Survey123 Tier2 Template Reference

Tropical/Subtropical: Southwestern United States

PURPOSE

The purpose of this document is to provide a reference for formatting and customizing the Survey123 excel template that is used to create data collection surveys via Survey123 Collector. It contains explanations regarding the structure and editing capabilities, as well as the rational as to why certain cells MUST have specific formatting and what that formatting is.

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Picture by Scott Pokswinski

Overview:

The purpose of a Survey123 template is to make creating terrestrial LiDAR surveys a simple process and to guarantee the data is in the correct format necessary for post-processing. There must also be a certain amount of uniformity between all LiDAR surveys to capture necessary data and ensure integrity across the United States.

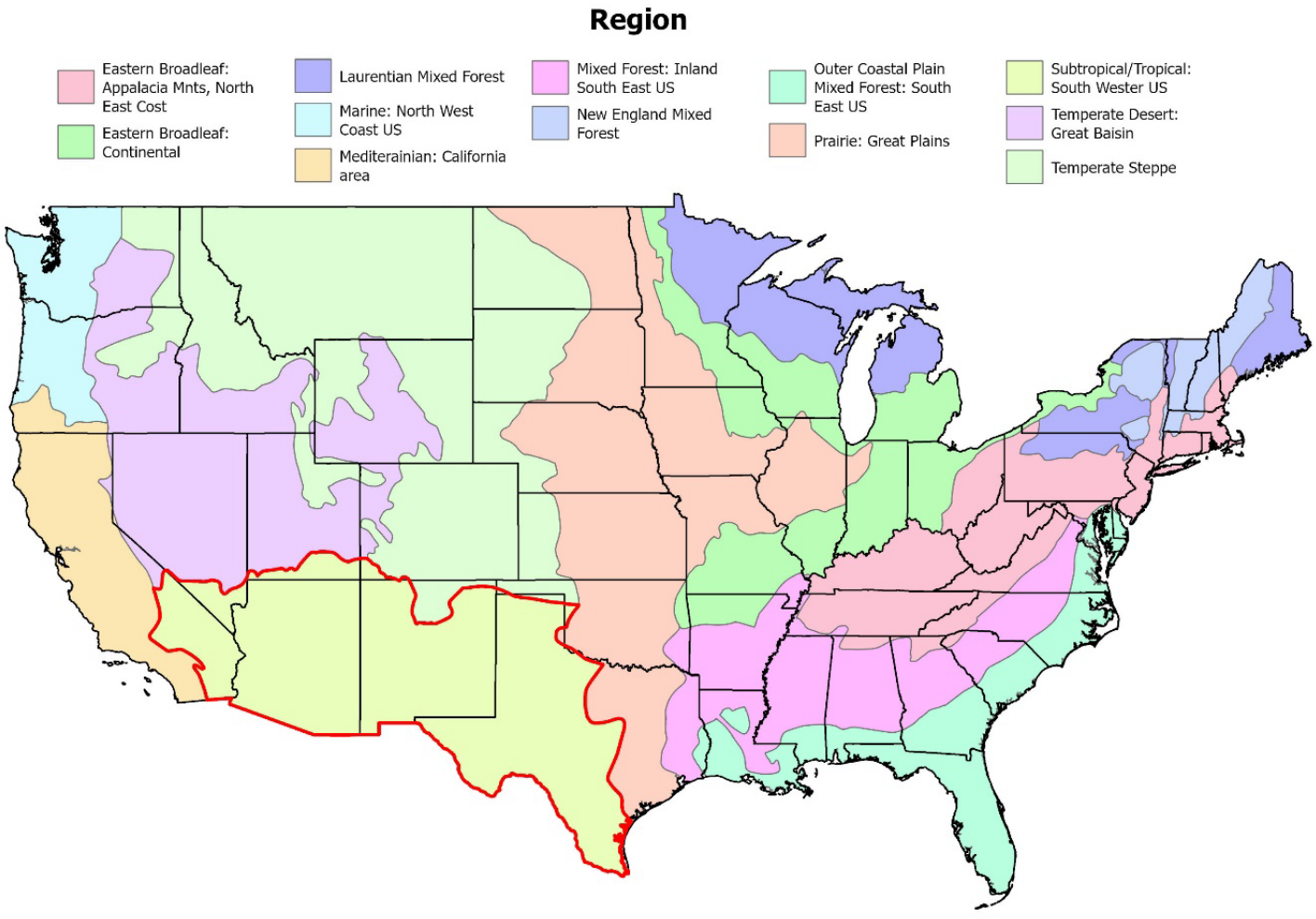
These excel templates are organized to mimic the paper form of the data sheet as much as possible. Because of this, there are many rows in the excel sheet. This may seem daunting, but once the arrangement is understood, it will be easy to customize the template for unique needs. This is the primary reason for creating the reference document, so that users may understand what the components are and how it can be customized.

Survey123 Connect Tutorial:

For first time users or new users of Survey123 connect, tutorial is offered by Esri on their training website called "ArcGIS Survey123 Basics". There are also several free videos available on the same website and can be located by simply searching for "Survey123".

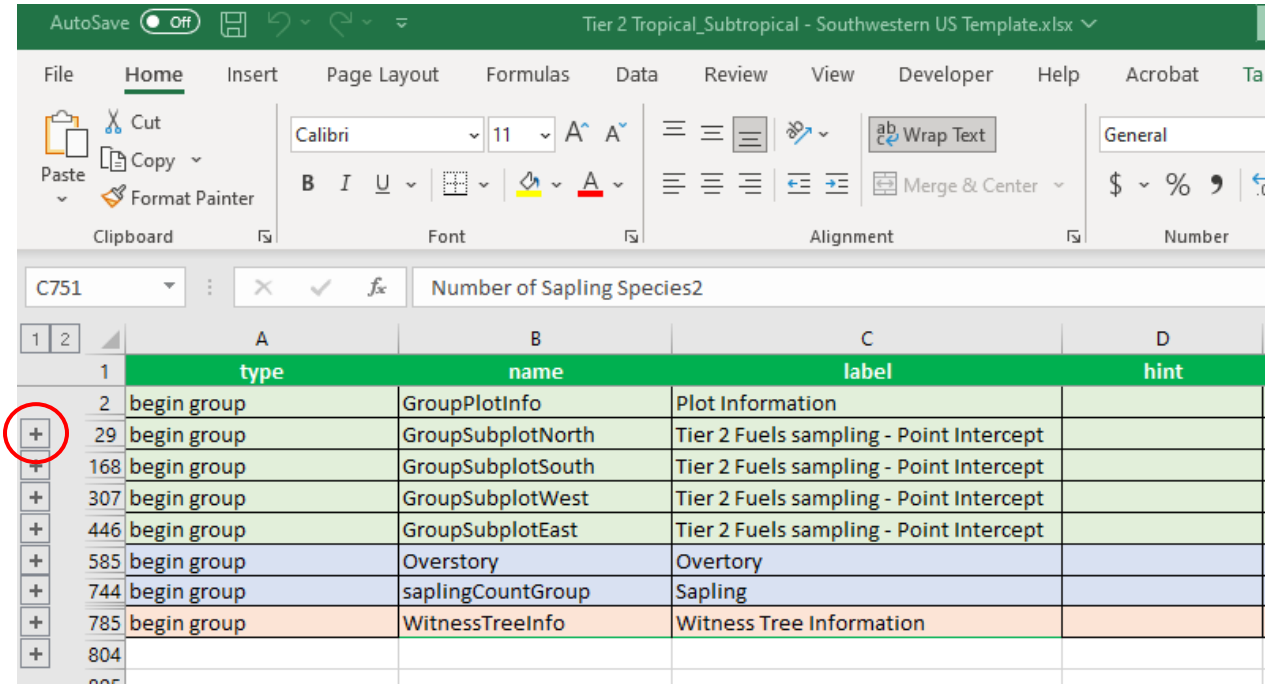
Tropical/Subtropical Southwestern US Region:

This template is best used in the area outlined in red on the following map. These regions are only an approximation. If you feel your fuel type more closely matches another ecoregion, download that relevant regions' template and reference guide.



