DecAID Regional Analysis: Instructions for using data

Contents

Overview

A new version of the Gradient Nearest Neighbor (GNN) data was released in 2014. The GNN data are up to date through 2012. A distribution analysis has been run for all of Region 6 by Cole Belongie in DRM using the 2012 GNN data. All pertinent information is now located on the T drive at: T:\FS\Reference\GeoTool\r06\Toolbox\DecAID.

Organized raster layers for ArcGIS can be found at:
T:\FS\Reference\GIS\r06\Layerfile\Wildlife\WildlifeHabitatMaps\DecAIDRasters.lyr

```
□ 🗁 T:\FS\Reference\GIS\r06\LayerFile\Wildlife
  ⊞ 🗀 Restricted
  ⊞ 🗀 StateGameManagement
  ⊞ 🗀 T&E_Species
  □ 🗁 WildlifeHabitatMaps
       ◇ DecAIDRasters.lyr
```

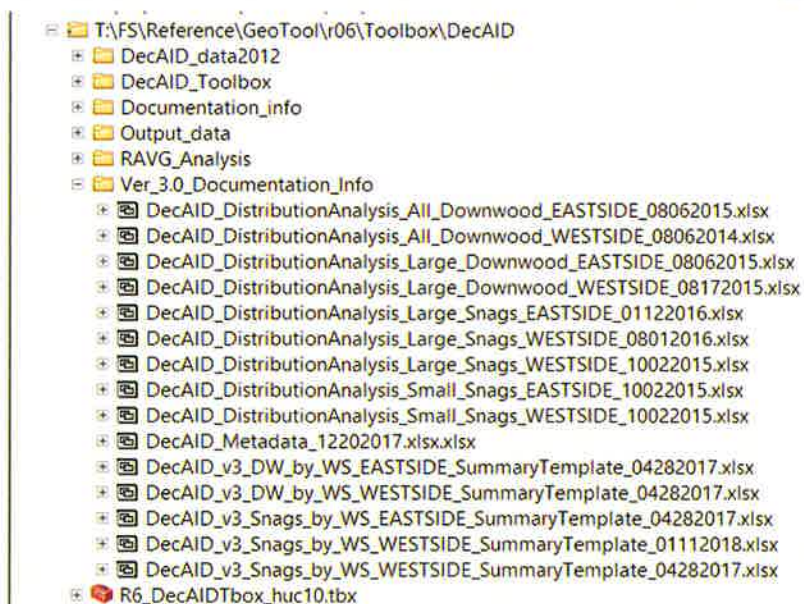**These data can be used as is and clipped to your forest boundary or watershed**.

See the DecAID_Metadata spreadsheet in the "Documentation_info" folder for details about the data used in the analysis and the output data available.

The "Documentation_info" folder not only contains the DecAID metadata, but also instruction documents and Excel templates for summarizing the Regional Analysis data and creating distribution histograms. This information is located at: T:\FS\Reference\GeoTool\r06\Toolbox\DecAID\Documentation_info

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□ 🗀 T:\FS\Reference\GeoTool\r06\Toolbox\DecAID
  ⊞ 🗀 DecAID_data2012
  ⊞ 🗀 DecAID_Toolbox
  ⊞ 🗀 Documentation_info
  ⊞ 🗀 Output_data
  ⊞ 🗀 RAVG_Analysis
  □ 🗀 Ver_3.0_Documentation_Info
     ⊞ 🖻 DecAID_DistributionAnalysis_All_Downwood_EASTSIDE_08062015.xlsx
     ⊞ 🖻 DecAID_DistributionAnalysis_All_Downwood_WESTSIDE_08062014.xlsx
     ⊞ 🖻 DecAID_DistributionAnalysis_Large_Downwood_EASTSIDE_08062015.xlsx
     ⊞ 🖻 DecAID_DistributionAnalysis_Large_Downwood_WESTSIDE_08172015.xlsx
     ⊞ 🖻 DecAID_DistributionAnalysis_Large_Snags_EASTSIDE_01122016.xlsx
     ⊞ 🖻 DecAID_DistributionAnalysis_Large_Snags_WESTSIDE_08012016.xlsx
     ⊞ 🖻 DecAID_DistributionAnalysis_Large_Snags_WESTSIDE_10022015.xlsx
     ⊞ 🖻 DecAID_DistributionAnalysis_Small_Snags_EASTSIDE_10022015.xlsx
     ⊞ 🖻 DecAID_DistributionAnalysis_Small_Snags_WESTSIDE_10022015.xlsx
     ⊞ 🖻 DecAID_Metadata_12202017.xlsx.xlsx
     ⊞ 🖻 DecAID_v3_DW_by_WS_EASTSIDE_SummaryTemplate_04282017.xlsx
     ⊞ 🖻 DecAID_v3_DW_by_WS_WESTSIDE_SummaryTemplate_04282017.xlsx
     ⊞ 🖻 DecAID_v3_Snags_by_WS_EASTSIDE_SummaryTemplate_04282017.xlsx
     ⊞ 🖻 DecAID_v3_Snags_by_WS_WESTSIDE_SummaryTemplate_01112018.xlsx
     ⊞ 🖻 DecAID_v3_Snags_by_WS_WESTSIDE_SummaryTemplate_04282017.xlsx
  ⊞ 🔴 R6_DecAIDTbox_huc10.tbx
```

The DecAID Toolbox contains programs to run the analysis using your own data or re-running updated data. See the DecAID_Metadata spreadsheet for details about the Toolbox. The output data from the Regional Analysis and the R6_DecAIDTbox_huc10.tbx are located at: T:\FS\Reference\GeoTool\r06\Toolbox\DecAID

You will only need to use these datasets if you want to re-run the analysis. The main reason to rerun the analysis would be to change dead wood amounts due to fires or bug kill that has occurred since 2012 and not within the DecAID Metadata spreadsheet.

