Carbon Analysis of Sacramento's Urban Forest

University of San Francisco

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Group Name: Urban Forest CATS

Group Members: Gabbie Corbett, Cassie Lopina, and Crystal Lu

Instructor: David Saah

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PROBLEM STATEMENT

In 2011 the California Air Resources Board (CARB) published the *Compliance Offset Protocol for Urban Forests* to set forth guidelines for municipalities, educational campuses, and utilities to earn carbon credits for planted trees. The purpose of the program is to increase carbon storage in urban areas by providing a financial incentive (credits) for well-maintained trees. Along with carbon storage, urban trees provide additional ecosystem services such as reduced building energy consumption and improved public health (Saah, et. al. 2014). According to the protocol, a series of calculations based on tree measurements must be performed prior to claiming carbon credits. To develop an inventory of tree measurements, the Sacramento Tree Foundation (STF) contracted Spatial Informatics Group (SIG) to use LiDAR technology to construct a database of carbon values for trees in the region. Rather than simply using this data to calculate carbon storage in the area of interest (AOI), it can also be used to help guide city planners in decisions such as where to concentrate future tree planting efforts, or in understanding the monetary benefits of switching to an alternatively fueled maintenance fleet.

RESEARCH QUESTIONS/OBJECTIVES

Research Question:
How are carbon values from Sacramento's urban forests distributed between different parcels? Does this distribution shed light on any social justice inequalities? What impact does maintenance vehicle and equipment choice have on total project greenhouse gas (GHG) reductions in the AOI?

Objectives:

- Confirm carbon values calculated by SIG for tree points in the AOI,
- Determine the distribution of carbon values areas by parcel,
- Create parcel scale maps to help the audience visualize differences between areas and highlight potential relationships between carbon values and environmental justice areas,
- Quantify emissions from AOI maintenance vehicles and equipment using two scenarios to identify ways to maximize project GHG reductions.

STUDY AREA

SIG provided a LiDAR geodatabase of tree point and canopy measurements from Sacramento's urban forest. The trees included in this dataset all lie within the boundaries of the seventeen municipalities included in the AOI analyzed in this project: Woodland, Winters, Davis, Isleton, West Sacramento, Sacramento, Elk Grove, Galt, Rancho Cordova, Folsom, Citrus Heights, Folsom, Roseville, Rocklin, Loomis, Lincoln, and Wheatland (Figure 1).

Figure 1: Sacramento AOI

LITERATURE REVIEW

The literature review served three functions for this project: 1) To acquire the LiDAR data used to calculate carbon values of trees in the AOI, 2) To define the boundaries of California's environmental justice areas, and 3) To develop the two scenarios used to evaluate maintenance vehicle and equipment fuel consumption.

TREE DATA AND CARBON CALCULATIONS

Prior to beginning this project a substantial amount of time was devoted to reviewing SIG's *Energy and Carbon Verification for the Sacramento Region,* and understanding how the LiDAR data gathered on trees in Sacramento related to the calculations set forth in CARB's offset protocol. SIG originally received field measurements from STF and was asked to develop a comprehensive inventory of tree carbon storage for the AOI. SIG used LiDAR technology to measure tree height and canopies, and confirmed the accuracy of the LiDAR data by comparing the results to field measurements (Saah et. al., 2014). Although the LiDAR data includes estimates of tree measurements and location, it does not identify the tree species, thus SIG had to develop new equations to determine carbon from tree height and crown measurements.

Using LiDAR measurement provides a significant advantage over extrapolation methods. There are over 3.6 million trees in the Sacramento AOI, all of which are included in the dataset. This complete dataset reduces bias and ultimately will lead to a greater certainty in the carbon values calculated.

ENVIRONMENTAL JUSTICE AREAS

Environmental justice areas used in this analysis were recognized according to CalEPA's area designations and will be used to highlight any social justice inequalities. In 2014 a dataset was created by CalEPA that incorporated census block information on poverty level, literacy rates, pollutant concentrations, asthma cases, and various other concerns to identify areas that are disproportionately burdened by and vulnerable to multiple sources of pollution. Environmental justice areas are given special consideration for state-sponsored programs. An example of this is California's cap-and-trade program, which is one of several strategies the state has deployed to reduce greenhouse gas emissions. According to a 2012 Senate Bill, SB 535, a minimum of 10 percent of funds earned by the cap-and-trade program must be designated towards projects occurring in environmental justice areas (CalEPA, 2015).

FUEL CONSUMPTION SCENARIOS

In order to calculate the project GHG reductions claimed by a municipality, educational campus, or utility company, the carbon dioxide (CO_2) emissions from maintenance vehicles and equipment, must be subtracted from the carbon storage from all trees in a project area. The group was unable to attain regional fuel usage or vehicle logs, therefore all estimates made relied on a review of San Francisco's urban forest maintenance plan, which was available online. In 2007 San Francisco's urban forest contained over 669,000 trees, 40 percent of which were maintained by the cities' 19 full time tree maintenance employees (San Francisco Planning Department, 2014). San Francisco conducted tree pruning on their urban forest every 5 years, which is consistent with Sacramento's pruning schedule (City of Sacramento, 2015). This information was used as a basis for the assumptions made on the number of staff members needed to maintain Sacramento's urban forest, which is described in detail in Appendix B.

METADATA

The three robust datasets identified in Table 1 contain an enormous amount of data on the AOI. The first dataset, TreePoints_LiDAR was generated by SIG using LiDAR and provides comprehensive coverage of the study area for all the trees in the AOI (Saah et. al., 2014). The Parcels_ESV dataset, also provided by SIG, will be used to determine the carbon values by parcel. The final dataset, CES 2.0 Scores, was acquired from CalEPA and contains the official designated environmental justice score for each census block in the state (CalEPA, 2015). The detailed metadata for each of these datasets is contained in Appendix C.

Table 1: Metadata

Name	Projection	Datum	Scale	Currency	Source	Significance
TreePoints_ LiDAR	Points representing tree stems for each tree measured by LiDAR	Contains crown radius, tree height, canopy volume, carbon total, GPS coordinates, and carbon total (3,610,857 trees)	City (1:50,000) to building (1:5,000)	2014	SIG	Remote sensing data provides comprehensive coverage of the study area for points that were not measured in the field. This data will be used to perform carbon value calculations.
Parcels_ESV	Polygons representing each parcel in the AOI	Contains environmental service values by parcel for the AOI (576,779 parcels)	City (1:50,000) to building (1:5,000)	2014	SIG	The tree point data will be summarized by parcel using this dataset.
CES 2.0 Scores	Polygons representing environmental justice area scores designated by CalEPA	Contains poverty level, literacy rates, asthma cases, pollutant concentrations, and various other concerns related to environmental justice areas.	City (1:50,000) to building (1:5,000)	2015	CalEPA	This data will be used to compare carbon values to environmental justice areas.

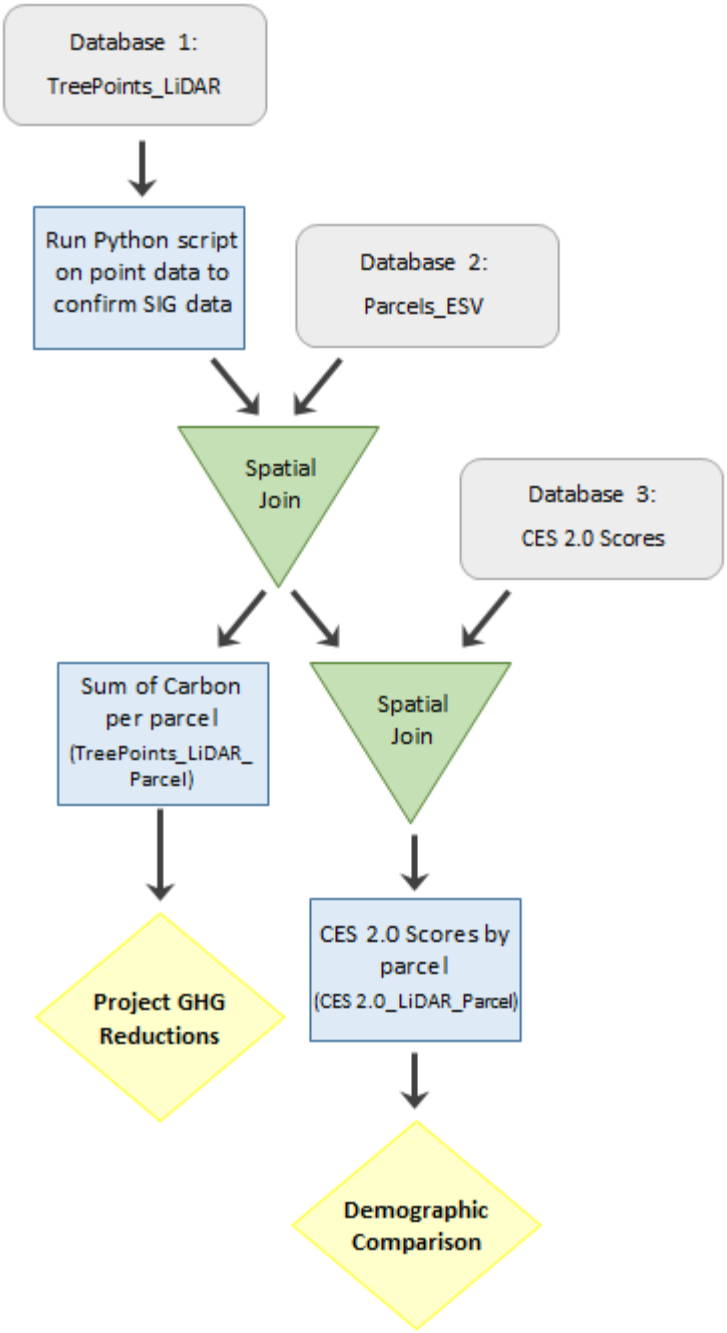
METHODS

To answer our three research questions we began with the analysis of the TreePoints_LiDAR dataset (Figure 2). Equation #1 (Appendix A) was inserted into Python to automate the calculation of carbon values for tree points. The carbon values that we generated were then compared to SIG's carbon values included in the TreePoints_LiDAR dataset, to validate our results. After these calculations were complete, a spatial join was performed between the TreePoints_LiDAR dataset and Parcels_ESV to summarize the carbon values per parcel, in a dataset we will refer to as TreePoints_LiDAR_Parcel. The distribution of carbon values per parcel was mapped to identify any patterns in the distribution of carbon in the AOI. This analysis, performed to answer our first research question, will also consider any natural features in the AOI that may be the source of an increased number of trees (i.e. waterways, forests, etc.).

To answer the second research question, a new dataset was created to explore any potential relationships between environmental justice areas and carbon value concentrations. The TreePoints_LiDAR_Parcel dataset was spatially joined to the CES 2.0 Score dataset to create CES 2.0_LiDAR_Parcel. This new dataset allowed for the CES 2.0 data, which was previously divided by census block, to be mapped and compared on the same scale as the LiDAR data.

The third and final research question utilized the TreePoints_LiDAR_Parcel dataset. Hypothetical project GHG reductions were calculated according to the methodology outlined in *Energy and Carbon Verification for the Sacramento Region* for two potential scenarios. The first scenario, business as usual, was developed using estimated fleet equipment type and usage patterns based on the literature review. The second scenario was a green electric vehicle alternative, created using current comparable electric technologies to replace existing vehicles and equipment. The purpose of the two scenarios is to highlight any prospective improvements that could be made to maximize the number of carbon credits earned.

Figure 2: Project Analysis Model



RESULTS/CONCLUSIONS

The overall purpose of this project was to confirm the carbon values provided by SIG in the LiDAR dataset, and then apply this data to some meaningful questions to showcase some of the broad applications of this dataset. Rather than just using this dataset as supporting evidence for eligible projects, the data can be used to determine where more trees are needed, how to prioritize tree planting efforts based on environmental justice concerns, and how to maximize carbon credits earned.

