

# EXERCISE 1

## Editing – Create Data

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### Introduction

In this exercise you will be Acting as a Timber Sale planner and create a simple feature class of proposed treatment areas, by means of “heads-up” digitizing. You will use FSveg Data, a national dataset managed by the Natural Resource Manager (NRM) group, and aerial photography as a backdrop to find potential areas that meet your treatment criteria. This exercise walks you through basic data creation using the Catalog Pane, basic digitizing using the Editing ribbon, and the Construction tools in the Create Features pane.

### Objectives

- Become familiar with basic data creation and digitization
- Learn how to create new points, digitize lines and polygons on the map, change editing tools and utilize snapping while creating features

### Required Data:

- **ArcGISProEditing.zip**– zipfile containing all data for the course.

### Prerequisites

- Install ArcGIS Pro on local computer.
- Completed the GTAC “Arc Pro for ArcMap Users” class or equivalent experience.
- Copy the data to your workspace and unzip.



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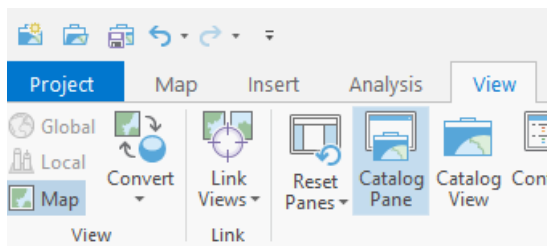
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DISCLAIMER: The goal of these exercises is to provide various editing techniques to help you become familiar with the ArcGIS Pro interface. The data management techniques used in the exercises provide examples of how to plan, create, edit, and document any type of resource data to improve effectiveness, efficiency, and data integrity. Neither the data nor the workflows in these exercises represent actual Timber Sale protocols used in the Forest Service. The exercise scenarios use original data from an actual past timber project on the Black Hills National Forest, however it has been manipulated for this training.

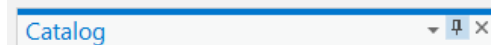
# Part 1: Create a New Feature Class

In ArcGIS Pro there is a default geodatabase created with every project. As a Silviculturist for the Forest Service you will begin planning a timber sale by using the information in the FS Veg stand evaluations combined with the aerial photography underneath. Your Project is set up and ready to go with the layers you need loaded and symbolized.

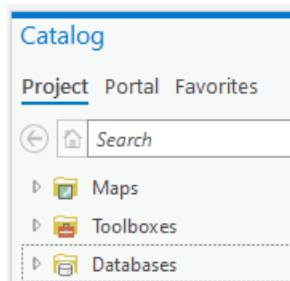
1. Start the Exercise Project by navigating to your .../ArcGISProEditing/Data folder and **double-click the ArcGIS Pro project called TimberPlanningBHNF.aprx** to open.
2. **Open the Catalog pane** by clicking the View ribbon and then Catalog Pane in the Windows section.



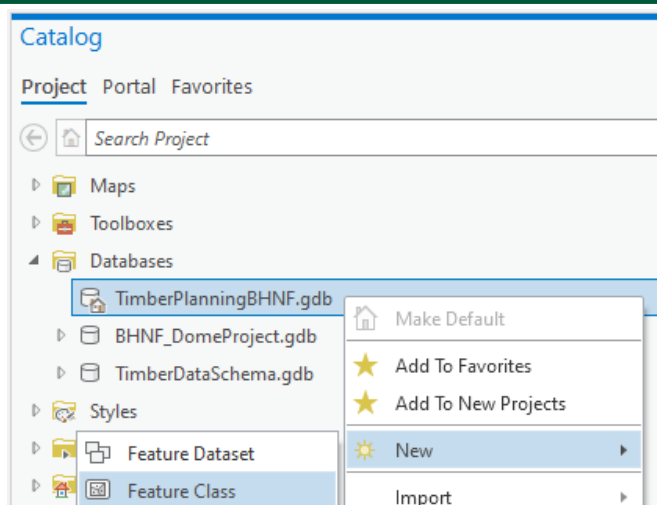
3. Click the Pin on the upper right of the Catalog Pane so it stays open.



