Carbon Storage and Sequestration Study

San Diego County

MARCH 2022

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CH_4	methane
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
DOC	California Department of Conservation
EVC	existing vegetation cover (LANDFIRE)
EVH	existing vegetation height (LANDFIRE)
EVT	existing vegetation type (LANDFIRE)
GHG	greenhouse gas
GWP	global warming potential
MT	metric ton
N_2O	nitrous oxide
SANDAG	San Diego Association of Governments

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Executive Summary

The San Diego Association of Governments, with funding provided by the California Department of Conservation, prepared this study to evaluate the historic and projected carbon storage and sequestration of the natural and working lands of San Diego County, California, to guide policy decisions and management actions to meet climate goals.

Carbon is stored in the vegetation and soils of natural and working (i.e., agricultural) lands, and greenhouse gas emissions are generated from certain land cover/land use types. To estimate historic carbon storage and emissions in San Diego County, estimated carbon density values and emission rates, based on authoritative existing sources, were assigned to the land cover and soil types based on existing resource mapping. Based on the trend in carbon storage and emissions from the two historic reference years (2001 and 2016), future carbon storage and emissions for the natural and working lands of San Diego County were projected for the forecast year of 2050, which is referred to as the baseline reference scenario.

Based on this study's carbon inventory, total landscape carbon storage in San Diego County was approximately 254,600,000 metric tons of carbon dioxide equivalent (MT CO_2e) in 2001, and approximately 238,500,000 MT CO_2e in 2016, which is a 6.3% decline over the 15-year historic reference period. Total annual greenhouse gas emissions, from land cover emissions only, declined by 0.9% over the reference period from approximately 103,000 MT CO_2e per year in 2001 to 89,104 MT CO_2e per year in 2016. Projecting this trend to the 2050 forecast year under the baseline reference scenario, total landscape carbon storage for San Diego County was estimated to be 203,531,831 MT CO_2e, which is a projected 14.7% decline in total landscape carbon storage in 2050 relative to 2016. Total annual greenhouse gas emissions, from land cover emissions only, for the 2050 forecast year for San Diego County was estimated to be 35,921 MT CO_2e per year, which is a projected 59.7% reduction in annual greenhouse gas emissions in 2050 relative to 2016 based on the reference period trend.

Managing and maintaining carbon storage in natural and working lands has numerous complementary benefits, including agricultural land quality, conserved lands, water quality, flood risk, and biodiversity, among others, and future landscape carbon storage and sequestration can be influenced by various management activities and development scenarios. Land management activities can reduce or remove emissions from agricultural lands, increase carbon storage and sequestration through active habitat restoration of high-carbon-density land covers, maintain carbon persistence on the landscape through fire management, maintain landscape carbon storage through avoided conversion to lower-carbon-density land covers, and increase carbon storage and sequestration through urban tree planting. Alternate development scenarios in San Diego County can improve the landscape carbon storage trajectories relative to the baseline reference scenario, as demonstrated under the development-only scenario, which projected a total carbon storage of 237,922,447 MT CO_2e by 2050 (a 16.9% improvement above the baseline reference scenario), and under the moderated baseline scenario, which projected a total carbon storage of 211,694,393 MT CO_2e to 225,355,532 MT CO_2e (a 4.0% to 10.7% improvement above the baseline reference scenario).

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1 Introduction

1.1 Purpose and Funding

The San Diego Association of Governments (SANDAG) developed San Diego Forward: The 2021 Regional Plan (2021 Regional Plan), which is the long-term blueprint for the San Diego region that seeks to meet regulatory requirements; address traffic congestion; and create equal access to jobs, education, healthcare, and other community resources (SANDAG 2021a). As part of the implementation actions of the 2021 Regional Plan, SANDAG has been exploring nature-based climate solutions and the implications of land use and management on the carbon storage of natural and working (i.e., agricultural) lands.

This carbon storage and sequestration study was prepared for San Diego County, California, to explore the carbon storage and sequestration potential of the natural and working lands. This study was funded by SANDAG through a grant from the California Department of Conservation (DOC) under the California Drought, Water, Parks, Climate, and Coastal Protection and Outdoor Access for All Act of 2018 (Proposition 68). This study was originally designed to use a DOC geoprocessing and analysis tool, referred to as TerraCount, that was piloted for Merced County for use in understanding the impacts of land use and land cover change on carbon storage (DOC and TNC n.d.). Ultimately, this study was conducted using standard GIS geoprocessing and analysis approaches without employing the TerraCount tool, and, regardless of the tools used, the study achieved its goals of providing carbon storage and sequestration findings that will aid in planning and policy development for San Diego County.

1.2 Content and Process

This carbon storage and sequestration study followed a stepped process, as guided by the pilot Merced County TerraCount Study. The elements and process of the study are summarized as follows:

Background (Section 2). This study provides a background discussion that explains the technical basis for carbon storage and sequestration, including vegetation carbon sequestration, the natural carbon cycle, and carbon pools. Section 2 also presents a summary of greenhouse gas (GHG) emissions and climate change to understand the metrics used in this analysis and provide the foundation of why carbon storage matters in the context of climate change.

Landscape Carbon Inventory (Section 3). The first step in the study process was to estimate landscape carbon stocks and land-based GHG emissions across the entire jurisdiction, which is San Diego County. These carbon stocks and emission flows were estimated from publicly available, regularly updated spatial data sets on land cover, land use, crop type, climate zone, and soil type, combined with well-documented conversion factors that relate these parameters to carbon concentrations and GHG emission rates. The data sets used allow for the inventory to be conducted at multiple points in time, which supports the second step in the process, development of the baseline reference scenario. This landscape carbon inventory is intended to be used by SANDAG to evaluate past trends and explore the implications of future land use scenarios and land management actions on carbon storage and sequestration (i.e., carbon accumulation over time).

Baseline Reference Scenario (Section 4). The baseline reference scenario was the second step in the process, which is a linear extrapolation of past trends in landscape carbon stocks and land-based GHG emissions. The

baseline reference scenario represents a business-as-usual scenario, in which carbon stocks and emissions continue to change at a projected rate. Baseline scenarios based on the trends observed from 2001 through 2016 can be extrapolated to a forecast year to evaluate the changes in carbon storage. The year 2050 was selected to be the forecast year for this study's baseline reference scenario, consistent with SANDAG's 2021 Regional Plan future projections. Establishing a baseline reference scenario is important as a way to estimate the trajectory of carbon stocks and GHG emissions to thereby identify and prioritize efforts to increase landscape carbon stocks or reduce land-based GHG emissions, such as land use policy changes and implementation of agricultural and land management activities.

Complementary Benefits (Section 5). The third step in the process was the complementary benefits assessment, which identifies distinct benefits provided by natural and working landscapes. Although natural and working lands provide many more benefits than presented herein, this analysis identifies key complementary benefits that may be experienced in the San Diego region when successfully maintaining or improving natural and working landscapes.

Forecasting (Section 6). The fourth and last step in the analysis process was forecasting, which evaluated potential alternate carbon storage outcomes for the 2050 forecast year that could result from implementation of land management activities that increase carbon storage and sequestration, and through effecting different development scenarios/trends than was assumed in the baseline reference scenario. Section 6.1 explores the potential for carbon storage and sequestration of various land management activities, such as oak and riparian restoration or avoided conversion to urban, and Section 6.2 evaluates different development scenarios, such as the 2021 Regional Plan and Sustainable Communities Strategy (SANDAG 2021a), that would result in increased carbon storage above that predicted by the baseline reference scenario.

Conclusion (Section 7). The conclusion presents a general summary of the study results.

Limitation, Challenges, and Future Consideration (Section 8). In an effort to help benefit future similar analyses, this study concludes with a discussion of limitations and challenges encountered during the analysis process, and provides future considerations and recommendations.

Acknowledgements and Preparers (Section 9). The process of developing this assessment included stakeholder coordination and input from the San Diego County Farm Bureau, SANDAG Environmental Mitigation Program Working Group, DOC TerraCount User Group, California Air Resources Board (CARB), and San Diego State University. This section acknowledges the individuals and agencies who assisted in preparation and guidance of this study.

References (Section 10). This report concludes with a list of references cited.

1.3 Intended Uses

The main use of this study is to help inform SANDAG's land use planning, support SANDAG's goal of implementing nature-based climate solutions, and ascertain the implications of land use and management on the carbon storage of natural and working lands, as noted above. This study may also be useful to help jurisdictions within San Diego County, namely cities and the County of San Diego, identify and implement natural carbon storage and sequestration GHG reduction measures in support of local GHG emission reduction plans or Climate Action Plans.

2 Background

2.1 Carbon Storage and Sequestration Background

Carbon sequestration is a fundamental process by which carbon dioxide (CO_2), which is a principal GHG, is removed from the atmosphere and stored in a carbon reservoir, such as vegetation. Vegetation (e.g., trees, shrubs, grasses) takes in CO_2 from the atmosphere during photosynthesis, breaks down the CO_2, stores the carbon within plant biomass, and releases the oxygen back into the atmosphere. Carbon storage capacity and sequestration rates vary across the landscape and are influenced by numerous intrinsic and extrinsic factors, such as vegetation and land cover types, vegetation stand age, land management regimes, and environmental factors.

The Earth's carbon cycle involves the exchange of carbon between the atmosphere, biosphere (plants, animals, and other life forms), hydrosphere (water bodies), pedosphere (soils), and lithosphere (Earth's crust and mantles, including rocks and fossil fuels). Carbon moves between land types (e.g., forests and grasslands) and carbon pools (e.g., wood, roots, and soils) due to natural processes (growth, decay, and succession) and disturbances (e.g., wildfire), or anthropogenic forces such as land use change (CARB 2018). "Carbon pools" include aboveground live biomass (boles, stems, and foliage in shrubs, trees, grasses, and herbaceous vegetation), aboveground dead biomass (standing or downed dead wood and litter), belowground live biomass (roots in shrubs, trees, grasses, and herbaceous vegetation), and soil organic matter (organic carbon in the top 30 centimeters of soil) (CARB 2018). Carbon inventories can provide stored carbon "snapshots," and give insight into the location and magnitude of natural and working lands' carbon stocks at discrete moments in time.

There is approximately 5,340 million metric tons of ecosystem carbon in the carbon pools that CARB has quantified. To put it into context, 5,340 million metric tons of carbon in land is equivalent to 19,600 million metric tons of atmospheric CO_2 currently existing as carbon in the biosphere and pedosphere as carbon cycles through the Earth's carbon cycle. Forest and shrubland contain the vast majority of California's carbon stock because they cover the majority of California's landscape and have the highest carbon density of any land cover type. All other land categories combined comprise more than 35% of California's total acreage, but only 15% of its carbon stocks. Roughly half of the 5,340 million metric tons of carbon resides in soils and half resides in plant biomass (CARB 2018).

