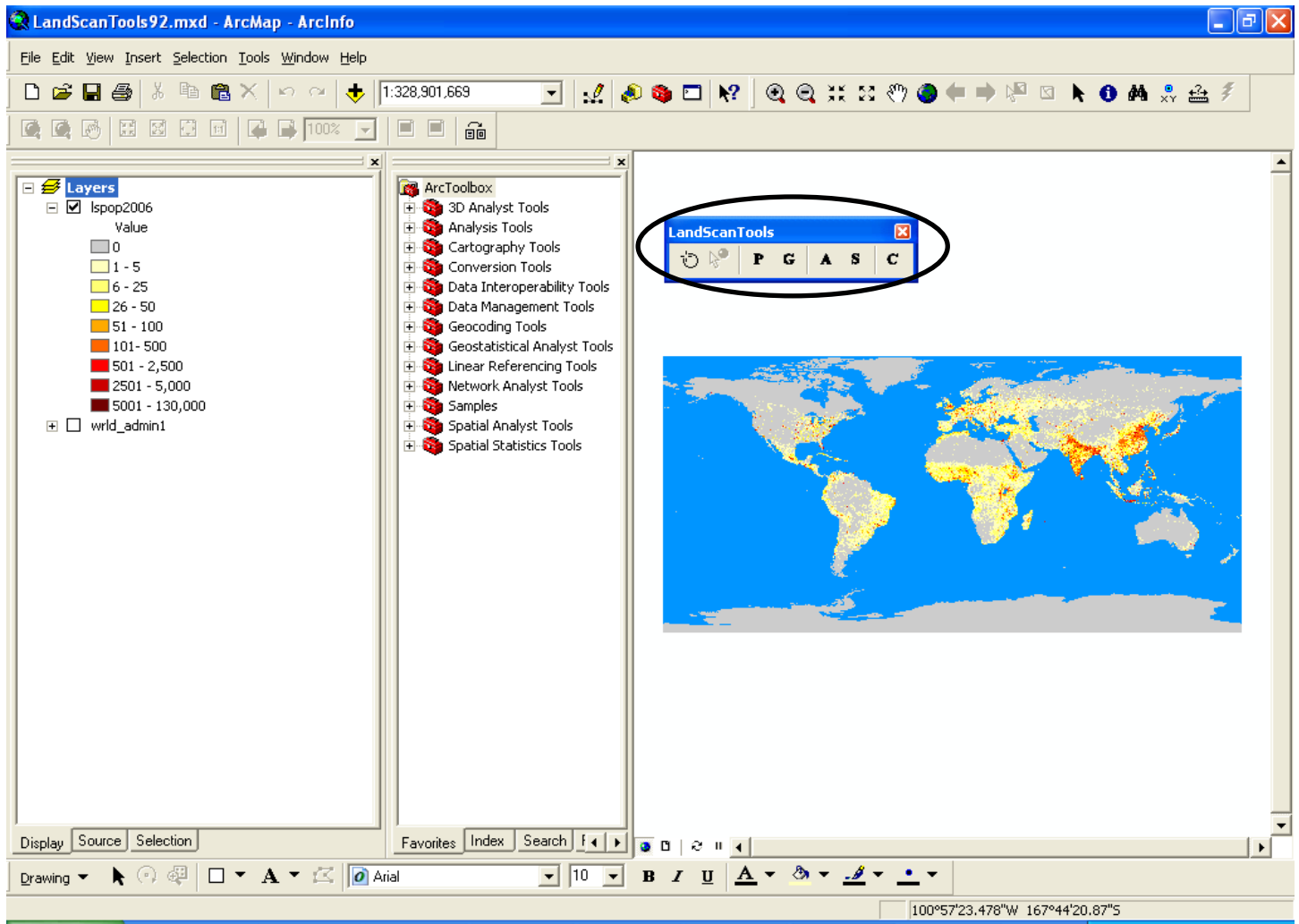
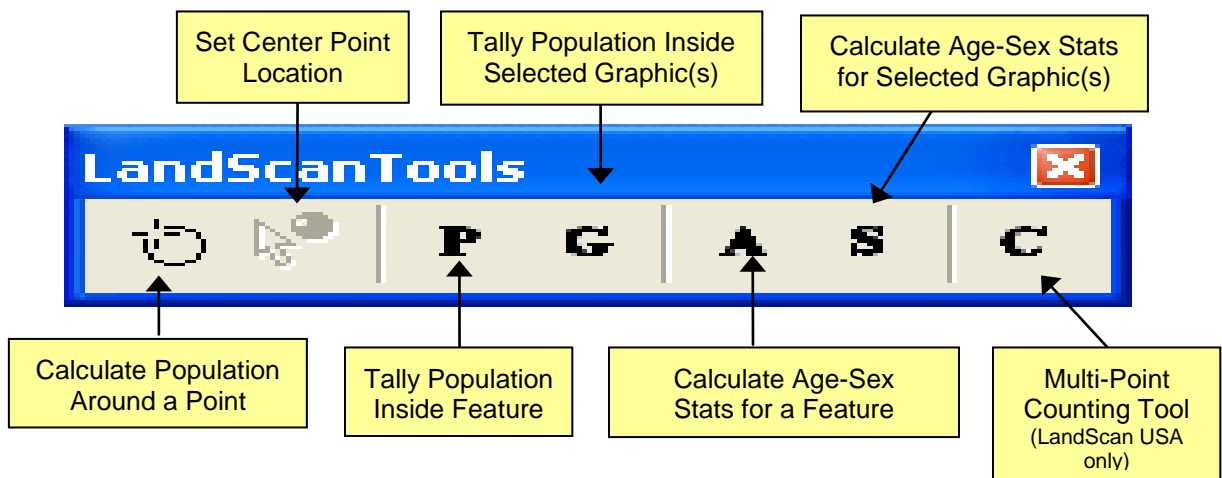