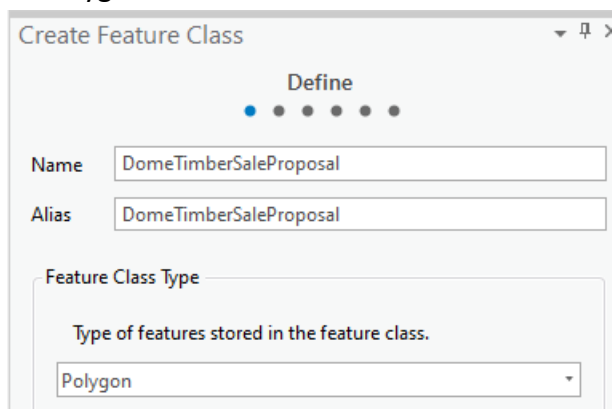
4. **Expand Databases** in the Catalog tree by clicking the arrow on its left side.



5. Right-click the default Project Geodatabase (it will have the same name as the Project) choose **New and then Feature Class**.



6. In the Create Feature Class pane that opens, name the file **DomeTimberSaleProposal** and add **Dome Timber Sale Proposal** in the Alias text box. Leave the Feature Class Type as Polygon and leave the rest as default. Click the Next button.



7. In the **Fields** pane click to add a field called **UnitNumber** that is a **Text** field with a Length of 20. If Field Properties isn't visible, click on the grey area to the left of the Field Name.

**Create Feature Class**

Fields

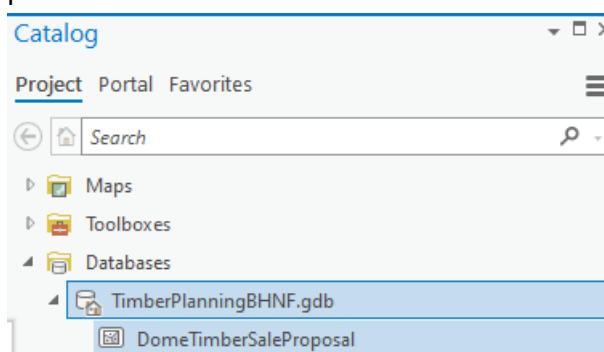
Import Delete

Field Name	Data Type
OBJECTID	OBJECTID
SHAPE	SHAPE
UnitNumber	Text
Click here to add a new field	

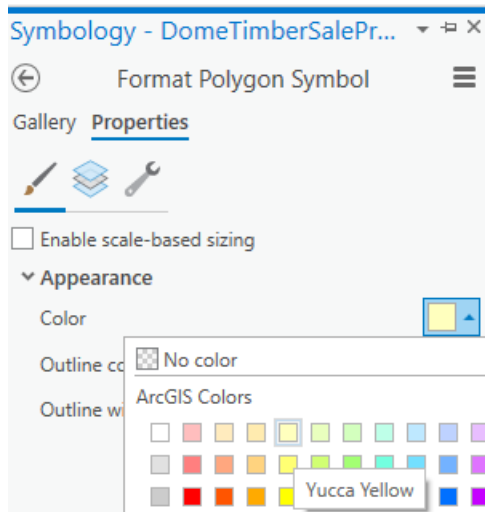
Field Properties

Alias	
Allow Null Values	Yes
Default	
Length	20

8. Select **“Click here to add a new field”** and name it **Treatment**. Make it a Text type with 50 Length. Click Next.
9. The new Feature Class will take on the Spatial Reference of the Map frame which is what we want (NAD 1983 UTM Zone 13N), so **click Next**.
10. We will accept the Tolerance, Resolution, and Storage Configuration defaults, **click Next twice and Finish**.
11. If necessary, **drag and drop DomeTimberSaleProposal** into your Map from the Catalog pane.



12. Double-click the symbol square to **open up the Symbology pane**, click the Properties tab, **change the color to Yucca Yellow** and click Apply.



13. **Save** the Project.



## Part 2: Digitize Polygons

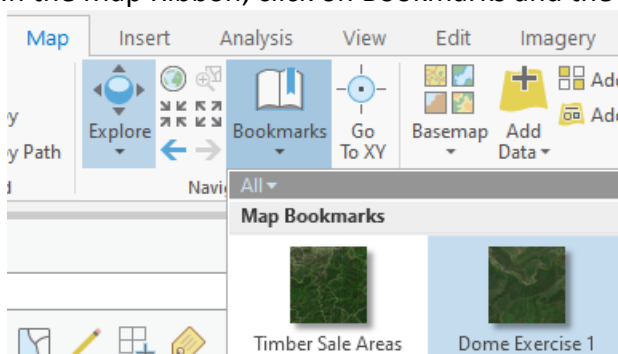
In Pro, by default, you do not need to start an Edit session to start digitizing. When you are done digitizing you will need to save edits if you want to keep your work.

