (moving the center of the map after zooming in), using the commands from the *Map* menu or from this toolbar:



To change the way this layer is displayed, click once on the pe_departments layer in the legend (not on the checkbox, but next to it). This makes that layer the "active Layer". Now click on *Layer/Properties* and the *Properties* window appears. (This window also appears after double clicking on the layer in the legend). Now you can change display properties such as the color and border size.



Change the *Style* to "SolidFill", and the *Fill Color* to green (double click on the rectangle in the Preview to show the color palette), and click on *Apply* and *Close*. The map of Peru should now be green. You can also try the "Unique" tab in the Properties window to make a map where each Department has a different color.

Double click on pe_wildpot (in the legend) and change the *Style* of the legend to "Square", the *Fill Color* to red, the *Size* to 4, and do not use an *Outline*.

To be able to see the points layer, drag (click on it and move it while keeping the mouse button down) it to the top in the legend.

✓ pe_departments	r pe_wildpot ●	\$
♥ pe_wildpot	pe_departments	I

Save your work using the *Save* o *Save As* commands in the *File* menu and save the "Project" in a folder of your choice. Then use *File-Close* to close the project and *File-Open* to open it again. Note that the project file only stores the names of layers and some information about them, not the data. If you want to save the project with the data in a single file, you can use *File-Export*. This can be handy for sending a project to somebody else.

Make the pe_departments layer active by clicking on it in the legend.



Choose the option *Layer - Identify Feature* from the Layer menu or from the toolbar:

After that, click on any part of the map of Peru. The *Identify* window will appear and show the data that are associated with the part of the map you clicked on (e.g., the name of the department).

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X: -72.62 Y: -12.1	Э
PE_DEPARTMENTS	
Rec 1 of 1	
CODE: 08 NAME: CUSCO CAPITAL: CUSCO	
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Note that after clicking on *Climate/Point*, you can click anywhere on the map (where there is land) to find out what the climate is like at that location.

Now make pe_wildpot the active layer and click on some points. If you click on a location with more than one overlapping or nearby points, these will all be shown in the *Identify* window. In the example below there were 8 records ("REC 1 of 8"). The records can be browsed using the arrows.

To see the whole table related to the active layer, click on *Layer-Table* or on this icon:

You can select a record in the database and then use *Highlight*, *Pan To* o, *Zoom To*, to see the location of the object related to this record on the map.

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251	OCH 12069a	-77.35	-9.67	S. acaule Bit	acl	PERU	Ancash	Recuay	Betv
252	OCH 12069	-77.35	-9.667	S. acaule Bit	acl	PERU	Ancash	Recuay	Rec
253	OCH 12092	-77.3	-9.82	S. acaule Bit	acl	PERU	Ancash	Recuay	Carp
254	OCHS 12059	-77.25	-10.5	S. acaule Bit	acl	PERU	Ancash	Bolognesi	Nea
255	OCHS 15725	-77.13	-10.18	S. acaule Bit	acl	PERU	Ancash	Bolognesi	Shin
256	OCHS 15726	-77.13	-10.18	S. acaule Bit	acl	PERU	Ancash	Bolognesi	Shin
257	OCHS 15731	-77.13	-10.18	S. acaule Bit	acl	PERU	Ancash	Bolognesi	Pisg
258	OCHS 15727	-77.13	-10.18	S. acaule Bit	acl	PERU	Ancash	Bolognesi	Shin
259	OCHS 15728	-77.13	-10.18	S. acaule Bit	acl	PERU	Ancash	Bolognesi	Shin
260	OCHS 15729	-77.13	-10.18	S. acaule Bit	acl	PERU	Ancash	Bolognesi	Mojo
261	OCHS 15730	-77.13	-10.18	S. acaule Bit	acl	PERU	Ancash	Bolognesi	Mojo
262	OCH 12073	-77.033	-9.4	S. acaule Bit	acl	PERU	Ancash	Huari	Hua
263	OCHS 13145	-76.87	-10.55	S. acaule Bit	acl	PERU	Lima	Cajatambo	Nea
264	OCHS 13146	-76.75	-10.57	S. acaule Bit	acl	PERU	Lima	Cajatambo	Quic
265	OCHS 13149	-76.75	-10.57	S. acaule Bit	acl	PERU	Lima	Cajatambo	Quic
266	OCHS 13151	-76.72	-10.91	S. acaule Bit	acl	PERU	Lima	Cajatambo`	Quir
267	OCH 5035	-76.6347	11.5534	S. acaule Bit	acl	PERU	Lima	Canta	Can
268	OCH S-83	-76.583	-9.267	S. acaule Bit	acl	PERU	Huanuco	Huamalies	Hua
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	Recor	d: 1 of 1200							
Statisti	c Highlight	Pan To	Zoom To						