- T:\FS\Reference\GeoTool\r06\Toolbox\DecAID
  - DecAID_data2012
  - Documentation_info
  - Output_data
  - R6_DecAIDTbox_huc10.tbx
    - Toolset
      - Forest_huc_dwd
      - Forest_huc_snag
      - LocalRoadSnagDensity
      - RegionalRoadSnagDensity

Step 1 – Clip Regional Data to Your Area
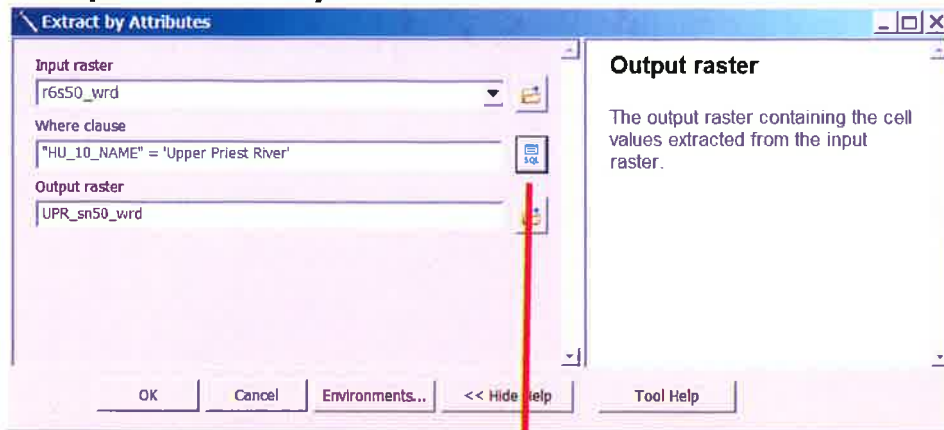
Clip the DecAID rasters layers and the input r6_huc10 raster to your Forest or Analysis Area using the ArcToolbox Spatial Analyst Tools/Extraction/**Extract by Mask**. Name the new rasters using your forest or study area ID (e.g., if on Ochoco NF: och_huc10, och_sn25PP, or och_sn50rds). *Note: The rasters with the ending _Roads should be used if you have a roadside firewood program in your area. These rasters have built in a proportionate reduction in density to reflect firewood harvesting.*

To "clip" data to a specific watershed or a few watersheds use the **Extract by Attributes** tool instead of the Extract by Mask tool. There is not a perfect match between the watershed shape files and the rasters assigned to each watershed so the results of an Extract by Mask are likely to include records for all adjacent watersheds (usually as small slivers).

Example of Extract by Mask

ArcToolbox

- ⊞ 🟥 Nautical Tools
- ⊞ 🟥 Network Analyst Tools
- ⊞ 🟥 Parcel Fabric Tools
- ⊞ 🟥 Production Mapping Tools
- ⊞ 🟥 Schematics Tools
- ⊞ 🟥 Server Tools
- ⊟ 🟥 Spatial Analyst Tools
  - ⊞ 🟦 Conditional
  - ⊞ 🟦 Density
  - ⊞ 🟦 Distance
  - ⊟ 🟦 Extraction
    - 🖋 Extract by Attributes ←
    - 🖋 Extract by Circle
    - 🖋 Extract by Mask ←
    - 🖋 Extract by Points
    - 🖋 Extract by Polygon
    - 🖋 Extract by Rectangle
    - 🖋 Extract Multi Values to Points
    - 🖋 Extract Values to Points
    - 🖋 Sample

Extract by Mask

Input raster

DecAIDRasters\Snag50AssociatedWildlifeHabitatTypes LP MMC EMC PPDF SWOMC WLCH\Snags 50cmdbh

Input raster or feature mask data

Watershed

Output raster

HUC10_sn50

Output raster

The output raster containing the cell values extracted from the input raster

OK   Cancel   Environments...   << Hide Help   Tool Help

# Example of Extract by Attributes
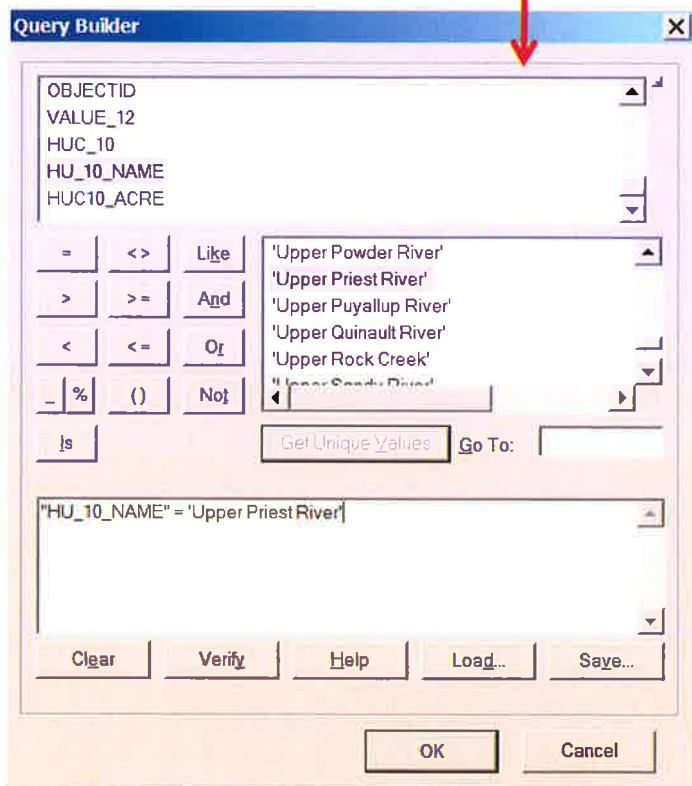
- ➢ Use the Query Builder to create the query in the middle input box by clicking on the icon at the right of the box.
- ➢ Upper box lists the fields ... select HUC_10_NAME by double clicking on the field name
- ➢ Make it equal to by clicking once on the = sign
- ➢ Click on Get Unique Values box. Then select the value by double clicking on the watershed name.