### Advantages / Disadvantages of not having to start an edit session

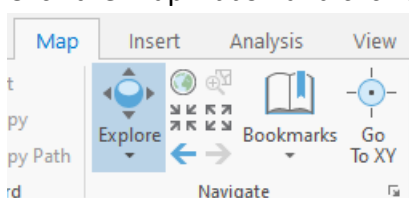
- The advantage is you don't have to always start and stop edit sessions.
- The disadvantage is that you could inadvertently edit a feature or attribute and introduce errors into your data.

**NOTE:** Changes are not permanent until you click Save Edits on the Edit ribbon, but you need to be extra careful with your mouse clicks.

1. In the Map Ribbon, click on Bookmarks and the **Dome Exercise 1** bookmark.

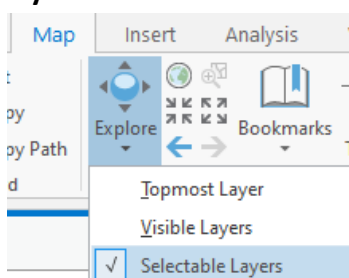


2. Click the Map ribbon and click the **Explore** tool in the Navigate section.



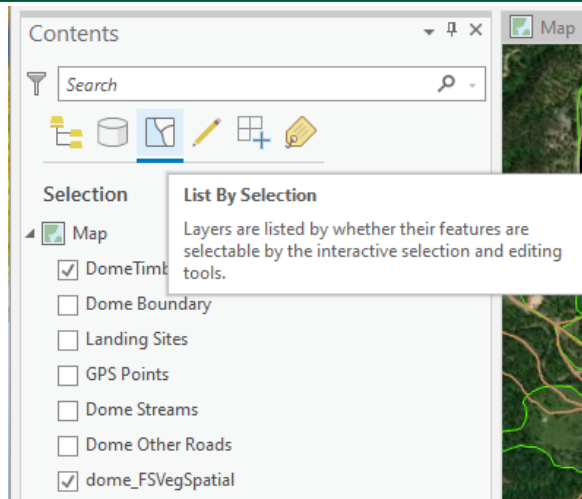
For this project example you are acting as a Silviculturist with limited GIS experience and you are looking for polygons with Forest Service Ownership, a stand near an existing road, Ponderosa Pines (PIPO), and DBH over 6 inches.

3. Click on the down arrow under the Explore tool and make sure it is **set for Selectable Layers**.



4. Click on the **List by Selection** button on the Contents pane and make sure **dome\_FSVegsSpatial** and **Dome Timber Sale Proposal** are selectable.