LandScan Tools Toolbar – Version 1.0 Beta

After opening the appropriate LandScan Tools Map File (LandScanTools.mxd), an ArcMap Screen similar to the one below should appear. (If the data has been copied from the supplied CD, then the data sources may have to be reset [see Appendix 1]).

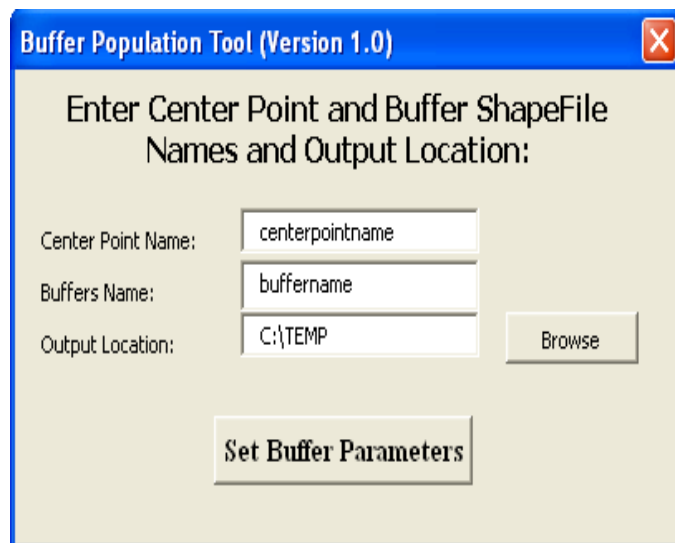


The LandScanTools Toolbar should already be displayed:



Calculate Population Around a Point:

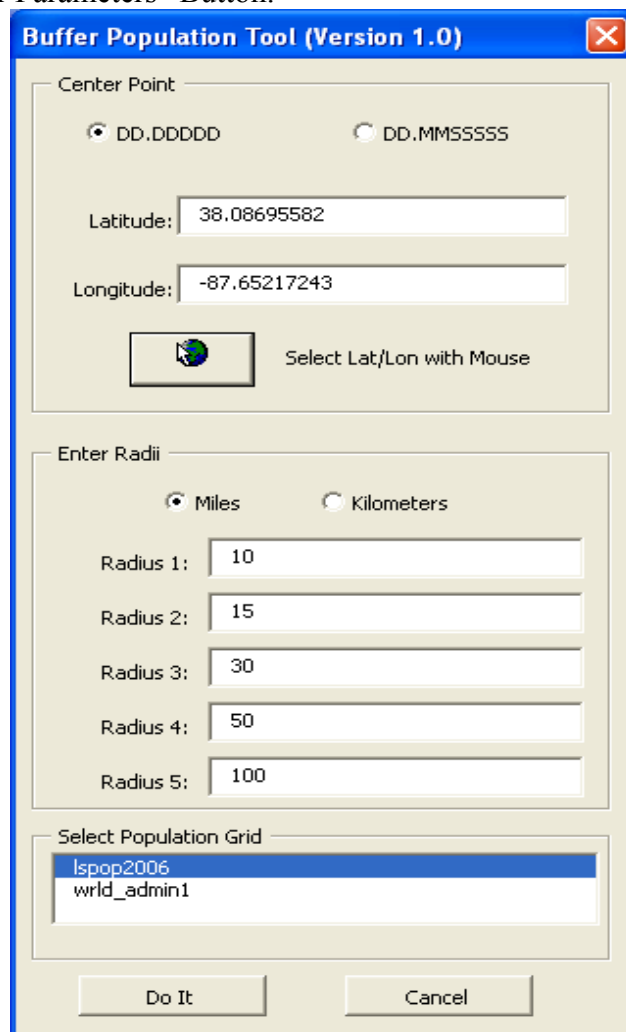
After clicking the “Calculate Population Around a Point” button, the following Form will appear.