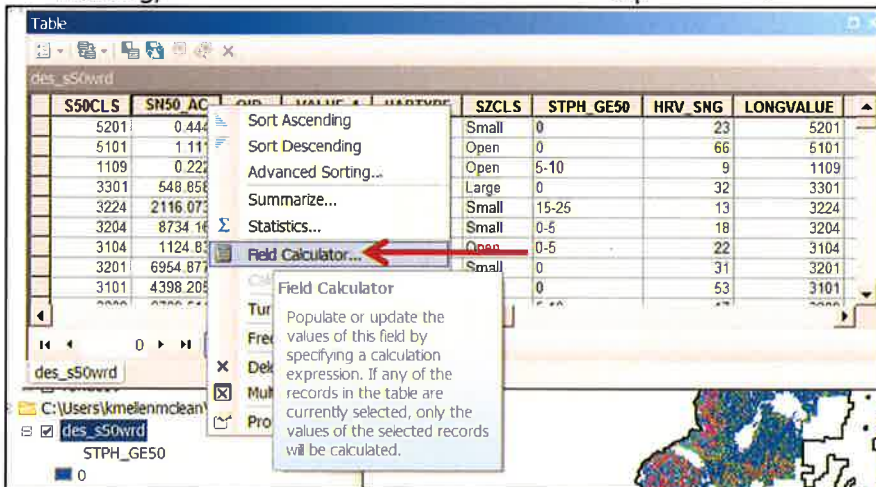- ➢ Click on OK.

Step 2 – Update Acreages

When the rasters are clipped to the Forest or study area boundary, the watershed acres (HUC10_ACRES) will not be updated to reflect the acres in your area. In addition, if the watershed crosses 2 Forests, the resulting acres by Snag Density Class and Down Wood Percent Class will reflect acres across the whole watershed and those acres will need to be recalculated.

Update Snag Density and Percent Cover Classes Acres - It is recommended that the Watershed, Snag Density Class, Down Wood Percent Cover Class acres are updated once for the whole Forest. Fields that need to be updated after clipping the data include: SN25A_AC, SN25B_AC, SN50_AC, DW12A_AC, DW12B_AC, DW50A_AC, DW50B_AC

➢ Open up each Attribute Table by right clicking on the individual rasters.
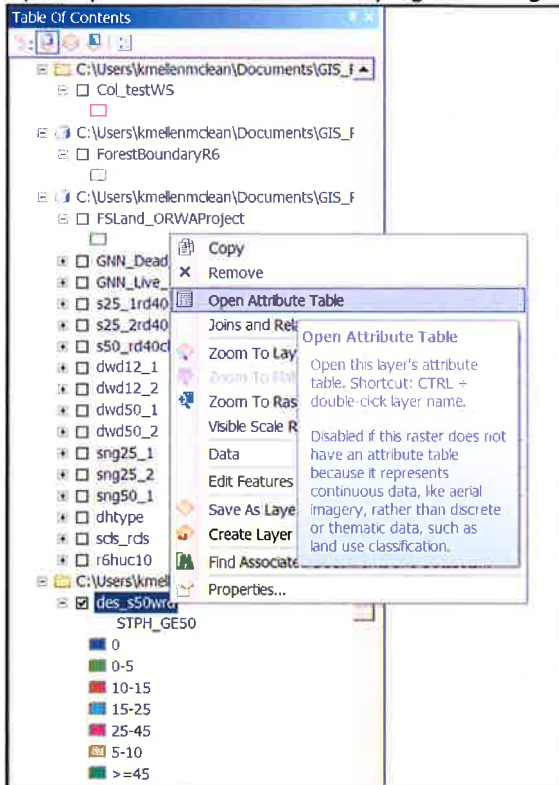
➢ Calculate the acres for the snag density or percent cover classes using the Field Calculator. Right click on the field heading, and select Field Calculator from the drop down list.

➢ Answer Yes if prompted

Field Calculator

You are about to do a calculate outside of an edit session. This method is faster than calculating in an edit session, but there is no way to undo your results once the calculation begins. Do you wish to continue?

☐ Don't warn me again

[Yes]   No

➢ In the Field Calculator window, enter ([COUNT]*(900/10000)*2.47) in the lower window. Then click on OK.

Field Calculator

Parser
● VB Script   ○ Python

Fields:
Rowid
VALUE
COUNT
DHTYPE
SCLS_RCLS
SNG50_1
R6HUC10
S50CLS
SN50_AC
OID

Type:
● Number
○ String
○ Date

Functions:
Abs ( )
Atn ( )
Cos ( )
Exp ( )
Fix ( )
Int ( )
Log ( )
Sin ( )
Sqr ( )
Tan ( )

☐ Show Codeblock

SN50_AC =

([COUNT]*(900/10000)*2.47)

About calculating fields   Clear   Load...   Save...

OK   Cancel

Update Total Watershed Acres - The acres within each HUC10 within your area can be updated as in ArcGIS. Alternatively, the same calculations and queries can be done in MS Access.