2. Data analysis and grids

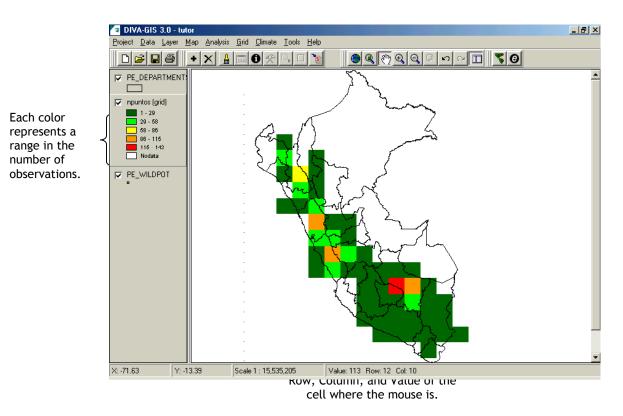
Let's make a grid with the number of observations of wild potatoes in Peru. Make pe_wildpot the active layer, and then click on *Analysis - Point to Grid - Richness* and click on *OK*. Choose a name for the output file and press *Apply*.

Define parameters (x, y, resolution) of the new grid or use those from an existing	Point to grid - Richness Input Shape of Point CAprogram files/diva-gis/tutor/pe_wildpot.shp Define Grid Create a new Grid Output Variable Number of different classes Field Point to Grid Procedure Simple	 Choose which field in the database should be used for analysis
Output filename ——	Output File Type Grid file Add to map Detailed output Close	

To show the new grid on the map, make sure that the "Add to map" checkbox is checked. Press Apply. When the program is finished, drag the pe_departments layer to the top and change (in the *Properties* window) its *Style* to *Transparent fill*.

The map shows a grid that consists of five colors, each indicating a range of number of observations per cell.

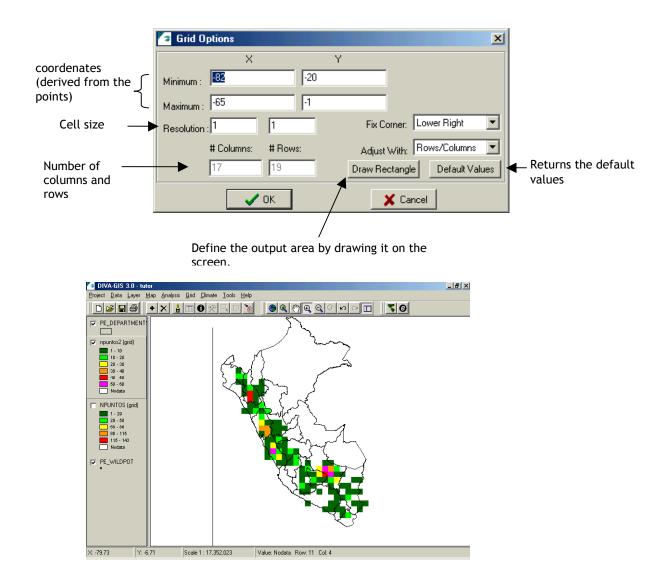
When the grid is the active layer, the row and column number, and the value of the cell is shown at the bottom of the screen, when moving the mouse over the map.