The dialog box is titled "Buffer Population Tool (Version 1.0)". It contains the following fields and buttons:

- Center Point Name: centerpointname
- Buffers Name: buffername
- Output Location: C:\TEMP
- Browse button
- Set Buffer Parameters button

Enter names for the Center Point and Buffer Shapefiles, along with the output location. The “Browse” button can be used to select the appropriate folder for output. Center Point and Buffer Names cannot be the same, and if the filename already exists in the selected folder, an error message will appear prompting the name to be changed. Click the “Set Buffer Parameters” Button.



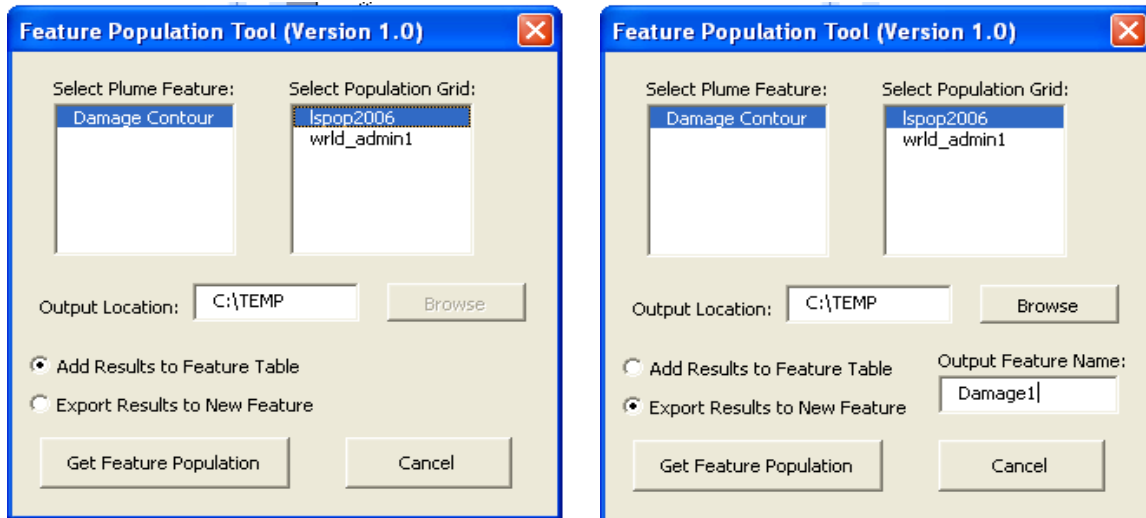
The dialog box is titled "Buffer Population Tool (Version 1.0)". It contains the following fields and buttons:

- Center Point
 - ☒ DD.DDDDD ☐ DD.MMSSSSS
 - Latitude: 38.08695582
 - Longitude: -87.65217243
 - Select Lat/Lon with Mouse button
- Enter Radii
 - ☒ Miles ☐ Kilometers
 - Radius 1: 10
 - Radius 2: 15
 - Radius 3: 30
 - Radius 4: 50
 - Radius 5: 100
- Select Population Grid
 - lspop2006
 - wrld_admin1
- Do It button
- Cancel button

The Center Point Location can be set manually by entering the coordinates in Decimal Degrees or Degrees, Minutes, Seconds, or by using the Select Lat/Lon with Mouse Tool. Enter the Radius Distance for each buffer in Miles or Kilometers. If fewer than five rings are desired leave the appropriate box blank. Finally Select the Population Grid to be used and Click the “Do It” Button.