➢ Open the Attribute Table by right clicking on the huc10 raster
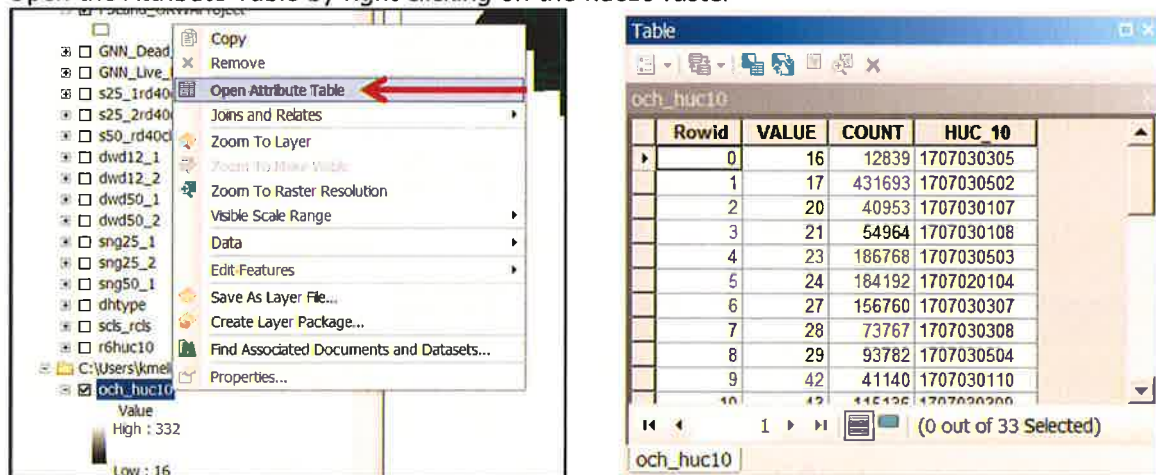
➢ Add a new field to the Attribute Table (e.g., *Forest*_HUC10_ACRES). Left click on the dropdown arrow in the top left side of the table header, select Add Field and name the new field in the window that pops up. Select
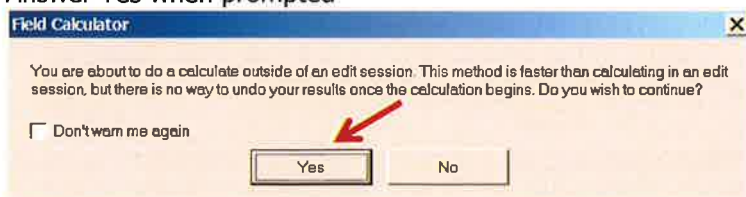
Double as the Type, and click OK.
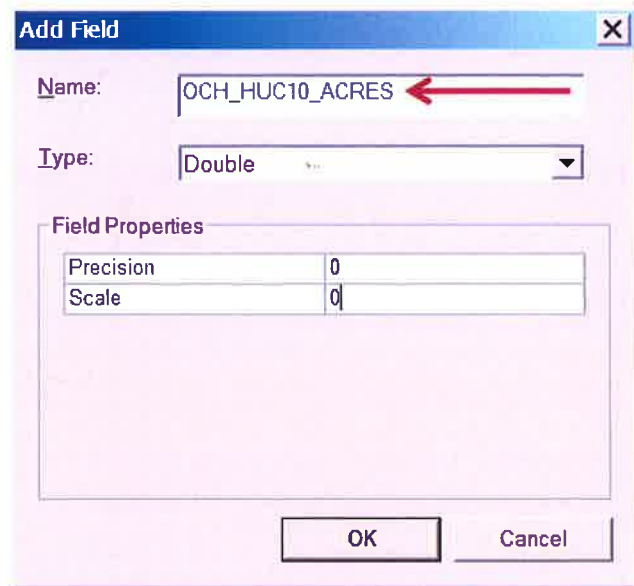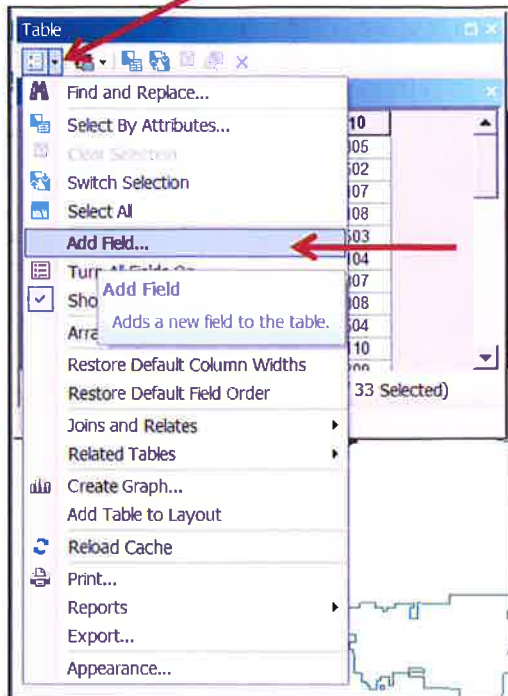
➢ Calculate the watershed acres using the Field Calculator by right clicking on the new field heading, and selecting Field Calculator on the drop down list.
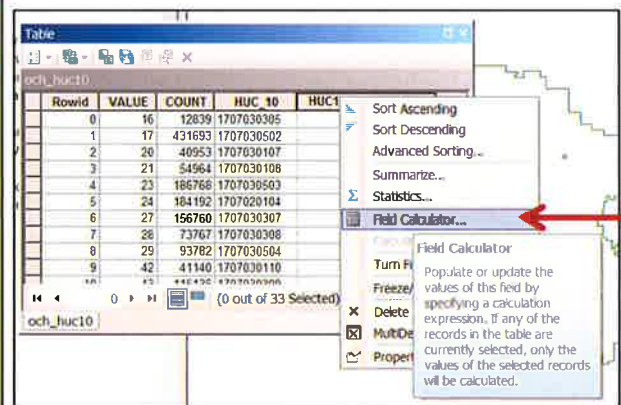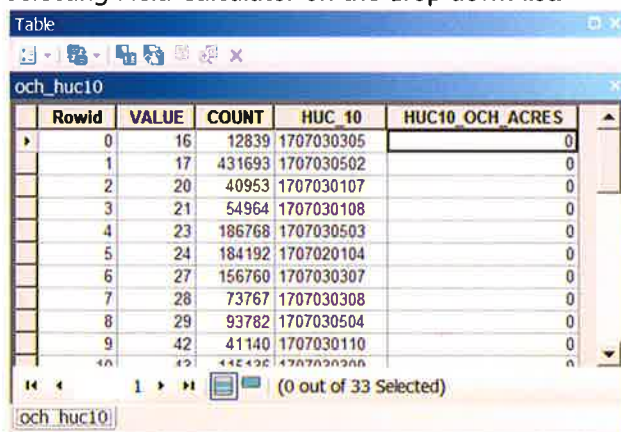
➢ Answer Yes when prompted

➤ In the Field Calculator window, enter ([COUNT]*(900/10000)*2.47) in the lower window. Then click on OK.

