FOREST HEALTH PROJECT SPATIAL DATA GUIDANCE

All Forest Health Program grantees are required to provide grant project information for entry into CalMAPPER, CAL FIRE's geospatial database that facilitates mapping and monitoring of California Climate Investments and other CAL FIRE vegetation treatment projects. To fulfill obligations stated in grant agreements, information must be provided in conformance with CAL FIRE standards and on time. Information from grantees will include shapefiles of all treatment areas and a project boundary. Geospatial data from grantees will be required at specific times throughout the effective period of the grant, including at initial grant award, at periodic progress report submissions, when there are any changes to the project's treatment types or areas, and at grant closeout.

This spatial data guidance document is to be used as a resource for Forest Health grantees to support conformance to requirements. Please review the below information when creating shapefiles and review the Forest Health Project Spatial Data Checklist prior to submission. All spatial data guidance resources can be found on the Forest Health Grantee Resources web page. **Non-conforming submittals will be returned to grantees for prompt correction.**

CONTENTS

GENERAL REQUIREMENTS FOR ALL SPATIAL DATA SUBMITTALS

1. Format: Shapefile (KMZ or GDB will not be accepted.)

2. Coordinate reference system: NAD_1983_California_Teale_albers (EPSG: 3310)

3. Note file: Include source information, methodology, and other relevant details, if any, in a note file and place it in a zipped folder with the shapefile.

4. Separate zipped folders for each shapefile: One for the project boundary and one for each treatment activity boundary/treatment component number, as shown below.
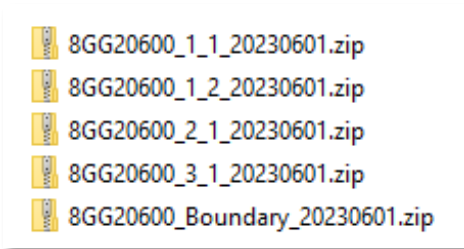
For example, if a project has 15 individual treatment component numbers (TCNs) listed on the Treatment Tracking sheet of the progress report (i.e., a total of 15 rows of information in the Ground-Disturbing Activity Information table), there should be a total of 16 zipped shapefile folders submitted: one zipped folder for the project boundary and 15 separate zipped files for the 15 different treatment component numbers listed on the Treatment Tracking sheet in the progress report. Please refer to the Spatial Data Checklist for directions on determining TCN.

5. Within each zipped shapefile folder, please provide all associated file extensions as shown below. It is OK if there are extra files such as .shp.xml.
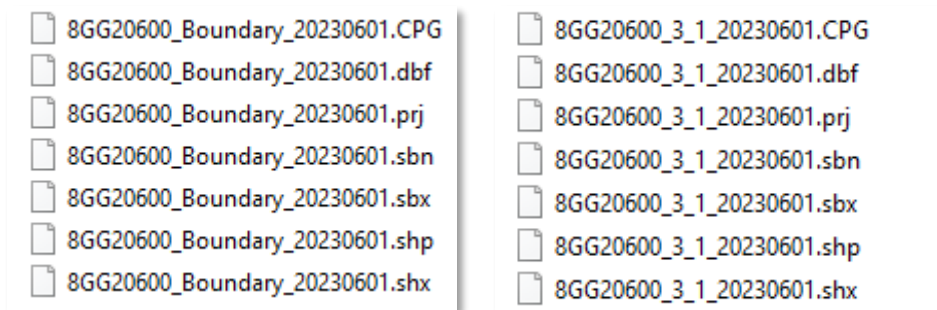
TYPES OF SHAPEFILES

Please include a project boundary shapefile, and a separate shapefile for each of the TCNs (rows) listed in the Treatment Tracking sheet in the progress report, as follows.

Project Boundary Shapefile

1. The project boundary shapefile should have only one feature. The project boundary can be a multipart feature in the case of dispersed treatment areas.

2. The shapefile should, as closely as possible, define the acres on which ground-disturbing activity will take place (in a shapefile showing planned work) or has taken place (in a shapefile representing completed work), within the project scope. It is important to exclude any "dead" or "skip-over" or areas to give an accurate map of where ground-disturbing work occurs. Please be sure to exclude any "impact areas" where benefits are expected to result, but ground-disturbing work is not directly implemented. There should be no overlapping areas, and the project boundary acreage should not exceed the cumulative treatment activity polygons acres. In summary, the project boundary shapefile should be one feature that covers all and only the areas on which the grant project conducts ground-disturbing work – i.e., a cumulative feature that includes all treatment activity boundaries.