2.2 Greenhouse Gases and Climate Change

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code, Section 38505(g), for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted into the atmosphere through natural processes and human activities. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and decomposition of dead organic matter, in addition to anthropogenic changes in land use. CH_4 is produced through flooded rice fields, animal digestion, and decomposition of animal wastes, and sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, and manure management.

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere, known as its global warming potential (GWP), which varies among GHGs. Total GHG emissions are expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG emissions are typically measured in terms of metric tons (MT) of carbon dioxide equivalent (CO_2e). The CO_2e for a GHG is derived by multiplying the mass of the gas by the associated GWP, such that MT of CO_2e = (MT of a GHG) × (GWP of the GHG). As applied herein, based on the Intergovernmental Panel on Climate Change's Fourth Assessment Report (IPCC 2007), the GWP for CH_4 is 25, which means that emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2, and the GWP for N_2O is 298. In addition, the conversion of carbon to CO_2 is performed by multiplying the total carbon by the molecular weight ratio of CO_2 to carbon (44/12; 44 is the molecular weight of CO_2 and 12 is the atomic weight of carbon).

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (i.e., decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the Sun's energy reaching Earth; changes in the reflectivity of Earth's atmosphere and surface; and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process, as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating Earth's temperature and creates a pleasant, livable environment on Earth. Human activities that emit additional GHGs into the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing Earth's surface temperature to rise.

The scientific record of Earth's climate shows that the climate system varies naturally over a wide range of time scales, and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-twentieth century, and are the most significant drivers of observed climate change (EPA 2017; IPCC 2013). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system.

Climate change from human activities is a global challenge that requires local participation, and reducing GHG emissions is a critical environmental and societal duty. Combating human-caused climate change and the detrimental effects globally requires ambitious efforts locally. The state has taken numerous actions to address climate change through executive orders, legislation, and CARB plans and requirements. Specifically, Executive Order S-3-05 (June 2005) established the statewide goal of reducing GHG emissions 80% below 1990 levels by 2050, Assembly Bill 32 provided initial direction on creating a comprehensive multiyear program to limit

California's GHG emissions at 1990 levels by 2020 and initiate the transformations required to achieve the state's long-range climate objectives, Senate Bill 32 (September 2016) codified the 2030 emissions reduction goal of Executive Order B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030, and Executive Order B-55-18 (September 2018) established a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter."

The importance of carbon storage and sequestration in the working and natural lands sector of California was emphasized in the 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target (CARB 2017). The California Air Resources Board's 2017 Scoping Plan specified "California's climate objective for natural and working lands to maintain them as a carbon sink (i.e., net zero or negative GHG emissions), and where appropriate, minimize the net GHG and black carbon emissions associated with management, biomass utilization, and wildfire events." Two important state strategies for the natural and working lands sector are protection of land and land uses, and enhancement of carbon sequestration and resilience through management and restoration.

For California to meet its ambitious GHG reduction targets, state and local governments must work together as partners with landowners and land managers. In that spirit, the DOC joined with The Nature Conservancy and the County of Merced to produce the TerraCount GHG accounting method and scenario assessment tool.

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3 Landscape Carbon Inventory

3.1 Methods

3.1.1 Data Compilation and Processing

The first step in this assessment includes estimating a carbon inventory for the San Diego County region. The landscape carbon stock is the total amount of carbon stored in woody and herbaceous vegetation and soils. Some land management and agricultural activities can increase these stocks, drawing CO_2 out of the atmosphere; others, such as the development of natural lands for agriculture or urban uses, can result in a net release of carbon from vegetation and soils to the atmosphere (DOC and TNC n.d.). The landscape carbon inventory for natural and working lands was developed from several key land cover and soils datasets. The following describes the compilation and processing of these datasets for use in developing the landscape carbon inventory for San Diego County.

Land Cover

To explore changes in carbon storage over time, land cover datasets from two historical reference years were assembled for San Diego County. U.S. Geological Survey's LANDFIRE data is a nationwide, satellite-based land cover data product that covers the San Diego County region. LANDFIRE data was selected for this study because it is a standardized dataset using consistent remote sensing methods; it is updated regularly (i.e., 2001, 2008, 2010, 2012, 2014, 2016); and it includes data for land cover classes of existing vegetation types (EVT), existing vegetation cover (EVC), and existing vegetation height (EVH). Additionally, CARB developed carbon density values (Battles et al. 2013; CARB 2018; Gonzalez et al. 2015; Saah et al. 2016) linked to the LANDFIRE data (see Section 3.1.2 for a discussion on carbon density values).

The carbon inventory for San Diego County was conducted using historical LANDFIRE data from 2001 and 2016. LANDFIRE 2016 was selected as the end year to have one historical year as close as possible to current, existing conditions. LANDFIRE 2001 was selected as the beginning year to maximize the period between historical years over which the trend was developed. Additionally, regional factors, such as wildfire, were considered in the selection of data years. The 2003 Cedar Fire and 2007 Witch and Harris Fires were major incidents that burned substantial acreage of natural lands in San Diego County; therefore, selection of the 2016 reference year was considered preferable over 2010, 2012, or 2014 to minimize reference period trend effects resulting from wildfire effects. LANDFIRE data products were not available prior to 2001, and LANDFIRE 2016 was the latest data product available at the time of this study.

Although the 2001 and 2016 LANDFIRE datasets were the best reference years for San Diego County for this study, as described above, use of LANDFIRE 2016 presented some challenges due primarily to changes in the land cover type (EVT) classes. LANDFIRE 2016, also referred to as LANDFIRE Remap, was produced using new satellite imagery and new point and field data (LANDFIRE 2015). LANDFIRE 2016 is still comparable to previous LANDFIRE products and allows it to be used in monitoring change over time; however, most notably, LANDFIRE incorporates the National Vegetation Classification Standard for classifying EVT and includes additional map units to address non-natural land covers, such as urban, agriculture, barren, and water (LANDFIRE 2015; Picotte et al. 2019). Because the LANDFIRE 2016 EVT classes differ from those in LANDFIRE

2001, direct comparison of changes for all EVT types was not possible at the detailed level, but was possible using the assigned aggregated land cover classes, as described below.

The LANDFIRE 30-meter raster datasets (LANDFIRE 2001, 2016) were downloaded for San Diego County and processed and customized. The three datasets (EVT, EVC, EVH) for each data year were combined to create unique combinations of type, cover, and height. Each of the LANDFIRE types were aggregated and assigned to one of the 11 land cover classes: barren, forest, grassland, irrigated pasture, orchard, row crop, shrubland, urban, vineyard, water, and wetland. Additionally, agricultural mapping from LANDFIRE was augmented with statewide crop and land use mapping data maintained by the California Department of Water Resources (DWR 1999, 2016) and verified with County of San Diego crop reporting (County of San Diego 2001, 2016).

The land cover layers derived from this process were the geospatial foundation for assigning carbon stock and GHG emission values and the non-soils carbon pools for 2001 and 2016, as described in Section 3.1.2.

Soils

Soil mapping for the study area was based on the regional Soil Survey developed by the U.S. Department of Agriculture's Natural Resource Conservation Service for San Diego County and maintained and distributed by SanGIS (USDA 2020). Specific soil types were grouped into soil classes based on their soil properties and climate zone, including mineral soils (i.e., high activity clay and low activity clay), sandy soils, volcanic soils, and organic soils, consistent with the U.S. Environmental Protection Agency's GHG inventory methods (EPA 2018). As described by the Intergovernmental Panel on Climate Change's Guidelines for National GHG Inventories (IPCC 2006), "over time, soil organic carbon reaches a spatially-averaged, stable value specific to the soil, climate, and land-use and management practices." Therefore, the carbon in undisturbed soils would be expected to be stable, whereas soils subject to frequent disturbance, like croplands, would retain less carbon. The soil class data was processed into the same 30-meter raster as the LANDFIRE datasets.

Land Cover – Soils Composite

For the 2001 and 2016 data years, the land covers (EVT, EVC, and EVH) and soils were combined to create a composite layer for assigning carbon density values. For 2001, there were 444 unique combinations of land cover and soils in the composite layer. For 2016, there were 769 unique combinations of land cover and soils in the composite layer. The difference in unique combinations between the two reference years was due to changes in land cover over the reference period and differing LANDFIRE classifications.

3.1.2 Carbon Density and Emissions

Carbon inventories for San Diego County in 2001 and 2016 were developed by assigning carbon density values to the non-soil (i.e., aboveground live, aboveground dead, and belowground live) and soil carbon pools. Additionally, an inventory of the estimated N_2O and CH_4 emissions from the land cover types was developed.

A review of authoritative international, national, and state sources was conducted to identify the best and most appropriate carbon density values (typically expressed in units of MT of carbon per acre) to assign to non-soil and soil pools and GHG emissions. International (e.g., IPCC 2006) and national (e.g., EPA 2018 or the Forest Inventory and Analysis Program's EVALIDator tool [USFS 2019]) provide coarse approximations of carbon density values and generally do not provide data specific to the land cover types in San Diego County. CARB has actively been

working to develop more accurate carbon density values for California (e.g., Battles et al. 2013; CARB 2013, 2018; Gonzalez et al. 2015; Saah et al. 2016). This study used CARB-provided carbon density values directly linked to LANDFIRE EVT, EVC, and EVH datasets for 2001, 2008, 2010, and 2014 data years for San Diego County. For new or novel classes in the LANDFIRE 2016 dataset (see Section 3.1.1), the carbon stock values from previous data years were crosswalked to the LANDFIRE 2016 classes. For soil carbon, carbon density values for the unique soil class/climate zone/land use combinations (i.e., mineral soils [high activity clay and low activity clay], sandy soils, volcanic soils, and organic soils) were assigned following the approach used in U.S. Environmental Protection Agency's Inventory of U.S. Greenhouse Gas Emissions and Sinks (EPA 2018).

The assignment of N_2O and CH_4 emissions depended on the land cover type. Consistent with the approach taken for the inventory conducted for Merced County (DOC and TNC n.d.), N_2O emission values were assigned to agricultural land cover types[1] and CH_4 emissions were assigned to wetland vegetation types.[2] Potential N_2O and CH_4 emissions from other land cover types were excluded from the inventory because they were not anticipated to occur in substantial quantities.

3.2 Inventory

3.2.1 Land Cover

The 2001 and 2016 LANDFIRE datasets used for the San Diego County carbon inventory are shown, by land cover class, in Figure 1. Table 1 provides a summary of the 2001 and 2016 land cover datasets by land cover class in the San Diego County study area.

Over the period from 2001 through 2016, natural land acreage (i.e., forest, grassland, shrublands, water, and wetland) decreased by 5.2% (approximately 95,000 acres), agricultural land acreage (i.e., irrigated pasture, orchard, row crop, and vineyard) decreased by 43% (approximately 44,000 acres), and barren and developed land cover increased by 17% (approximately 138,000 acres). Note that the classification system was modified slightly between LANDFIRE 2001 and LANDFIRE 2016, resulting in reclassification of certain ruderal grassland types from grassland to urban. Additionally, the increase in wetland in 2016 is largely the result of LANDFIRE reclassifications because wetland areas were not properly classified as wetlands in the 2001 dataset but were correctly classified as wetlands in the 2016 dataset.