Field Calculator

Parser
◉ VB Script   ○ Python

Fields: Type: Functions:
Rowid   ◉ Number   Abs ( )
VALUE   ○ String   Atn ( )
COUNT   ○ Date   Cos ( )
HUC_10   Exp ( )
OCH_HUC10_ACRES   Fix ( )
                                              Int ( )
                                              Log ( )
                                              Sin ( )
                                              Sqr ( )
                                              Tan ( )

☐ Show Codeblock

OCH_HUC10_ACRES =
[COUNT] *(900/10000) * 2.47)

About calculating fields   Clear   Load...   Save...

OK   Cancel

Table — och_huc10

Rowid	VALUE	COUNT	HUC_10	OCH_HUC10_ACRES
0	16	12839	1707030305	2854.1097
1	17	431693	1707030502	95965.3539
2	20	40953	1707030107	9103.8519
3	21	54964	1707030108	12218.4972
4	23	186768	1707030503	41518.5264
5	24	184192	1707020104	40945.8816
6	27	156760	1707030307	34847.748
7	28	73767	1707030308	16398.4041
8	29	93782	1707030504	20847.7386
9	42	41140	1707030110	9145.422

◄◄ ◄   0 ► ►◄   (0 out of 33 Selected)

och_huc10

Optional: *If you want to have the watershed names associated with the updated acres the data can be exported to Access and queried or completed in ArcGIS as follows:*

➢ In ArcToolbox select Data Management Tools/Join/Join Field.

➢ Select your study area huc10 raster from the first drop down list, select HUC_10 as the Input Join Field, select LUT_HUC10_New from the Join Table list, and again select HUC_10 as the Output Join Field. Since you only need the name and acreage added to your table, check only "HU_10_NAME" and "HUC10_ACRE" from the "Join Fields (optional)" section.