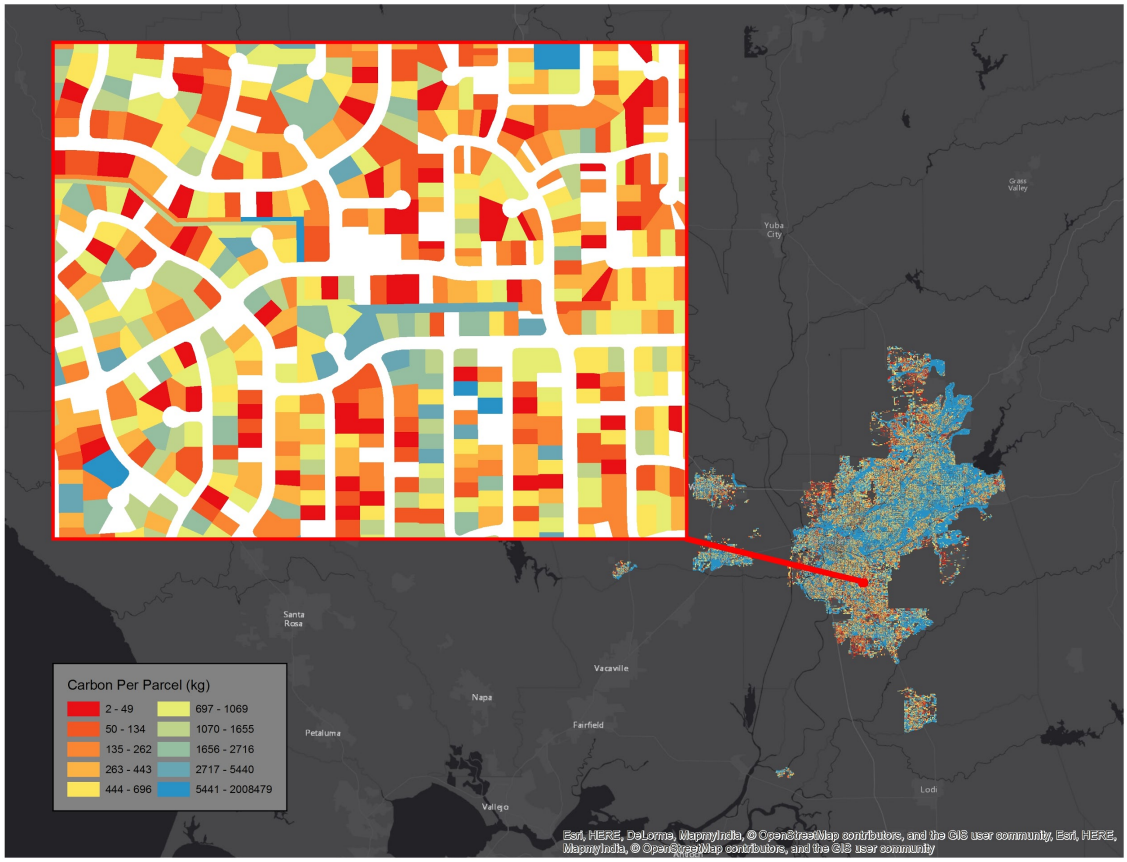
CARBON VALUE DISTRIBUTION

Carbon storage values varied drastically throughout parcels in the AOI. Figure 3 map shows how carbon storage is distributed by parcel throughout the AOI. The blue areas on the map indicate the highest concentrations of carbon storage, while red areas

represent areas with drastically less carbon storage per parcel. Based on this map, it is clear that there is a heavy concentration of carbon storage in the Eastern region of Sacramento, in areas such as Auburn and El Dorado Hills, which are located in the foothills. Another trend is visible trend is the blue curve that runs through the middle of the AOI, and corresponds to the path of the American River.

The southern portion of the AOI is focused on in this map to highlight an area with significantly lower carbon storage, relative to the rest of the AOI. The close up view shows that although some parcels may have a high amount of carbon storage, the majority of parcels are on the low end of the spectrum. When considering where to plant future trees, using a parcel view will help planners prioritize planting efforts.

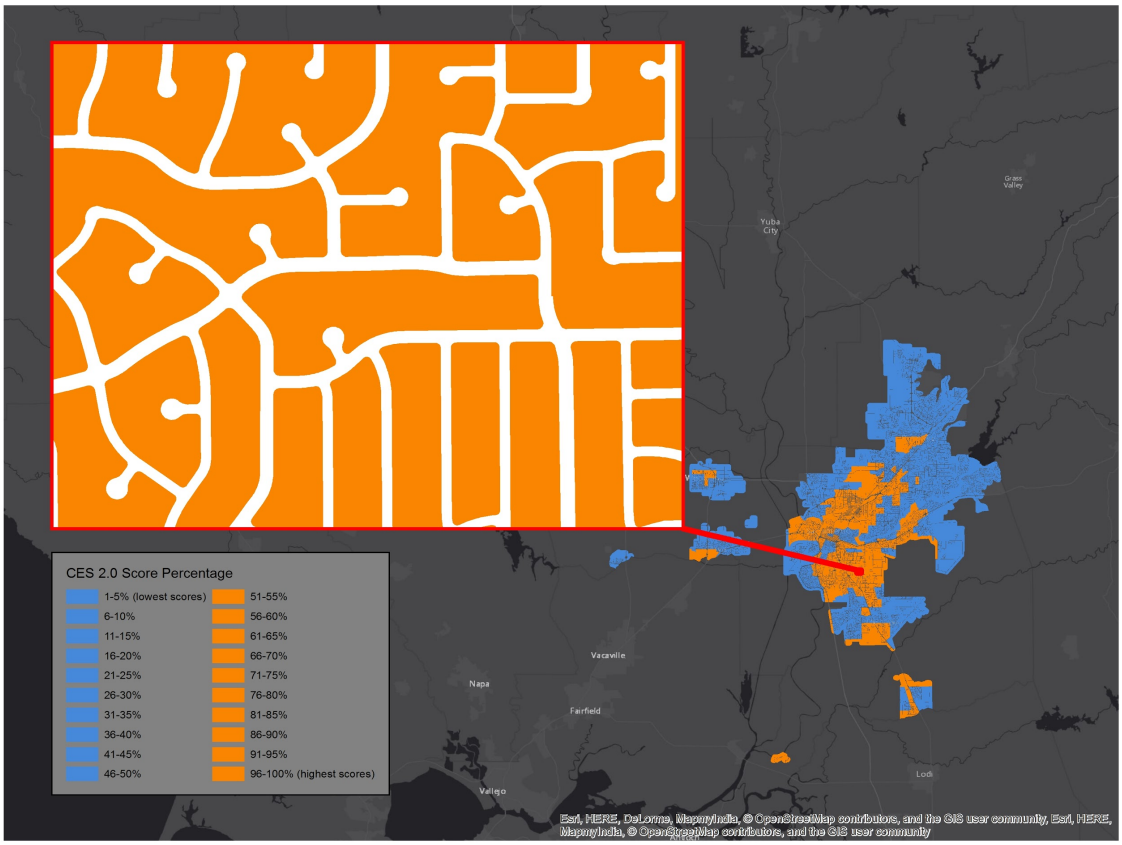
Figure 3: Carbon Value Distribution in the AOI- Southern AOI



ENVIRONMENTAL JUSTICE AREA CONCERN

To further prioritize where tree planting efforts should be concentrated, the carbon storage data was compared to environmental justice areas to identify any social justice inequalities. Environmental justice areas were scored were ranked in 5 percent intervals. To simplify the ranking system for our purposes, we split the environmental justice area designations into two categories in Figure 4. The orange parcels have the higher CES 2.0 Scores, meaning that they are the environmental justice areas of higher concern. The second category is represented in blue, and contains the lower CES 2.0 Scores. For our purposes of identifying if there is any overlap between environmental justice areas and parcels with low carbon values, the top and bottom 50 percent scores are appropriate, however the increments visible on a map would increase as specific areas within the AOI were selected for analysis.

Figure 4: Environmental Justice Areas Designations-Southern AOI



When Figure 3 and Figure 4 are compared, the relationship between the two maps becomes evident. The area of lower carbon storage corresponds to the higher CES 2.0 scores. A second comparison was completed using the northeastern AOI. Although the zoomed out view of this area seems to have high carbon storage values, indicated in blue, the specific pocket that we are focusing on had lower carbon storage values (Figure 5). Again, this area of lower carbon storage has a CES 2.0 Score above 50%, which tells us that this area is in a more disadvantaged region (Figure 6).

Figure 5: Carbon Value Distribution in the AOI- Northeastern AOI

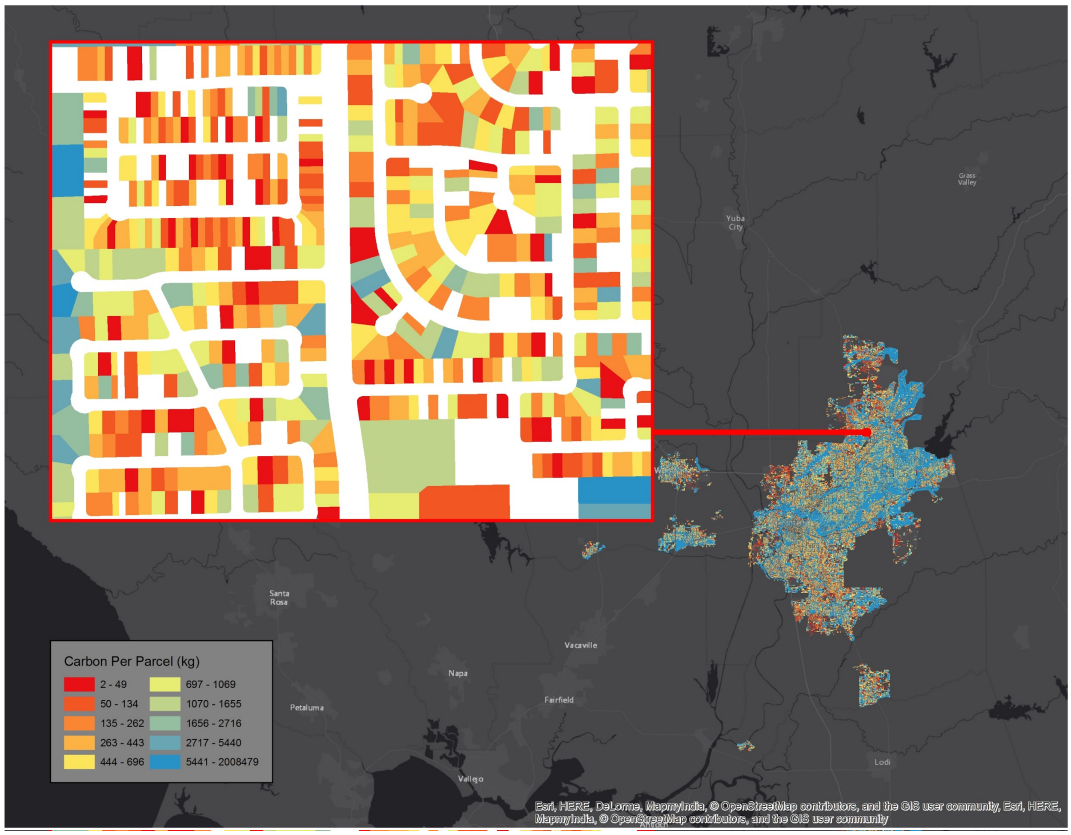
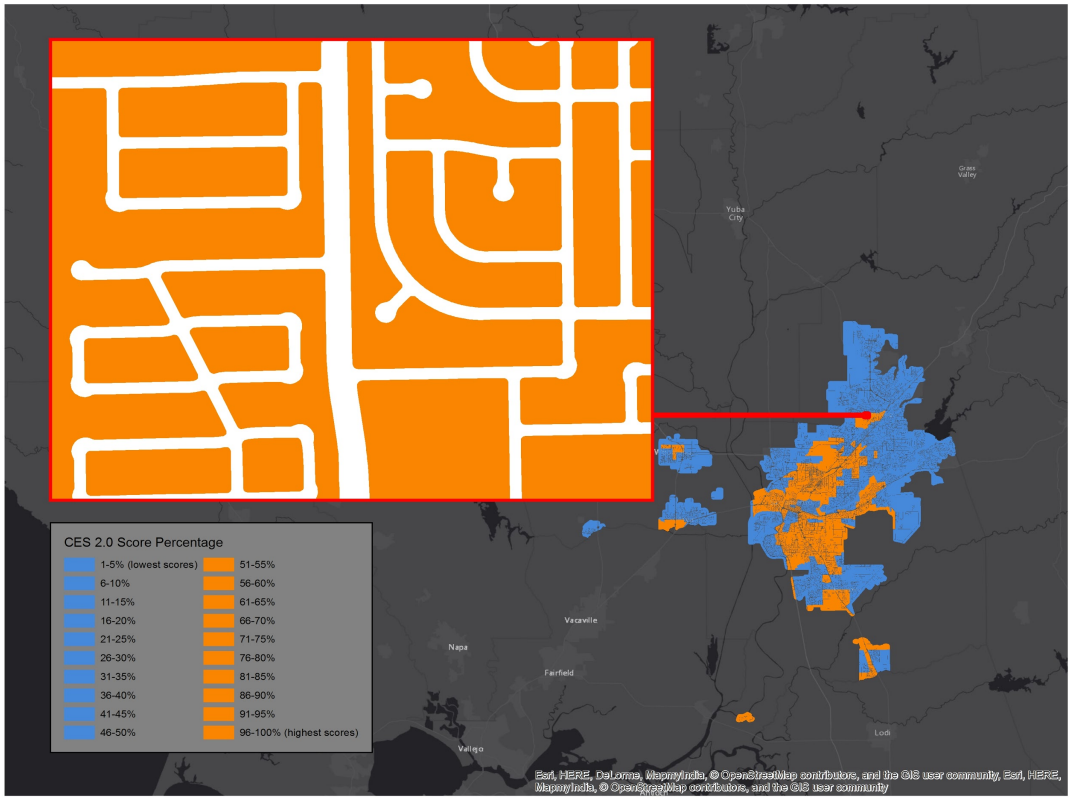
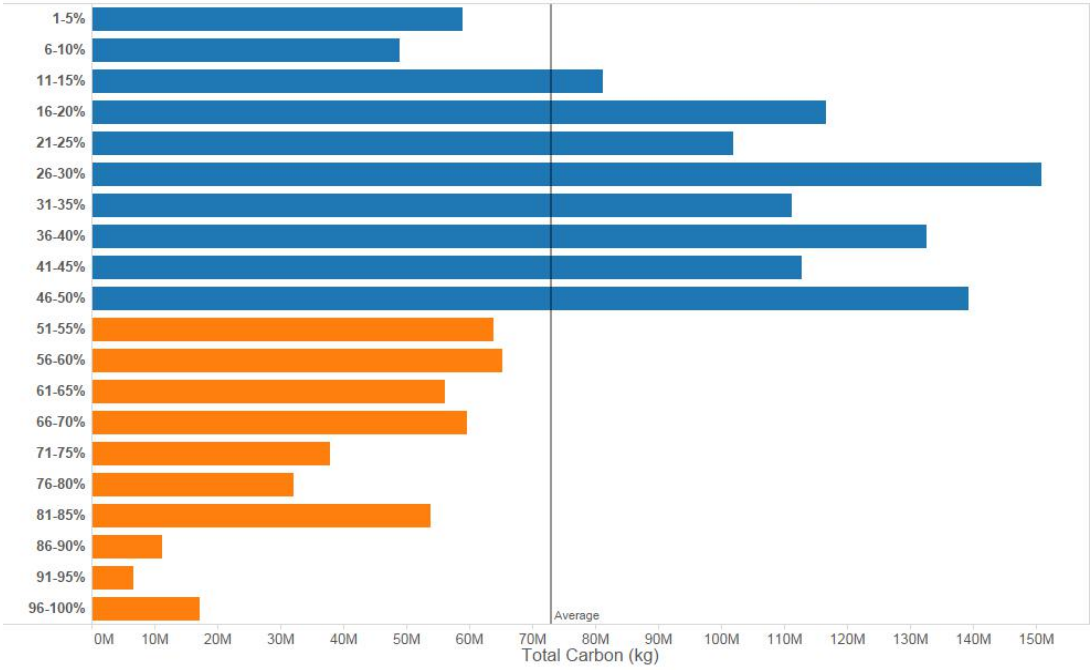