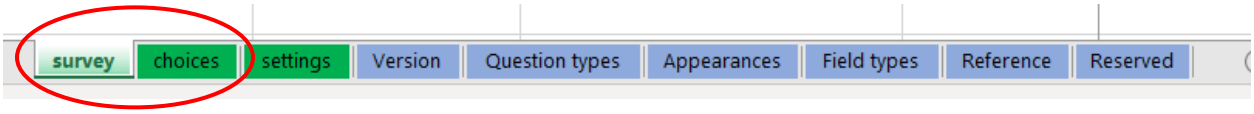
Template Structure:

As stated above, there are many rows in the excel template. These rows are organized by grouping each section of the survey together. Each group represents one page displayed on the survey. When the template is downloaded these rows should be collapsed, but can be expanded by clicking on the '+' symbol on the far left. The symbol then turns into a '-'. They can also be collapsed the same way by clicking the '-'. Below should be what the template looks like:



	A	B	C	D
1	type	name	label	hint
2	begin group	GroupPlotInfo	Plot Information	
29	begin group	GroupSubplotNorth	Tier 2 Fuels sampling - Point Intercept	
168	begin group	GroupSubplotSouth	Tier 2 Fuels sampling - Point Intercept	
307	begin group	GroupSubplotWest	Tier 2 Fuels sampling - Point Intercept	
446	begin group	GroupSubplotEast	Tier 2 Fuels sampling - Point Intercept	
585	begin group	Overstory	Overtory	
744	begin group	saplingCountGroup	Sapling	
785	begin group	WitnessTreeInfo	Witness Tree Information	
804				

Important: When a group is expanded, some of the words are red. This indicates fields that those cannot be changed, as they *must* stay the same. These are cells have been locked to prevent changes. An example of this is the cells used to populate the plot ID. There is a specific format required for the plot ID and therefore these cells must remain unchanged, to guarantee each plot taken is properly named.



At the bottom of the excel sheet, there are nine datasheets. The only two that require customization are the first two, "survey" and "choices."

Survey Sheet:

Each collapsed group indicate a single page on the survey. Below is a description of each group.

Important: If the text is in RED, do **NOT** change the information in that cell or delete that cell/row.

GroupPlotInfo: Plot information. This is the page that collects the plot information to generate the plot ID. There shouldn't be much (if anything) on the page that needs to be changed. The only thing might be the prism data, if your site does not want to collect that information, it can be removed. Those rows are shown in the purple box below:

	type	name	label	hint	guidance_hint	appearance	required	
10	select_one yes_no	permPlotYesNo	Is this a pre-established (legacy) permanent plot			minimal	yes	
11	select_one permPlot	permPlotType	What type of permanent plot is it?	If you are at		minimal	yes	
12	note	PlotID	Plot ID	12 characters -				
13	select_multiple surveyor	Surveyor	Surveyor(s)			minimal	yes	Y
14	text	OtherSurveyor	Other Surveyor					
15	note	GPSinfo	Instructions	Enter in the				
16	begin group	GPS	Coordinates	Enter in the		w2:1		
17	text	Latitude	Latitude	Latitude will be			yes	Y
18	text	Longitude	Longitude	Longitude will be			yes	Y
19	end group							
20	text	ReportNotes	Notes:	Record anything				
21	begin group	GroupPrism	Collect Prism Data					
22	note	Instructions	Instructions	Using the prism,				
23	integer	NumConifer	Number of Conifers In				yes	
24	integer	NumDeciduous	Number of Deciduous In				yes	
25	integer	NumOther	Number of Other In					
26	text	NumNotes	Notes:					
27	end group							
28	end group							
29	begin group	GroupSubplotNorth	Tier 2 Fuels sampling - Point Intercept			w1 field-list		

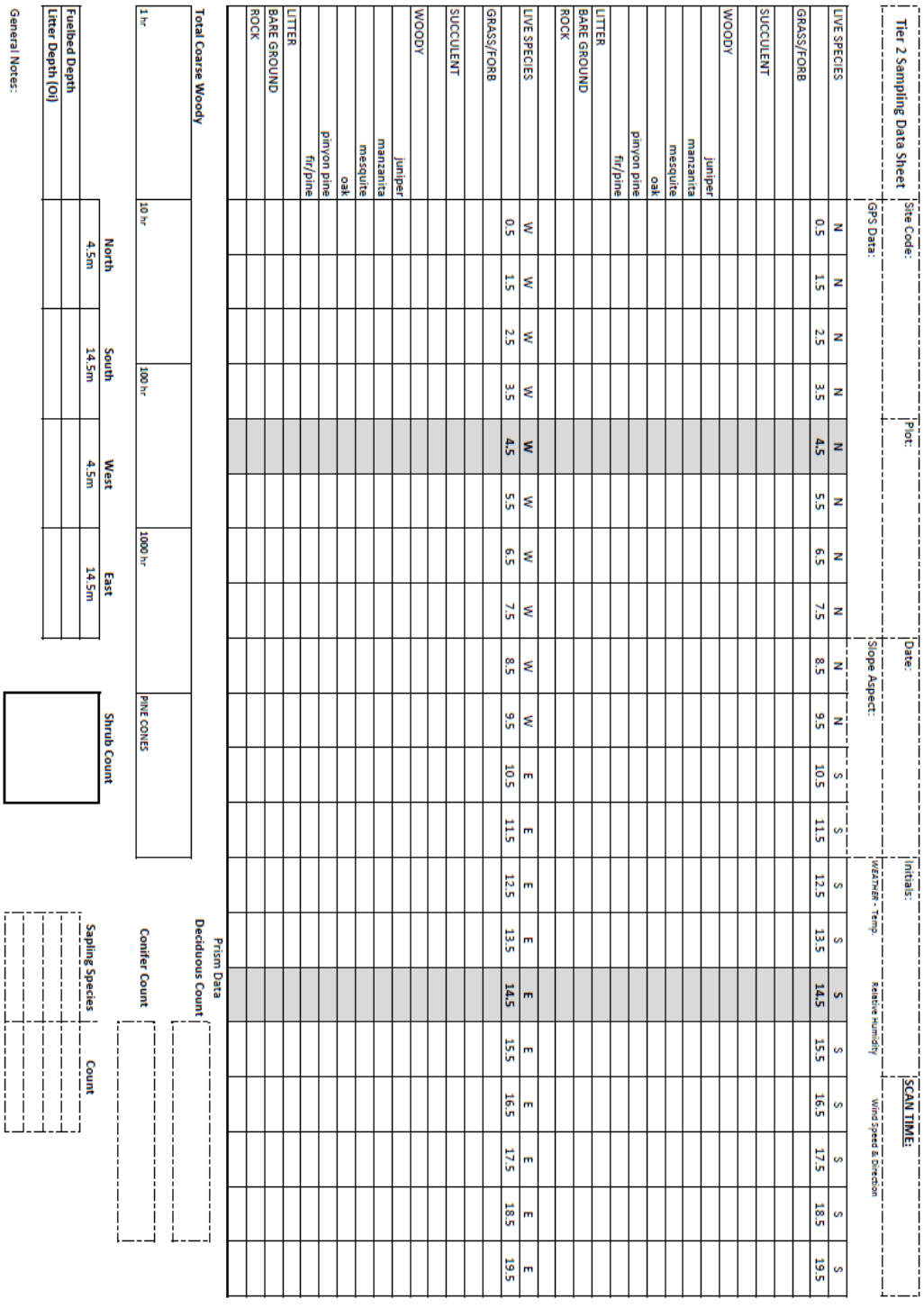
If data is only being recorded for one location, it would be useful to set this as a default for that site. This way field collectors will not need to select the site when there is only one choice.