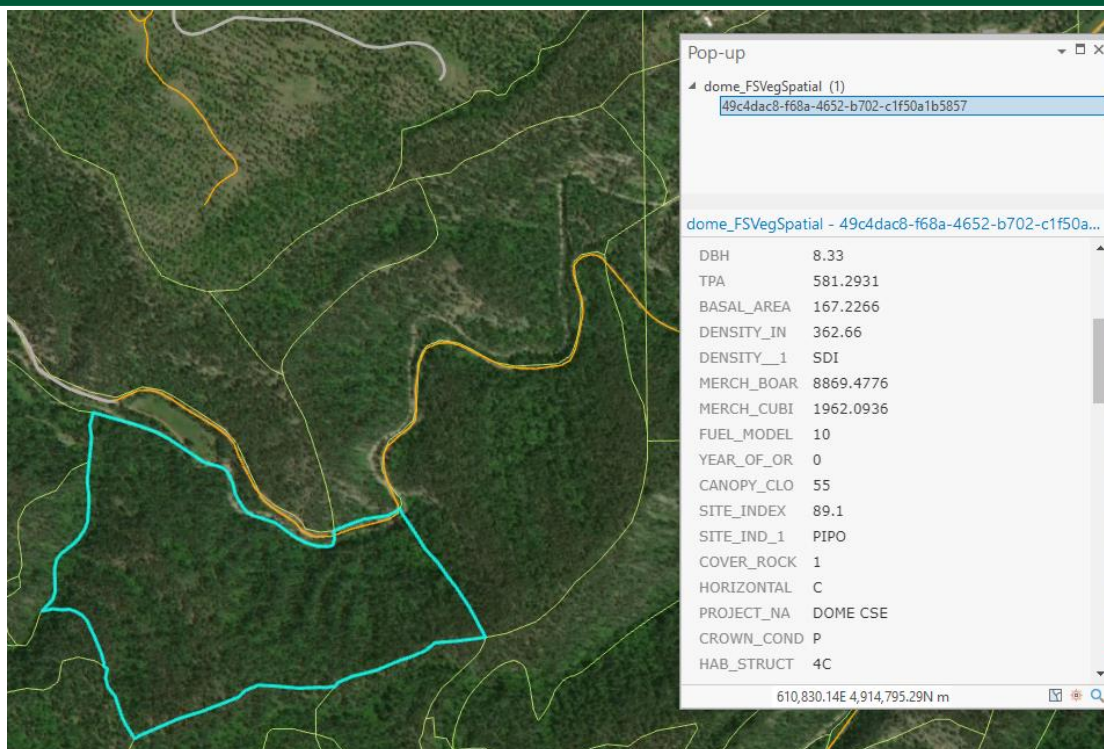




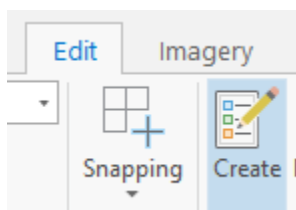
5. Click on the polygons below to inspect their attributes in the pop-up window.



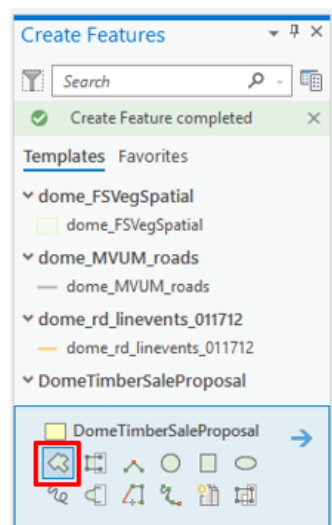
6. The eastern polygon is less than 6 inches DBH, but the western one has potential so we will digitize it.



- Click the Edit ribbon and **select the Create Features pane button**.

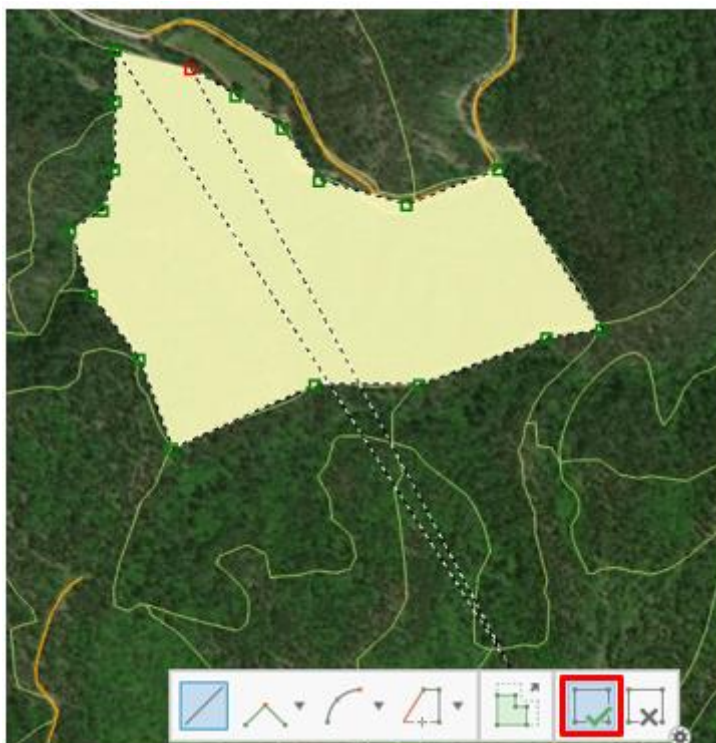


- Select the DomeTimberSaleProposal template and **select the Create a Polygon Feature tool**.