Figure 6: Environmental Justice Areas Designations-Northeastern AOI



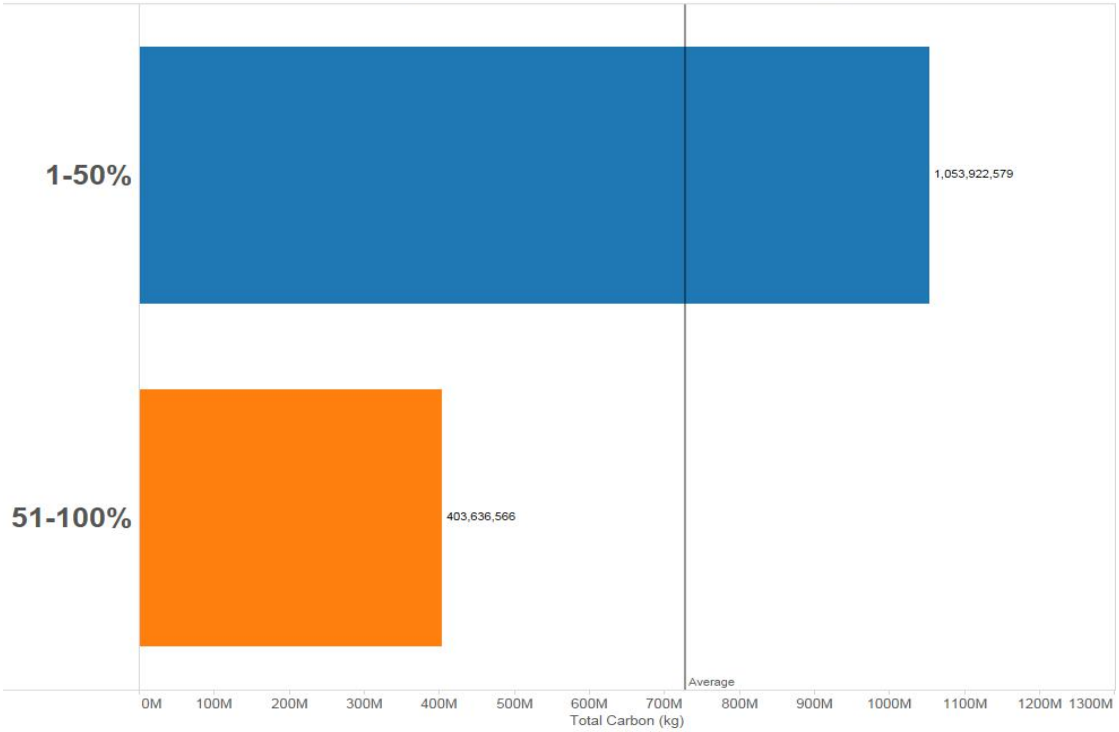
To investigate this trend further, the same data was visualized graphically. The majority of areas with lower CES 2.0 scores have higher carbon storage values than areas with higher scores (Figure 7). Alternatively, carbon storage values in areas with CES 2.0 Scores in the upper 50% all have less than the average carbon storage values.

Figure 7: Carbon Values by CES 2.0 Score Percentage



After a clear trend was found, we decided to do an analysis throughout the entire AOI to find out if environmental justice areas have, on average, lower carbon storage values. Figure 8 shows that the combined parcels with the CES scores below 50% have more than twice the amount of carbon storage from trees than the combined parcels with scores above 50%. Therefore, it appears that there is social justice inequality in the distribution of carbon storage in the Sacramento AOI.

Figure 8: Total Parcel Carbon Values by CES 2.0 Score Percentage



PROJECT GHG EMISSION REDUCTIONS

The project GHG emissions were calculated for two scenarios to identify ways to maximize the amount of CO_2 emission reductions that are eligible for carbon credits. Although project GHG reductions can only be claimed by qualifying site operators, for our analysis we used the entire AOI over the 25 year project period. Both scenarios are based on popular vehicle and equipment types used for routine maintenance of urban forests. Occasionally necessary special maintenance, such as tree planting and removal, were not included as part of this analysis.

To account for the lack of data on routine tree maintenance in Sacramento, assumptions regarding use were estimated based on a literary review. Using San Francisco's Urban Forest overview, the average number of trees each crew prunes per day is around 25. This number was used to roughly determine the number of crews, and therefore the number of vehicles and equipment in the Sacramento AOI (assuming that 1 crew has a single truck and one of each piece of equipment). Following this methodology it was found that to maintain all 3.6 million trees in Sacramento, on a 5-year rotation (working 260 days a year), that 110 crews would be needed.

Table 2 provides an overview of the assumptions made based on vehicle and equipment types. To establish consistency the same vehicle and its equivalent electric counterpart were used for each scenario. Only one piece of equipment, the chipper, did not have an equivalent cordless electric alternative available.

Table 2: Assumptions Made by Equipment Type for Scenario Calculations

Equipment Type	Daily Use	Range
Boom Truck	25 miles per day	7-9 mpg (Diesel); 30 mpg (Electric)
Aerial Lift	1 hour per day	25-50 hp
Chain Saw	3 hours per day	2-7 hp
Chipper	2 hours per day	35-50 hp

[1]MPG estimates based on Ford F550 boom trucks

All cost savings estimates are based purely on the additional revenue from carbon credits and does not consider additional benefits such as refueling cost or reductions in maintenance.

According to the carbon values calculated at the beginning of this study, the entire AOI is responsible for reducing 1,698,644 tons of CO_2 over the project lifetime. CARB's urban forest protocol clearly states how the project GHG reductions are calculated at the beginning of a project and must be maintained for 25 years. This means that any changes in maintenance plans or vehicle and equipment fleets overtime will not be reflected in the number of credits earned. Therefore to maximize the number of carbon credits received, any changes in the existing maintenance plan should be evaluated prior to submitting a project to CARB. Also, although the additional monetary benefits related to switching to alternative fuel types, such as annual operating costs from fuel and maintenance, are not included under the scope of this project, they should be recognized if performing an in-depth evaluation of fleet type for an eligible urban forest project.

The business as usual scenario, Scenario A, was created based on likely current vehicle fleets, using popular vehicle and equipment types (Appendix B- Table A1). Under Scenario A the average project CO_2 emissions from the maintenance fleet over the project lifetime is between 42,625 - 64,900 tons (Table 3). Assuming the price of carbon remains at $12.70 per ton, the average profit loss resulting from Scenario A is $682,790 over the project lifetime.

Table 3: Scenario A – Business as Usual

Equipment Type	Estimated Annual CO_2 Emissions for Total Fleet (tons/year)	Estimated Fleet CO_2 Emissions over Project Lifetime (tons)
Boom Truck (Diesel)	812 - 1,045	20,350 - 26,125
Aerial Lift (Diesel)	286 - 572	7,150 - 14,300
Chainsaw (Gasoline)	33 - 176	825 - 4,400
Chipper (Gasoline)	572 - 803	14,300 - 20,075
Total	1,703 - 2,596	42,625 - 64,900

The alternative fuel scenario, Scenario B, incorporates the emissions from a near-electric fleet. The current CARB urban forest protocol does not provide an emissions factor to use for electric vehicle calculations. After reviewing U.S. EPA emission factor documents, it was found that the emissions factor for electric vehicles and equipment is considered zero from the tailpipe to avoid duplicative counting of upstream emissions (U.S. EPA, 2014b). Under Scenario B the average project CO_2 emissions from the maintenance fleet over the project lifetime is between 14,300 – 20,075 tons (Table 4). The average profit loss resulting from Scenario B is $17,190 over the project lifetime.

Table 4: Scenario B – Green-Electric Fleet

Equipment Type	Estimated Annual CO_2 Emissions for Total Fleet (tons/year)	Estimated Fleet CO_2 Emissions over Project Lifetime (tons)
Boom Truck and Aerial Lift (Plug-In Hybrid)	0	0
Chain Saw (Electric)	0	0
Chipper (Gasoline)	572 - 803	14,300 - 20,075
Total	572 - 803	14,300 - 20,075

When Scenarios A and B are compared, it is found that CO_2 emissions from maintenance activities can be decreased by 66-68 percent by switching to a green-electric fleet. The average increase in revenue from additional carbon credits that can be claimed has an estimated value of $482,830. Aside from fiscal benefits, the amount of CO_2 emissions that are avoided are 36,570 tons, the equivalence of over 17,250 new trees planted over the project lifetime.

The final step was to calculate the total project GHG reductions for each fleet. Because LiDAR measurement is not specifically addressed in CARB's Compliance Offset Protocol, it is unclear what carbon stock change adjustment should be used to account for any sampling error (see Appendix A, equation #2). To avoid the overestimation of project GHG reductions for the AOI, a modest assumption of 20% uncertainty was chosen, which requires a 30% reduction in carbon stock exchange. The resulting number of carbon credits ineligible to be claimed was just under 510,000 tons over the project lifetime. Following the assumptions made in Scenarios A and B the total project GHG reductions for the AOI are 1,135,291 tons and 1, 171,961 tons, respectively.

This project has ultimately shown potential ways to maximize the emission reductions, fiscal benefits, or to minimize social inequalities associated with urban forest projects. If the applicant strongly values GHG emission reductions, than an alternatively fueled fleet is a highly attractive option. An applicant with a strong connection to social inequality issues may seek to concentrate their efforts in improving the number of trees in environmental justice areas. For the largest financial benefit, the applicant would be wise to concentrate their efforts on collecting field species data to further validate SIG's LiDAR measurements to use the lowest level of uncertainty feasible.

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APPENDIX A

Appendix A contains a summary of the equations used in SIG and CARB to calculate carbon from urban forests. Equations #1 and #2 were developed by SIG to calculate carbon from trees using LiDAR data when species type is unavailable. Equations #3 through #8 are required by CARB to claim project GHG reductions, according to Section 5 of the *Compliance Offset Protocol for Urban Forest Projects*.

Equation #1:
Total Tree Carbon (from only tree height)= $0.660902 \times H^{2.62363}$

Equation #2:
Total Crown Carbon (from canopy spread)= $6.57351 \times A^{1.2416}$

Equation #3:
Sampling Error (90% confidence interval)= [(1 Standard Error x 1.645)/(Sample mean)x100

Where,

Sampling Error	Carbon Stock Change Adjustment (deduction by)
0 to 5%	0%
5.1 to 10%	10%
10.1 to 15%	20%
15.1 to 20%	30%
>20%	100%

Equation #4:
Total Fuel Use = Total Mileage/ (Fuel Economy City (mpg) x DP_c + Fuel Economy Highway (mpg) x DP_h)

Where,
DP_h= miles spent traveling in highway conditions (0.45 if unknown)
DP_c= miles spent traveling in city conditions (0.55 if unknown)

Equation #5:
$C_{vehicle\ emis} = TC \times EF$
Where,
TC= total annual fuel consumption (gallons)
EF= emission factor by fuel type (Divided by 1,000 to convert kg to metric tons).