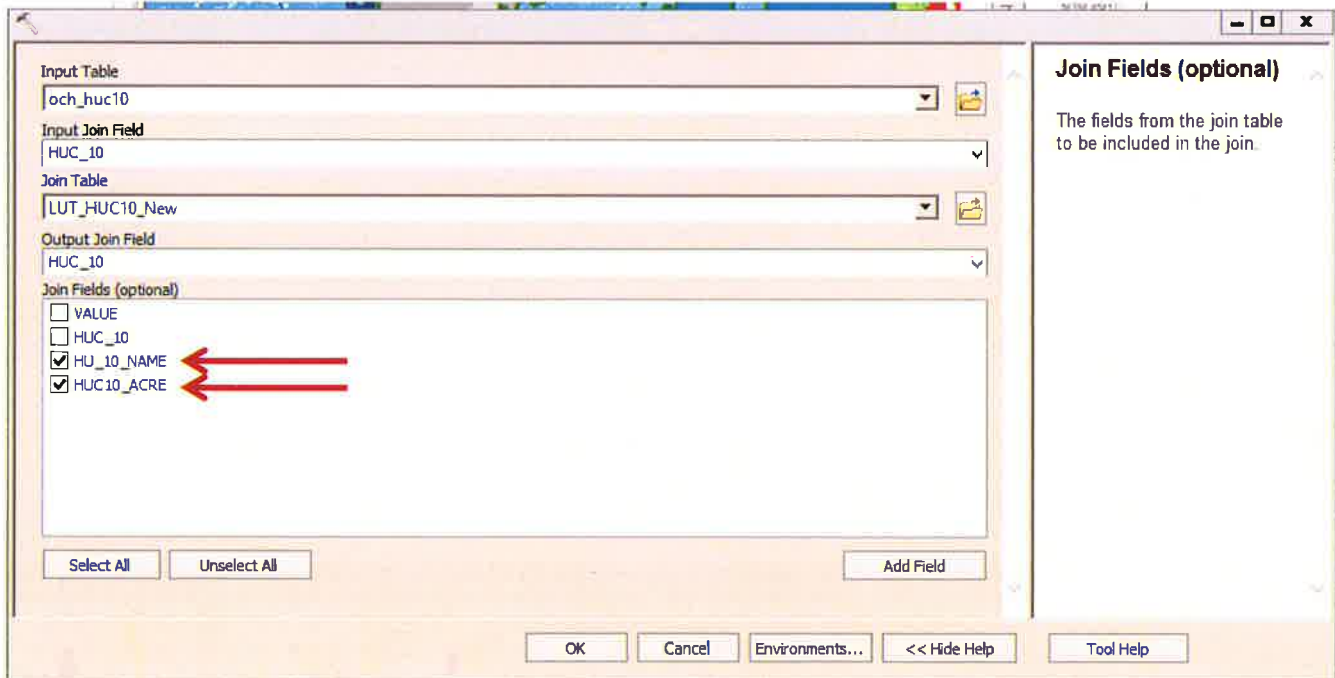
➤ Sometimes when you try to join fields like this the join will fail:
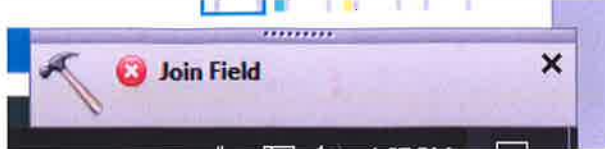
This is usually due to a failure to acquire a lock on the table. You can find out more information by looking under the Geoprocessing menu->Results:
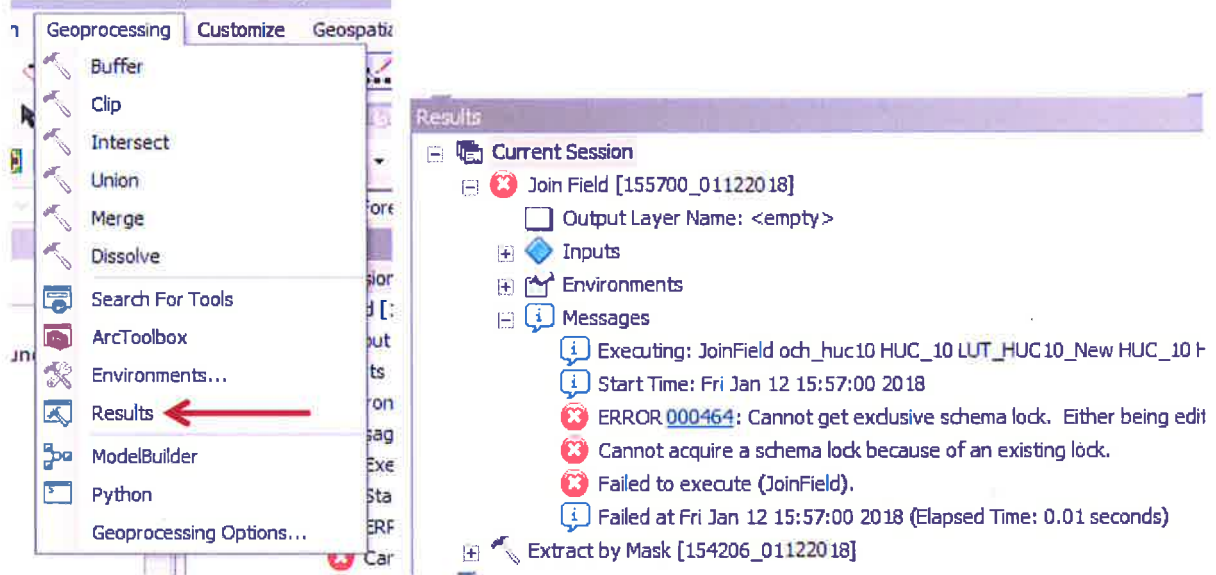
If you get this kind of error save your work, quit completely out of all instances of ArcMap and ArcCatalog, and then restart ArcMap and try again.
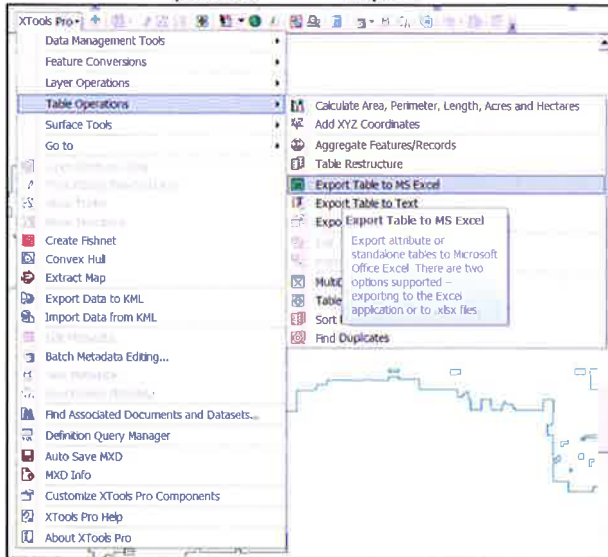
Step 3 – Export Data to Excel

Export data from ArcGIS using XToolsPro/Table Operations/Export Table to MS Excel.
Don't have XTools Pro? See Appendix A.

*For XTools Pro installed on your toolbar click on the drop down arrow:*

➢ Select Table Operations and Export Table to MS Excel:

➢ If the raster you want to export is highlighted in the Table of Contents it will automatically populate the "Select input datasource" field. Otherwise, select "Map content" and scroll to the raster you want to export to Excel:
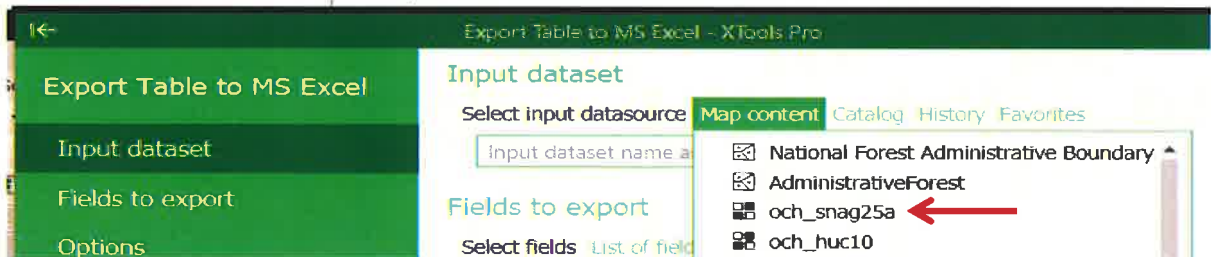
➢ Select the useful fields for export by clicking the appropriate boxes. (See table below for a list of fields if you are using the spreadsheet templates.) Then click "Run" in the lower left-hand corner.