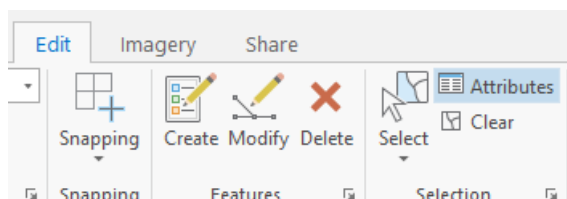


We are going to start digitizing using the basic method of one left mouse click for every vertex. For this example, you will act as an unsophisticated user who will approximate the polygon boundaries by eye, instead of using the many tools available to align points, lines, and polygons up exactly. While this digitizing method may work for random isolated features, or a quick map describing an approximate location of a feature, it can cause a number of accuracy problems down the road if the data is used in any future analysis. Unfortunately, a lot of data is created this way. Throughout the rest of the class we will provide better options to help align your interconnected data accurately.

9. **Digitize along the stand boundary** by single clicking every place you want a vertex. Either double click on your last vertex or select **Finish Sketch** from the editing toolbar that automatically appears at the bottom of your Map when digitizing.

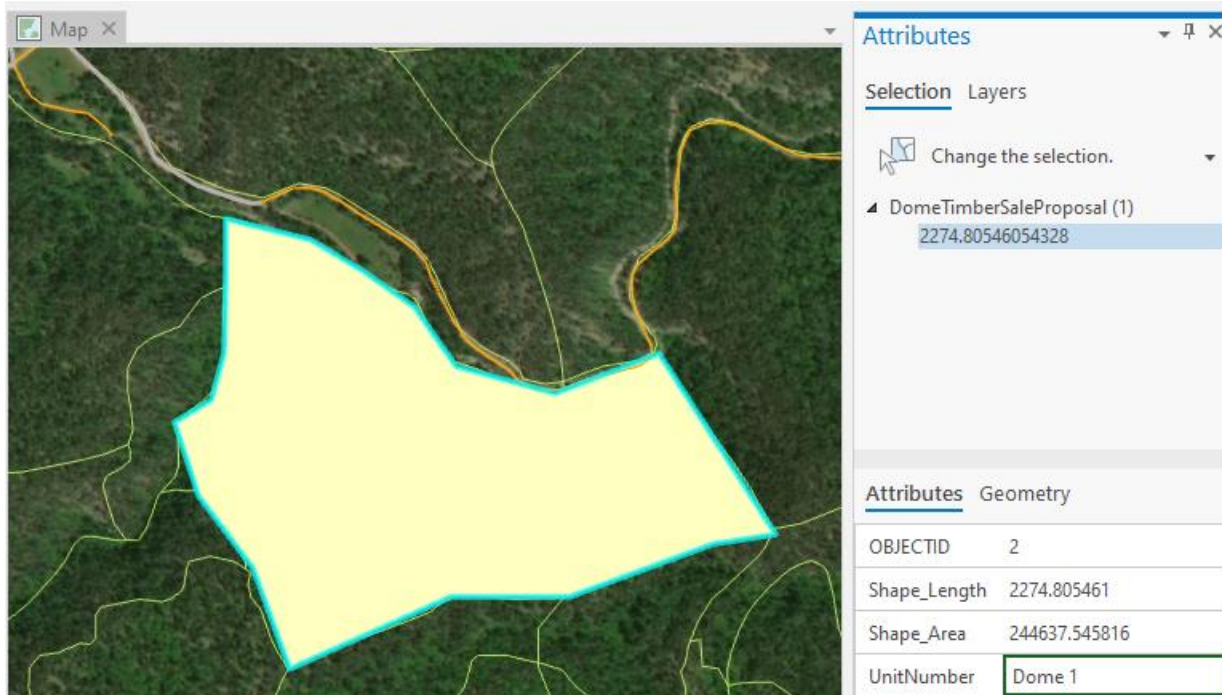


10. Next click on the Attributes button on the edit window to **open the Attribute pane**.

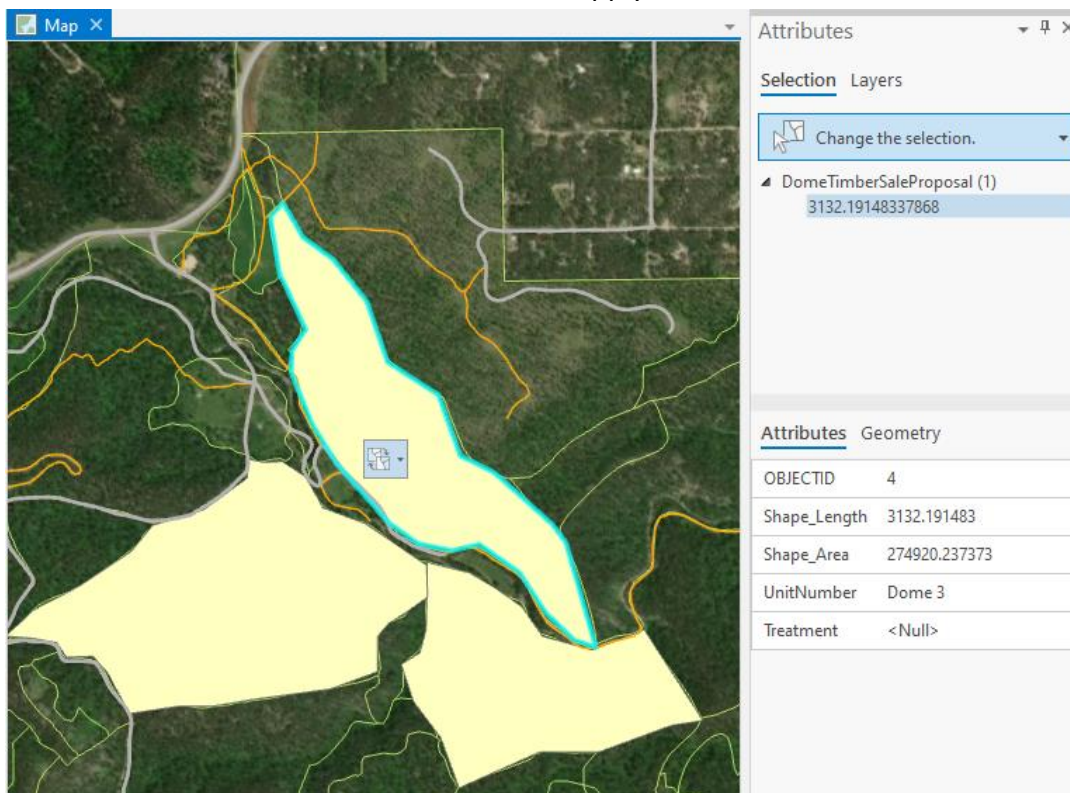


11. In the box next to Unit Number type **Dome 1**, hit Enter, and click the Apply button at the bottom.