Under "default" enter in the site code. See here in the **Choices** datasheet to find out how to find site code.

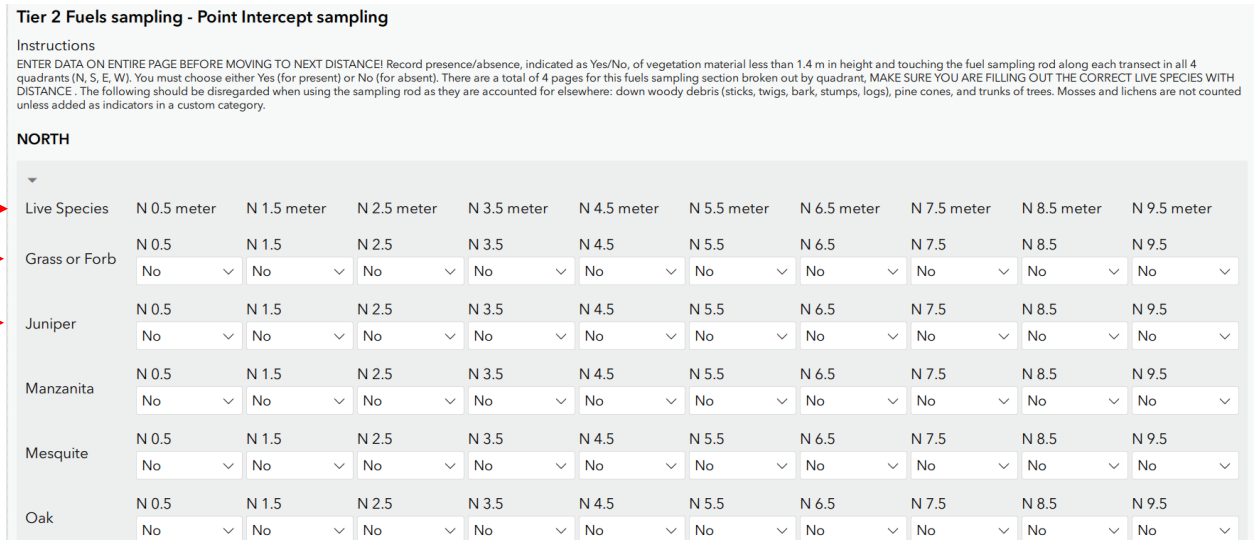
1	type	name	label	hint	guidance_hint	appearance	required	uired_mess	readonly	default
2	begin group	GroupPlotInfo	Plot Information			w1 field-list				
3	note	startup	Set up and prepare BLK unit. ** Enter in							
4	select_one site	site	Site				yes	You must select the si		AZCNF
5	date	surveydate	Survey Date				yes	You must enter the da		today()

GroupSubplotNorth(South)(West)(East): Tier 2 Fuels samples - Point Intercept data

These groups are the point intercept data collection for each of the cardinal directions. Each cardinal direction is on separate pages, otherwise there would be too much information to display on a single screen. The formatting for the display of the survey pages mimics the grid layout on the original paper data sheets. These are 100% editable since sites vary in species and what variables are being monitored. Below are some visualizations to clarify how the rows in Survey123 correlate to onscreen design.



The above image is an example of an original paper datasheet. Note, the grid layout to easily fill in what type of vegetation (or lack of vegetation) is at each sample point along a cardinal direction.



Tier 2 Fuels sampling - Point Intercept sampling

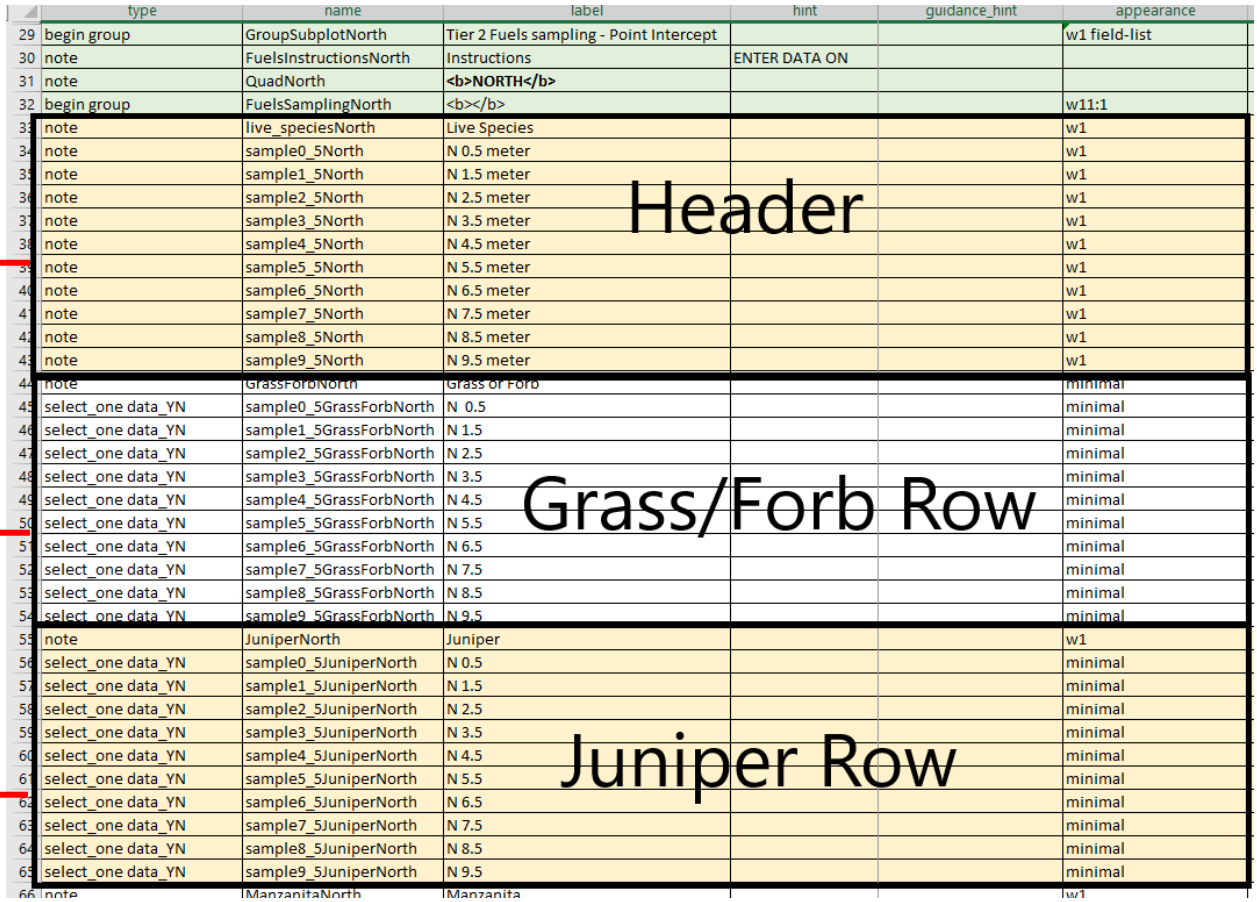
Instructions

ENTER DATA ON ENTIRE PAGE BEFORE MOVING TO NEXT DISTANCE! Record presence/absence, indicated as Yes/No, of vegetation material less than 1.4 m in height and touching the fuel sampling rod along each transect in all 4 quadrants (N, S, E, W). You must choose either Yes (for present) or No (for absent). There are a total of 4 pages for this fuels sampling section broken out by quadrant, MAKE SURE YOU ARE FILLING OUT THE CORRECT LIVE SPECIES WITH DISTANCE . The following should be disregarded when using the sampling rod as they are accounted for elsewhere: down woody debris (sticks, twigs, bark, stumps, logs), pine cones, and trunks of trees. Mosses and lichens are not counted unless added as indicators in a custom category.