[1] Annual croplands, orchards/vineyards, and managed pasture typically receive nitrogen additions in the form of synthetic nitrogen fertilizer and/or organic nitrogen amendments, such as manure or compost. All sources of nitrogen in soils, including fertilizers, manures, plant residues, and biologically fixed nitrogen, contribute to soil N_2O emissions via denitrification and nitrification processes. Agricultural lands receiving high nitrogen additions produce larger N_2O emissions than lands where the main source of nitrogen is biological fixation, such as extensive rangelands (grasslands). A variety of factors influence the quantity of nitrogen that is converted to N_2O, including soil moisture, soil oxygen content, temperature, crop type, the type of fertilizer, and various properties of the soil itself. Nitrogen amendment practices change over time due to economic, regulatory, and other factors, which are not evaluated herein (DOC and TNC n.d.).

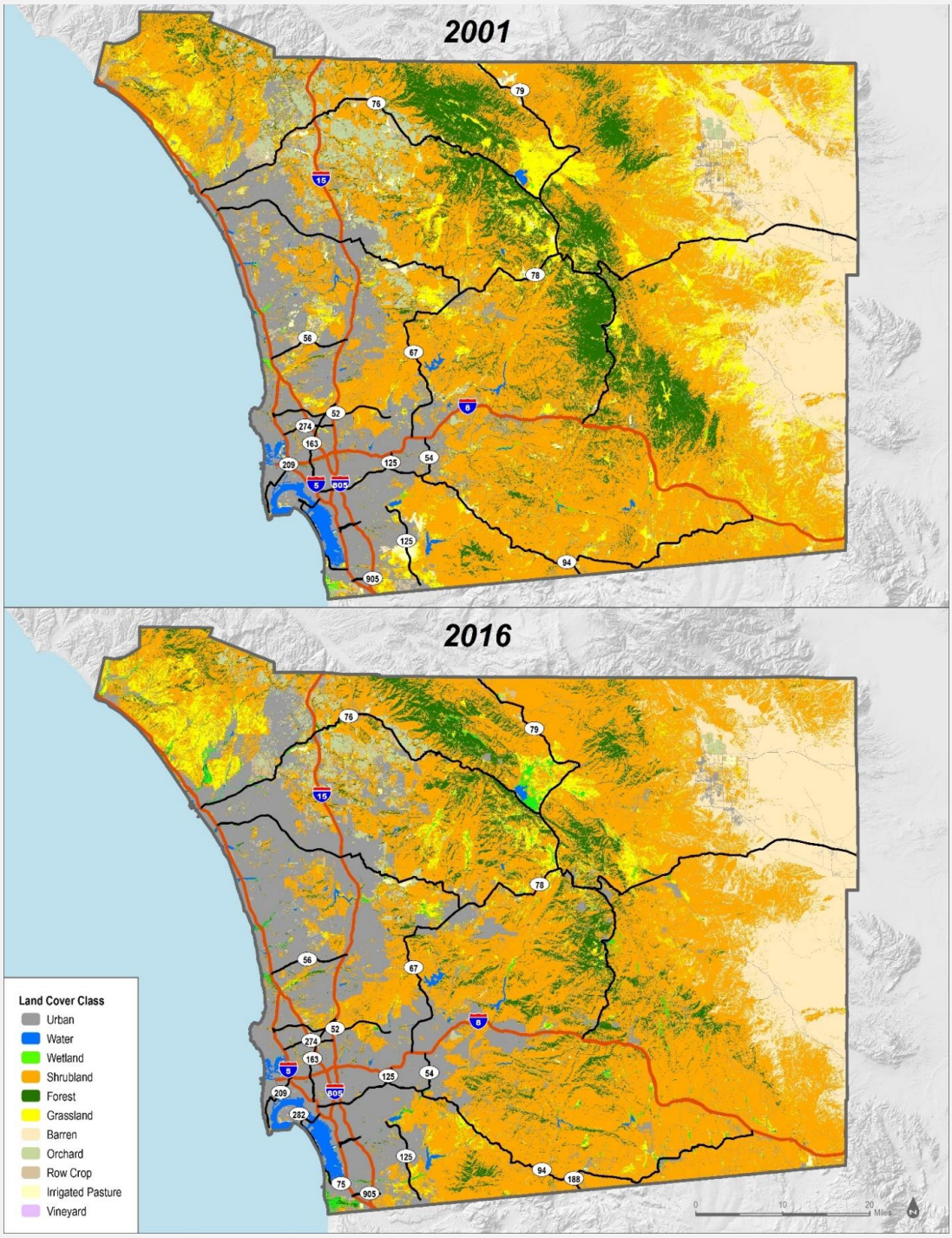
[2] Wetlands emit methane from the decomposition of organic matter (DOC and TNC n.d.). Wetlands that are continuously inundated—wet year-round—have estimated methane emissions of 5.8 MT CO_2e per acre, while intermittently inundated wetlands have estimated methane emissions of 1.3 MT CO_2e per acre (2013 supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands). Consistent with the Merced County TerraCount Study, 5% of the wetlands were assumed to be continuously inundated, and 95% were assumed to be intermittently inundated for a prorated level of methane emissions of 1.5 MT CO_2e per acre of wetland.

Table 1. Land Cover Summary by Land Cover Class for 2001 and 2016

Land Cover Class	2001 Acres	2016 Acres	Annual Trend
Barren	334,684	348,341	0.3%
Forest	279,758	199,831	–1.9%
Grassland	244,539	117,419	–3.5%
Irrigated Pasture	17,973	3,295	–5.4%
Orchard	54,407	36,781	–2.2%
Row Crop	29,544	17,585	–2.7%
Shrubland	1,265,291	1,357,890	0.5%
Urban	473,639	598,200	1.8%
Vineyard	139	880	35.4%
Water	22,573	23,388	0.2%
Wetland	4,570	23,507	27.6%
Total Acres	**2,727,116**	**2,727,116**	—

Notes: Based on the customized LANDFIRE 2001 and LANDFIRE 20016 datasets for San Diego County. The classification system was modified slightly between LANDFIRE 2001 and LANDFIRE 2016, resulting in reclassification of certain ruderal grassland types from grassland to urban. Additionally, the increase in wetland in 2016 is largely the result of LANDFIRE reclassifications.

Figure 1. 2001 and 2016 Land Covers by Land Cover Class

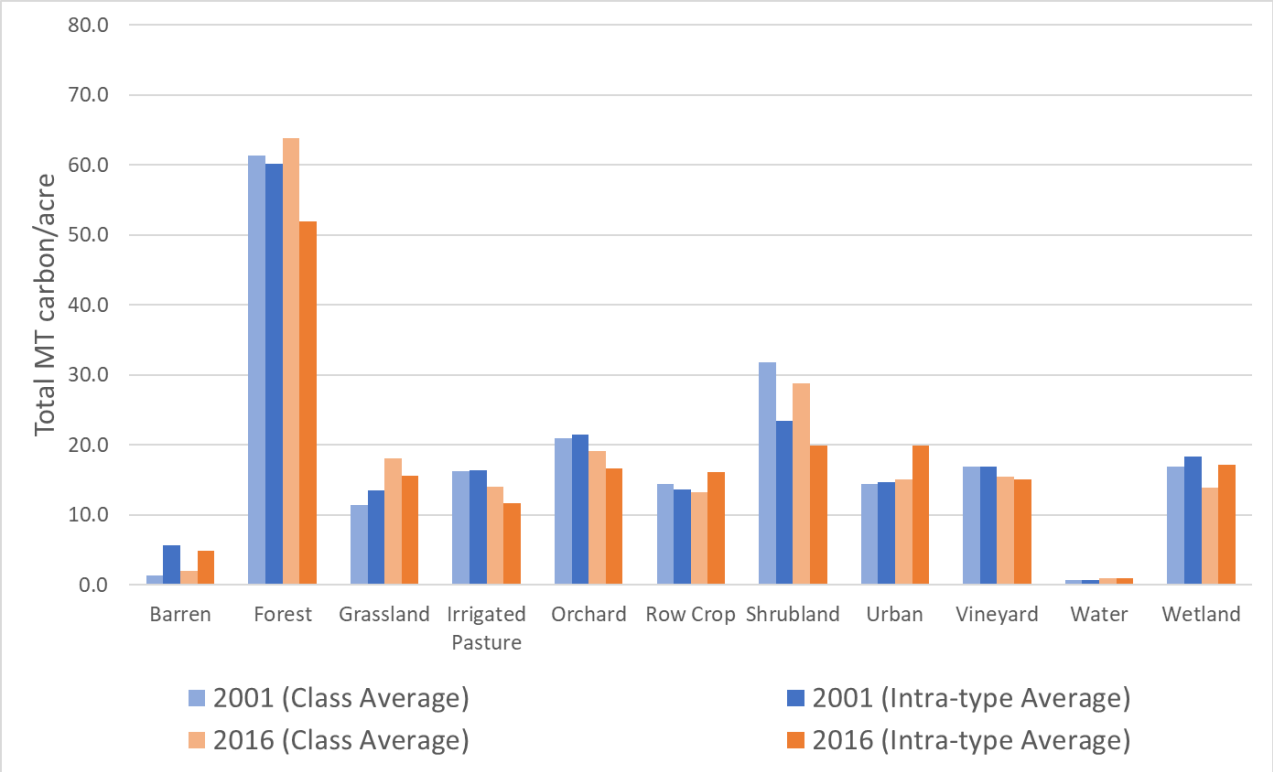


3.2.2 Carbon Storage and Emissions

Carbon density values were assigned to the unique combinations of the LANDFIRE land cover data and the soils data for the 2001 and 2016 inventory years, as described in Section 3.1, Methods. The assigned carbon density values vary across all land cover and soil types; however, for summary purposes, Figure 2 shows the average carbon density for each of the land cover classes for 2001 and 2016, in MTs of carbon per acre, using an overall average of each land cover class (class average) and using an average of each land cover type within each land cover class (intra-type average).

Using the methods described in Section 3.1, a carbon inventory was built for the 2001 and 2016 reference years. These are inventories of carbon stored in the landscape and are expressed in units of MT CO_2e for ease of comparison with other GHG inventories.