Equation #6:
$C_{equip\ emis} = HRS \times LF \times HP \times EF$

Where,
HRS= hours used
LF= typical load factor
HP= maximum horsepower
EF= average CO_2 emissions per unit of use (kg/hr)

Equation #7:
Project Tree CO_2 Sequestration= ($Cstock_{year\ x} - Cstock_{year\ x\text{-}n}$) x (3.67) x 0.001

Where,
Cstock= the amount of carbon in eligible tree projects (in CO_2e)
3.67= molecular weight ratio of CO_2 to C
0.001= conversion factor from Kg to metric tons

Equation #8:
Project GHG Reductions= Project Tree CO_2 Sequestration - Vehicle CO_2 Emissions - Equipment CO_2 Emissions

APPENDIX B

Appendix B contains a more detailed description of the assumptions and numbers used to develop and compare the scenarios used to calculate project GHG emissions.

Applying San Francisco's Program to Sacramento
In 2007 San Francisco had 19 staff members pruning trees every 5 years. 669,000 trees in San Francisco, city maintains 40% of them= 267,600/5=53,000 trees per year by 19 men. Estimate 8 total crews with equipment pruning around 25 trees per day.

Sacramento has 3,600,000 trees/5 years=720,000 trees per year, so assume 110 crews pruning around 26 trees per day.

Table A1: Specific Equipment Used to Develop Scenario Assumptions

Equipment Type	Scenario A	Scenario B
Boom Truck	2012 Ford F550 Diesel	2013 Ford F550 Plug-In Hybrid by Altec
Aerial Lift	Diesel (Second Engine on Boom Truck)	Powered by Plug-In Hybrid Engine
Chain Saw	Stihl Professional	Stihl Professional Electric (Cordless)
Chipper	Gas	Gas (no equivalent alternative)

[1]30 mpg range with Diesel backup engine

Scenario A
Average Estimated Annual Vehicle CO2 Emissions Total Fleet: 1,703 - 2,596=~2,150
Average Estimated Fleet CO2 Emissions over Project Lifetime: 42,625 - 64,900=~53,760
Average Annual Profit Loss: $21,630 - $32,970= ~$27,290
Average Total Profit Loss: $541,340 - $824,230= ~$682,790

Scenario B
Average Estimated Annual Vehicle CO2 Emissions Total Fleet: 572 - 803=~690
Average Estimated Fleet CO2 Emissions over Project Lifetime: 14,300 - 20,075=~17,190
Average Annual Profit Loss: $7,260 - $10,200=~$8,730
Average Total Profit Loss: $181,610 - $218,310=~$199,960

Miscellaneous Calculations
66-68 percent decrease in CO2 emissions by switching to an electric fleet.
Average Cost of Carbon in 2015:12.70
Total carbon reduced over 25 year project: 1,698,644 tons
Average tons reduced per tree over 25 year period: 3,600,000 trees/1,698,644 carbon reduced according to LiDAR data= 2.12 tons/tree

Scenario A v B Project Lifetime Comparison:
CO2 emissions: 53,760-17,190=~36,570
Value: $682,790-$199,960=~$482,830
Or the equivalent of 17,250 new trees planted....

Project GHG Reductions
1,698,644 tons x 0.3 (sampling error) = 1,189,051 tons (reduced by 509,593 tons)
Scenario A Project GHG Reductions: 1,189,051-53,760= 1,135,291 tons
Scenario B Project GHG Reductions: 1,189,051-17,190= 1, 171,961 tons

TreePoints_LiDAR

File Geodatabase Feature Class

Thumbnail Not Available

Tags

There are no tags for this item.

Summary

Points representing tree stems for each tree measured by LiDAR.

Description

Contains crown radius, tree height, canopy volume, carbon total, GPS coordinates, and corbon total (3,610,857 trees).

Credits

There are no credits for this item.

Use limitations

There are no access and use limitations for this item.

Extent

West -121.991289 **East** -121.093531
North 38.932738 **South** 38.149092

Scale Range

Maximum (zoomed in) 1:5,000
Minimum (zoomed out) 1:50,000

ArcGIS Metadata ►

Topics and Keywords ►

THEMES OR CATEGORIES OF THE RESOURCE environment, planningCadastre
* CONTENT TYPE Downloadable Data
EXPORT TO FGDC CSDGM XML FORMAT AS RESOURCE DESCRIPTION No

Hide Topics and Keywords ▲

Citation ►

* TITLE TreePoints_LiDAR
CREATION DATE 2015-03-01 00:00:00
PRESENTATION FORMATS * digital map
Hide Citation ▲

Resource Details ►

DATASET LANGUAGES * English (UNITED STATES)
SPATIAL REPRESENTATION TYPE * vector
* PROCESSING ENVIRONMENT Microsoft Windows 7 Version 6.1 (Build 7601) Service Pack 1; Esri ArcGIS 10.2.2.3552
ARCGIS ITEM PROPERTIES
* NAME TreePoints_LiDAR
* LOCATION file://\\PD-ITS-401734\C$\EsriPress\GIST2_Spring2015\SacData\Sacramento_ESV_LiDAR.gdb
* ACCESS PROTOCOL Local Area Network

Hide Resource Details ▲

Extents ►

EXTENT
GEOGRAPHIC EXTENT
BOUNDING RECTANGLE
EXTENT TYPE Extent used for searching
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* EAST LONGITUDE -121.093531
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* SOUTH LATITUDE 38.149092
* EXTENT CONTAINS THE RESOURCE Yes

EXTENT IN THE ITEM'S COORDINATE SYSTEM
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* EAST LONGITUDE 6819522.511998
* SOUTH LATITUDE 1817388.699530
* NORTH LATITUDE 2101507.014823
* EXTENT CONTAINS THE RESOURCE Yes

Hide Extents ▲

Spatial Reference ►

ARCGIS COORDINATE SYSTEM
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* PROJECTION NAD_1983_StatePlane_California_II_FIPS_0402_Feet
* COORDINATE REFERENCE DETAILS
PROJECTED COORDINATE SYSTEM
WELL-KNOWN IDENTIFIER 102642
X ORIGIN -115211800
Y ORIGIN -93821500
XY SCALE 3048.0060960121918
Z ORIGIN -100000
Z SCALE 10000
M ORIGIN -100000
M SCALE 10000
XY TOLERANCE 0.0032808333333333331
Z TOLERANCE 0.001
M TOLERANCE 0.001
HIGH PRECISION true
LATEST WELL-KNOWN IDENTIFIER 2226
WELL-KNOWN TEXT
PROJCS["NAD_1983_StatePlane_California_II_FIPS_0402_Feet",GEOGCS["GCS_North_American_1983",DATUM["D_North_American_1983",SPHEROID["GRS_1980",6378137.0,298.257222101]],PRIMEM["Greenwich",0.0],UNIT["Degree",0.0174532925199433]],PROJECTION["Lambert_Conformal_Conic"],PARAMETER["False_Easting",6561666.666666666],PARAMETER["False_Northing",1640416.666666667],PARAMETER["Central_Meridian",-122.0],PARAMETER["Standard_Parallel_1",38.33333333333334],PARAMETER["Standard_Parallel_2",39.83333333333334],PARAMETER["Latitude_Of_Origin",37.66666666666666],UNIT["Foot_US",0.3048006096012192],AUTHORITY["EPSG",2226]]

REFERENCE SYSTEM IDENTIFIER
DIMENSION horizontal
* VALUE 2226
* CODESPACE EPSG
* VERSION 8.2.6

Hide Spatial Reference ▲

Spatial Data Properties ►

VECTOR ►
* LEVEL OF TOPOLOGY FOR THIS DATASET geometry only
GEOMETRIC OBJECTS
FEATURE CLASS NAME TreePoints_LiDAR
* OBJECT TYPE point
* OBJECT COUNT 3610857