Tally Population Inside Feature:

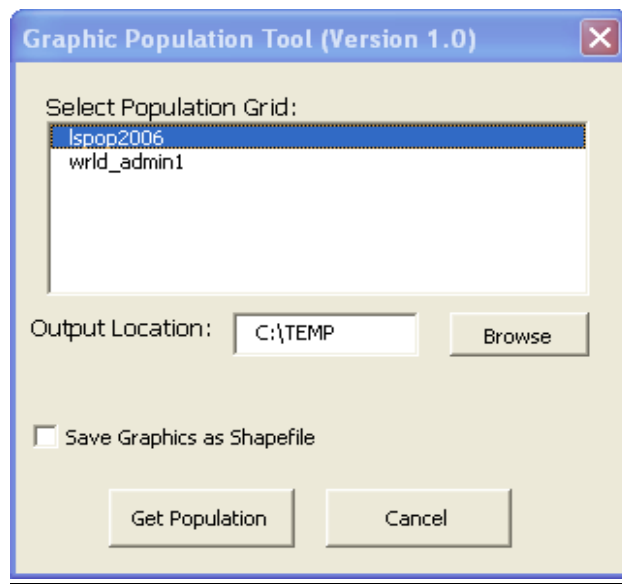
The Tally Population Inside Feature Tools gives you the option of either adding the results directly to the attribute table of the Selected Feature or to export a copy of the feature with the appropriate results.



If the “Add Results to Feature Table” Option is selected, simply choose the desired Plume Feature and Population Grid and Click “Get Population Feature”. Otherwise, enter a name for the Exported Feature.

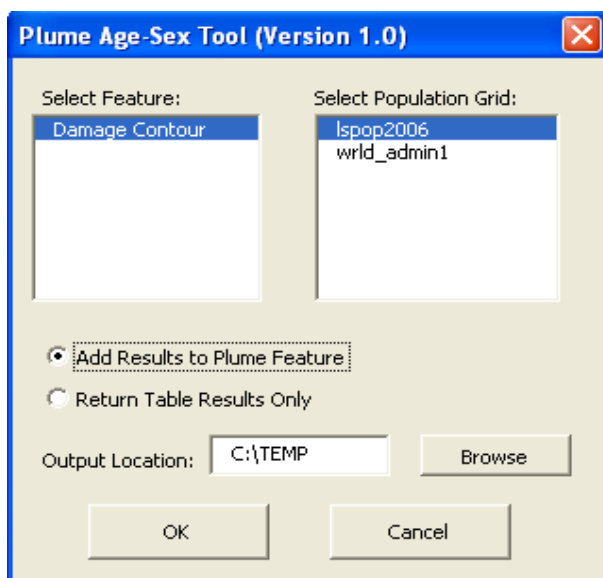
Tally Population Inside Selected Graphic(s):

Create desired graphic(s) on screen and select one or all for population calculation. Choose the Population Grid and decide if the Graphics need to be saved to a shapefile. If so, check the “Save Graphics as Shapefile” Box and enter a unique output name. Click “Get Population” Button.

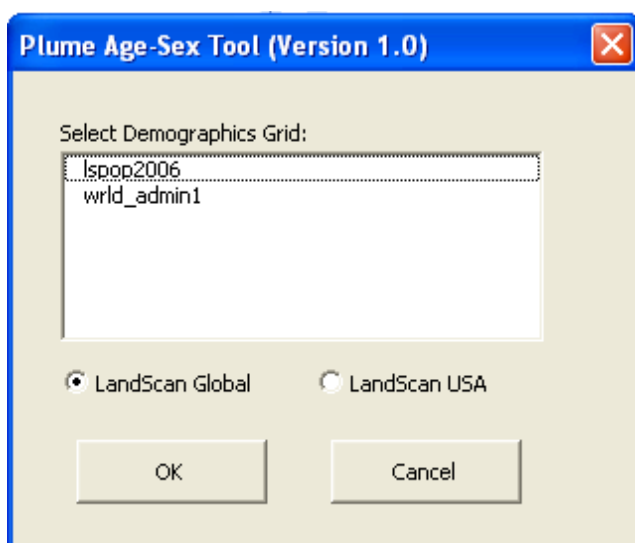


Calculate Age-Sex Stats for Feature:

The initial window for this tool is similar to that of the “Tally Population Inside Feature” Tool. Except, the option to export the feature is not available, instead the plume results will either be added to the feature and the remaining results are returned as tables, or all results are returned as a table.



After clicking “Ok”, select the Demographics grid from which the Age-Sex Statistics will be calculated.



If the Demographics Grid is for use with the LandScan Global Dataset select the radio button next to it. Otherwise, select LandScan USA. Click “Ok” to complete the calculation.

Calculate Age-Sex Stats for Selected Graphic(s):

The initial for this tool is identical to the one found in “Tally Population Inside Graphic(s)”. After clicking the “Ok” Button, the form to select the country grid will appear as in the “Calculate Age-Sex Stats Inside Feature”.