NORTH

Live Species	N 0.5 meter	N 1.5 meter	N 2.5 meter	N 3.5 meter	N 4.5 meter	N 5.5 meter	N 6.5 meter	N 7.5 meter	N 8.5 meter	N 9.5 meter
Grass or Forb	N 0.5	N 1.5	N 2.5	N 3.5	N 4.5	N 5.5	N 6.5	N 7.5	N 8.5	N 9.5
	No	No	No	No	No	No	No	No	No	No
Juniper	N 0.5	N 1.5	N 2.5	N 3.5	N 4.5	N 5.5	N 6.5	N 7.5	N 8.5	N 9.5
	No	No	No	No	No	No	No	No	No	No
Manzanita	N 0.5	N 1.5	N 2.5	N 3.5	N 4.5	N 5.5	N 6.5	N 7.5	N 8.5	N 9.5
	No	No	No	No	No	No	No	No	No	No
Mesquite	N 0.5	N 1.5	N 2.5	N 3.5	N 4.5	N 5.5	N 6.5	N 7.5	N 8.5	N 9.5
	No	No	No	No	No	No	No	No	No	No
Oak	N 0.5	N 1.5	N 2.5	N 3.5	N 4.5	N 5.5	N 6.5	N 7.5	N 8.5	N 9.5
	No	No	No	No	No	No	No	No	No	No

This above image is similar to how the point intercept data will look on an iPad. A difference between the paper and iPad is that the iPad only displays on cardinal direction at a time, instead of the two seen on the paper copy.

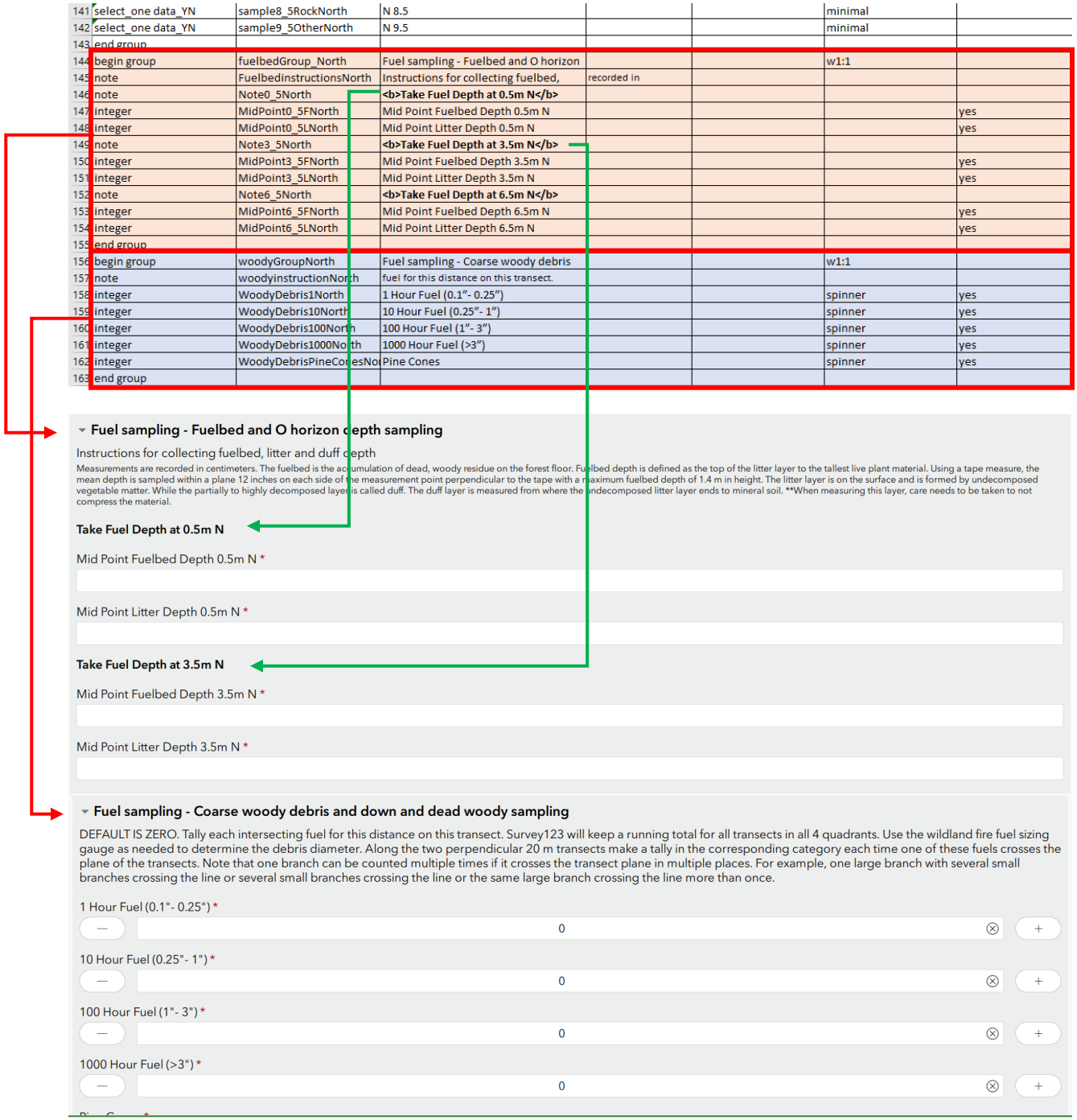


	type	name	label	hint	guidance_hint	appearance
29	begin group	GroupSubplotNorth	Tier 2 Fuels sampling - Point Intercept			w1 field-list
30	note	FuelsInstructionsNorth	Instructions	ENTER DATA ON		
31	note	QuadNorth	**NORTH**			
32	begin group	FuelsSamplingNorth				w11:1
33	note	live_speciesNorth	Live Species			w1
34	note	sample0_5North	N 0.5 meter			w1
35	note	sample1_5North	N 1.5 meter			w1
36	note	sample2_5North	N 2.5 meter			w1
37	note	sample3_5North	N 3.5 meter			w1
38	note	sample4_5North	N 4.5 meter			w1
39	note	sample5_5North	N 5.5 meter			w1
40	note	sample6_5North	N 6.5 meter			w1
41	note	sample7_5North	N 7.5 meter			w1
42	note	sample8_5North	N 8.5 meter			w1
43	note	sample9_5North	N 9.5 meter			w1
44	note	GrassForbNorth	Grass or Forb			minimal
45	select_one data_YN	sample0_5GrassForbNorth	N 0.5			minimal
46	select_one data_YN	sample1_5GrassForbNorth	N 1.5			minimal
47	select_one data_YN	sample2_5GrassForbNorth	N 2.5			minimal
48	select_one data_YN	sample3_5GrassForbNorth	N 3.5			minimal
49	select_one data_YN	sample4_5GrassForbNorth	N 4.5			minimal
50	select_one data_YN	sample5_5GrassForbNorth	N 5.5			minimal
51	select_one data_YN	sample6_5GrassForbNorth	N 6.5			minimal
52	select_one data_YN	sample7_5GrassForbNorth	N 7.5			minimal
53	select_one data_YN	sample8_5GrassForbNorth	N 8.5			minimal
54	select_one data_YN	sample9_5GrassForbNorth	N 9.5			minimal
55	note	JuniperNorth	Juniper			w1
56	select_one data_YN	sample0_5JuniperNorth	N 0.5			minimal
57	select_one data_YN	sample1_5JuniperNorth	N 1.5			minimal
58	select_one data_YN	sample2_5JuniperNorth	N 2.5			minimal
59	select_one data_YN	sample3_5JuniperNorth	N 3.5			minimal
60	select_one data_YN	sample4_5JuniperNorth	N 4.5			minimal
61	select_one data_YN	sample5_5JuniperNorth	N 5.5			minimal
62	select_one data_YN	sample6_5JuniperNorth	N 6.5			minimal
63	select_one data_YN	sample7_5JuniperNorth	N 7.5			minimal
64	select_one data_YN	sample8_5JuniperNorth	N 8.5			minimal
65	select_one data_YN	sample9_5JuniperNorth	N 9.5			minimal
66	note	ManzanitaNorth	Manzanita			w1

Notice that each row on the iPad is highlighted in alternating colors in the excel sheet to help visualize where breaks are.