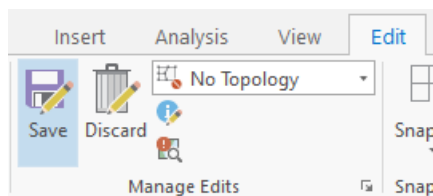


12. Next **digitize around the two other stands** that match the criteria stated above, the polygons are shown below. Open the Attributes pane and enter **Dome 2** and **Dome 3** as the UnitNumber. Click Enter and then click Apply after each attribute.



While this is a quick and easy way to get features on a map, it is NOT the best way for you to create your data for this project. We will give you a couple other options in this class, but you should discuss your project needs with your GIS Specialist and have them help you design the most efficient workflow to end up with the most valuable data possible.

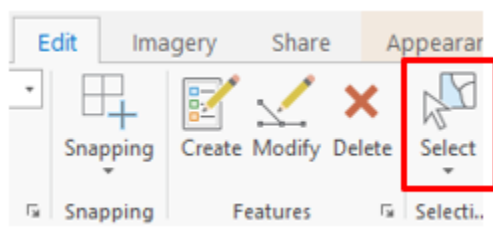
13. Click **Save** on the Edit ribbon in the Manage Edits section, then Yes to save all edits.



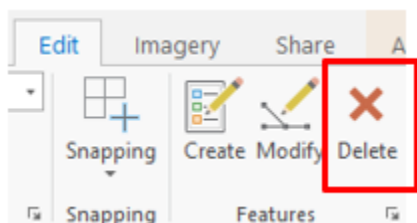
## Part 3: Copy Existing Polygons

Your Timber treatments will all eventually be entered back into the FSVeg data, so why not use the exact polygons? Using the exact polygons where appropriate will save you digitizing time, as well as make the units “vertically integrate” back into the FSVeg without creating slivers and gaps. In Exercise 3 we will learn how to use the editing tools to edit the unit boundaries as needed.