Warning: Using Extremely Large Distances in the Buffer Tool will most likely cause an application failure (i.e. distances over 3000 miles/km).

Additionally, there are checks to ensure that the selected grids are the appropriate population and country grids. If the appropriate grids are not selected the tools will either fail or return incorrect answers.

Multi-Point Counting Tool (Not Available in LandScan Global)

This tool can be used to calculate population and demographics for a given buffer distance around a set of point feature layers. The user can use either LandScan Population and Demographics data or Census Population Data. The user can select from several different distance units and buffer types. The buffers can be either a single buffer with a single distance, or multiple buffers with a defined distance and number of rings. For each calculation, the user can decide whether to calculate demographics and which demographics to calculate. When a single buffer is selected, the user has the option of selecting between “Unioned Buffers” and “Intersected Buffers”. “Unioned Buffer” rings will merge if they overlap, while “Intersected Buffer” Rings will create a new polygon feature where each buffer overlaps. Another option is to have the output saved to an Excel File, if this is chosen a copy of the buffer attribute table in Excel format is placed in the directory along with the buffers.

The screenshot shows the 'Population Counting Tool (Version 1.0)' window. It is divided into two main sections: 'Input Definition' and 'Output Definition'.

Input Definition:

- Pick Source Theme:** A list box containing 'Facility Locations'.
- Pick Buffer Distance Units:** A list box with options: Degree, Meters, Feet, Kilometers, Miles (selected), NauticalMiles, Millimeters, Centimeters.
- Buffer Type:** Radio buttons for 'Single' (selected) and 'Multiple'.
- Buffer Distance:** A text box with '0.5' and the unit 'Miles'.
- Refresh Themes:** A button.
- Input Population Data:** Radio buttons for 'LandScanUSA Grid' (selected) and 'Census Polygons'.
- Select Population Grid:** A list box with 'lspop2006' and 'wrld_admin1'.
- Select Demographics Grid:** A list box with 'lspop2006' and 'wrld_admin1'.
- Select Demographics Fields:** A list box with 'PTOTM', 'PTOTF', 'PMD_4', 'PFO_4', and 'PMS_9'.
- Calculate Demographics:** A checked checkbox.

Output Definition:

- Output Type:** Radio buttons for 'Unioned Buffer' (selected) and 'Intersected Pieces'.
- Output Buffer File Name:** A text box with 'C:\temp\buff1.shp'.
- Browse Output:** A button.
- Save Output Table to Excel:** An unchecked checkbox.
- Cumulative Buffer Totals:** An unchecked checkbox.
- Calculate:** A large button.
- Close:** A button.

When using Census Polygon data, a Proportional Area Method will be used for calculating portion of population in each area of the polygon. Meaning that the population is dispersed evenly across the polygon's area and then the portion of the buffer in that polygon determines the amount of population. For example, if 25% of a census polygon is covered by a buffer, the 25% of the population for that polygon will be added to the

buffer. Also, when multiple buffers are selected there is an option to “Cumulate the Buffer Totals” into a single summary table.

Population Counting Tool (Version 1.0)

Input Definition

Pick Source Theme:
Facility Locations
blocks2000
Refresh Themes

Pick Buffer Distance Units:
Degree
Meters
Feet
Kilometers
Miles
NauticalMiles
Milimeters
Centimeters

Buffer Type
☐ Single
☒ Multiple

Increment Distance: 0.5 Miles
Number of Buffers: 5

Proportional Area Method For Polygons

Input Population Data
☐ LandScanUSA Grid
☒ Census Polygons

Select Population Grid:
blocks2000

Select Calculation Fields:
POP2000
WHITE
BLACK
AMERI ES
ASIAN

☒ Calculate Demographics

Output Definition

Output Type
☒ Unioned Buffer
☐ Intersected Pieces

Output Buffer File Name:
C:\temp\buff1.shp
Browse Output

☐ Save Output Table to Excel
☒ Cumulative Buffer Totals

Calculate
Close

Appendix 1 – Repair Data Source in ArcMap

If the data is copied from the supplied CD then it will be necessary to restore the data sources for each of the default layers in the LandScanTools.mxd file. To do this, first right-click on the layer and select properties. Next, select the “source” tab and click on the “Set Data Source” button in the bottom right corner of the dialog box (Figure 1). Then navigate to the location of the copied data and locate the correct data source for the selected layer. Click the add button and the data source will now be set to the new location.