The entry for “Fuelbed depth” and “Litter depth” along with the count for 1hr/10hr/100hr/1000hr/pinecones are in their respective cardinal directions. This arrangement was found to be the easiest and clearest for field collectors.

141	select_one data_YN	sample8_5RockNorth	N 8.5			minimal	
142	select_one data_YN	sample9_5OtherNorth	N 9.5			minimal	
143	end group						
144	begin group	fuelbedGroup_North	Fuel sampling - Fuelbed and O horizon			w1:1	
145	note	FuelbedinstructionsNorth	Instructions for collecting fuelbed,	recorded in			
146	note	Note0_5North	**Take Fuel Depth at 0.5m N**				
147	integer	MidPoint0_5FNorth	Mid Point Fuelbed Depth 0.5m N				yes
148	integer	MidPoint0_5LNorth	Mid Point Litter Depth 0.5m N				yes
149	note	Note3_5North	**Take Fuel Depth at 3.5m N**				
150	integer	MidPoint3_5FNorth	Mid Point Fuelbed Depth 3.5m N				yes
151	integer	MidPoint3_5LNorth	Mid Point Litter Depth 3.5m N				yes
152	note	Note6_5North	**Take Fuel Depth at 6.5m N**				
153	integer	MidPoint6_5FNorth	Mid Point Fuelbed Depth 6.5m N				yes
154	integer	MidPoint6_5LNorth	Mid Point Litter Depth 6.5m N				yes
155	end group						
156	begin group	woodyGroupNorth	Fuel sampling - Coarse woody debris			w1:1	
157	note	woodyinstructionNorth	fuel for this distance on this transect.				
158	integer	WoodyDebris1North	1 Hour Fuel (0.1”- 0.25”)			spinner	yes
159	integer	WoodyDebris10North	10 Hour Fuel (0.25”- 1”)			spinner	yes
160	integer	WoodyDebris100North	100 Hour Fuel (1”- 3”)			spinner	yes
161	integer	WoodyDebris1000North	1000 Hour Fuel (>3”)			spinner	yes
162	integer	WoodyDebrisPineConesNorth	Pine Cones			spinner	yes
163	end group						



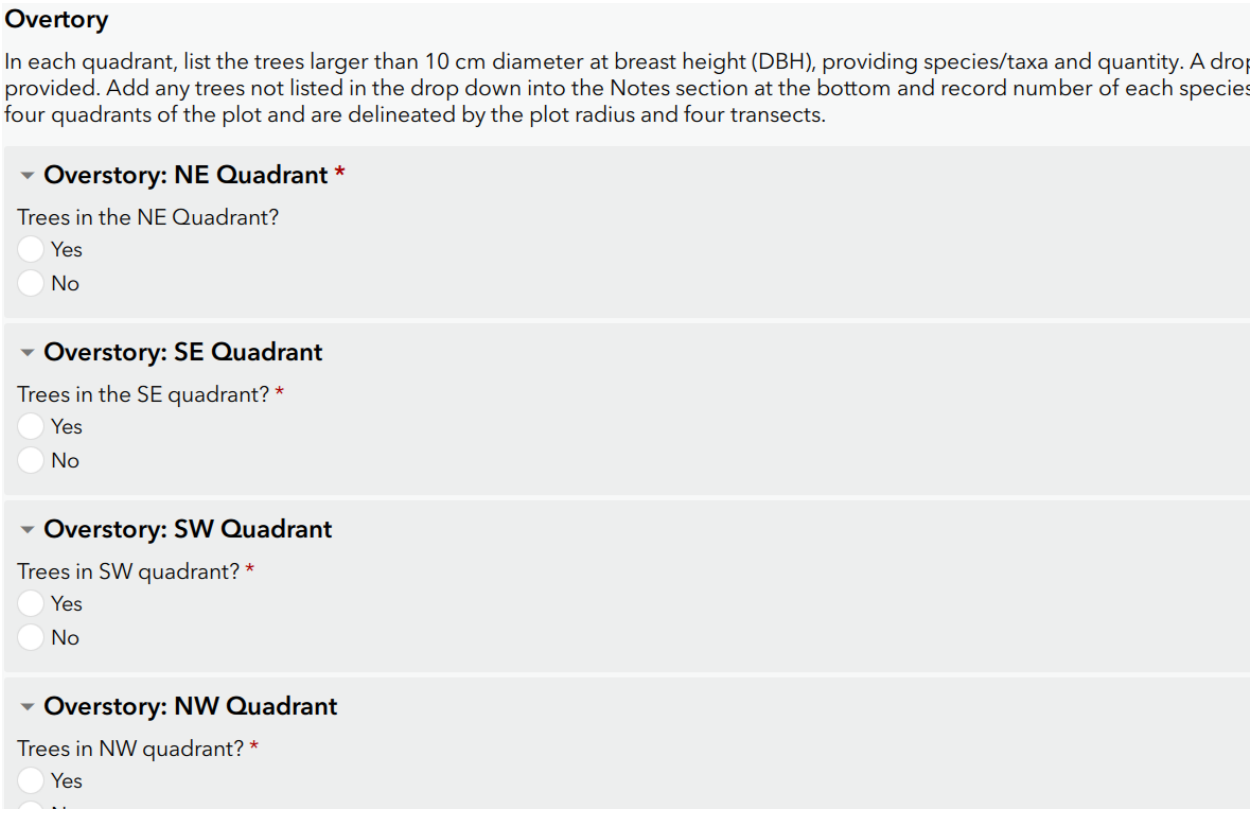
NOTE: In a desert climate duff isn't usually a metric that is collected. However, if duff depth is a variable of interest, add a duff row for each of the three collection points along each cardinal direction, as shown below:

type	name	label	hint	guidance_hint	appearance	required	required_message	readonly
end group								
begin group	fuelbedGroup_North	Fuel sampling - Fuelbed and O horizon			w1:1			
note	FuelbedinstructionsNorth	Instructions for collecting fuelbed,	recorded in					
note	Note0_5North	**Take Fuel Depth at 0.5m N**						
integer	MidPoint0_5FNorth	Mid Point Fuelbed Depth 0.5m N				yes	You must enter in the fuel bed information	
integer	MidPoint0_5LNorth	Mid Point Litter Depth 0.5m N				yes	You must enter in the fuel bed information	
integer	MidPoint0_5DNorth	Mid Point Duff Depth 0.5m N				yes	You must enter in the fuel bed information	
note	Note3_5North	**Take Fuel Depth at 3.5m N**						
integer	MidPoint3_5FNorth	Mid Point Fuelbed Depth 3.5m N				yes	You must enter in the fuel bed information	
integer	MidPoint3_5LNorth	Mid Point Litter Depth 3.5m N				yes	You must enter in the fuel bed information	
integer	MidPoint3_5DNorth	Mid Point Duff Depth 3.5m N				yes	You must enter in the fuel bed information	
note	Note6_5North	**Take Fuel Depth at 6.5m N**						
integer	MidPoint6_5FNorth	Mid Point Fuelbed Depth 6.5m N				yes	You must enter in the fuel bed information	
integer	MidPoint6_5LNorth	Mid Point Litter Depth 6.5m N				yes	You must enter in the fuel bed information	
integer	MidPoint6_5DNorth	Mid Point Duff Depth 6.5m N				yes	You must enter in the fuel bed information	
end group								