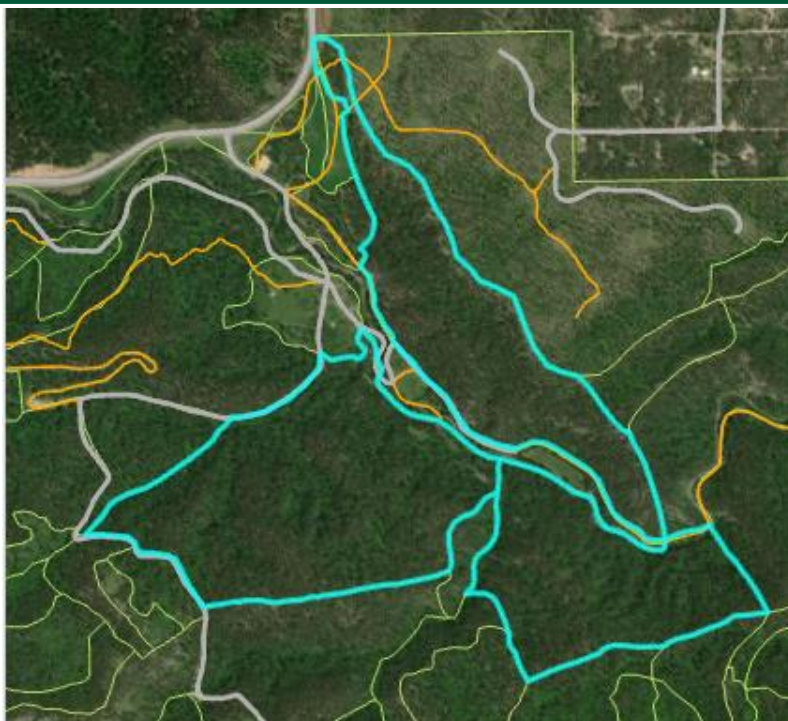
1. Click on the **Select** tool in the Edit ribbon, hold down the shift key and **select all three of your digitized polygons**.



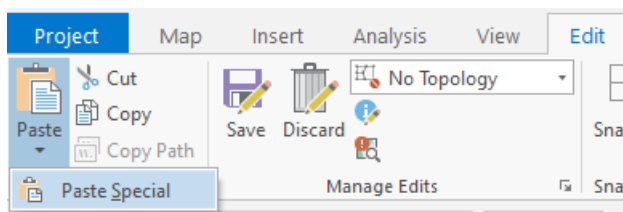
2. Click the **Delete** button on the Edit Ribbon.



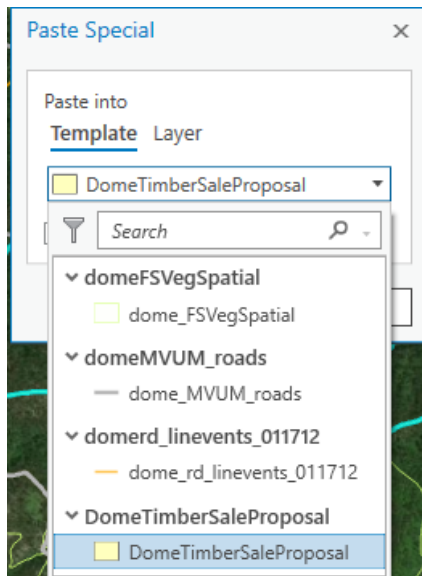
3. Click the Select tool again and **select the three polygons** from the dome\_FSVegSpatial layer that you digitized over before.



4. **Right-click on the map and select Copy** from the context menu.
5. In the Edit ribbon, click the Paste dropdown and then **click Paste Special**.



- In the Paste Special dialog box **choose the DomeTimberSaleProposal layer** and click OK.



The polygons will show up in your DomeTimberSaleProposal layer and will exactly overlay the polygons from the FSveg layer. This is called vertical integration, or coincident boundaries.

- Click Save** on the Edit ribbon, and Yes to Save all edits.

In this project where you manually digitize or copy polygons, and then manually type in the Unit and Treatment attributes, is not efficient or effective – especially if you need to create hundreds of units or additional attributes that will be needed for the analysis. More importantly, you are not taking advantage of the tools and techniques available in Pro to help protect your attribute integrity that is vital for creating reliable legacy data in the future.

**THERE IS A BETTER WAY!** In the next exercise scenario, you will work with your GIS Specialist who can help you develop a workflow that will save time, reduce steps, improve the integrity of your data, and give a NEPA team enough information to analyze the project. We will also make your data consistent with NRM National formats so that it can more easily combine back into the authoritative legacy data.

**Congratulations!** You have successfully completed this exercise.