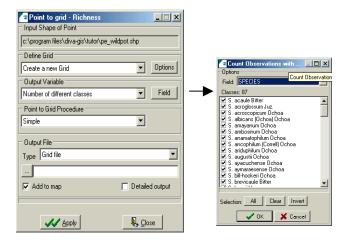
To change the legend and show other ranges (e.g.,: 1-10, 10-20, etc) o individual values, double click on the grid. The grid *Properties* window appears. Click on a value in the "To" column and change it. You can also insert more rows (ranges) using "Insert row" (+).

	-	nd Legend			
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Make some more grids. Frist activate the Pe_wildpot layer. Then select *Analysis/Grid*. Select *Define Grid-Options*. In the *Adjusting With* use Rows/Columns. Change the resolution (size) of the cells to 0.5 degrees and click OK. Then click Apply in the *Create Grid* window. The result is a grid with smaller cells than the previous grid (and hence with different values).



Make another grid using pe_wildpot (*Analysis-Grid-Richness*), now of the number of different classes (species in this case) per grid cell. In *Output Variable* select *Number of Distinct Values*, click on *Options* and select the variable **Species** from the database. Click *OK* and then *Apply*.



Save your project.

3. Data management

3.1 Importing and verifying data

Open the file bol wildpot.xls with Excel (or other spreadsheet program). Insert two new columns: LATITUDE and LONGITUDE. 1

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at Estación Experimental Toralaga, at km 71, along old road from Cochabamba to Santa Cruz, 1:250,000-scale map SE 20-5	20-5	17	28.621 S	65	35.21
at km 71, along old road from Cochabamba to Santa Cruz, at Estación Experimental Toralapa, 1:250,000-scale map SE 20-5		17	28.621 S	65	39.21
km 29, road from Cochabamba to Oruro, 2 or 3 km W of Suticollo, 1:250:000 scale map SE 19-8		17	29.536 S	66	20.18
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ca. 25 km E of Huanuni, on Oruro-Sucre Road, 1:250,000-scale map 32 13-0		18	42.157 S	66	30.5
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1 32 km E of Huanuni, on Oruro-Sucre road, 1:250,000-scale map SE 19-12			23.680 S	66	36.4
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5 km SE of Ravelo, on Oruro-Sucre road, 1:250,000-scale map SE 20-9		10	52.403 S	65	28.7
ca. 4 km W of junction of road from Sucre to Potosi, and road past Yotala, 1:250,000-scale map SE 20-13			49.964 S	65	14.8
			10.385 S	65	14.0
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 roughly 52 km S of Sucre on road to Potosi, 1:250,000-scale map SE 20-13 70 km S of Sucre on rd to Potosi, ca 3 km S of Puente Mendez, 1:250,000-scale map SE 20-13 			21.277 S 26.584 S	65	10.0
70 km S of Sucre on road to Potosi, ca. 3 km S of Puente Mendez, 1:250,000-scale map SE 20-13		19	26.584 S	65	11.8
		19	26.504 S 38.505 S	65	11.8
11.2 km S of Sucre-Potosí road, on road to Esquiri, 1:250,000-scale map SE 20-13			38.505 S		24.8
7.5 km SE of Betanzos on road to Sucre. 1:250,000-scale map SE 20-13		19 19	35.377 S	65	24.8
7.5 km SE of Betanzos on road to Sucre, 1:250,000-scale map SE 20-13				65	
6.7 km W of Betanzos on road to Potosí, 1:250,000-scale map SE 20-13			33.979 S	65	30.2
6.7 kn W of Betanzos on road to Potosí, 1:250,000-scale map SE 20-13			33.979 S	65 65	30.2
ca 1 km E of guardpost station on the E side of Potosí, 1:250,000-scale map SE 20-13			34.102 S		44.5
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30.3 km S of road toll station on S side of Potosí, on road toVillazón, 1:250,000-scale map SE 20-13			50.882 S	65	42.4
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64.1 km S of road toll station on S side of Potosí, on road to Villazón, 25 km N of Vitichi, 1:250,000-scale map SF 20-1			02.010 S	65	32.9
3 26 km S of Vitichi, on road to Villazón, 1:250,000-scale map SF 20-1			24.395 S	65	34.0
30 km S of Vitichi, on road to Villazón, 8.5 km N of Tumusla, 1:250,000-scale map SF 20-1		20	25.644 S	65	34.3