Figure 2. Land Cover Class Average and Intra-Type Average Total Carbon Density for 2001 and 2016



Overall, based on this landscape inventory, carbon storage in San Diego County declined by 6.3% over the 15-year assessment period from approximately 254,600,000 MT CO_2e in 2001 to 238,500,000 MT CO_2e in 2016. Carbon stored in natural lands decreased by 9.9%, and carbon stored in agricultural lands decreased by 46.5% over this period, while carbon stored in barren and urban lands increased by 33.6%. In the natural lands, forests and shrublands account for the largest carbon losses over this period, with 16,100,000 MT CO_2e and 4,300,000 MT CO_2e decreases, respectively. Average carbon densities in the forest and shrubland vegetation types also decreased

over this period, which is indicative of a shift to vegetation that is less dense, potentially due to drought or mortality, and with less height, potentially due to type conversion, disturbance, or mortality. The study area was also affected by large-scale fires over this period, in 2003 and 2007, which are reflected in both the land cover and carbon inventory for San Diego County. Table 2 provides the landscape carbon inventory for 2001 and 2016 for San Diego County summarized by land cover class. Figure 3 depicts the spatial distribution of total carbon storage across San Diego County. The detailed 2001 and 2016 carbon inventories are provided in Appendix A.

Table 2. Landscape Carbon Storage Inventory Summary for 2001 and 2016

Land Cover Class	2001 Total Carbon Storage (MT CO_2e)	2016 Total Carbon Storage (MT CO_2e)	Annual Trend
Barren	1,594,260	2,602,038	4.2%
Forest	62,970,382	46,830,230	–1.7%
Grassland	10,228,152	7,806,193	–1.6%
Irrigated Pasture	1,071,184	169,076	–5.6%
Orchard	4,170,753	2,573,414	–2.6%
Row Crop	1,560,182	854,521	–3.0%
Shrubland	147,559,228	143,267,417	–0.2%
Urban	25,100,284	33,064,922	2.1%
Vineyard	8,645	49,896	31.8%
Water	58,921	78,740	2.2%
Wetland	282,978	1,203,641	21.7%
Total	**254,604,968**	**238,500,087**	**–0.4%**

Notes: Carbon densities assigned to the customized LANDFIRE 2001 and LANDFIRE 2016 datasets for San Diego County are based on IPCC 2006, EPA 2018, CARB 2018, Saah et al. 2016, Gonzalez et al. 2015, and Battles et al. 2013, expressed in metric tons of carbon dioxide equivalent (MT CO_2e). Includes the non-soil (i.e., aboveground live, aboveground dead, litter, and belowground live) and soil carbon pools. As noted in regard to the land cover mapping that supports this carbon inventory, the increase in wetland in 2016 is largely the result of LANDFIRE reclassifications. These inventories of carbon stored in the landscape are expressed in units of MT CO_2e for ease of comparison with other GHG inventories.

Table 3 provides the annual GHG (N_2O and CH_4) emissions summary for 2001 and 2016 for San Diego County by land cover class from two general sources: N_2O from nitrogen additions associated with agricultural land (managed pasture grasslands, irrigated pastures, orchards, vineyards, and row crops) and CH_4 from decomposition of organic matter in wetlands. GHG emissions from other sources are not included in Table 3, consistent with the inventory prepared for the County of Merced (DOC and TNC n.d.). SANDAG prepares a separate regional GHG emissions inventory as part of their Regional Plan. Annual GHG emissions declined by 0.9% over the assessment period largely due to the decrease in land cover of grassland and agriculture.

Table 3. Annual Greenhouse Gas Emissions Summary for 2001 and 2016

Land Cover Class	2001 Total Annual Greenhouse Gas Emissions (MT CO_2e per year)	2016 Total Annual Greenhouse Gas Emissions (MT CO_2e per year)	Annual Trend
Barren	—	—	—
Forest	—	—	—
Grassland	5,943	2,854	–3.5%
Irrigated Pasture	15,835	2,903	–5.4%
Orchard	43,525	29,425	–2.2%
Row Crop	30,793	18,328	–2.7%
Shrubland	—	—	—
Urban	—	—	—
Vineyard	51	324	35.4%
Water	—	—	—
Wetland	6,857	35,270	27.6%
Total	**103,005**	**89,104**	**–0.9%**

Notes: Greenhouse gas (N_2O and CH_4) emissions assigned to certain land cover types based on (DOC and TNC n.d.), expressed in metric tons of carbon dioxide equivalent per year (MT CO_2e per year). As noted in regard to the land cover mapping that supports this carbon emissions accounting, the increase in wetland in 2016 is largely the result of LANDFIRE reclassifications.

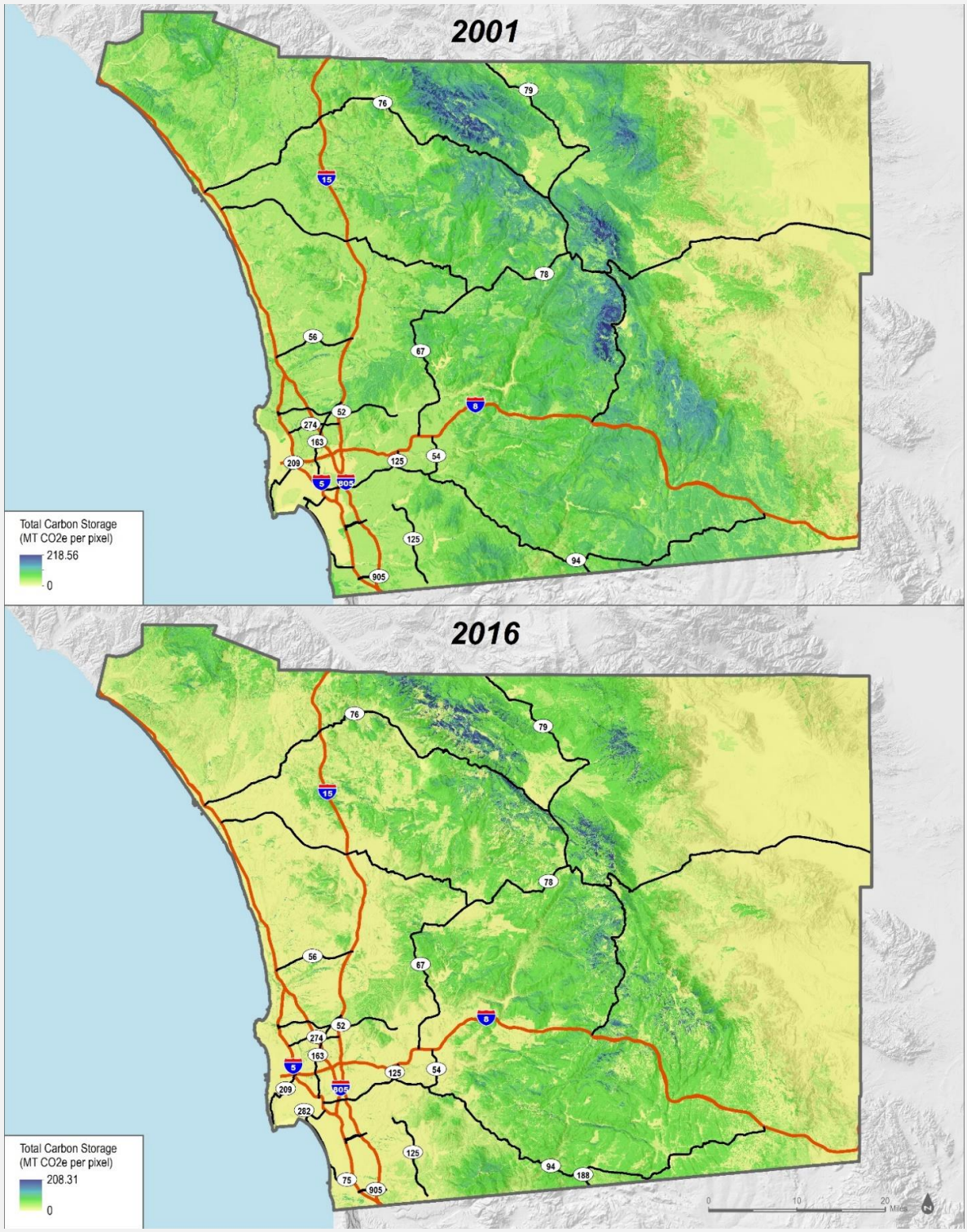
3.3 Discussion

San Diego County natural and working lands, including urban landscapes, stored approximately 238,500,000 MT CO_2e in 2016, which was a 6.3% decline from the inventoried storage in 2001. Based on a review of the inventory, this decline in carbon storage over the inventory period may be attributed to the following:

- The loss of forest and shrublands to fire, including the major fires of 2003 and 2007, and the subsequent conversion of those areas to other, less-dense vegetation types and younger age classes.
- The conversion of higher-carbon-density vegetation types to lower-carbon-density vegetation types as a result of drought, pests/disease, invasive species, and climate change.
- Land use changes resulting in the conversion of higher-carbon-density natural lands to lower-carbon-density urban and barren lands.
- Land use changes resulting in the conversion of higher-carbon-density agricultural lands to lower-carbon-density urban and barren lands.

For context, Merced County, which is approximately one-half the size of San Diego County, conducted a similar inventory and estimated carbon storage to be approximately 50,800,000 MT CO_2e based on 2014 data (DOC and TNC n.d.). Merced County is dominated by agricultural lands and grasslands. Sonoma County, a county dominated by forest and shrublands that is a little more than one-third the size San Diego County, estimated a carbon storage of 230,000,000 MT CO_2e based on 2014 data (TNC 2016).

Figure 3. 2001 and 2016 Total Landscape Carbon Storage



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4 Baseline Reference Scenario

The baseline reference scenario is intended to be an extrapolation of past trends in landscape carbon stocks and land-based GHG emissions to present a business-as-usual scenario, whereas carbon stocks and GHG emissions continue to change at a projected rate. The year 2050 was selected to be the forecast year for this study's baseline reference scenario, consistent with SANDAG's 2021 Regional Plan future projections. Establishing a baseline reference scenario is important as a way to estimate the trajectory of carbon stocks and GHG emissions to thereby identify and prioritize efforts to increase landscape carbon stocks or reduce land-based GHG emissions, such as land use policy changes and the implementation of agricultural and land management activities.

The carbon inventory (Section 3.2) was developed by assigning carbon densities to the unique combinations of the detailed land covers (EVT, EVC, and EHV) and soils (444 unique combinations in the 2001 reference year; 769 unique combinations in the 2016 reference year), which were then aggregated for summary purposes into the broad land cover classes (see Table 2). The trends observed from 2001 through 2016 were used to extrapolate out to the forecast year (2050) to develop the baseline reference scenario for this study.

Due to the variability and differences in the number and types of unique combinations between 2001 and 2016 for the detailed land covers and soils, extrapolating the carbon trend from the reference years to the forecast year was done at the broad land cover class level. This land cover class trend extrapolation was the same approach used by the Merced County and Sonoma County studies (DOC and TNC n.d.; TNC 2016).