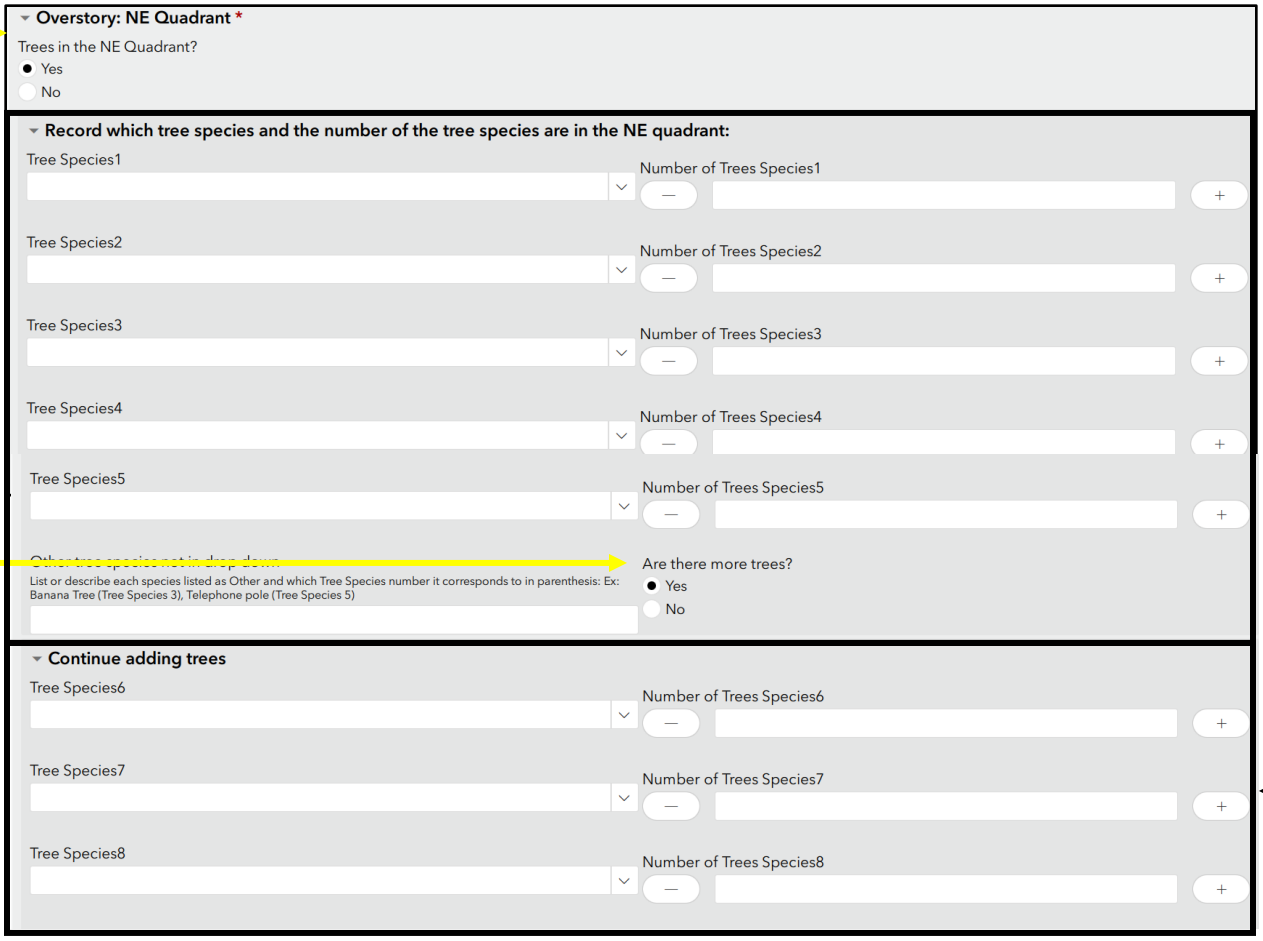
Overstory

There are no necessary changes on this page, but the information regarding this page is below.

This page is dedicated to recording the overstoring information in each quadrant. There is a lot of red text because this is vital information to collect. See here for "treespp" in **Choices** datasheet for how to name tree species properly. This section looks more complicated than it is. There are four boxes, one for each quadrant. Each box asks if there are trees in the quadrant, this is a required question and does not have default selected to ensure the field personnel don't accidentally skip a quadrant. If yes, it displays entries for five tree species. This should be sufficient for the majority of plots. In cases there are more than five species of trees, there is a question that when answered "yes" will display more entries for tree species.



This is what the default looks like on the iPad for the overstory



437	begin group	GroupSubplotEast	Tier 2 Fuels sampling - Point Intercept			w1 field-list	
573	begin group	Overstory	Overtory			w1 field-list	
574	note	Overstoryinstructions	In each quadrant, list the trees larger				
575	begin group	NE	Overstory: NE Quadrant			w1	yes
576	select_one yes_no	NE_YN1	Trees in the NE Quadrant?				
577	begin group	NE_overstory	Record which tree species and the			w2	
578	select_one treespp	SpeciesNE1	Tree Species1			autocomplete	
579	integer	NumberTreesNE1	Number of Trees Species1			spinner	
580	select_one treespp	SpeciesNE2	Tree Species2			w1 autocomplete	
581	integer	NumberTreesNE2	Number of Trees Species2			w1 spinner	
582	select_one treespp	SpeciesNE3	Tree Species3			w1 autocomplete	
583	integer	NumberTreesNE3	Number of Trees Species3			w1 spinner	
584	select_one treespp	SpeciesNE4	Tree Species4			w1 autocomplete	
585	integer	NumberTreesNE4	Number of Trees Species4			w1 spinner	
586	select_one treespp	SpeciesNE5	Tree Species5			w1 autocomplete	
587	integer	NumberTreesNE5	Number of Trees Species5			w1 spinner	
588	text	OtherTreesNE	Other tree species not in drop down	List or describe each species listed as Other ar		w2	
589	select_one yes_no	NE_moretrees	Are there more trees?			w2	
590	end group						
591	begin group	NE_continueTrees	Continue adding trees			w2	
592	select_one treespp	SpeciesNE6	Tree Species6			w1 autocomplete	
593	integer	NumberTreesNE6	Number of Trees Species6			w1 spinner	
594	select_one treespp	SpeciesNE7	Tree Species7			w1 autocomplete	
595	integer	NumberTreesNE7	Number of Trees Species7			w1 spinner	
596	select_one treespp	SpeciesNE8	Tree Species8			w1 autocomplete	
597	integer	NumberTreesNE8	Number of Trees Species8			w1 spinner	
598	select_one treespp	SpeciesNE9	Tree Species9			w1 autocomplete	
599	integer	NumberTreesNE9	Number of Trees Species9			w1 spinner	
600	select_one treespp	SpeciesNE10	Tree Species10			w1 autocomplete	

1st set of tree species entries

2nd set of tree species entries

saplingCountGroup

This page is dedicated to recording the number and species of saplings in the plot, and should not require any changes. Unlike the *Overstory* page, the sapling page is not broken into quadrants. If this information is not of interest for that location, the rows for this page can simply be deleted.