Now fill these columns with coordinate data in decimal degrees using the columns LATD, LATM, LATH, LOND, LONM, LONGH. LATD y LOND have degrees data, LATM y LOGM have decimal minutes (not minutes and seconds)), LATH and LONGH indicate the hemisphere (N/S and E/W). To calculate Latitude use a formula like "=-1*(LATD+LATM/60)"

When you are done save the file under a different name. After that, save it as a DBF (version 4) file. Close and open the DBF file and verify that the data have been saved. It is important that in Excel you set the format of the cells to a number with 5 decimals. Otherwise, all the decimal numbers may be cut off.

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at Estación Experimental Toralapa, at km 71, along old road from Cochabamba to Sa		-17.4770	-65.5868		28.621		5 35.210	
at km 71, along old road from Cochabamba to Santa Cruz, at Estación Experimental		-17.4770	-65.6535		28.621		39.210	
km 29, road from Cochabamba to Oruro, 2 or 3 km W of Suticollo, 1:250:000 scale m	nap SE 19-{	-17.4923	-66.3364		29.536		6 20.185	
km 49.5, along the road from Cochabmaba to Oruro, 1:250,000 scale map SE 19-8	10.0	-17.6208	-66.3633		37.248		6 21.796	
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ca 25 km E of Huanuni, on Oruro-Sucre road, 1:250,000-scale map SE 19-12 32 km E of Huanuni, on Oruro-Sucre road, 1:250,000-scale map SE 19-12		-18.3842 -18.3947	-66.6075		23.052 23.680		6 39.560 6 36.448	
32 km E of Huanuni, on Oruro-Sucre road, 1:250,000-scale map SE 19-12 32 km E of Huanuni, on Oruro-Sucre road, 1:250,000-scale map SE 19-12		-18.3947	-66.6075		23.660		6 36.440	
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16 km SE of Uncia, an Oruro-Sucre road, 1:250,000-scale map SE 19-12		-18.5741	-66.3983		34.447		6 23.897	
ca 26 km SE of Uncia, on Oruro-Sucre road, 1:250,000-scale map SE 19-12		-18.6351	-66.3038		38,105		6 18.229	
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	Cancel	-19.1732	-65.2481		10.389		5 14.883	
		-19.1731	-65.2481		10.385		5 14.883	
	Options	-19.3092	-65.1704		18.553		5 10.226	
		-19.3546	-65.1673		21.277		5 10.035	
		-19.4431	-65.1973		26.504		5 11.036	
		-19.4431	-65.1973		26.584		5 11.836	
		-19.6418	-65.2483		38.505		5 14.898	
		-19.5896	-65.4141		35.377		5 24.848	
File name: bol_wildpot.dbf		-19.5896	-65.4141		35.377		5 24.848	
		-19.5663 -19.5663	-65.5045 -65.5045		33.979 33.979		65 30.272 65 30.272	
Save as type: DBF 4 (dBASE IV) (*.dbf)		-19.5663	-65.5045		33.979 34.102		5 <u>30.272</u> 5 44.543	
		-19.5684	-05.7424	19	54.102	3 6	44.543	VV 40

Create a shapefile

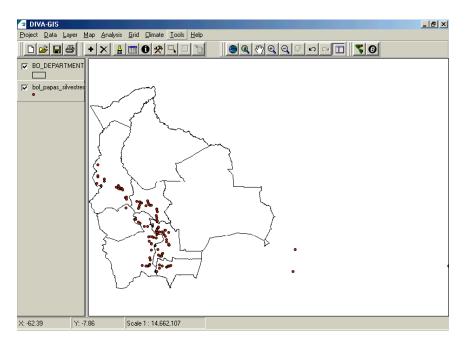
Start with a new project (*File/New*).

Use *Data/Create Shape* to create a shapefile from the DBF file you just made with Excel. Select the DBF file as *Input File*, and for Longitude and Latitude select the columns LONGITUD and LATITUD. Choose a name for the output shapefile and click Apply.