A number of challenges were encountered in developing the baseline reference scenario based on the 2001 to 2016 trend:

- The reference period (2001 to 2016) was characterized by a substantial increase in urban development and decrease in grassland and agricultural land uses. Using the baseline reference scenario trend, carbon storage in urban areas would roughly double from 2001 to 2050, the carbon storage in grasslands would be one-fifth that of 2001 in 2050, and carbon storage in agricultural land use types (except vineyards) would be eliminated prior to 2050. Although the observed change over the reference period was considered a real change on the landscape in San Diego County, this trend may not be expected to continue at this rate out to the forecast year.
- Significant wildfires occurred in San Diego County between 2001 and 2016, including two of the 20 largest fires on record in California: the 2003 Cedar Fire (273,246 acres) and the 2007 Witch Fire (197,990 acres) (CAL FIRE 2021). Based on data maintained by the California Department of Forestry and Fire Protection (CAL FIRE), more than 35% of San Diego County burned in wildfires over the reference period. As such, wildfires during the trend period resulted in real differences in the landscape between 2001 and 2016, which were reflected in the LANDFIRE datasets, including notable declines in forest land cover types and corresponding increases in shrubland land cover types. Although wildfire is a persistent threat to carbon storage on the landscape in San Diego County, the trend over the reference period presented challenges to projecting out to the forecast year for these land cover classes.
- Water and wetland land cover types increased considerably over reference period due to changes in how LANDFIRE classified these land cover types; however, this trend was not considered to be a real change on the landscape, and was addressed accordingly in the baseline reference scenario projection.

The trend extrapolation was conducted at the land cover class level using a carbon-based extrapolation approach. The carbon-based extrapolation approach used the trend in the change in carbon storage and annual carbon emissions in each land cover class between the reference years and extrapolated that to the forecast year. This was the approach used for the studies of Merced and Sonoma Counties (DOC and TNC n.d.; TNC 2016). The forecast year estimate under this approach assumed that carbon storage and emissions change in each land cover class would be proportional to the change observed during the reference period.

For some land cover classes (i.e., irrigated pasture, orchard, and row crop), the trend resulted in zero carbon storage/emissions prior to 2050, and the carbon storage/emissions estimates for these classes were held at zero for the forecast year. Additionally, carbon storage for the water land cover class and carbon storage/emissions for the wetland land cover class were maintained at the 2016 levels, assuming that the trend observed during the reference period for these land cover classes as a relic of the LANDFIRE classification changes and not real changes on the landscape.

Under the baseline reference scenario, total landscape carbon storage for the forecast year for San Diego County was estimated to be 203,531,831 MT CO_2e. This represents a projected 14.7% reduction in total landscape carbon storage in 2050 relative to 2016 based on the reference period trend. Table 4 provides a summary of landscape carbon storage for the 2050 baseline reference scenario by land cover class for San Diego County. Under the baseline reference scenario, total annual GHG emissions for the forecast year for San Diego County was estimated to be 35,921 MT CO_2e per year. This represents a projected 59.7% reduction in annual GHG emissions in 2050 relative to 2016 based on the reference period trend. Table 5 provides a summary of the GHG emissions for the 2050 baseline reference scenario by land cover class for San Diego County. Figures 4a and 4b provide comparisons of the landscape carbon storage and annual emissions for the reference years and 2050 baseline reference scenario.

Table 4. Landscape Carbon Storage for the 2050 Baseline Reference Scenario

Land Cover Class	2001–2016 Total Carbon Storage Annual Trend	2050 Total Carbon Storage (MT CO_2e)
Barren	4.2%	4,886,332
Forest	–1.7%	10,245,885
Grassland	–1.6%	2,316,418
Irrigated Pasture	–5.6%	0
Orchard	–2.6%	0
Row Crop	–3.0%	0
Shrubland	–0.2%	133,539,312
Urban	2.1%	51,118,103
Vineyard	31.8%	143,399
Water	0%	78,740
Wetland	0%	1,203,641
	Total	**203,531,831**

Notes: MT CO_2e = metric tons of carbon dioxide equivalent
The annual trend in total carbon storage for the water and wetland land cover classes between 2001 and 2016 was a reflection of LANDFIRE classification changes; therefore, the 2016 carbon storage values for these land cover classes were maintained for the forecast year and were not based on the trend.

Table 5. Annual Greenhouse Gas Emissions for the 2050 Baseline Reference Scenario

Land Cover Class	2001–2016 Carbon Emissions Annual Trend	2050 Total Annual Carbon Emission (MT CO_2e per year)
Barren	—	—
Forest	—	—
Grassland	–3.5%	0
Irrigated Pasture	–5.4%	0
Orchard	–2.2%	0
Row Crop	–2.7%	0
Shrubland	—	—
Urban	—	—
Vineyard	35.4%	651
Water	—	—
Wetland	0%	35,270
	Total	**35,921**

Notes: Greenhouse gas (N_2O and CH_4) emissions assigned to certain land cover types based on DOC and TNC n.d., expressed in metric tons of carbon dioxide equivalent per year (MT CO_2e per year). As noted in regard to the land cover mapping that supports this carbon emissions accounting, the increase in wetland in 2016 is largely the result of LANDFIRE classification changes; therefore, the 2016 emissions values for wetlands were maintained for the forecast year and were not based on the trend.

The carbon-based extrapolation method used to develop the baseline reference scenario was considered the most representative way to estimate the forecast year changes in carbon storage and emissions because the changes in storage and emissions in each land cover class are proportional to the changes observed during the reference period, and this approach was employed by the pilot projects developed for Merced and Solano Counties. As a means of testing and validating the baseline reference scenario estimates, an acreage-based extrapolation approach was also conducted. The acreage-based approach used the trend in the change in acreage in each land cover class between the reference years and extrapolated that to the forecast year and then assigned an average carbon density per acre for each land cover class to the projected forecast year acreage.

Under the acreage-based approach, several land cover classes had annual trend decreases that were maintained at zero (not projected to be negative acres), and wetland and water land cover classes were maintained at 2016 levels, consistent with the carbon-based approach. Additionally, several land cover classes had annual acreage trend increases that resulted in the total projected acreages to be more than the acreage of San Diego County; the urban land cover class acreage was manually adjusted downward for the forecast year to maintain the proper total San Diego County acreage under this approach. For the average carbon density per acre, two different averages were used: an overall average carbon density for each land cover class (land cover class average) and an average of each of the land cover types within each land cover class (intra-type average) (as depicted in Figure 2).

Total landscape carbon storage in 2050 based on the baseline reference scenario (Table 4) was estimated at 203,531,831 MT CO_2e. Using the alternative acreage-based approach, total landscape carbon storage ranged from 178,764,656 MT CO_2e to 213,397,766 MT CO_2e (a range of values results from the acreage-based approach due to the two different average methods for carbon densities). With the exception of the forest and grassland land cover classes, the baseline reference scenario estimates fall within the range of estimates provided by the alternative acreage-based approach for each of the land cover classes. For the forest land cover class, the baseline reference scenario estimated a total landscape carbon storage of 10,245,885 MT CO_2e, whereas the acreage-based estimates ranged from 3,556,817 MT CO_2e to 4,373,798 MT CO_2e. For forest, the

rate of decline in carbon over the reference period (1.7%) is less than the rate of decline in acreage (1.9%), and there is a wide variability in carbon density across all the forest types, which results in the baseline reference scenario estimate being higher than that of the alternative acreage-based approach. For the grassland land cover class, the baseline reference scenario estimated a total landscape carbon storage of 2,316,418 MT CO_2e, whereas the acreage-based method estimated zero carbon storage in grasslands by 2050. For grassland, the rate of decline in carbon over the reference period (1.6%) is less than the rate of decline in acreage (3.5%), which results in the acreage of grassland and projected carbon storage to decline to zero by the forecast year. Total annual GHG emissions estimates were nearly the same for both approaches, with the baseline reference scenario estimate at 35,921 MT CO_2e per year and the alternative acreage-based estimate at 36,213 MT CO_2e per year.

Figure 4a. Comparison of Total Carbon Storage between the Reference Years and the 2050 Baseline Reference Scenario