Hide Vector ▲

ARCGIS FEATURE CLASS PROPERTIES ►
FEATURE CLASS NAME TreePoints_LiDAR
* FEATURE TYPE Simple

* GEOMETRY TYPE Point
* HAS TOPOLOGY FALSE
* FEATURE COUNT 3610857
* SPATIAL INDEX TRUE
* LINEAR REFERENCING FALSE

Hide ArcGIS Feature Class Properties ▲

Hide Spatial Data Properties ▲

Geoprocessing history ►

PROCESS
PROCESS NAME Add Field (2)
DATE 2014-03-30 18:14:11
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\AddField
COMMAND ISSUED
```
AddField E:\Working\Sacramento_Working\Sacramento_Working.gdb\TreePoints_runs1234 Carbon_Total FLOAT # # # "Total Carbon (kg)" NULLABLE NON_REQUIRED #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME Add Field (2)
DATE 2014-03-30 18:20:09
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\AddField
COMMAND ISSUED
```
AddField E:\Working\Sacramento_Working\TreesLIDAR_Working.gdb\TreePoints_runs1234 Carbon_Total FLOAT # # # "Total Carbon (kg)" NULLABLE NON_REQUIRED #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME Calculate Field (5)
DATE 2014-03-30 18:24:07
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField
COMMAND ISSUED
```
CalculateField E:\Working\Sacramento_Working\TreesLIDAR_Working.gdb\TreePoints_runs1234 Carbon_Total "0.660902 * ( [treeHt] ^2.62363)" VB #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

Hide Geoprocessing history ▲

Distribution ►

DISTRIBUTION FORMAT
* NAME File Geodatabase Feature Class
VERSION 1

Hide Distribution ▲

Fields ►

DETAILS FOR OBJECT TreePoints_LiDAR ►
* TYPE Feature Class
* ROW COUNT 3610857

FIELD OBJECTID ►
* ALIAS OBJECTID
* DATA TYPE OID
* WIDTH 4
* PRECISION 0
* SCALE 0
* FIELD DESCRIPTION
Internal feature number.

* DESCRIPTION SOURCE
Esri

* DESCRIPTION OF VALUES
  Sequential unique whole numbers that are automatically generated.

Hide Field OBJECTID ▲

FIELD Shape ►
* ALIAS Shape
* DATA TYPE Geometry
* WIDTH 0
* PRECISION 0
* SCALE 0
* FIELD DESCRIPTION
  Feature geometry.

* DESCRIPTION SOURCE
  Esri

* DESCRIPTION OF VALUES
  Coordinates defining the features.

Hide Field Shape ▲

FIELD crownRad ►
* ALIAS crownRad
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
  radius of tree crown in meters

DESCRIPTION SOURCE
  SIG

Hide Field crownRad ▲

FIELD treeHt ►
* ALIAS treeHt
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
  height of tree in meters

DESCRIPTION SOURCE
  SIG

Hide Field treeHt ▲

FIELD canopyVol ►
* ALIAS canopyVol
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
volume of tree canopy

DESCRIPTION SOURCE
SIG

Hide Field canopyVol ▲

FIELD Carbon_Total ►
* ALIAS Total Carbon (kg)
* DATA TYPE Single
* WIDTH 4
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
the amount of carbon in tree (based off dry weight)

Hide Field Carbon_Total ▲

FIELD LAT ►
* ALIAS LAT
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
Hide Field LAT ▲

FIELD LONG ►
* ALIAS LONG
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
Hide Field LONG ▲

FIELD POINT_X ►
* ALIAS POINT_X
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
Hide Field POINT_X ▲

Hide Details for object TreePoints_LiDAR ▲

Hide Fields ▲

Metadata Details ►

* METADATA LANGUAGE English (UNITED STATES)
METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format
METADATA IDENTIFIER 69B50916-B43D-4C4A-84DC-864DFC45E38D
SCOPE OF THE DATA DESCRIBED BY THE METADATA * dataset
SCOPE NAME * dataset
* LAST UPDATE 2015-04-09
ARCGIS METADATA PROPERTIES
METADATA FORMAT ArcGIS 1.0
METADATA STYLE FGDC CSDGM Metadata
STANDARD OR PROFILE USED TO EDIT METADATA NAP
CREATED IN ARCGIS FOR THE ITEM 2014-04-07 04:37:11
LAST MODIFIED IN ARCGIS FOR THE ITEM 2015-04-09 20:30:09
AUTOMATIC UPDATES
HAVE BEEN PERFORMED Yes
LAST UPDATE 2015-04-09 20:28:19

Hide Metadata Details ▲

Metadata Contacts ►

METADATA CONTACT
ORGANIZATION'S NAME CATS
CONTACT'S ROLE collaborator

Hide Metadata Contacts ▲

FGDC Metadata (read-only) ▼

DETAILED DESCRIPTION
ENTITY TYPE
ENTITY TYPE LABEL TreePoints_LiDAR

ATTRIBUTE
ATTRIBUTE LABEL OBJECTID
ATTRIBUTE DEFINITION
Internal feature number.
ATTRIBUTE DEFINITION SOURCE Esri
ATTRIBUTE DOMAIN VALUES
UNREPRESENTABLE DOMAIN
Sequential unique whole numbers that are automatically generated.

ATTRIBUTE
ATTRIBUTE LABEL Shape
ATTRIBUTE DEFINITION
Feature geometry.
ATTRIBUTE DEFINITION SOURCE Esri
ATTRIBUTE DOMAIN VALUES
UNREPRESENTABLE DOMAIN
Coordinates defining the features.

ATTRIBUTE
ATTRIBUTE LABEL crownRad
ATTRIBUTE DEFINITION
radius of tree crown in meters
ATTRIBUTE DEFINITION SOURCE SIG

ATTRIBUTE
ATTRIBUTE LABEL treeHt
ATTRIBUTE DEFINITION
height of tree in meters
ATTRIBUTE DEFINITION SOURCE SIG

ATTRIBUTE
ATTRIBUTE LABEL canopyVol
ATTRIBUTE DEFINITION
volume of tree canopy
ATTRIBUTE DEFINITION SOURCE SIG

ATTRIBUTE
ATTRIBUTE LABEL Carbon_Total
ATTRIBUTE DEFINITION
the amount of carbon in tree (based off dry weight)

ATTRIBUTE
ATTRIBUTE LABEL LAT

ATTRIBUTE
ATTRIBUTE LABEL LONG

ATTRIBUTE
ATTRIBUTE LABEL POINT_X

Hide Entities and Attributes ▲

Parcels_ESV

File Geodatabase Feature Class

Tags

Urban Tree Canopy, Land Cover, Sacramento

Summary

This dataset was developed to help understand the distribution of tree canopy within the greater Sacramento region. Trees provide a multitude of benefits and ecosystem services. Knowing the tree canopy at various units of analysis can help uncover patterns, trends, and relationships between tree canopy, land use, human health, and socio-demographic factors, among others.

Description

Tree canopy statistics by polygon for the greater Sacramento Area of Interest (AOI). Tree canopy was mapped from 2008 Light Detection and Ranging (LiDAR) data and 2008 National Agriculture Imagery (NAIP) 4-band imagery. The resolution of the resulting land cover dataset was 2ft x 2ft (2ft pixels), with a minimum mapping unit of 16 square feet. Object-Based Image Analysis (OBIA) techniques were employed to automatically extract tree canopy from the LiDAR and NAIP using a rule-based expert system. The user's accuracy of the data were estimated as 92% based on 500 sampled points. Following the accuracy assessment the tree canopy dataset was manually reviewed at a scale of 1:2,000 and all observable errors were corrected.

The polygon layer was clipped to the AOI. Because some of the polygons extended beyond the AOI three fields were created to help identify polygons that were affected by the clipping operation. The Original Area (Orig_Area) is the area of the polygon prior to being clipped to the AOI. The AOI area (Area_AOI) is the area of the polygon after clipping. The AOI Coverage (AOI_Cov) is the percent of the polygon that fell within the AOI and was calculated using the formula [AOI_Cov]/[Orig_Area]. Tree canopy was summary statistics were generated to estimate the total amount of tree canopy (Area_TC) and the percent of tree canopy within each polygon (Percent_TC). Both of these measures are based on the portion of the polygon clipped to the AOI.

Credits

University of Vermont Spatial Analysis Lab, Sacramento Tree Foundation, Spatial Informatics Group

Use limitations

None

Extent

West	-121.991341	**East**	-121.093413
North	38.932789	**South**	38.149007

Scale Range

Maximum (zoomed in)	1:5,000
Minimum (zoomed out)	1:500,000

ArcGIS Metadata ►

Topics and Keywords ►

THEMES OR CATEGORIES OF THE RESOURCE planningCadastre, environment

* CONTENT TYPE Downloadable Data

EXPORT TO FGDC CSDGM XML FORMAT AS RESOURCE DESCRIPTION No

PLACE KEYWORDS California, Sacramento, Elk Grove, Roseville, West Sacramento, Folsom, Rocklin, Roseville, Woodland, Lincoln, Davis, Galt, Citrus Heights, Loomis, Iseton, Winters, Rancho Cordova

TEMPORAL KEYWORDS 2008

THEME KEYWORDS Tree Canopy, Urban Tree Canopy

Hide Topics and Keywords ▲

Citation ►

* TITLE Parcels_ESV
CREATION DATE 2014-01-03 00:00:00
PUBLICATION DATE 2014-02-03 00:00:00

EDITION First
EDITION DATE 2014-02-03

PRESENTATION FORMATS * digital map

Hide Citation ▲

Citation Contacts ►

RESPONSIBLE PARTY
INDIVIDUAL'S NAME Jarlath O'Neil-Dunne
ORGANIZATION'S NAME University of Vermont Spatial Analysis Laboratory
CONTACT'S POSITION Director
CONTACT'S ROLE originator

CONTACT INFORMATION ►
PHONE
VOICE 802-656-3324

ADDRESS
TYPE both
DELIVERY POINT 81 Carrigan Drive
CITY Burlington
ADMINISTRATIVE AREA VT
POSTAL CODE 05405
COUNTRY US
E-MAIL ADDRESS joneildu@uvm.edu

Hide Contact information ▲

Hide Citation Contacts ▲

Resource Details ►

DATASET LANGUAGES * English ()
DATASET CHARACTER SET utf8 - 8 bit UCS Transfer Format

STATUS completed
SPATIAL REPRESENTATION TYPE * vector

SPATIAL RESOLUTION
DATASET'S SCALE
SCALE DENOMINATOR 2000

* PROCESSING ENVIRONMENT Microsoft Windows 7 Version 6.1 (Build 7601) Service Pack 1; Esri ArcGIS 10.2.2.3552

CREDITS
University of Vermont Spatial Analysis Lab, Sacramento Tree Foundation, Spatial Informatics Group

ARCGIS ITEM PROPERTIES
* NAME Parcels_ESV
* SIZE 0.000
* LOCATION file://\\PD-ITS-401734\C$\EsriPress\GIST2_Spring2015\Sac Data\Sacramento_Parcels\Sacramento_Parcels.gdb
* ACCESS PROTOCOL Local Area Network

Hide Resource Details ▲

Extents ►

EXTENT
DESCRIPTION
Complete for the project mapping Area of Interest (AOI) based on Summer 2008 data.

TEMPORAL EXTENT
BEGINNING DATE 2008-08-01 00:00:00
ENDING DATE 2008-08-30 00:00:00

EXTENT
GEOGRAPHIC EXTENT
BOUNDING RECTANGLE
EXTENT TYPE Extent used for searching
* WEST LONGITUDE -121.991341
* EAST LONGITUDE -121.093413
* NORTH LATITUDE 38.932789
* SOUTH LATITUDE 38.149007
* EXTENT CONTAINS THE RESOURCE Yes

EXTENT IN THE ITEM'S COORDINATE SYSTEM
* WEST LONGITUDE 6564156.788807
* EAST LONGITUDE 6819555.983388
* SOUTH LATITUDE 1817357.855104
* NORTH LATITUDE 2101525.436702
* EXTENT CONTAINS THE RESOURCE Yes

Hide Extents ▲

Resource Maintenance ►

RESOURCE MAINTENANCE
UPDATE FREQUENCY annually

SCOPE OF THE UPDATES dataset

Hide Resource Maintenance ▲

Resource Constraints ►

CONSTRAINTS
LIMITATIONS OF USE

None

LEGAL CONSTRAINTS
ACCESS CONSTRAINTS copyright
USE CONSTRAINTS copyright

Hide Resource Constraints ▲

Spatial Reference ►

ARCGIS COORDINATE SYSTEM
* TYPE Projected
* GEOGRAPHIC COORDINATE REFERENCE GCS_North_American_1983
* PROJECTION NAD_1983_StatePlane_California_II_FIPS_0402_Feet
* COORDINATE REFERENCE DETAILS
PROJECTED COORDINATE SYSTEM
WELL-KNOWN IDENTIFIER 102642
X ORIGIN -115211800
Y ORIGIN -93821500
XY SCALE 3048.0060960121918
Z ORIGIN -100000
Z SCALE 10000
M ORIGIN -100000
M SCALE 10000
XY TOLERANCE 0.0032808333333333331
Z TOLERANCE 0.001
M TOLERANCE 0.001
HIGH PRECISION true
LATEST WELL-KNOWN IDENTIFIER 2226
WELL-KNOWN TEXT
PROJCS["NAD_1983_StatePlane_California_II_FIPS_0402_Feet",GEOGCS["GCS_North_American_1983",DATUM["D_North_American_1983",SPHEROID["GRS_1980",6378137.0,298.257222101]],PRIMEM["Greenwich",0.0],UNIT["Degree",0.017453292519943]],PROJECTION["Lambert_Conformal_Conic"],PARAMETER["False_Easting",6561666.666666666],PARAMETER["False_Northing",1640416.666666667],PARAMETER["Central_Meridian",-122.0],PARAMETER["Standard_Parallel_1",38.33333333333334],PARAMETER["Standard_Parallel_2",39.83333333333334],PARAMETER["Latitude_Of_Origin",37.66666666666666],UNIT["Foot_US",0.3048006096012192],AUTHORITY["EPSG",2226]]

REFERENCE SYSTEM IDENTIFIER
* VALUE 2226
* CODESPACE EPSG
* VERSION 8.2.6

Hide Spatial Reference ▲

Spatial Data Properties ►

VECTOR ►
* LEVEL OF TOPOLOGY FOR THIS DATASET geometry only

GEOMETRIC OBJECTS
FEATURE CLASS NAME Parcels_ESV
* OBJECT TYPE composite

* OBJECT COUNT 576779

Hide Vector ▲

ARCGIS FEATURE CLASS PROPERTIES ▶
FEATURE CLASS NAME Parcels_ESV
* FEATURE TYPE Simple
* GEOMETRY TYPE Polygon
* HAS TOPOLOGY FALSE
* FEATURE COUNT 576779
* SPATIAL INDEX TRUE
* LINEAR REFERENCING FALSE

Hide ArcGIS Feature Class Properties ▲

Hide Spatial Data Properties ▲

Data Quality ▶

SCOPE OF QUALITY INFORMATION ▶
RESOURCE LEVEL dataset

Hide Scope of quality information ▲

DATA QUALITY REPORT - QUANTITATIVE ATTRIBUTE ACCURACY ▶
MEASURE DESCRIPTION
User's accuracy of the dataset ws 92% prior to manual corrections. Thus, the final accuracy is considerably higher.

EVALUATION TYPE direct internal
CONFORMANCE TEST RESULTS
TEST PASSED Yes

PRODUCT SPECIFICATION ▶
TITLE Toplogy

Hide Product specification ▲

Hide Data quality report - Quantitative attribute accuracy ▲

Hide Data Quality ▲

Lineage ▶

PROCESS STEP ▶
WHEN THE PROCESS OCCURRED 2013-11-12 00:00:00
DESCRIPTION

Clip to AOI

Hide Process step ▲

PROCESS STEP ▶
WHEN THE PROCESS OCCURRED 2013-11-29 00:00:00
DESCRIPTION
Tree canopy statistics

Hide Process step ▲

SOURCE DATA ▶
DESCRIPTION
2008 greater Sacramento AOI tree canopy datasets

SOURCE MEDIUM NAME hard disk
RESOLUTION OF THE SOURCE DATA
SCALE DENOMINATOR 2000

Hide Source data ▲

Hide Lineage ▲

Geoprocessing history ▶

PROCESS
PROCESS NAME Create Feature Class
DATE 2006-11-03 10:28:44
TOOL LOCATION C:\Program Files\ArcGIS\ArcToolbox\Toolboxes\Data Management Tools.tbx\CreateFeatureclass
COMMAND ISSUED