3. Please submit your project boundary shapefile with the following naming convention:

   GrantID_Boundary_Date.zip (Date format: YYYYMMDD)

   Example: 8GG20600_Boundary_20230331.zip

4. The attribute table for the project boundary shapefile must include these fields: Grant ID, Project Name, Grantee, [Calculated] Acres (see example below).

FID	Shape *	ID	Proj_Name	Grantee	Acres
0	Polygon ZM	8GG20600	Burney Hat Creek Forest Health Project	Fall River RCD	2500

Boundary shapefiles need to include all areas which have treatments on them but cannot include any area which does not have a treatment. If the figure on the left shows different treatments for each color, with the green circle and purple showing overlapping treatments and a space in the center of the blue diamond where no treatment was done, the boundary shapefile will look like the figure on the right.
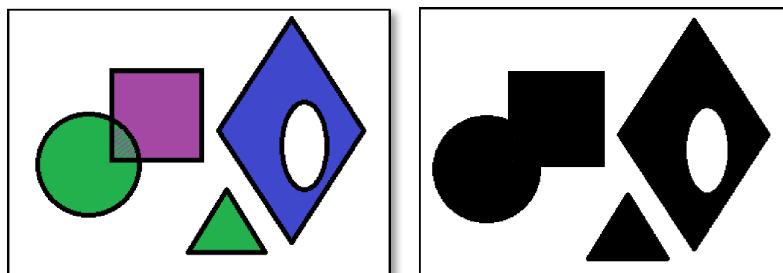
Treatment Activity Shapefiles

Each project will have multiple treatment component numbers (TCNs)/treatment activity shapefiles.

1. Each row in the table must have exactly one ownership type and one responsibility area ("jurisdiction"). If one activity will take place in an area that spans multiple ownership types, then it will be necessary to break the area into smaller parts so that each part has only one ownership type; then each smaller area will be entered in its own row. The same is true of responsibility areas (FRA, SRA, and LRA designations).

2. The number of treatment activity shapefiles must match the number of TCNs (rows) listed in the Treatment Tracking sheet of the progress report. For example, if the Treatment Tracking sheet lists 15 different TCNs (one activity per row, across a total of 15 rows), there must be 15 treatment activity shapefiles.

3. Each treatment activity boundary should only have one feature; it can be a multipart feature if treatment areas are dispersed.

4. All treatment activities must fall within the project boundary footprint.

5. Each treatment activity shapefile should include the associated treatment component number (TCN) as listed on the Treatment Tracking worksheet in the project progress report workbook.

6. Each treatment activity shapefile must have one and only one responsibility area ("jurisdiction"). Please see the "Determining Jurisdiction" section for requirements and guidance.

7. Please submit your treatment activity boundary shapefiles with the following naming convention.

    GrantID_TreatmentComponentNumber_Date.zip (Date format: YYYYMMDD)

    Example: 8GG20600_1_1_20230601.zip

8. The attribute table for the treatment activity boundary shapefiles must include these fields: Grant ID, Treatment Component Number, Treatment Name, Ownership Type, Jurisdiction, Treatment Objective, Treatment Activity, [Calculated] Acres, Vegetation Type (see example below)

9. Make sure <u>all</u> fields match the Treatment Tracking sheet in your Progress Report workbook (including calculated acreage).

FID	Shape *	ID	TCN	TName	OwnType	Jurisdicti	TObjective	TActivity	Acres	VegType
0	Polygon ZM	8GG20600	1.1	Manzanita Chutes	Forest Service	FRA	Fuels Reduction	Thinning (Mechanical)	2500	Timber

At the end, there should be a one-to-one relationship: one treatment activity, one TCN row on the Treatment Tracking sheet in the Progress Report workbook, one treatment activity polygon.

Blank Shapefile Templates

1. Please click here to download an empty shapefile .zip file to use for submitting the project boundary shapefile.

2. Please click here to download an empty shapefile .zip file for submitting the treatment activity shapefiles.

Templates can also be found in the Spatial Data- Shapefiles section of the Forest Health Grantee Resources webpage.