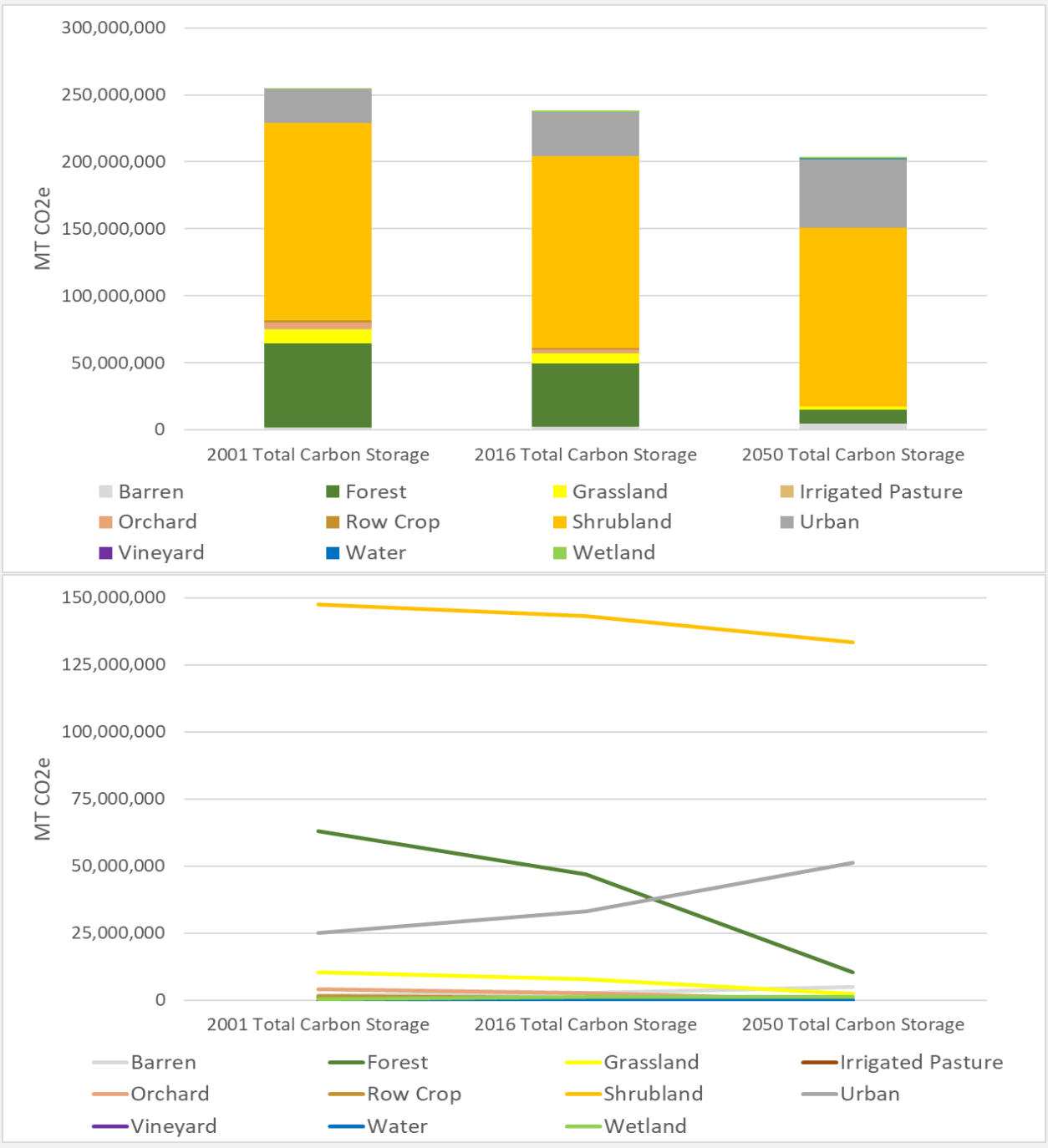
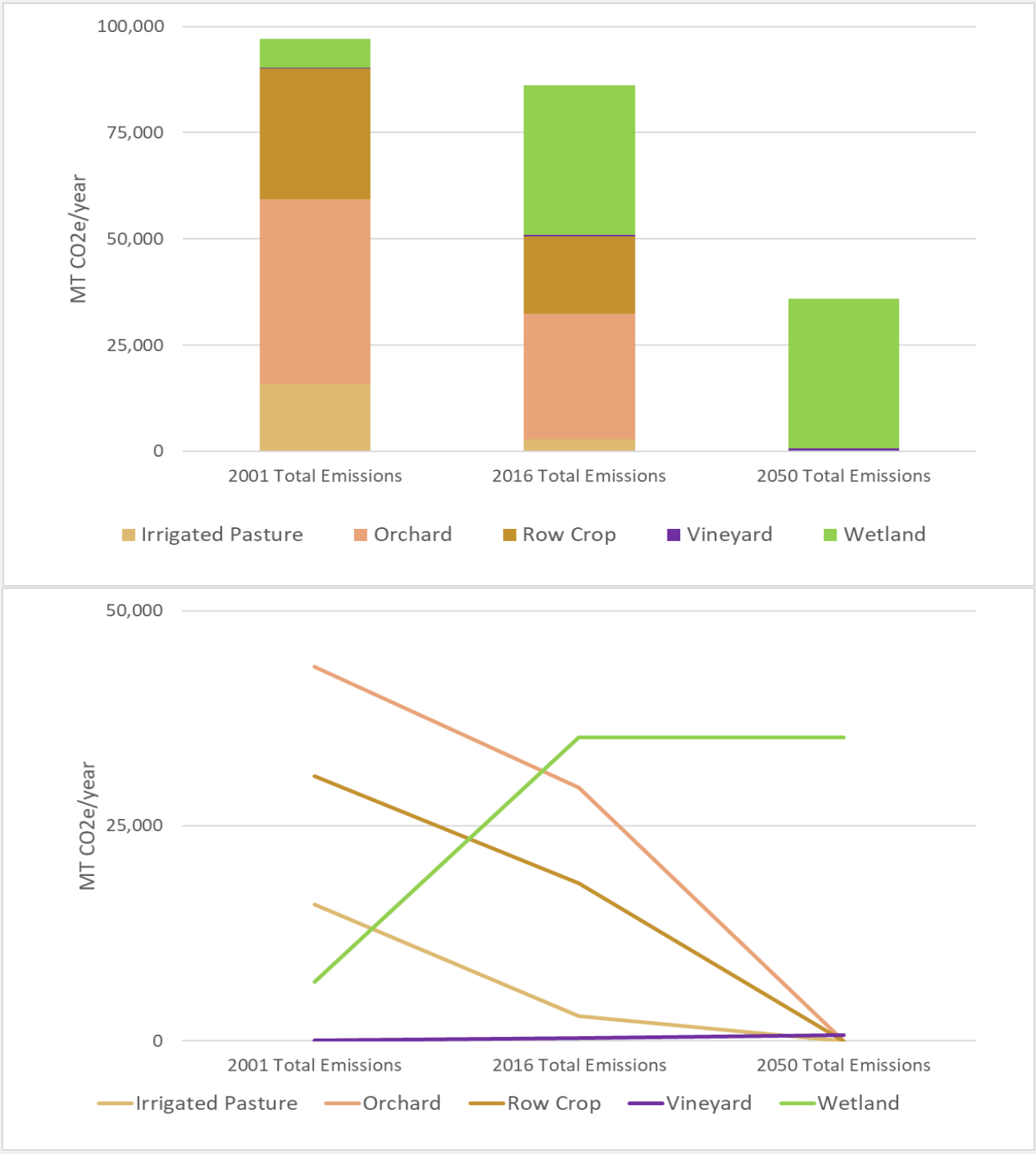


Figure 4b. Comparison of Total Annual Greenhouse Gas Emissions between the Reference Years and the 2050 Baseline Reference Scenario



5 Complementary Benefits

Maintaining and managing carbon storage in natural and working lands provides a variety of complementary benefits beyond offsetting GHG emissions. Complimentary benefits include social, economic, and environmental benefits achieved by applying specific land management activities besides GHG emission reductions assessed herein. The following provides an overview of selected complementary benefits of maintaining and managing carbon storage in natural and working lands in San Diego County, including agriculture quality, water quality, biodiversity, and human wellbeing. Natural and working lands provide additional benefits not included in this study. Land management activities for enhancing carbon storage in natural and working lands are described in Section 6.1, with associated complementary benefits noted.

In natural lands, maintaining and managing carbon storage through avoiding conversion to other lower-carbon land uses benefits conserved lands in San Diego County, including those shown in Figure 5 (SANDAG 2021b). Many complementary benefits are a result of conserving lands and avoiding conversion of natural lands to developed or urban lands, as described in detail below.

5.1 Agriculture

Maintaining and managing carbon storage in working lands benefits agricultural land quality in San Diego County, including farmlands of local importance, farmlands of statewide importance, grazing lands, prime farmlands, and unique farmlands as mapped by the California Farmland Mapping and Monitoring Program (Figure 6) (DOC 2018). A specific complementary benefit associated with agricultural land quality is the loss in important farmland where land is converted from agriculture to a developed land use. Relatedly, another agricultural quality related complementary benefit includes crop production value, which is the loss in crop value as a result of converting agricultural land to developed or urban land use.

Figure 5. Conserved Lands

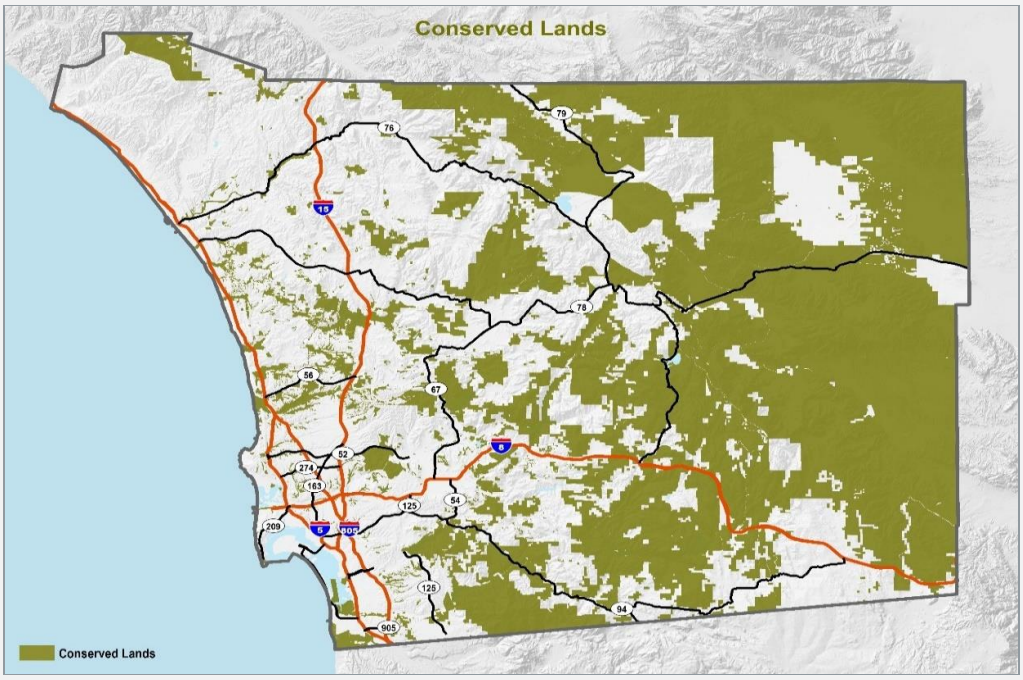
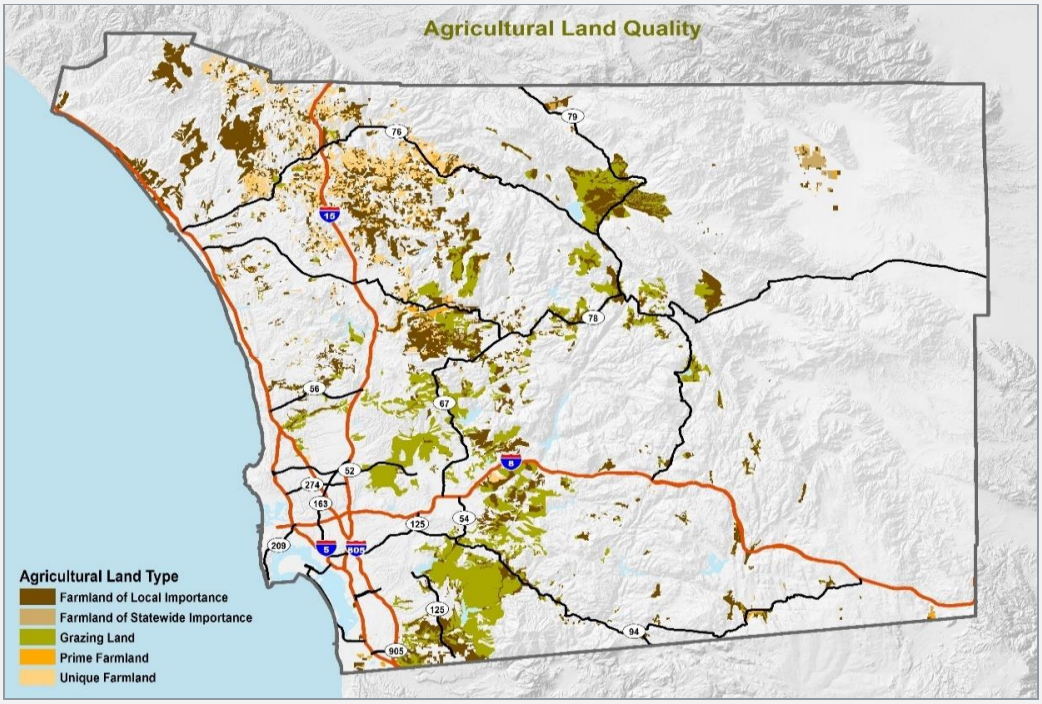


Figure 6. Agricultural Lands



5.2 Water Quality

Carbon storage maintenance and management in natural and working lands provides benefits for water quality. These complementary benefits include maintaining and improving water quality in water quality sensitive areas in San Diego County (Figure 7) (SANDAG 2021c).