WitnessTreeInfo

This page is for documenting information about trees in the plot that will help re-locate plot center, and should not require any changes. If witness tree data is not of interest at the location the rows for this page can simply be deleted. For, example, the Coronado NF installed stakes to help locate plot center and did not need this page. However, for re-monitoring purposes, it is highly recommended to have some method of marking and recording how to find plot center.

Choices Sheet:

This sheet contains the list of categories used to populate questions on the **Survey** datasheet that have predetermined answers. There are four categories that will need altered. Those are: "site", "permPlot", "Surveyor", and "treespp." These are the first four categories on the datasheet under the ***list_name*** column.

	list_name	name	label	media::image	site
2	site	AZCNF	Coronado National Forest		
3	site	NMGNF	Gila National Forest		
4					
5	permPlot	Existing TLS Plot	Existing TLS Plot		
6	permPlot	Range Monitoring Tra	Range Monitoring Transect		
7	permPlot	Fuel Sampling Site	Fuel Sampling Site		
8					
9	surveyor	Smith_John	John Smith		
10	surveyor	Doe_Jane	Jane Doe		
11	surveyor	Muir_John	John Muir		
12	surveyor	Carson_Rachel	Rachel Carson		
13	surveyor	Audubon_John	John Audubon		
14	surveyor	Other	Other		
15					
16	treespp	AGASPP	Agave		AZCNF
17	treespp	JUNDEP	Alligator Juniper		AZCNF
18	treespp	PINENG	Apache Pine		AZCNF
19	treespp	PLAWRI	Arizona Sycamore		AZCNF
20	treespp	JUGMAJ	Arizona Walnut		AZCNF
21	treespp	QUEARI	Arizona White Oak		AZCNF
22	treespp	PARFLO	Blue Palo Verde		AZCNF
23	treespp	PINDIS	Border Pinyon		AZCNF
24	treespp	GUTSAR	Broom Snakeweed		AZCNF
25	treespp	ACAGRE	Catclaw Acacia		AZCNF
26	treespp	PINLEI	Chihuahua Pine		AZCNF

The ***name*** column is how the data that is entered into the survey will be stored, the ***label*** column is how that choice is displayed to field collectors on the app. For example, when selecting "Coronado National Forest" as the site data is being collected at, that data will be stored as AZCNF but the choice will be displayed on the field app as "Coronado National Forest".

1	list_name	name	label	media::image	site
2	site	AZCNF	Coronado National Forest		
3	site	NMGNF	Gila National Forest		
4					

The "site" is any location where data will be collected, for example Coronado National Forest. Update all "site" options to reflect all the locations/sites data will be collected. Change or add locations/site the site code in the ***name*** column and the display label in the ***label*** column must be updated. For example, if the site the survey is being built for is the Coconino National Forest, change the first site code to AZCOF. It will likely be easiest for field collector for it to be displayed as "Coconino National Forest" on the app, so change the label to "Coconino National Forest". The site code is the NWCG unit identifier. **You MUST use the NWCG unit identifier for your location.** A location's corresponding unit identifier can be found here or on our website. If there is only one location where data will be colleted, it can be made a default on the **Survey** datasheet, that cell is unlocked and editable. See above here in *GroupPlotInfo: Plot information* on how to do that.

list_name	name	label
site	~~AZCNF~~ AZCOF	~~Coronado National Forest~~ Coconino National Forest
site	NMGNF	Gila National Forest
permPlot	~~Existing TLS Plot~~ CFI	~~Existing TLS Plot~~ CFI
permPlot	Range Monitoring Tra	Range Monitoring Transect
permPlot	Fuel Sampling Site	Fuel Sampling Site
surveyor	~~Smith_John~~ Carver_George	~~John Smith~~ George Washington Carver
surveyor	Doe_Jane	Jane Doe
surveyor	Muir_John	John Muir

The permPlot choice is simply selecting whether the plot already been physically established or historically monitored. If a plot already exists, this could be a way to track the old plot ID and new LiDAR plot ID.

The surveyor is the person or people who will be taking data out in the field. It is recommended to have and "Other" option, in case the case that a person is collecting data but has not yet been added to the survey.

The treespp is the tree species pick list. The LiDAR scripts extract overstory data from the point cloud. The only plants that should be listed here are tree species or large shrubs that have a tree-like structure. For example, the Saguaro cactus is considered a tree for the purposes of data collection. Again, the species code (what is stored in the survey data) should be listed under the ***name*** column, and the common name (what is displayed on the app for field collectors) should be listed under the ***label*** column

Important: The format for the tree codes is specific and extremely important. They have ***6 characters***, typically the first three letters are taken from the first word of the species name and the last three letters are taken from the second word of the species name. Example CARGIG for Carnegiea Gigantea common name, Saguaro.

14	surveyor	Other	Other
15			
16	treespp	AGASPP	Agave
17	treespp	JUNDEP	Alligator Juniper
18	treespp	PINENG	Apache Pine
19	treespp	PLAWRI	Arizona Sycamore
20	treespp	JUGMAJ	Arizona Walnut
21	treespp	QUEARI	Arizona White Oak
22	treespp	PARFLO	Blue Palo Verde
23	treespp	PINDIS	Border Pinyon
24	treespp	GUTSAR	Broom Snakeweed

If there is more than one location data is being collecting at, site codes should be added under the ***site*** column. See above here to determine a locations site code. Each site needs its own list because when a field technician selects a site only that site's tree list will be populated for the surveyor to select from.

1	list_name	name	label	media::image	site
41	treespp	OPUSPP	Prickly Pear/Paddle Cactus		AZCNF
42	treespp	CARGIG	Saguaro		AZCNF
43	treespp	QUEHYP	Silverleaf Oak		AZCNF
44	treespp	DASWHE	Sotol		AZCNF
45	treespp	PROVEL	Velvet Mesquite		AZCNF
46	treespp	FRAVEL	Velvet Ash		AZCNF
47	treespp	SAPSAP	Western Soapberry		AZCNF
48	treespp	ACACON	Whitethorn Acacia		AZCNF
49	treespp	AGASPP	Agave		NMGNF
50	treespp	JUNDEP	Alligator Juniper		NMGNF
51	treespp	PINENG	Apache Pine		NMGNF

One final note, if more plot numbers need to be added, scroll to the bottom of the list of numbers and continue with the numbering in the same format they already are in. The format in the ***name*** column must be: underscore #### (four digits). The plot number must be in that format because the plotID is generated, in part, by the survey using this input. The plotID has very specific standards that cannot be deviated from. See below for example. The word "plotnumber" (case sensitive) must be added under ***list_name*** in every row there is a plot number and don't forget to add the plot number under the ***label*** column.