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Poject Data Layer Map Analysis Grid Climate Iools Help Image: Selection to New Shapefile Image: Selection to New Shapefile Image: Selection to New Shapefile Image: Selection to New Shapefile Image: Selection to New Shapefile Image: Selection to New Shapefile Image: Selection to New Shapefile Image: Selection to New Shapefile Image: Selection to New Shapefile Image: View Individe: Image: Selection to New Shapefile Image: Selection to New Shapefile Image: Selection to New Shapefile Image: View Individe: Image: Selection to New Shapefile Image: Selection to New Shapefile Image: View Individe: Image: Selection to New Shapefile Image: Selection to New Shapefile Image: View Individe: Image: Selection to New Shapefile Image: Selection to New Shapefile Image: View Individe: Image: Selection to New Shapefile Image: Selection to New Shapefile Image: View Individe: Image: Selection to New Shapefile Image: Selection to New Shapefile Image: View Individe: Image: Selection to New Shapefile Image: Selection to New Shapefile	Select from the database.
Y / Latitude: LATITUDE	— database.
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When the program finishes it will ask you whether you want the shapefile added to the map. Choose Yes and click on *Close*.

Add the shapefiles bo_departments.shp and bo_depatment.shp from the <DIVA dir>\tutor\ folder. Your screen should look like this:



To verify the locations of the points, these can be queried against the data in bo_provinces. Use *Data/Check Coordinates*. The input file should be the points file. The "Shape of Polygon" should be the file bo_provinces.

For the "Relation Fields" use the following:

Relations Fields	Shape of Point	Shape of Polygon
Relation 1	STATE	DEPARTMENT
Relation 2	PROVINCE	PROVINCE

Check Coordinates				
Options Points outside all polygons	Points do not n	natch relations	Points do not mat	ch with X, Y
Shape of Point				
Input File: c:\program files\diva-gis	\tutor\bol_papa	s_silvestres.shp		
Field of Longitude: LONGITUDE	▼ F	ield of Latitude:	LONGITUDE	
Shape of Polygon				
Input File: c:\program files\diva-gis\	<pre>\tutor\bo_provin</pre>	ices.shp		
Relations Fields				
Fields of Shape of P	oint	Fields of Sh	ape of Polygon	
	▼ =	PROVINCE	-	
	▼ =	DEPARTME	NT 💌	
Relation 3	-		•	
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Now click on Apply, and when the program is finished look in the three result tabs to find the points outside all polygons (in this case outside of Bolivia); the points that do not mach relations (the name of the Department or Province is not the same in the database of the pointfile and that of the relevant polygon.

Points outside of Bolivia:

🖙 Checl	k Coordinates						
Options	Points outside al	l polygons	Points do not match relations $\left[\begin{array}{c} Points \ do \ not \ match \ with \ X, \end{array} \right]$				
No Reg	X	Y	PLANTID	COUNTRY	STATE	PROVINCE	LOC
52	-46.0907	-21.4427	SFVU 6572	Bolivia	Potosí	Sud Chichas	abou
53	-46.0907	-21.4427	SFVU 6573	Bolivia	Potosí	Sud Chichas	abou
55	-56.2642	-21.8035	SFVU 6575	Bolivia	Tarija	Aviles	47.5
70	-56.1238	-20.3673	SFVU 6614	Bolivia	Chuquisaca	Nor Cinti	45.3
•							Þ
Row:0 of I	о н	ighlight	Pan To Zo	oom To E	xport		