Regarding complementary benefits associated with agriculture and urban water conservation, land cover changes can impact agricultural water use; when natural lands are converted to agricultural lands, agricultural water use increases. Alternately, urban lands expanding into agricultural lands can reduce agricultural water demand and increase urban water use. Water use also changes when lands convert from one agricultural type to another.

Water quality can also be impacted by land management activities related to nitrate runoff and nitrate leaching. Nitrate runoff is a major cause of poor water quality in streams and rivers, leading to eutrophication of (i.e., excessive richness of nutrients) and damage to aquatic ecosystems. Nitrate leaching is a cause of groundwater contamination that can lead to unhealthy drinking water. When land cover changes or activities are implemented to improve nitrogen fertilizer management, nitrate-related water quality concerns can also be affected.

Land cover changes can also impact groundwater recharge potential. Groundwater recharge is the amount of precipitation that infiltrates below the root zone, summed annually. When natural land cover changes to urban, the groundwater recharge potential in that area is reduced due to an increase in impervious surfaces.

Watershed integrity is another water-quality-related complementary benefit, particularly associated with riparian restoration activities. The integrity of watersheds is a valuable metric for evaluating the quality of habitat for a variety of animal species, animal movement, water quality, and general ecologic function. When urbanization and agricultural growth occur, they can degrade the ecological and social benefits of undisturbed or intact watersheds.

5.3 Biological Resources and Biodiversity

San Diego County is a biologically rich region supporting a unique assemblage of habitats and plant and wildlife species. Maintaining and managing carbon storage in natural lands has a range of complementary benefits for the region's biological resources. For example, numerous important bird areas have been identified in San Diego County, and avian species in the region would benefit from maintaining and managing carbon storage in these and other areas (Figure 8) (Audubon California 2008). Further, the natural lands of San Diego County provide important functions for wildlife movement and habitat connectivity that would benefit from carbon storage management and maintenance, as illustrated in Figure 9 (Jennings et al. 2019; Spencer et al. 2010).

Other biodiversity-related complementary benefits include the following:

- Terrestrial Connectivity. Animal species rely on landscapes that provide habitat connectivity so they can move between areas of quality habitat. Developed land covers are difficult to move through, agricultural land covers less so, and natural land covers the easiest. Land covers changes can improve or degrade terrestrial habitat connectivity.
- Natural Habitat Area. As with most biodiversity-related complementary benefits, conserving natural land cover also benefits natural habitat areas.

- **Priority Conservation Areas.** Priority conservation areas, as evaluated in the Merced County TerraCount study, are a combination of The Nature Conservancy priority conservation areas, Audubon important bird areas, and California Department of Fish and Wildlife essential connectivity areas. This metric can be tracked by the change in land cover class within priority conservation areas.
- **Terrestrial Habitat Value.** The loss of terrestrial habitat is one of the consequences of urbanization and agricultural growth. Terrestrial habitat value can be measures for mammals, birds, amphibians, reptiles, and threatened and endangered species.
- **Aquatic Biodiversity Value/Richness.** Changes to land covers from watersheds with high biodiversity to other land covers can also affect aquatic biodiversity.

5.4 Human Wellbeing and Resilience

Human wellbeing complementary benefits include flood risk, air quality, and scenic value, and resilience complementary benefits include both social and built resilience, and natural resilience. Carbon storage maintenance and management in natural and working lands provide benefits for flood risk, specifically moderating flood risk in flood-prone areas like 100-year flood hazard zones (Figure 10) (FEMA 2021). Developing within 100-year flood zone areas puts homes and lives at risk; therefore, conserving natural lands within these areas can minimize those potential risks. Regarding air quality, plants sequester pollutants, removing them from the air using gaseous uptake through plant stoma and by direct interception of airborne particles. The complementary benefit can be calculated based on a criteria air pollutant sequestration change in tons per year. Retaining an area's scenic value is a consideration for planners and officials in the San Diego region. Scenic value can be measured in terms of the visibility of the areas developed for public areas, parks, and roadways, focusing on the most visible areas.

As applied in the Merced County TerraCount Study, datasets were selected to use as proxies for resilience. Natural resilience was evaluated using the sum of two components: habitat stability and climate connectivity. This metric focuses on changes in land cover for areas that are either mapped as climate refugia or are mapped as climate linkages (climate refugia are areas where current vegetation is predicted to be relatively stable and less vulnerable to climate change, and climate linkages are areas that connect current to future climate zones). For social and built resilience, flood risk attenuation and groundwater banking potential were selected as the two proxies. This metric evaluates the changes in land cover for areas that are either in the 500-year floodplain or in areas of the highest groundwater banking potential.