DETERMINING TCN (TREATMENT COMPONENT NUMBER)

The Treatment Tracking sheet in the Progress Report workbook assigns Treatment Component Numbers (TCN) to each treatment area. TCN naming convention is set up as digits before and after a decimal point (ex. "2.3"). The digits before the decimal are determined by the areas which have the same Ownership Type, Jurisdiction, and Treatment Objective (see below).

Treatment Component Number	Treatment Area Name	Ownership Type	Jurisdiction	Treatment Objective
1	Rx Fire Example	Private (non-industrial)	SRA	Prescribed_Fire
1	Rx Fire Example	Private (non-industrial)	SRA	Prescribed_Fire
2	Reforestation Example	National Park	FRA	Reforestation
2	Reforestation Example	National Park	FRA	Reforestation
2	Reforestation Example	National Park	FRA	Reforestation
3	Different Ownership Ex.	Private (non-industrial)	FRA	Reforestation

The digit after the decimal is added by the different Activity Objectives for each number assigned above (see below).

Treatment Component Number	Treatment Area Name	Ownership Type	Jurisdiction	Treatment Objective	Treatment Activity
1.1	Rx Fire Example	Private (non-industrial)	SRA	Prescribed_Fire	Broadcast Burning
1.2	Rx Fire Example	Private (non-industrial)	SRA	Prescribed_Fire	Pile Burning
2.1	Reforestation Example	National Park	FRA	Reforestation	Invasive Plant Removal
2.2	Reforestation Example	National Park	FRA	Reforestation	Tree Planting (Manual)
2.3	Reforestation Example	National Park	FRA	Reforestation	Site Preparation
3.1	Different Ownership Ex.	Private (non-industrial)	FRA	Reforestation	Tree Planting (Manual)

DETERMINING JURISDICTION

When providing shapefiles of treatment activities, each treatment activity polygon must fall entirely within one responsibility area ("jurisdiction"): Federal Responsibility Area (FRA), State Responsibility Area (SRA), or Local Responsibility (LRA).

CAL FIRE's Fire and Resource Assessment Program (FRAP) maintains a GIS responsibility area layer publicly available online. Using this layer is necessary to ensure polygons do not span multiple responsibility areas.

Grantees may view the layer while first drawing polygons, and/or to check polygons drawn in the field (for example, if problems with connectivity might affect the accuracy of map work in remote locations). Below are tips on using the layer.

1. Download the California State Responsibility Area *2022* geodatabase under the Land Ownership and Administration section from [FRAP GIS Mapping and Data Analytics](#) webpage.

2. Load the geodatabase into a survey application (e.g., Avenza, Collector, or Survey123) to use it offline while in the field.

3. Apply spatial join (one-to-many) or overlay (intersection) tools by using the responsibility area and the activity shapefile in GIS software (e.g., ArcMap).

4. The resultant dataset will produce a new shapefile that has a combination of activity attributes with responsibility area attributes.

5. If an activity shape falls into multiple responsibility areas, then there will be multiple rows, each with a different responsibility area, for the one activity. Then:

   a. Correct any drawing errors found that could eliminate inaccurate overlapping by the polygon of more than one responsibility area.

   b. If the correctly drawn activity polygon still covers more than one responsibility area, the polygon will need to be broken into multiple polygons so that each polygon falls into only one responsibility area. In this case, add a row in the Treatment Tracking sheet (in the progress report form) for each new activity polygon.

CREATING SHAPEFILES FROM TREATMENT TRACKING WORKSHEET

For each row, there should be a single "Treatment Activity Shapefile" that matches the Treatment Activity, Treatment Objective, Ownership, and Jurisdiction. Example attribute table for the shapefile for the first row:

FID	Shape *	ID	TCN	TName	OwnType	Jurisdicti	TObjective	TActivity	Acres	VegType
0	Polygon ZM	8GG20600	1.1	Manzanita Chutes	Forest Service	FRA	Fuels Reduction	Thinning (Mechanical)	2500	Timber

Note: Acres need to be calculated based on the given coordinate reference system. For consistency across all projects, this acreage is what should be entered in the "Activity Acreage to Be Treated" column on the Treatment Tracking sheet in the Progress Report Workbook.