Mismatch of Department and/or Province data

Options F	Points outside a	an polygoris	Points do not n		Points do not match with X, Y			
No Reg	X	Y	Point:PROVI	Polyg:PROV	Point:STATE	Polyg:DEPAf	F ▲	
1	-65.9049	-17.5248	Punata	Jordan	Cochabamba	COCHABAMI	9	
2	-65.5868	-17.477	Tiraque	Arani	Cochabamba	COCHABAMI	5	
3	-65.6535	-17.477	Tiraque	Arani	Cochabamba	COCHABAMI	5	
6	-66.429	-17.7026	Quillacollo	Arque	Cochabamba	COCHABAMI	5	
7	-66.6593	-18.3842	Dalence	Bustillos	Oruro	POTOSI	9	
8	-66.6593	-18.3842	Dalence	Bustillos	Oruro	POTOSI	9	
9	-66.6075	-18.3947	Dalence	Bustillos	Oruro	POTOSI	9	
10	-66.6075	-18.3947	Dalence	Bustillos	Oruro	POTOSI	9	
11	-66.3983	-18.5741	Bustillos	Bustillos	Oruro	POTOSI	9	
12	-66.3983	-18.5741	Bustillos	Bustillos	Potosí	POTOSI	9	
13	-66.3038	-18.6351	Bustillos	Bustillos	Potosí	POTOSI	9	
14	-66.0106	-18.8421	Chayanta	Chayanta	Potosí	POTOSI	9.	
•							·	

To investigate the causes of these inconsistencies, use the options Highlight, and Pan y Zoom To. You can also use Export to make a textfile with a list with all points with inconsistencies.

3.2 Asignar Coordenadas

In case you do not have coordinates for a group of observations, you can use DIVA to try to assign coordinates to these points, using the locality description. Use the file "accessions without coordinates.dbf" and the function *Data/Assign Coordinates* to try this.

The file "accessions without coordinates.dbf" has locality descriptions such as "growing at a local place called Millnihuaya, 1 Km E of Pacomanta". This information has bee systematized in the following way:

NAME1 : Millnihuana	(name of the most specific place in the description)
DIST1	(distance from that place, in km)
DIR1	(heading from that place)
NAME2 : Pacomanta	(name of an alternative, less specific, place)
DIST2 : 1	(distance from that place, in km)
DIR2 : E	(heading from that place)

Microsoft Excel - Access Eile <u>E</u> dit <u>V</u> iew Insert		Data <u>W</u> indow <u>H</u> e								-1 +1	× 6 - 🤌 🔤 🔊 🏙 🖌 🖻 🕤 × 6 -
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A1 💌	= ID										
B	С	D	E	F	G	Н	1	J	K	L	M
1 SPECIES	COUNTRY	DEPARTMENT	PROVINCE	ALTITUDE	NAME1	DIST1	DIR1	NAME2	DIST2	DIR2	LOCALITY
2 S. medians Bitter	PERU	Lima	Huarochiri	0	Matucana	5	N		0		growing in valley of Río Rimac, 5.0
3 S. multiinterruptum Bitte	PERU	Lima	Huarochiri	0	Millnihua			Pacomanta	1	E	growing at a local place called Millr
4 S. alandiae Cárdenas	BOLIVIA	Cochabamba	Mizque	2800	Tortora	4	S				4 km S of Tortora on rd to Sucre, 1::
5 S. marinasense Vargas	PERU	Cuzco	Quispicanchis	3550	Cusco	8	S				Prov. Cusco: from the Universidad
6 S. dolichocremastrum I	PERU	Ancash	Carhuaz	3985	Ulta			Chilla	25	E	growing at a local place called Ulta
7 S. lignicaule Vargas	PERU	Cuzco	Calca	0	Piscac	8	NW				Prov. Calca: Ruins of Pisac, located
8 S. megistacrolonum Bil	BOLIVIA	Potosi	Sud Chichas	3686	Tupiza	15	W				14.5 West of Tupiza
9 S. xdoddsii Correll (aln	BOLIVIA	Cochabamba	Mizque	0	Chuquilla	42	N				10 km N of Chuquillas, 42 km N of
10 S. yungasense Hawkes	BOLIVIA	La Paz	Nor Yungas	1700	Yolosa	8	S				8 km south of Yolosa on road to Sa
11 S. sandemanii Hawkes	PERU	Arequipa	Arequipa	0	Cabreria						Cabreria
12 S. bukasovii Juz.	PERU	Lima	Yauyos	0	Alis						Alis
13 S. sparsipilum (Bitter) J	BOLIVIA	Cochabamba	Punata	2697	San Benit						along the old road from Cochabam
14 S. arnezii	BOLIVIA	Chuquisaca	Tomina	0	Padilla	8	W				7.9 km west of town square of Padi
15 S. megistacrolonum Bit	BOLIVIA	Potosi	Sud Chichas	4006	Tupiza	20	W				20.2 km West of Tupiza
16 S. acaule Bitter	BOLIVIA	Potosi	Tomas Frias	0	Rio Cerda	4	S	Chaqui	1	N	3.9 km S of Potosi-Sucre road, nea
17 S albicans (Ochoa) Oc	PERII	Ancash	Corongo	0	Cabuacon		-				Cabuacona