1	list_name	name	label
716	plotnumber	_0623	0623
717	plotnumber	_0624	0624
718	plotnumber	_0625	0625
719	**plotnumber**	**_0626**	**0626**
720	**plotnumber**	**_0627**	**0627**
721	**plotnumber**	**_0628**	**0628**
722			

Appendix A: Survey123 Formatting Quick Reference

Commands for "type" column:

begin group: begins a page or a group within a page
end group: closes out the page or ends a group within the page
note: allow you to insert text in between questions in the survey
text: creates a text only entry that cannot be edited
select_one *"choice"*: shows a list of choices which only one can be selected. The choices are generated on the **choice** sheet.
select_multiple *"choice"*: shows a list of choices which many can be selected. The choices are generated on the **choice** sheet.
integer: allows the entry of a whole number into the survery

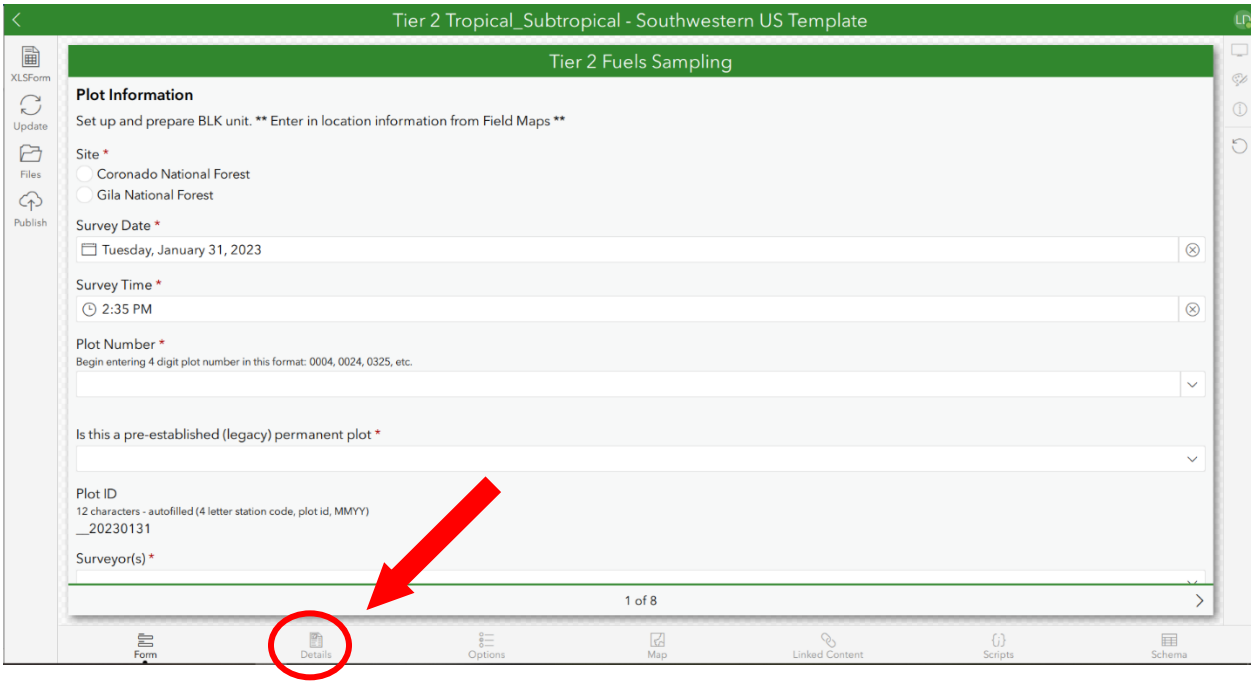
Commands for "appearance" column:

minimal: choices are automatically collapsed
w2:1: creates 2 columns
w1: creates 1 column
w11:1: creates 11 columns
spinner: instead of typing in the number of items, collect hits a plus or minus button to count the number of items.
autocomplete: when type into an entry the survey starts narrowing down the choices by what is entered.

Appendix B: Survey set up details on Survey123 Connect

There are three settings that can be updated to give field collectors a little bit more direction and customization for the survey to make it more identifiable from other surveys on survey123.

On Survey123 Connect, open up the survey. There are several tabs at the bottom of the screen, choose "Details"



The sections on here that may want to be customized is the Summary, Description and the Thumbnail. The summary and description will show up on the survey when it is opened on the mobile device. It can provide quick instructions and a short summary of the monitoring data that needs to be collected. Contact information can also be added for users if they have issues the survey that needs to be addressed. The Thumbnail is the picture that will be displayed next to the survey title when a user searches for the survey and what will be displayed after the survey is downloaded on a mobile device.

Below is an example of a description that can be added to the description of the survey.

A Tier 2 LiDAR survey also collects data to determine tree basal area, as well as sampling forestry and fuels within the plot. With the exception of the Notes sections, this Survey123 form must be filled out completely. Please read the directions before proceeding. When you are ready to start the Survey, click “Collect”. If you experience any issues, contact ***Survey Owner, ###-###-####***, or ***survey_owner@agency.agency***.

LiDAR Scan - Prior to field sampling, make sure the Leica BLK LiDAR unit's firmware is up to date and ensure that the stand-alone /push button functionality is engaged under the BLK360 Capture Settings. Once in the field, set the BLK360 on the tripod, raised to its maximum height (approx. 1.5m) and situated so the BLK360 is directly over plot center. Place the LiDAR target placard, mounted on a 6-foot post, 12m north of the plot center. Power on the BLK360; the LED indicator will turn green when ready. Press the power button again to begin the scan. The LED will be blinking yellow and the BLK360 will spin 360 degrees as it finds its location and takes photographs. After photos are taken, but before the LiDAR scanning will begin, unit will pivot in the opposite direction briefly. When the unit is scanning it will begin a slow, continuous swivel for a full 180-degree pivot. When the LED is solid green again, the scan is complete. ** Make sure that all persons are well hidden from the unit during the scan, either by sitting under the BLK360 or hiding behind trees until the scan is complete. If the BLK360 stops before it completes the 180-degree rotation or the LED flashes yellow, or the unit shuts down, that scan should be considered a failed scan, recorded as such in the Notes section and the plot should be rescanned.

10-Factor Prism survey - 1. Hold prism (not your eye) over the selected point at arm’s length, with the long side horizontal. Hold prism with right hand by lower part of the thicker edge. 2. With one eye closed, point with the upper part of the prism so as to divide the tree being sampled at breast height. Refraction of light through the prism will cause the portion of the tree below breast height to appear separated. A tree whose figures are clearly superimposed are "in" and counted as 1. Count every other tree that is borderline (edges touch but image is not superimposed). If the edges do not touch each other, the tree is "out" and not counted. 3. Turn in a circle, checking each visible tree, making sure not to count the same tree twice. Make sure that as you work your way around the plot, you keep the prism fixed over the plot center while you move around it.

Once the LiDAR scan and 10-factor prism survey are complete, collection of fuel point intercept, woody debris, fuelbed depth, O horizon depth and overstory data occurs. Tier 2 sampling require establishing two perpendicular 20m transects.

Establish transects - The transects radiate 10m out from the plot center in each cardinal direction (N, S, E, W) resulting in two perpendicular 20 m transects that intersect at plot center. Place poles at the terminal end of each transect with a fiberglass tape stretched tautly along the transect. ** When establishing transects, be very careful not to trample the vegetation or litter laying along the transect as this material will be sampled.

Fuel Sampling- Conduct Point Intercept sampling, moving through each page of Survey123. Fuel intercept sampling of live/fine fuels and litters is conducted at 40 points, 20 sample points along each transect. Each point is one page in Survey123. Starting at 0.5m from the N terminal end, the fuel sampling rod is dropped vertically along the tape measure but randomly as to not bias the sample. Vegetation height less than 1.4m in height and touching the fuel sampling rod are to be point-intercept tallied (present or absent). Specific instruction on tallying the data is in the Survey123 form. Do not count down woody debris (sticks, twigs, bark, stumps, etc.) pine cones, and trunks of trees as they are accounted for elsewhere.

Conduct Fuelbed and O horizon depth sampling. The point intercept method us used to collect fuelbed and O horizon depth at 4.5m from the plot center in each cardinal direction.

Conduct Coarse woody debris and down and dead woody sampling. Sample coarse woody debris and down and dead wood as per the instructions on Page 2 of Survey123.

Conduct Overstory sampling. Overstory trees are characterized within the 4 quadrants of the plot and are delineated by the plot radius and the 4 transects. In each quadrant, trees over 10cm DBH need to be listed and the total number of each tree species present recorded. Tree species are provided as a drop-down list in Survey123 specific to the site where work is being conducted. Trees not found in the drop-down list can be added in the "Other" section.

Complete Witness Tree Information. Marking witness trees, and recording bearing information, is necessary to be able to rescan the plot, from the exact location, in the future.