Export all data from the boundary and each TCN shapefile into its own folder, then zip:
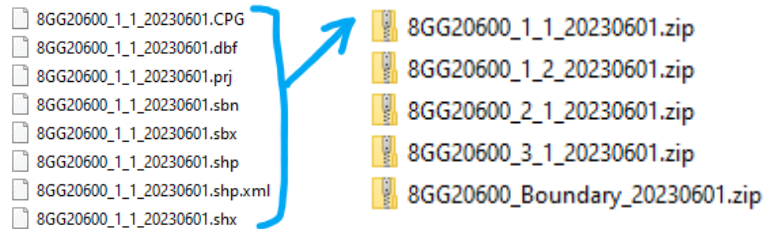
SHAPEFILE UPDATES

If a treatment area or activity is changing in any way, the grantee should reach out to the appropriate Forest Health Forester immediately to capture the change on the progress report. The Forest Health Forester will determine if updated shapefiles and/or an amendment are needed. Prompt communication is important so that updated shapefiles can be submitted punctually with progress reports instead of at a delay after progress report submittal.

Changes that may require updated shapefiles and/or an amendment include but are not limited to the following examples:

a) Change in treatment area including location change, addition, and/or subtraction of acres (to be) treated.

b) Change in treatment objective or treatment activity.

c) Addition or removal of any treatments.

Amendments

If a treatment area or activity is changing due to an amendment, new shapefiles must be submitted at the time of the amendment request. Please refer to the Requesting Amendments section on the [Forest Health Grantee Resources](#) web page.

Please include shapefiles for all treatment activities affected and a new boundary shapefile that accurately represents the changes. (If the treatment activity shapefiles are overlaid with the boundary shapefile, they should be completely coincident; no non-overlapping areas should exist)

Work with your Forest Health Forester to determine the proper Treatment Component Number (TCN) prior to submitting the shapefiles if you are adding a new treatment activity.

Confirm (calculated) GIS acres match acres reported in your Treatment Tracking sheet of your Progress Report workbook and amendment.

Completion

Once a treatment activity (TCN) is complete, please submit the final shapefiles that accurately represent the areas where ground disturbing activities took place with your Activity Report in eCivis Grants Portal. Confirm (calculated) GIS acres match acres reported in the Treatment Tracking sheet of your Progress Report workbook. You may need to work with your Forest Health Area Forester to make treatment tracking sheet adjustments.

FREQUENTLY ASKED QUESTIONS

1. Do I need to submit a shapefile for a completed activity if the footprint hasn't changed?

If the completed treatment activity area did not change at all, no shapefile is needed. However, it is rare that a completed area is identical to the planned area so you will likely need to submit a final shapefile upon completion.

2. Do I need separate TCNs and shapefiles for pre- and post-treatment herbicide application?

Yes. A separate TCN should be generated for multiple-entry activities such as herbicide treatments. You can report those acres for each round of treatment. Therefore, a separate shapefile will be needed for each entry.

3. Do I need to have separate shapefiles if the activity footprint is identical to another?

Yes. Even though the shapefiles will be geometrically identical, we still require a separate shapefile for each TCN.

4. Can I have multiple polygons for one treatment activity area?

Yes. Be sure to merge the polygons so that there is just one (multipart) feature in your shapefile. They do not have to be connected/contiguous.

5. Should I submit an updated boundary shapefile when I update individual treatment activity areas?

Yes. Any time a treatment activity area is updated it will usually change the project footprint; therefore, we ask that updated boundary shapefiles be submitted along with your updated activity areas.

6. Should I submit shapefiles on eCivis?

Yes, all updated shapefiles should be submitted in eCivis. When requesting an amendment that will require updated shapefiles, please upload and submit with an Amendment Request. If submitted a treatment completion shapefile, please upload and submit with an Activity Report. If you have question on how or where to upload a shapefile in eCivis, please reach out to the appropriate Forest Health Forester.

7. Can shapefiles cover a general area where work is planned even if the entire area won't be treated?

No. Shapefiles need to include all areas which have treatments on them but cannot include any area which does not have a treatment. Please exclude all areas where no ground-disturbing work will take place; this includes "dead" or "skip-over" areas or features like lakes, rock outcroppings, or extreme slopes.