Above you can see a part of this database. Note that there is the field COUNTRY with two values: BOLIVIA and PERU (in this case). DIVA has databases with place names and coordinates (gazetteers) that are used to assign coordinates. In the folder <DIVA dir>\gazet\, se encuentran dos archivos gazetters BOL.dbf y PER.dbf. Los nombres de éstos archivos deben ser igual a los nombres que contiene el campo COUNTRY de "accessions without coordinates.dbf" (BOLIVIA, PERU) para que proceda la búsqueda de datos.

With the Windows Explorer and , go to the <DIVA dir>\gazet\ folder and rename the files BOL.dbf and PER.dbf to BOLIVIA.dbf and PERU.dbf. (Or first download these files from www.diva-gis.org

In the "Assing Coordinates" window (first tab; Select Files) select as Input File "accessions without coordinates.dbf" and as Output file put the any name; include all or some fields of your choice.

Assign Coordinates	
Select Files Select Fields View Input File View Output File Manual Assignment	
Select DBFs	
Input File: C:\Program Files\DIVA-GIS\tutor\Accessions without coordinates.dbf	
Output File: C:\Program Files\DIVA-GIS\tutor\con_coords.dbf	
Include fields:	
ID ID DIST1 I SPECIES I DIR1	Select All
COUNTRY IN NAME2	Select All
PROVINCE DIST2	Clear All
ALTITUDE IOCALITY NAME1	

Then, on the second tab, Select Fields, click on Refresh, and select the fields as indicated in the image below. Then return to the first tab and press Apply.

aAssign Co	oordinates						
Select Files Select Fields View Input File View Output File Manual Assignment							
- Gazetteers -							
Available co	untries in d:\div	va\sourced5\gazet\			Refresh		
Country:		Adm1:		Adm2:			
COUNTRY	•	DEPARTMENT	▼	PROVINCE	<u> </u>		
	Main L	ocality		Alternative	Locality		
Name :	NAME1	•	Name :	NAME2	.		
Distance :	DIST1	▼	Distance :	DIST2	.		
Direction :	DIR1	▼	Direction :	DIR2	.		

When the program has finished, go to the View Output File tab, to see the results:

3	Assign Coo	rdinates						
Se	elect Files 🛛 S	elect Fields 🕅	View Input F	le View Output File	Manual Assignment			
	K <	•	M	Record: 1 of 32	Details [Highlight]			
	LONG	LATI	OBSCODE	OBSTEXT				
	-76.4	-11.8046	1	Found with distance a	nd direction			
	-76.2919	-12.2	1	Found with distance and direction				
			0	Not Found				
			3	5 found: 3 equal(s) and	d 2 similar(s) in locality (-71.9780 , -13.5			
			3	8 found: 0 equal(s) and	d 8 similar(s) in locality (-72.3500 , -			
			0	Not Found				
	-65.8414	-21.45	1	Found with distance and direction				
	-68.3833	-18.2	2	Similar locality found:ESTANCIA CHUQUILLAMAYA in differer				
Ŀ					▼ ▶			

The program has created two new fields, LONG and LATI, in which the coordiantes that were found have been put. The new field OBSTEXT indicates how these have been determined. In case there was more than one match, there is a text like "found 4 equal(s), and 1 similar(s) in locality ...". In those cases you can look at these (as a list and on the map), by selecting the record (click on it) and pressing the *Details* button.