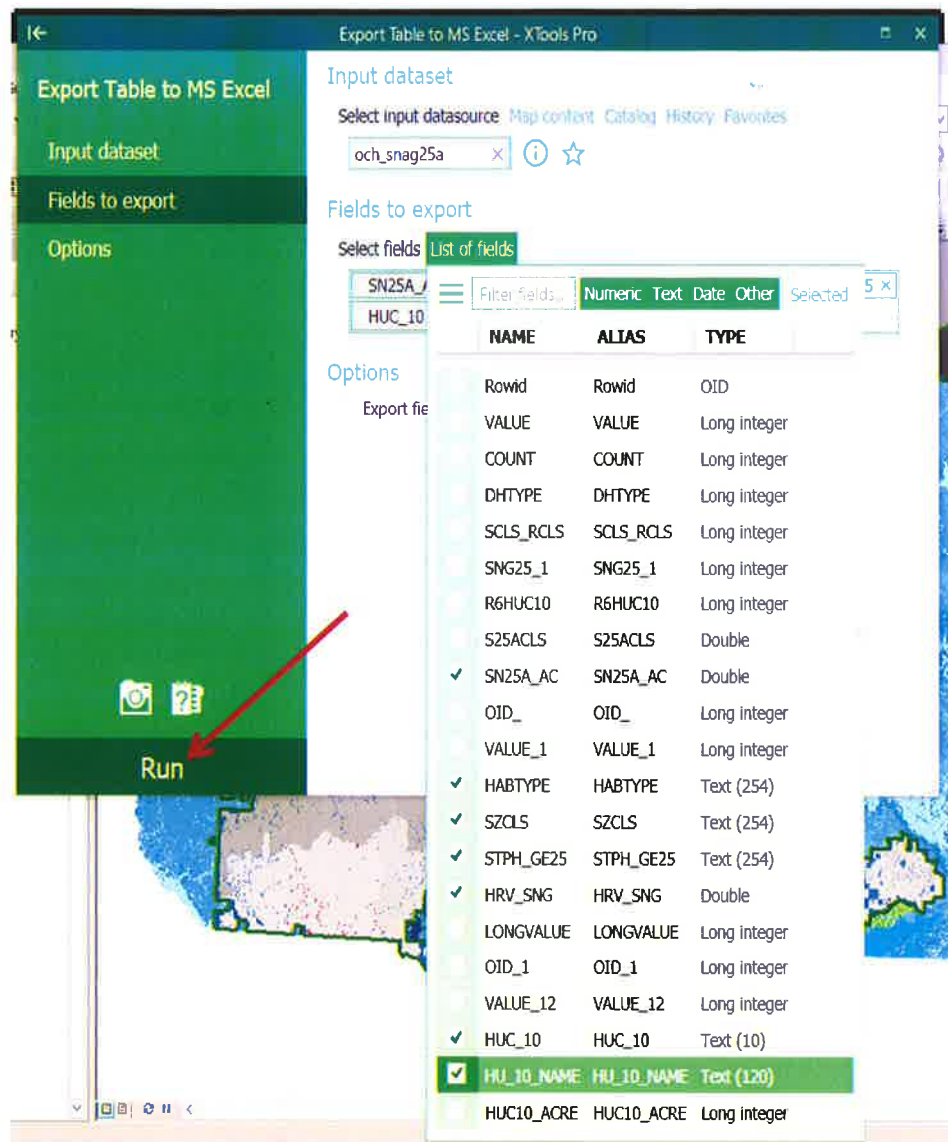
➢ Xtools will state it is running the Export Data to MS Excel Tool. Once the data export is complete, an excel window should automatically open with the data. Save the data to an appropriate location. Repeat for all tables that you want to include in the Distribution Analysis.

➤ Note: If you are working in Citrix and Excel doesn't open automatically or Xtools reports an error that it cannot find Excel, go to the Citrix web page in Folders->GIS->ArcGIS->Office 2013 and click on "Excel 2013" to launch it. Then try running the export tool again.
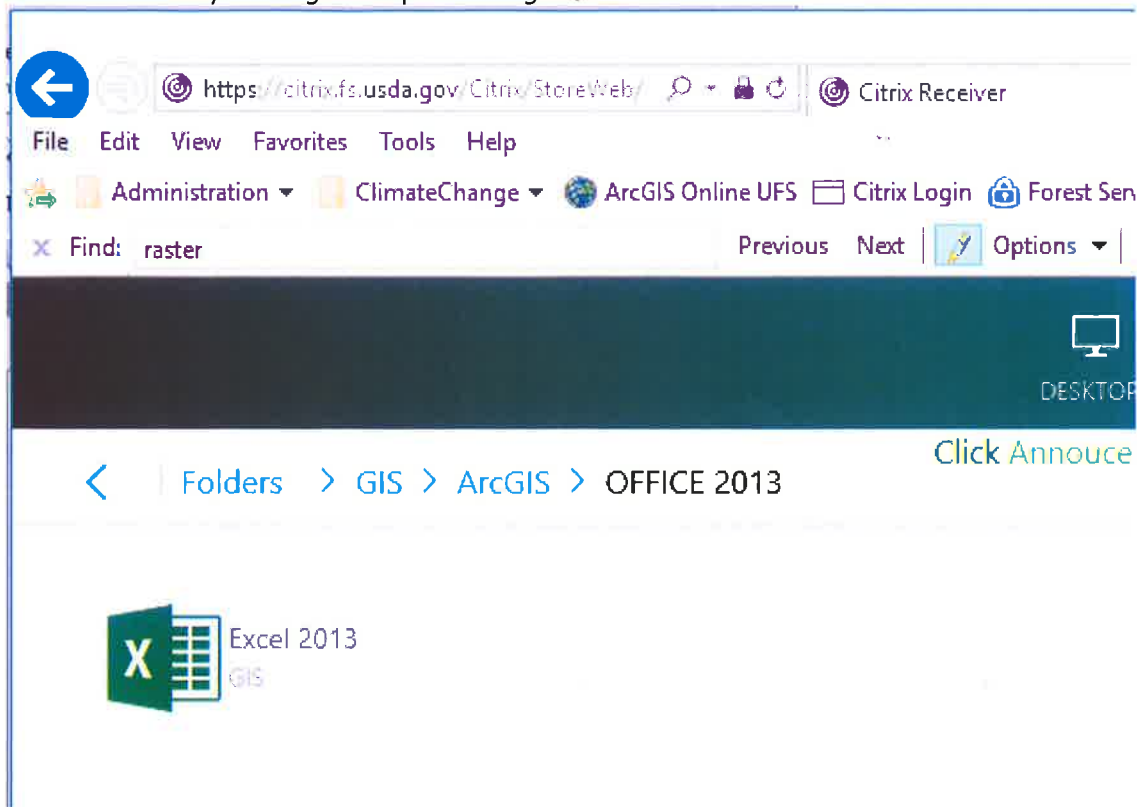
If you plan on using the spreadsheet templates select only the following fields:

*_snag25a, _sn25a_rd	*_snag25b, *_sn2b5_rd	*_snag50, *_sn50_rd	*_huc10
SN25A_AC	SN25B_AC	SN50_AC	forest_HUC10_ac
HABTYPE	HABTYPE	HABTYPE	HUC_10
SZCLS	SZCLS	SZCLS	HU_10_NAME
STPH_GE25	STPH_GE25	STPH_GE50	
HRV_SNG	HRV_SNG	HRV_SNG	
HUC_10	HUC_10	HUC_10	
HU_10_NAME	HU_10_NAME	HU_10_NAME	

*_dw12a	*_dw12b	*_dw50a	*_dw50b
DW12A_AC	DW12B_AC	DW50A_AC	DW50B_AC
HABTYPE	HABTYPE	HABTYPE	HABTYPE
SZCLS	SZCLS	SZCLS	SZCLS
PCTCOV	PCTCOV	PCTCOV	PCTCOV
HRV_DWD	HRV_DWD	HRV_DWD	HRV_DWD