```
CreateFeatureclass "Database
Connections\sacog@sacog_db.sde\sacog.SACOG.AdministrativeBoundaries" SpheresOfInfluence
# spheres_Layer SAME_AS_TEMPLATE SAME_AS_TEMPLATE
"PROJCS['NAD_1983_StatePlane_California_II_FIPS_0402_Feet',GEOGCS['GCS_North_American_19
83',DATUM['D_North_American_1983',SPHEROID['GRS_1980',6378137.0,298.257222101]],PRIMEM['
Greenwich',0.0],UNIT['Degree',0.0174532925199433]],PROJECTION['Lambert_Conformal_Conic']
,PARAMETER['False_Easting',6561666.666666666],PARAMETER['False_Northing',1640416.6666666
67],PARAMETER['Central_Meridian',-
122.0],PARAMETER['Standard_Parallel_1',38.33333333333334],PARAMETER['Standard_Parallel_2
',39.83333333333334],PARAMETER['Latitude_Of_Origin',37.66666666666666],UNIT['Foot_US',0.
3048006096012192]];5756906.9707173 928802.428492064 976.562499090505;0 100000;0 100000"
# 0 0 0 "Database
Connections\sacog@sacog_db.sde\sacog.SACOG.AdministrativeBoundaries\sacog.SACOG.SpheresO
fInfluence"
```

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME Append
DATE 2006-11-03 10:28:46

TOOL LOCATION C:\Program Files\ArcGIS\ArcToolbox\Toolboxes\Data Management Tools.tbx\Append
COMMAND ISSUED
```
Append spheres_Layer "Database
Connections\sacog@sacog_db.sde\sacog.SACOG.AdministrativeBoundaries\sacog.SACOG.SpheresO
fInfluence" TEST "Database
Connections\sacog@sacog_db.sde\sacog.SACOG.AdministrativeBoundaries\sacog.SACOG.SpheresO
fInfluence"
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME FeatureClassToFeatureClass_1
DATE 2006-11-03 10:28:46
TOOL LOCATION C:\Program Files\ArcGIS\ArcToolbox\Toolboxes\Conversion Tools.tbx\FeatureClassToFeatureClass
COMMAND ISSUED
```
FeatureClassToFeatureClass \\Gis-svr\BIG_DRIVE\BaseMaps\Region\spheres.shp "Database
Connections\sacog@sacog_db.sde\sacog.SACOG.AdministrativeBoundaries" SpheresOfInfluence
# "AREA AREA VISIBLE;PERIMETER PERIMETER VISIBLE;CITY CITY VISIBLE;GP GP VISIBLE"
SAME_AS_TEMPLATE SAME_AS_TEMPLATE # 0 "Database
Connections\sacog@sacog_db.sde\sacog.SACOG.AdministrativeBoundaries\sacog.SACOG.SpheresO
fInfluence"
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME
DATE 2007-11-27 12:43:32
TOOL LOCATION C:\Program Files\ArcGIS\ArcToolbox\Toolboxes\Data Management Tools.tbx\CopyFeatures
COMMAND ISSUED
```
CopyFeatures "Database
Connections\user@sacog_db.sde\sacog.SACOG.AdministrativeBoundaries\sacog.SACOG.SpheresOf
Influence"
I:\SDE_Uploads\CurrentSDE\AdministrativeBoundaries.gdb\sacog_SACOG_SpheresOfInfluence #
0 0 0
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME
DATE 2007-12-03 14:08:25
TOOL LOCATION C:\Program Files\ArcGIS\ArcToolbox\Toolboxes\Data Management Tools.tbx\CopyFeatures
COMMAND ISSUED
```
CopyFeatures
I:\SDE_Uploads\CurrentSDE\AdministrativeBoundaries.gdb\sacog_SACOG_SpheresOfInfluence
"Database
Connections\user@sacog_db.sde\sacog.SACOG.AdministrativeBoundaries\sacog.SACOG.sacog_SAC
OG_SpheresOfInfluence" # 0 0 0
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME
DATE 2008-06-03 22:10:10
TOOL LOCATION C:\Program Files\ArcGIS\ArcToolbox\Toolboxes\Data Management Tools.tbx\CopyFeatures
COMMAND ISSUED
```
CopyFeatures "Database
Connections\sacog@sacog_db.sde\sacog.SACOG.AdministrativeBoundaries\sacog.SACOG.SpheresO
fInfluence" D:\Clearinghouse\sacog_SACOG_SpheresOfInfluence.shp # 0 0 0
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME FeatureClassToFeatureClass_15
DATE 2008-09-02 09:55:03
TOOL LOCATION C:\Program Files\ArcGIS\ArcToolbox\Toolboxes\Conversion Tools.tbx\FeatureClassToFeatureClass
COMMAND ISSUED

FeatureClassToFeatureClass I:\SDE_Uploads\PutTheseOnSDE\SpheresOfInfluence.shp "Database Connections\sacog @ sacog.sde\sacog.SACOG.AdministrativeBoundaries" SpheresOfInfluenceNEW # "CITY CITY true false false 20 Text 0 0 ,First,#,I:\SDE_Uploads\PutTheseOnSDE\SpheresOfInfluence.shp,CITY,-1,-1;SHAPE_area SHAPE_area true false false 19 Double 0 0 ,First,#,I:\SDE_Uploads\PutTheseOnSDE\SpheresOfInfluence.shp,SHAPE_area,-1,-1;SHAPE_len SHAPE_len true false false 19 Double 0 0 ,First,#,I:\SDE_Uploads\PutTheseOnSDE\SpheresOfInfluence.shp,SHAPE_len,-1,-1" # "Database Connections\sacog @ sacog.sde\sacog.SACOG.AdministrativeBoundaries\sacog.SACOG.SpheresOfInfluenceNEW"

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME

DATE 2011-08-15 13:14:40

TOOL LOCATION C:\Program Files\ArcGIS\Desktop10.0\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

COMMAND ISSUED

CalculateField SOIs County "Sacramento" VB #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME

DATE 2011-08-15 13:15:30

TOOL LOCATION C:\Program Files\ArcGIS\Desktop10.0\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

COMMAND ISSUED

CalculateField SOIs County "Sutter" VB #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME

DATE 2011-08-15 13:16:04

TOOL LOCATION C:\Program Files\ArcGIS\Desktop10.0\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

COMMAND ISSUED

CalculateField SOIs County "Yolo" VB #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME

DATE 2011-08-15 13:16:26

TOOL LOCATION C:\Program Files\ArcGIS\Desktop10.0\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

COMMAND ISSUED

CalculateField SOIs County "Yuba" VB #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME

DATE 2011-08-15 13:16:40

TOOL LOCATION C:\Program Files\ArcGIS\Desktop10.0\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

COMMAND ISSUED

CalculateField SOIs County "El Dorado" VB #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME

DATE 2011-08-15 13:17:07

TOOL LOCATION C:\Program Files\ArcGIS\Desktop10.0\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

COMMAND ISSUED
```
CalculateField SOIs County "Placer" VB #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
DATE 2011-08-15 14:26:52
TOOL LOCATION C:\Program Files\ArcGIS\Desktop10.0\ArcToolbox\Toolboxes\Conversion Tools.tbx\FeatureClassToFeatureClass
COMMAND ISSUED
```
FeatureClassToFeatureClass I:\Projects\Laura\SOIs2011.shp "Database
Connections\sacog@sacog_db.sde\sacog.SACOG.AdministrativeBoundaries"
SpheresOfInfluence2011 # "OBJECTID "OBJECTID" true true false 10 Double 0 10
,First,#,I:\Projects\Laura\SOIs2011.shp,OBJECTID,-1,-1;CITY "CITY" true true false 20
Text 0 0 ,First,#,I:\Projects\Laura\SOIs2011.shp,CITY,-1,-1;SqMiles "SqMiles" true true
false 19 Double 8 18 ,First,#,I:\Projects\Laura\SOIs2011.shp,SqMiles,-1,-1;Shape_area
"Shape_area" true true false 19 Double 0 0
,First,#,I:\Projects\Laura\SOIs2011.shp,Shape_area,-1,-1;Shape_len "Shape_len" true true
false 19 Double 0 0 ,First,#,I:\Projects\Laura\SOIs2011.shp,Shape_len,-1,-1" #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
DATE 2013-03-18 10:42:54
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.1\ArcToolbox\Toolboxes\Conversion Tools.tbx\FeatureClassToFeatureClass
COMMAND ISSUED
```
FeatureClassToFeatureClass
O:\Data_Projects\States\CA\Sacramento\Temp\SACOG_SOIs_2012.shp
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb SACOG_SOIs_2012 # "CITY "CITY"
true true false 20 Text 0 0
,First,#,O:\Data_Projects\States\CA\Sacramento\Temp\SACOG_SOIs_2012.shp,CITY,-1,-1" #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
DATE 2013-03-18 10:45:23
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.1\ArcToolbox\Toolboxes\Data Management Tools.tbx\Dissolve
COMMAND ISSUED
```
Dissolve O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\SACOG_SOIs_2012
O:\Data_Projects\States\CA\Sacramento\Temp\Temp.gdb\SACOG_SOIs_2012_Dissolve # #
MULTI_PART DISSOLVE_LINES
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
DATE 2013-03-18 10:48:56
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.1\ArcToolbox\Toolboxes\Analysis Tools.tbx\Buffer
COMMAND ISSUED
```
Buffer O:\Data_Projects\States\CA\Sacramento\Temp\Temp.gdb\SACOG_SOIs_2012_Dissolve
O:\Data_Projects\States\CA\Sacramento\Temp\Temp.gdb\SACOG_SOIs_2012_Dissolve_Buffer500m
"500 Meters" FULL ROUND NONE #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
DATE 2013-03-18 11:01:13
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.1\ArcToolbox\Toolboxes\Analysis Tools.tbx\Intersect
COMMAND ISSUED
```
Intersect "SACOG_SOIs_2012_Dissolve_Buffer500m #;LiDAR_OnHand_TileIndex #"
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\AOI\AOI_LandCover2008_STF_x1
ONLY_FID # INPUT
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

DATE 2013-03-18 11:02:13
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.1\ArcToolbox\Toolboxes\Data Management Tools.tbx\Dissolve
COMMAND ISSUED
```
Dissolve AOI_LandCover2008_STF_x1
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\AOI\AOI_LandCover2008_STF # #
SINGLE_PART DISSOLVE_LINES
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
DATE 2013-03-18 11:03:14
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.1\ArcToolbox\Toolboxes\Data Management Tools.tbx\CopyFeatures
COMMAND ISSUED
```
CopyFeatures
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\AOI\AOI_LandCover2008_STF
E:\Export\AOI\AOI_LandCover2008_STF.shp # 0 0 0
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
DATE 2013-03-20 10:06:43
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.1\ArcToolbox\Toolboxes\Data Management Tools.tbx\Merge
COMMAND ISSUED
```
Merge AOI_LandCover2008_STF;unincorporated_AOI3
C:\Users\jared\Documents\UD4H\SacTree\Data\LIDAR\AOI_LandCover2008_STF_2.shp "Shape_Leng
"Shape_Leng" true true false 19 Double 0 0 ,First,#,AOI_LandCover2008_STF,Shape_Leng,-
1,-1;Shape_Area "Shape_Area" true true false 19 Double 0 0
,First,#,AOI_LandCover2008_STF,Shape_Area,-1,-1;FID_uninco "FID_uninco" true true false
9 Long 0 9 ,First,#,unincorporated_AOI3,FID_uninco,-1,-1;Id "Id" true true false 6 Long
0 6 ,First,#,unincorporated_AOI3,Id,-1,-1;FID_QBUrba "FID_QBUrba" true true false 9 Long
0 9 ,First,#,unincorporated_AOI3,FID_QBUrba,-1,-1;Id_1 "Id_1" true true false 6 Long 0 6
,First,#,unincorporated_AOI3,Id_1,-1,-1"
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
DATE 2013-03-20 10:07:19
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.1\ArcToolbox\Toolboxes\Data Management Tools.tbx\Dissolve
COMMAND ISSUED
```
Dissolve AOI_LandCover2008_STF_2
C:\Users\jared\Documents\ArcGIS\Default.gdb\AOI_LandCover2008_STF_2_Diss # # SINGLE_PART
DISSOLVE_LINES
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
DATE 2013-03-26 18:59:12
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.1\ArcToolbox\Toolboxes\Conversion Tools.tbx\FeatureClassToFeatureClass
COMMAND ISSUED
```
FeatureClassToFeatureClass
O:\Data_Projects\States\CA\Sacramento\Temp\AOI_LandCover2008_STF_optionA.shp
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\AOI AOI_LandCover2008_SacTree
# # #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
DATE 2013-05-10 12:07:21
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.1\ArcToolbox\Toolboxes\Conversion Tools.tbx\FeatureClassToFeatureClass
COMMAND ISSUED

FeatureClassToFeatureClass
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\AOI\AOI_LandCover2008_SacTree
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\AOI_BLMUTM
AOI_LandCover2008_SacTree_BLMUTM # "Shape_Length "Shape_Length" false true true 8 Double
0 0
,First,#,O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\AOI\AOI_LandCover2008
_SacTree,Shape_Length,-1,-1;Shape_Area "Shape_Area" false true true 8 Double 0 0
,First,#,O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\AOI\AOI_LandCover2008
_SacTree,Shape_Area,-1,-1;AOI_Name "AOI_Name" true true false 50 Text 0 0
,First,#,O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\AOI\AOI_LandCover2008
_SacTree,AOI_Name,-1,-1" #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

DATE 2013-11-06 14:00:19

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

COMMAND ISSUED

CalculateField ROW_UNION_Clip OPTYPE "Right of Way" VB #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME Add Field

DATE 2013-11-13 10:05:51

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\AddField

COMMAND ISSUED

AddField
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\Parcels\Parcels_polygon_2008_w
ith_ROW Join_ID1 LONG # # # # NULLABLE NON_REQUIRED #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME Calculate Field (5)

DATE 2013-11-13 10:09:26

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

COMMAND ISSUED

CalculateField
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\Parcels\Parcels_polygon_2008_w
ith_ROW Join_ID1 [OBJECTID] VB #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME Add Field

DATE 2013-11-13 15:24:15

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\AddField

COMMAND ISSUED

AddField
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\Parcels\Parcels_polygon_2008_w
ith_ROW Join_ID1 LONG # # # # NULLABLE NON_REQUIRED #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME Add Field

DATE 2013-11-13 15:39:48

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\AddField

COMMAND ISSUED

AddField
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\Parcels\Parcels_polygon_2008_with_ROW Join_ID1 LONG # # # # NULLABLE NON_REQUIRED #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME Add Field

DATE 2013-11-13 15:41:29

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\AddField

COMMAND ISSUED

AddField
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\Parcels\Parcels_polygon_2008_with_ROW Join_ID1 LONG # # # # NULLABLE NON_REQUIRED #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME Add Field

DATE 2013-11-13 15:44:18

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\AddField

COMMAND ISSUED

AddField
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\Parcels\Parcels_polygon_2008_with_ROW Join_ID1 LONG # # # # NULLABLE NON_REQUIRED #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME Calculate Field (5)

DATE 2013-11-13 15:46:29

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

COMMAND ISSUED

CalculateField
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\Parcels\Parcels_polygon_2008_with_ROW Join_ID1 [OBJECTID] VB #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME Clip

DATE 2013-11-13 15:55:56

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Analysis Tools.tbx\Clip

COMMAND ISSUED

Clip
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\Parcels\Parcels_polygon_2008_with_ROW
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\AOI\AOI_LandCover2008_SacTree
O:\Data_Projects\States\CA\Sacramento\Temp\TreeCanopyStats\Reis_Stats\Sac_TC_Stats.gdb\Parcel_ROW_Sarah_Model_x2 #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME Join Field

DATE 2013-11-13 21:21:25

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\JoinField

COMMAND ISSUED

JoinField
O:\Data_Projects\States\CA\Sacramento\Temp\TreeCanopyStats\Reis_Stats\Sac_TC_Stats.gdb\Parcel_ROW_Sarah_Model_x2 Join_ID1
O:\Data_Projects\States\CA\Sacramento\Data\Sacramento.gdb\Parcels\Parcels_polygon_2008_with_ROW Join_ID1 Shape_Area

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME Add Field (6)
DATE 2013-11-13 21:21:32
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\AddField
COMMAND ISSUED
```
AddField
O:\Data_Projects\States\CA\Sacramento\Temp\TreeCanopyStats\Reis_Stats\Sac_TC_Stats.gdb\Parcel_ROW_Sarah_Model_x2 Orig_Area DOUBLE # # # # NULLABLE NON_REQUIRED #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME Calculate Field (6)
DATE 2013-11-13 21:24:31
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField
COMMAND ISSUED
```
CalculateField
O:\Data_Projects\States\CA\Sacramento\Temp\TreeCanopyStats\Reis_Stats\Sac_TC_Stats.gdb\Parcel_ROW_Sarah_Model_x2 Orig_Area [Shape_Area_1] VB #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME Add Field (2)
DATE 2013-11-13 21:24:38
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\AddField
COMMAND ISSUED
```
AddField
O:\Data_Projects\States\CA\Sacramento\Temp\TreeCanopyStats\Reis_Stats\Sac_TC_Stats.gdb\Parcel_ROW_Sarah_Model_x2 Area_AOI DOUBLE # # # # NULLABLE NON_REQUIRED #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME Calculate Field (2)
DATE 2013-11-13 21:27:47
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField
COMMAND ISSUED
```
CalculateField
O:\Data_Projects\States\CA\Sacramento\Temp\TreeCanopyStats\Reis_Stats\Sac_TC_Stats.gdb\Parcel_ROW_Sarah_Model_x2 Area_AOI [Shape_Area] VB #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME Join Field (2)
DATE 2013-11-14 03:46:14
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\JoinField
COMMAND ISSUED
```
JoinField
O:\Data_Projects\States\CA\Sacramento\Temp\TreeCanopyStats\Reis_Stats\Sac_TC_Stats.gdb\Parcel_ROW_Sarah_Model_x2 Join_ID1
O:\Data_Projects\States\CA\Sacramento\Temp\TreeCanopyStats\Reis_Stats\Sac_TC_Stats.gdb\Parcel_Stats_try3_SarahModel Join_ID1 Area_TC
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME Add Field (4)
DATE 2013-11-14 03:46:21