HUC_10	HUC_10	HUC_10	HUC_10
HU_10_NAME	HU_10_NAME	HU_10_NAME	HU_10_NAME

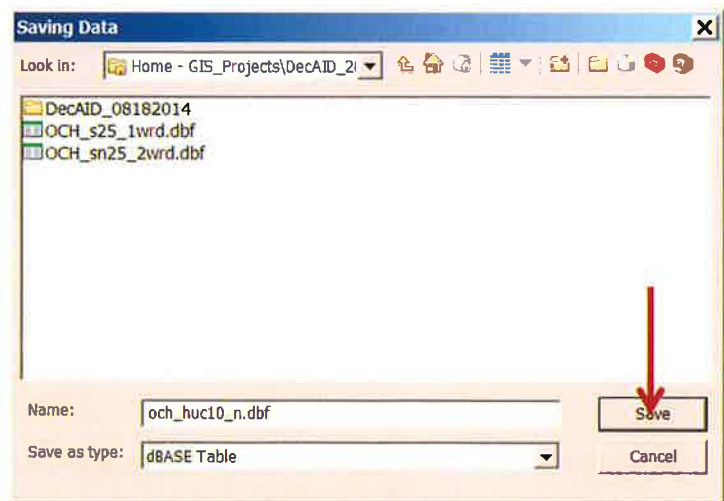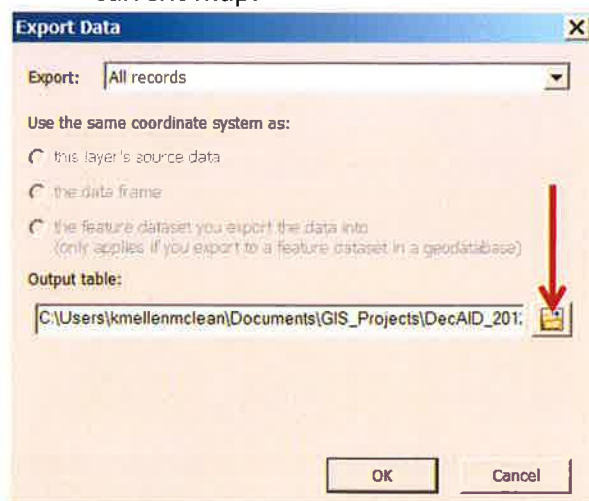Once the data are exported to MS Excel close out of ArcGIS and open the Excel templates.

If you do not use XTools Pro you can still export the raster with the updated acreages to Excel by doing the following:

➢ Create a dbf file from the raster file. Open the Attribute Table by right clicking on the raster. Left click on the dropdown arrow in the top left side of the table header, select Export
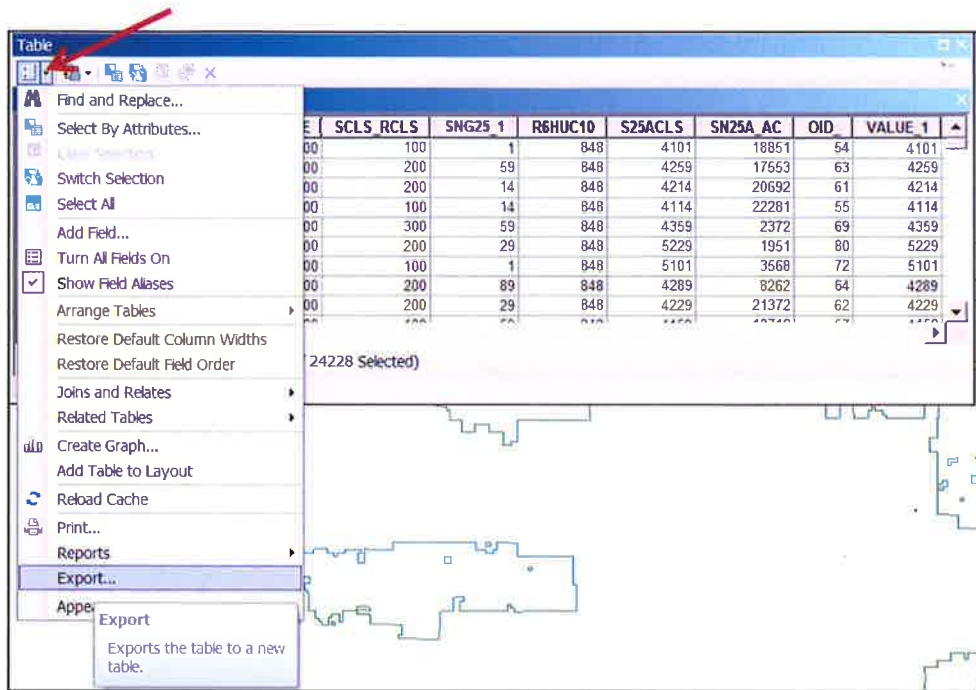
➢ Click on the folder icon. Select an output location and a file name in the pop up window. Make sure the "Save as type" is dBASE Table. Click on Save. Then click OK. Repeat this process for all the raster tables you want to export. Click yes when prompted to add the new table to the current map.

Once the data are exported to MS Excel close out of ArcGIS and open the Excel templates and follow instructions in the **Instructions for the spreadsheet template.docx**.

Appendix A – Installing XTools Pro

Add the XTools Pro extension using the Customize tab