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\AddField
COMMAND ISSUED
```
AddField
O:\Data_Projects\States\CA\Sacramento\Temp\TreeCanopyStats\Reis_Stats\Sac_TC_Stats.gdb\Parcel_ROW_Sarah_Model_x2 Percent_TC DOUBLE # # # # NULLABLE NON_REQUIRED #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
PROCESS NAME Calculate Field (4)
DATE 2013-11-14 03:49:44
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField
COMMAND ISSUED
```
CalculateField
O:\Data_Projects\States\CA\Sacramento\Temp\TreeCanopyStats\Reis_Stats\Sac_TC_Stats.gdb\Parcel_ROW_Sarah_Model_x2 Percent_TC "([Area_TC] / [Area_AOI]) *100" VB #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS
DATE 2014-03-31 08:55:25
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField
COMMAND ISSUED
```
CalculateField Parcels_ESV GLUC "ROW" VB #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

Hide Geoprocessing history ▲

Distribution ►

DISTRIBUTION FORMAT
* NAME File Geodatabase Feature Class

Hide Distribution ▲

Fields ►

DETAILS FOR OBJECT Parcels_ESV ►
* TYPE Feature Class
* ROW COUNT 576779

FIELD OBJECTID ►
* ALIAS OBJECTID
* DATA TYPE OID
* WIDTH 4
* PRECISION 0
* SCALE 0
* FIELD DESCRIPTION
  Internal feature number.
* DESCRIPTION SOURCE
  Esri
* DESCRIPTION OF VALUES
  Sequential unique whole numbers that are automatically generated.

Hide Field OBJECTID ▲

FIELD Shape ►
* ALIAS Shape
* DATA TYPE Geometry
* WIDTH 0
* PRECISION 0
* SCALE 0
* FIELD DESCRIPTION
Feature geometry.

* DESCRIPTION SOURCE
ESRI

* DESCRIPTION OF VALUES
Coordinates defining the features.

Hide Field Shape ▲

FIELD PARCELID ►
* ALIAS PARCELID
* DATA TYPE Integer
* WIDTH 4
* PRECISION 0
* SCALE 0

Hide Field PARCELID ▲

FIELD PIDSTR ►
* ALIAS PIDSTR
* DATA TYPE String
* WIDTH 20
* PRECISION 0
* SCALE 0

Hide Field PIDSTR ▲

FIELD PID_2005 ►
* ALIAS PID_2005
* DATA TYPE String
* WIDTH 20
* PRECISION 0
* SCALE 0

Hide Field PID_2005 ▲

FIELD GLUC ►

* ALIAS GLUC
* DATA TYPE String
* WIDTH 20
* PRECISION 0
* SCALE 0

Hide Field GLUC ▲

FIELD OPTYPE ►
* ALIAS OPTYPE
* DATA TYPE String
* WIDTH 100
* PRECISION 0
* SCALE 0

Hide Field OPTYPE ▲

FIELD OriginalArea ►
* ALIAS Original Area of the Parcel
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

Hide Field OriginalArea ▲

FIELD AOIarea ►
* ALIAS Area of the Parcel within the AOI
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

Hide Field AOIarea ▲

FIELD Shape_Length ►
* ALIAS Shape_Length
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
* FIELD DESCRIPTION
  Length of feature in internal units.

* DESCRIPTION SOURCE
  Esri

* DESCRIPTION OF VALUES
  Positive real numbers that are automatically generated.

Hide Field Shape_Length ▲

FIELD Shape_Area ►
* ALIAS Shape_Area
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
* FIELD DESCRIPTION
Area of feature in internal units squared.

* DESCRIPTION SOURCE
Esri

* DESCRIPTION OF VALUES
Positive real numbers that are automatically generated.

Hide Field Shape_Area ▲

Hide Details for object Parcels_ESV ▲

Hide Fields ▲

Metadata Details ►

* METADATA LANGUAGE English (UNITED STATES)

SCOPE OF THE DATA DESCRIBED BY THE METADATA * dataset
SCOPE NAME * dataset

* LAST UPDATE 2015-05-14

ARCGIS METADATA PROPERTIES
METADATA FORMAT ArcGIS 1.0
STANDARD OR PROFILE USED TO EDIT METADATA FGDC
METADATA STYLE FGDC CSDGM Metadata

CREATED IN ARCGIS FOR THE ITEM 2014-04-07 04:39:28
LAST MODIFIED IN ARCGIS FOR THE ITEM 2015-05-14 16:02:21

AUTOMATIC UPDATES
HAVE BEEN PERFORMED Yes
LAST UPDATE 2015-05-14 16:02:21

ITEM LOCATION HISTORY
ITEM COPIED OR MOVED 2013-03-18 10:41:55
FROM O:\Data_Projects\States\CA\Sacramento\Data\AOI\SACOG_SOIs_2012
TO \\netfiles02.uvm.edu\salshare\Data_Projects\States\CA\Sacramento\Temp\SACOG_SOIs_2012

Hide Metadata Details ▲

Metadata Contacts ►

METADATA CONTACT
INDIVIDUAL'S NAME Jarlath O'Neil-Dunne
ORGANIZATION'S NAME University of Vermont Spatial Analysis Laboratory
CONTACT'S POSITION Director
CONTACT'S ROLE originator

CONTACT INFORMATION ▶
PHONE
VOICE 802-656-3324

ADDRESS
TYPE both
DELIVERY POINT 81 Carrigan Drive
CITY Burlington
ADMINISTRATIVE AREA VT
POSTAL CODE 05405
COUNTRY US
E-MAIL ADDRESS joneildu@uvm.edu

Hide Contact information ▲

CES 2.0 Scores

File Geodatabase Feature Class

Tags

CalEnviroScreen, environmental justice, screening tool

Summary

The Office of Environmental Health Hazard Assessment (OEHHA), on behalf of the California Environmental Protection Agency (CalEPA), announces the availability of the Communities Environmental Health Screening Tool: CalEnviroScreen Version 2.0 (CalEnviroScreen 2.0). CalEnviroScreen is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution.

The tool was updated in October 2014 to include additional data along the US-Mexico border. Information on the update is described in the SB 535 response to comments (http://www.calepa.ca.gov/EnvJustice/GHGInvest/Documents/SB535PubCom.pdf#page=10)

The 2.0 report and supporting documents are available at: http://oehha.ca.gov/ej/ces2.html

Description

The Office of Environmental Health Hazard Assessment (OEHHA), on behalf of the California Environmental Protection Agency (CalEPA), announces the availability of the Communities Environmental Health Screening Tool: CalEnviroScreen Version 2.0 (CalEnviroScreen 2.0). CalEnviroScreen is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution.

Credits

OEHHA, CalEPA

Use limitations

There are no access and use limitations for this item.

Extent

West	-124.506026	**East**	-113.502231
North	42.068501	**South**	32.423801

Scale Range

Maximum (zoomed in)	1:5,000
Minimum (zoomed out)	1:150,000,000

ArcGIS Metadata ►

Topics and Keywords ►

* CONTENT TYPE Downloadable Data

Hide Topics and Keywords ▲

Citation ►

TITLE CES 2.0 Scores

PRESENTATION FORMATS * digital map

Hide Citation ▲

Resource Details ►

DATASET LANGUAGES * English (UNITED STATES)
DATASET CHARACTER SET utf8 - 8 bit UCS Transfer Format

SPATIAL REPRESENTATION TYPE * vector

* PROCESSING ENVIRONMENT Microsoft Windows 7 Version 6.1 (Build 7601) Service Pack 1; Esri ArcGIS 10.2.2.3552

CREDITS
OEHHA, CalEPA

ARCGIS ITEM PROPERTIES
* NAME CES2_0Results
* LOCATION file://\\PD-ITS-401735\C$\EsriPress\GIST1_Spring2015\Data\CES20_UpdateOct2014.gdb\CES20_UpdateOct2014.gdb
* ACCESS PROTOCOL Local Area Network

Hide Resource Details ▲

Extents ►

EXTENT
GEOGRAPHIC EXTENT
BOUNDING RECTANGLE
EXTENT TYPE Extent used for searching
* WEST LONGITUDE -124.506026
* EAST LONGITUDE -113.502231
* NORTH LATITUDE 42.068501
* SOUTH LATITUDE 32.423801
* EXTENT CONTAINS THE RESOURCE Yes

EXTENT IN THE ITEM'S COORDINATE SYSTEM
* WEST LONGITUDE -373976.129300
* EAST LONGITUDE 539719.339400
* SOUTH LATITUDE -604512.649500
* NORTH LATITUDE 450022.491300
* EXTENT CONTAINS THE RESOURCE Yes

Hide Extents ▲

Spatial Reference ►

ARCGIS COORDINATE SYSTEM
* TYPE Projected
* GEOGRAPHIC COORDINATE REFERENCE GCS_North_American_1983
* PROJECTION NAD_1983_California_Teale_Albers
* COORDINATE REFERENCE DETAILS
PROJECTED COORDINATE SYSTEM

WELL-KNOWN IDENTIFIER 3310
X ORIGIN -16909700
Y ORIGIN -8597000
XY SCALE 10000
Z ORIGIN -100000
Z SCALE 10000
M ORIGIN -100000
M SCALE 10000
XY TOLERANCE 0.001
Z TOLERANCE 0.001
M TOLERANCE 0.001
HIGH PRECISION true
LATEST WELL-KNOWN IDENTIFIER 3310
WELL-KNOWN TEXT
PROJCS["NAD_1983_California_Teale_Albers",GEOGCS["GCS_North_American_1983",DATUM["D_North_American_1983",SPHEROID["GRS_1980",6378137.0,298.257222101]],PRIMEM["Greenwich",0.0],UNIT["Degree",0.0174532925199433]],PROJECTION["Albers"],PARAMETER["False_Easting",0.0],PARAMETER["False_Northing",-4000000.0],PARAMETER["Central_Meridian",-120.0],PARAMETER["Standard_Parallel_1",34.0],PARAMETER["Standard_Parallel_2",40.5],PARAMETER["Latitude_Of_Origin",0.0],UNIT["Meter",1.0],AUTHORITY["EPSG",3310]]

REFERENCE SYSTEM IDENTIFIER
* VALUE 3310
* CODESPACE EPSG
* VERSION 8.2.6

Hide Spatial Reference ▲

Spatial Data Properties ►

VECTOR ►
* LEVEL OF TOPOLOGY FOR THIS DATASET geometry only

GEOMETRIC OBJECTS
FEATURE CLASS NAME CES2_0Results
* OBJECT TYPE composite
* OBJECT COUNT 8035

Hide Vector ▲

ARCGIS FEATURE CLASS PROPERTIES ►
FEATURE CLASS NAME CES2_0Results
* FEATURE TYPE Simple
* GEOMETRY TYPE Polygon
* HAS TOPOLOGY FALSE
* FEATURE COUNT 8035
* SPATIAL INDEX TRUE
* LINEAR REFERENCING FALSE

Hide ArcGIS Feature Class Properties ▲

Hide Spatial Data Properties ▲

Geoprocessing history ►

PROCESS
PROCESS NAME
DATE 2014-11-03 14:47:40
TOOL LOCATION c:\program files (x86)\arcgis\desktop10.2\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField
COMMAND ISSUED
```
CalculateField CES2_0Results PercentileRange "[PercentileRange] = [CESScore]" VB #
```
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

Hide Geoprocessing history ▲

Distribution ►

DISTRIBUTION FORMAT
* NAME File Geodatabase Feature Class

Hide Distribution ▲

Fields ►

DETAILS FOR OBJECT CES2_0Results ►
* TYPE Feature Class
* ROW COUNT 8035

FIELD OBJECTID ►
* ALIAS OBJECTID
* DATA TYPE OID
* WIDTH 4
* PRECISION 0
* SCALE 0
* FIELD DESCRIPTION
  Internal feature number.

* DESCRIPTION SOURCE
  Esri

* DESCRIPTION OF VALUES
  Sequential unique whole numbers that are automatically generated.

Hide Field OBJECTID ▲

FIELD Shape ►
* ALIAS Shape
* DATA TYPE Geometry
* WIDTH 0
* PRECISION 0
* SCALE 0
* FIELD DESCRIPTION
  Feature geometry.

* DESCRIPTION SOURCE
  Esri

* DESCRIPTION OF VALUES
  Coordinates defining the features.

Hide Field Shape ▲

FIELD Tract_1 ►
* ALIAS Tract
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

Hide Field Tract_1 ▲

FIELD Population ►
* ALIAS Population
* DATA TYPE Integer
* WIDTH 4
* PRECISION 0
* SCALE 0

Hide Field Population ▲

FIELD County ►
* ALIAS County
* DATA TYPE String
* WIDTH 255
* PRECISION 0
* SCALE 0

Hide Field County ▲

FIELD Approx__ZIP ►
* ALIAS Approx. ZIP
* DATA TYPE String
* WIDTH 255
* PRECISION 0
* SCALE 0

Hide Field Approx__ZIP ▲

FIELD Approx__City ►
* ALIAS Approx. City
* DATA TYPE String
* WIDTH 255
* PRECISION 0
* SCALE 0

Hide Field Approx__City ▲

FIELD Longitude ►
* ALIAS Longitude
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

Hide Field Longitude ▲

FIELD Latitude ►
* ALIAS Latitude
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

Hide Field Latitude ▲

FIELD CESscore ►
* ALIAS CESScore
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Total CalEnviroScreen score resulting from the combination of the pollution burden and population characteristics score.

Hide Field CESscore ▲

FIELD PercentileRange ►
* ALIAS PercentileRange
* DATA TYPE String
* WIDTH 255
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percentile range in groupings of 5%. The highest CalEnviroScreen scores (most burdened) are represented in the 96 - 100% grouping.

Hide Field PercentileRange ▲

FIELD CESCodedGroups ►
* ALIAS CESCodedGroups
* DATA TYPE Integer
* WIDTH 4
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Coded groups represent a numeric groupings of 5 percentile increments. A 20 corresponds to the highest scoring 96 - 100%ile grouping, a 19 represents the 90-95%ile grouping and so on.

Hide Field CESCodedGroups ▲

FIELD CESDeciles ►

* ALIAS CESDeciles
* DATA TYPE Integer
* WIDTH 4
* PRECISION 0
* SCALE 0

Hide Field CESDeciles ▲

FIELD ozone ►

* ALIAS ozone
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Portion of the daily maximum 8-hour ozone concentration over the California 8-hour standard (0.070 ppm), averaged over three years (2009 to 2011).

Hide Field ozone ▲

FIELD ozonePctl ►

* ALIAS ozonePctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percentile value of the Ozone indicator.

Hide Field ozonePctl ▲

FIELD pm ►

* ALIAS pm
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Annual mean concentration of PM2.5 (average of quarterly means), over three years (2009-2011).

Hide Field pm ▲

FIELD pmPctl ►

* ALIAS pmPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percentile value of the PM indicator.

Hide Field pmPctl ▲

FIELD diesel ►

* ALIAS diesel
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Spatial distribution of gridded diesel PM emissions from on-road and non-road sources for a 2010 summer day in July (kg/day).

Hide Field diesel ▲

FIELD dieselPctl ►

* ALIAS dieselPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percentile value of the Diesel indicator.

Hide Field dieselPctl ▲

FIELD pest ►

* ALIAS pest
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Total pounds of selected active pesticide ingredients (filtered for hazard and volatility) used in production-agriculture per square mile.

Hide Field pest ▲

FIELD pestPctl ►

* ALIAS pestPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percentile value of the pesticide indicator.

Hide Field pestPctl ▲

FIELD RSEIhaz ►
* ALIAS RSEIhaz
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Toxicity-weighted concentrations of modeled chemical releases to air from facility emissions and off-site incineration.

Hide Field RSEIhaz ▲

FIELD RSEIhazP ►
* ALIAS RSEIhazP
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percentile value of toxic releases indicator.

Hide Field RSEIhazP ▲

FIELD traffic ►
* ALIAS traffic
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Sum of traffic volumes adjusted by road segment length (vehicle-kilometers per hour) divided by total road length (kilometers) within 150 meters of the census tract boundary.

Hide Field traffic ▲

FIELD trafficPctl ►
* ALIAS trafficPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percentile value of the traffic indicator.

Hide Field trafficPctl ▲

FIELD drinkingwater ►
* ALIAS drinkingwater
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Drinking water contaminant index for selected contaminants.

Hide Field drinkingwater ▲

FIELD drinkingwaterPctl ►
* ALIAS drinkingwaterPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percentile value for the drinking water indicator.

Hide Field drinkingwaterPctl ▲

FIELD cleanups ►
* ALIAS cleanups
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Sum of weighted sites within each census tract. Since the nature and the magnitude of the threat and burden posed by hazardous substances vary among the different types of sites as well as the site status, the indicator takes both into account. Weights were also adjusted based on proximity to populated census blocks.

Hide Field cleanups ▲

FIELD cleanupsPctl ►
* ALIAS cleanupsPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percentile value of the cleanups sites percentile.

Hide Field cleanupsPctl ▲

FIELD groundwater ►
* ALIAS groundwater
* DATA TYPE Double
* WIDTH 8
* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Sum of weighted scores for sites within each census tract. The nature and the magnitude of the threat and burden posed by sites maintained in GeoTracker vary significantly by site type (e.g., leaking underground storage tank or cleanup site) and status (e.g., Completed Case Closed or Active Clean up). The indicator takes into account information about the type of site, its status, and its proximity to populated census blocks.

Hide Field groundwater ▲

FIELD groundwaterPctl ►

* ALIAS groundwaterPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percentile value of the groundwater threats indicator.

Hide Field groundwaterPctl ▲

FIELD hazwaste ►

* ALIAS hazwaste
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Sum of weighted permitted hazardous waste facilities and hazardous waste generators within each census tract.

Hide Field hazwaste ▲

FIELD hazwastePctl ►

* ALIAS hazwastePctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percentile value of the hazardous waste indicator.

Hide Field hazwastePctl ▲

FIELD IWB ►

* ALIAS IWB
* DATA TYPE Integer
* WIDTH 4
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Summed number of pollutants across all water bodies designated as impaired within the area.

Hide Field IWB ▲

FIELD IWBPctl ►
* ALIAS IWBPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percentile value of the impaired water bodies indicator.

Hide Field IWBPctl ▲

FIELD SolidWaste ►
* ALIAS SolidWaste
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percentile value of the impaired water bodies indicator.

Hide Field SolidWaste ▲

FIELD SolidWastePctl ►
* ALIAS SolidWastePctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percentile value of the solid waste indicator.

Hide Field SolidWastePctl ▲

FIELD PollutionScore ►
* ALIAS PollutionScore
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

Hide Field PollutionScore ▲

FIELD PollutionPctl ►
* ALIAS PollutionPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Percentile value of the pollution score.

Hide Field PollutionPctl ▲

FIELD age ►

* ALIAS age
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percent of population under age 10 or over age 65.

Hide Field age ▲

FIELD agePctl ►

* ALIAS agePctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percentile value of the age indicator.

Hide Field agePctl ▲

FIELD asthma ►

* ALIAS asthma
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Spatially modeled, age-adjusted rate of emergency department (ED) visits for asthma per 10,000 (averaged over 2007-2009).

Hide Field asthma ▲

FIELD asthmaPctl ►

* ALIAS asthmaPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percentile value of asthma indicator.

Hide Field asthmaPctl ▲

FIELD lbw ►
* ALIAS lbw
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percent low birth weight, spatially modeled (averaged over 2006-2009).

Hide Field lbw ▲

FIELD lbwPctl ►
* ALIAS lbwPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percentile value of the low birth weight indicator.

Hide Field lbwPctl ▲

FIELD edu ►
* ALIAS edu
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percent of the population over age 25 with less than a high school education (5-year estimate, 2008-2012).

Hide Field edu ▲

FIELD eduPctl ►
* ALIAS eduPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percentile value of the education indicator.

Hide Field eduPctl ▲

FIELD ling ►
* ALIAS ling
* DATA TYPE Double
* WIDTH 8

* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percentage of households in which no one age 14 and over speaks English "very well" or speaks English only.

Hide Field ling ▲

FIELD lingPctl ►

* ALIAS lingPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percentile value of the linguistic islolation indicator.

Hide Field lingPctl ▲

FIELD pov ►

* ALIAS pov
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percent of the population living below two times the federal poverty level (5-year estimate, 2008-2012).

Hide Field pov ▲

FIELD povPctl ►

* ALIAS povPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percentile value of the poverty indicator.

Hide Field povPctl ▲

FIELD unemp ►

* ALIAS unemp
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Percent of the population over the age of 16 that is unemployed and eligible for the labor force. Excludes retirees, students, homemakers, institutionalized persons except prisoners, those not looking for work, and military personnel on active duty (5-year estimate, 2008-2012).

Hide Field unemp ▲

FIELD unempPctl ►
* ALIAS unempPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percentile value of the unemployment indicator.

Hide Field unempPctl ▲

FIELD unempTxt ►
* ALIAS unempTxt
* DATA TYPE String
* WIDTH 255
* PRECISION 0
* SCALE 0

Hide Field unempTxt ▲

FIELD PopCharScore ►
* ALIAS PopCharScore
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Population Characteristics scores for each census tract are derived from the average percentiles for the three Sensitive Populations indicators (children/elderly, low birth weight, and asthma) and the four Socioeconomic Factors indicators (educational attainment, linguistic isolation, poverty, and unemployment). The calculated average percentile divided by 10 for a Population Characteristic score ranging from 0.1 -10.

Hide Field PopCharScore ▲

FIELD PopCharPctl ►
* ALIAS PopCharPctl
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
FIELD DESCRIPTION
Percentile value of the population characteristics score.

Hide Field PopCharPctl ▲

FIELD Shape_Length ►

* ALIAS Shape_Length
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
* FIELD DESCRIPTION
Length of feature in internal units.

* DESCRIPTION SOURCE
Esri

* DESCRIPTION OF VALUES
Positive real numbers that are automatically generated.

Hide Field Shape_Length ▲

FIELD Shape_Area ►
* ALIAS Shape_Area
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
* FIELD DESCRIPTION
Area of feature in internal units squared.

* DESCRIPTION SOURCE
Esri

* DESCRIPTION OF VALUES
Positive real numbers that are automatically generated.

Hide Field Shape_Area ▲

Hide Details for object CES2_0Results ▲

Hide Fields ▲

Metadata Details ►

* METADATA LANGUAGE English (UNITED STATES)
* METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format

SCOPE OF THE DATA DESCRIBED BY THE METADATA * dataset
SCOPE NAME * dataset

* LAST UPDATE 2015-05-14

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METADATA FORMAT ArcGIS 1.0
METADATA STYLE FGDC CSDGM Metadata
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