Figure 7. Water Quality Sensitive Areas

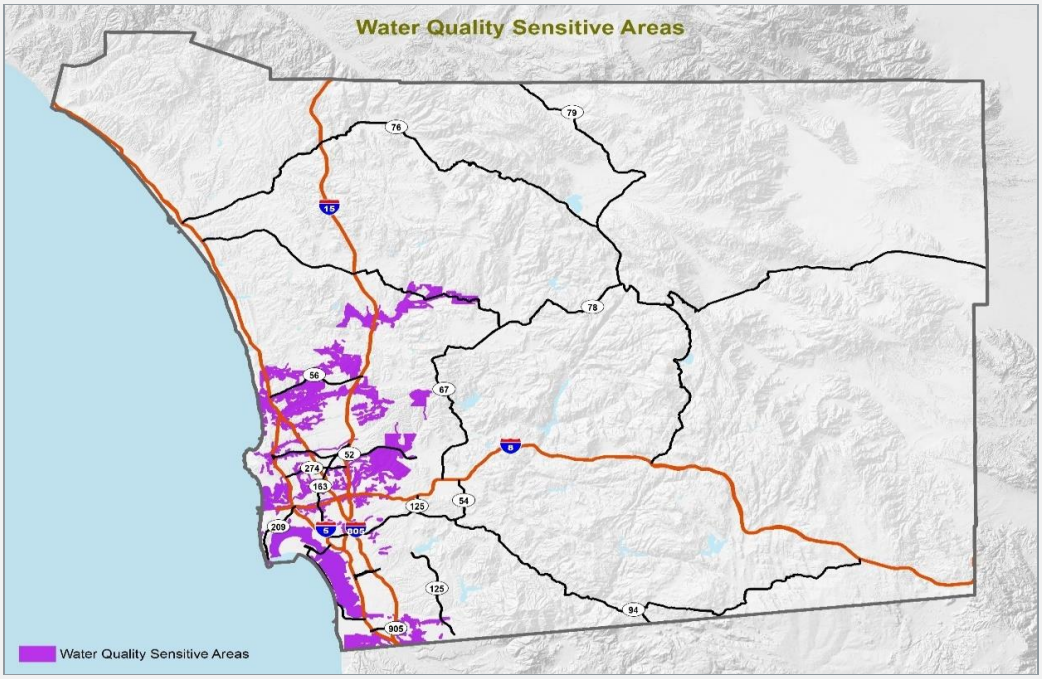


Figure 8. Audubon Important Bird Areas

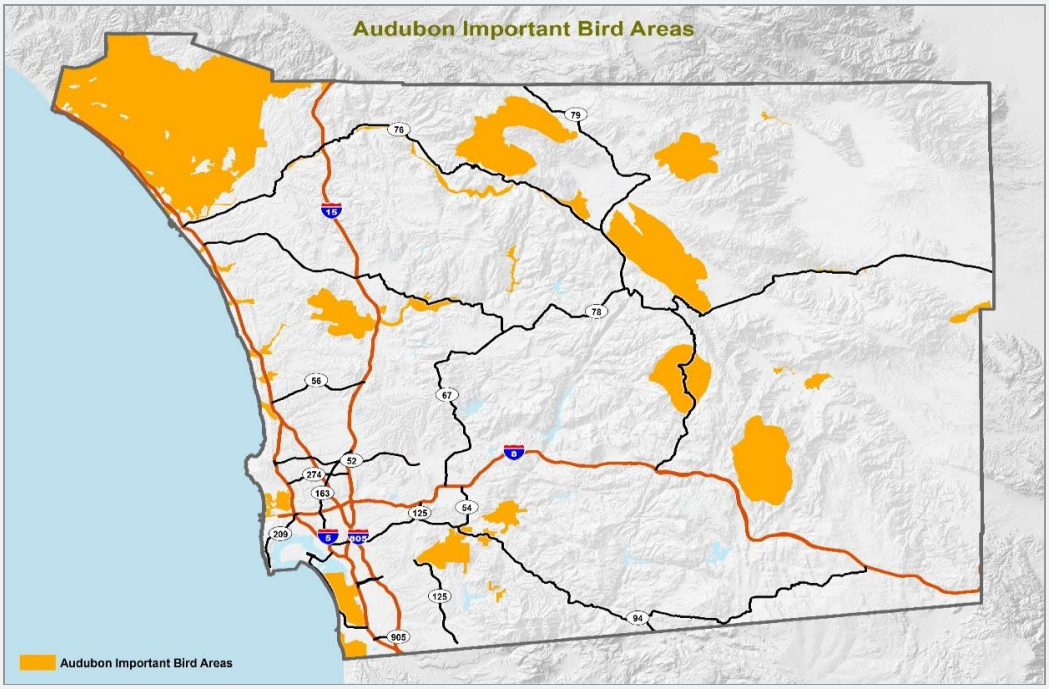


Figure 9. Habitat Connectivity

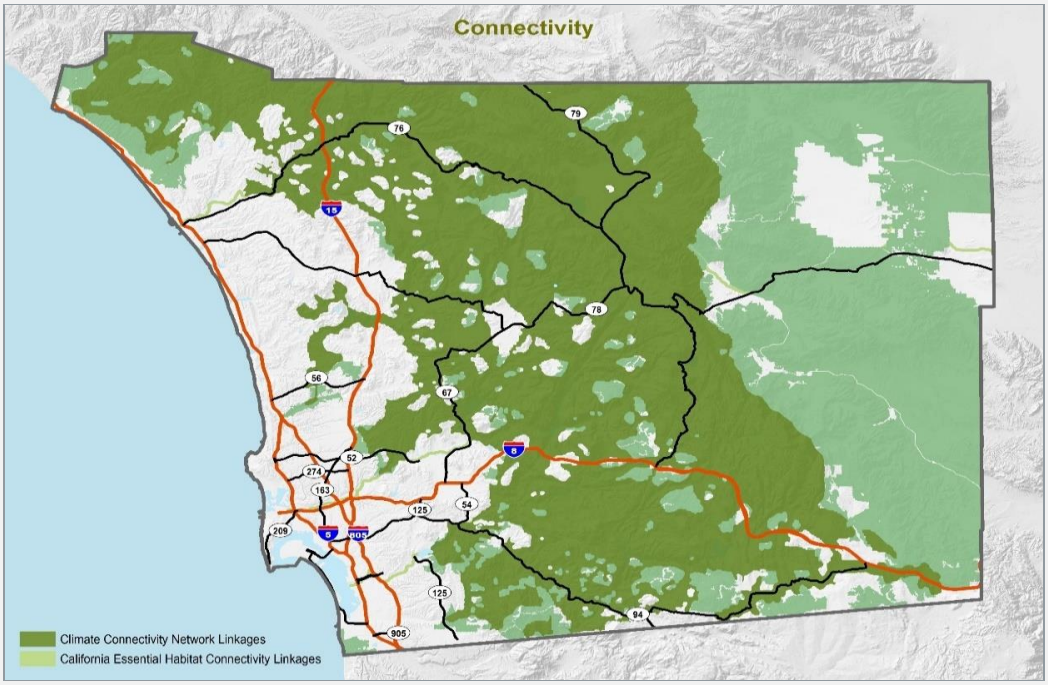
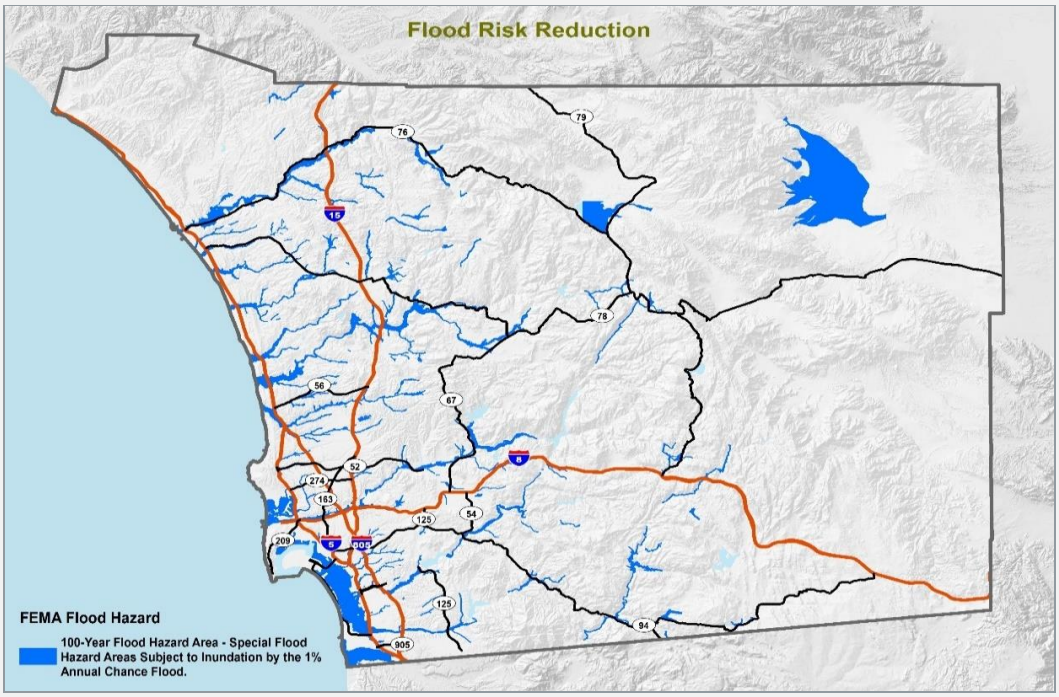


Figure 10. FEMA Flood Hazard Areas



6 Forecasting

The baseline reference scenario outlined in Section 4 presents a potential business-as-usual outcome for carbon storage in the natural and working lands of San Diego County for the 2050 forecast year based on the region's trend from 2001 to 2016. Alternate carbon storage outcomes for the 2050 forecast year could result from implementation of land management activities that increase carbon storage and sequestration, and through effecting different development scenarios/trends than was assumed in the baseline reference scenario. Section 6.1 explores the potential for carbon storage and sequestration of various land management activities, and Section 6.2 evaluates different development scenarios that would result in increased carbon storage above that predicted by the baseline reference scenario. The DOC TerraCount tool would have allowed the forecasting component of this study to be spatial, but due to complexities associated with applying the tool to San Diego County, this study conducted the forecasting elements using a non-spatial approach without employing the TerraCount tool.

6.1 Land Management Activities

6.1.1 Working Land Management Activities

A number of management activities implemented in agricultural lands have the potential to increase carbon storage and sequestration over time, including the following:

- Improved Nitrogen Fertilizer Management: Adjusting the application rate, source, method, and timing of synthetic nitrogen fertilizers
- Use of Alternative Soil Amendments: Replacing/augmenting synthetic nitrogen fertilizers with manure, compost, or other organic by-products
- Use of Cover Crops: Planting grasses and forbs[3]
- Uses of Mulches: Adding crop and other residues[4]
- Planting Hedgerows: Planting hedgerow trees[5]

Based on the land cover class summary provided in the Table 1, agricultural lands covered approximately 2.1% (58,541 acres) of San Diego County in 2016. Although there was a strong declining trend in agricultural land cover from 2001 to 2016 resulting in very little carbon storage remaining in agricultural lands by the 2050 forecast year under the baseline reference scenario, the past trend for agricultural land uses may not accurately predict the future outcome, and agricultural land uses may remain at or near 2016 levels or as projected by the moderated baseline scenario described in Section 6.2.2. Assuming that some agricultural land uses are maintained in San Diego County through 2050, implementing the working land management activities described

[3] CO2 removals are the result of planting seasonal leguminous cover crops that provide natural resource protection or improvement and supply partial fertilizer demand to areas managed for irrigated annual row crops.

[4] CO2 removals are based on the application of plant residues or other suitable materials produced off site to the land surface on irrigated pasture.

[5] Establishment of dense vegetation in a linear design to achieve a natural resource conservation purpose on areas managed as vineyards.

above has the potential to increase carbon storage or decrease GHG emissions as compared to unmanaged agricultural lands, as summarized below.

Annual CO_2e reduction/removal rates for these working land management activities have been developed by the U.S. Department of Agriculture for the carbon and GHG evaluation of Natural Resources Conservation Service conservation practice planning (COMET-Planner, USDA 2021; DOC and TNC n.d.). Improved nitrogen fertilizer management has the potential to reduce/remove 0.01 to 0.03 MT CO_2e per acre per year, which if implemented over 1,000 acres, could remove 10 to 30 MT CO_2e per year. Complementary benefits of improved nitrogen fertilizer management include improved air quality and water quality. Use of alternative soil amendments has the potential to reduce/remove 0.13 to 4.49 MT CO_2e per acre per year, which if implemented over 1,000 acres, could remove 130 to 4,490 MT CO_2e per year. A complementary benefit of replacing synthetic nitrogen fertilizer with soil amendments includes improved water quality. Use of cover crops has the potential to reduce/remove 0.18 to 0.25 MT CO_2e per acre per year, which if implemented over 1,000 acres, could remove 180 to 250 MT CO_2e per year. Complementary benefits of cover crops include improved air quality and water quality. Use of mulches has the potential to reduce/remove 0.21 MT CO_2e per acre per year, which if implemented over 1,000 acres, could remove 210 MT CO_2e per year. Of the complementary benefits discussed herein, none are specifically applicable to mulching. Planting hedgerows has the potential to reduce/remove 8.23 MT CO_2e per acre per year, which if implemented over 1,000 acres, could remove 8,230 MT CO_2e per year. Complementary benefits of hedgerow planting include improved air quality, scenic value, water quality, watershed integrity, and numerous biodiversity related benefits (terrestrial connectivity, natural habit area, priority conservation area, terrestrial habitat value, and aquatic biodiversity value).

6.1.2 Natural Land Management Activities

Carbon storage and sequestration can be increased in natural lands through the following management activities:

- Habitat Restoration: Implementation of active habitat restoration that converts lower-carbon-density land cover types, such as grassland, to higher-carbon-density land cover types such as shrubland, oak woodland, and riparian.
- Fire Management: Active wildland fire management and suppression to prevent and minimize large-scale fires that convert stored carbon to GHGs.
- Planning and Management to Avoid Natural Land Conversion: Land use planning and policies and land management activities that avoid and minimize the conversion of higher-carbon-density land cover types such as shrubland, forest and woodland, and riparian, to lower-carbon-density land cover types such as grassland, barren, and urban.

Based on the land cover class summary provided in Table 1, natural lands covered approximately 75.1% (2,046,988 acres) of San Diego County in 2016. Implementing the natural land management activities described above has the potential to increase carbon storage and sequestration above that of unmanaged natural lands, as summarized below.

Habitat Restoration

Implementing habitat restoration has the potential to increase landscape carbon storage and sequestration in San Diego County. Based on the carbon density values used in this study, grasslands have an average carbon density of 15.5 MT carbon (C)/acre, which is equivalent to 57.0 MT CO_2e per acre. Converting grasslands to

higher carbon land cover types through habitat restoration has the potential to increase carbon storage and sequestration over time, as follows:

- Oak Woodland Restoration: Oak woodlands in San Diego County have an average carbon density of 65.8 MT C/acre (241.3 MT CO_2e per acre). Converting grasslands to oak woodlands has the potential to increase carbon storage by 184.3 MT CO_2e per acre. Implementing 1,000 acres of oak woodland restoration by the 2050 forecast year has the potential to increase carbon storage in San Diego County by 184,297 MT CO_2e.
- Riparian Restoration: Riparian communities in San Diego County have an average carbon density of 51.4 MT C/acre (188.7 MT CO_2e per acre). Converting grasslands to riparian has the potential to increase carbon storage by 131.7 MT CO_2e per acre. Implementing 1,000 acres of riparian restoration by the 2050 forecast year has the potential to increase carbon storage in San Diego County by 131,692 MT CO_2e.
- Chaparral and Coastal Sage Scrub Restoration: Chaparral communities in San Diego County have an average carbon density of 31.1 MT C/acre (114.0 MT CO_2e per acre), and coastal sage scrub in San Diego County has an average carbon density of 24.6 MT C/acre (90.3 MT CO_2e per acre). Converting grasslands to chaparral has the potential to increase carbon storage by 56.9 MT CO_2e per acre, and converting grasslands to coastal sage scrub has the potential to increase carbon storage by 33.3 MT CO_2e per acre. Implementing 1,000 acres of chaparral restoration by the 2050 forecast year has the potential to increase carbon storage in San Diego County by 56,939 MT CO_2e, and implementing 1,000 acres of coastal sage scrub restoration by the 2050 forecast year has the potential to increase carbon storage in San Diego County by 33,301 MT CO_2e.

Habitat restoration can result in numerous complementary benefits, such as air quality, scenic value, flood risk, water quality, watershed integrity, and numerous biodiversity benefits (terrestrial connectively, natural habitat areas, priority conservation areas, terrestrial habitat value, and aquatic biodiversity).

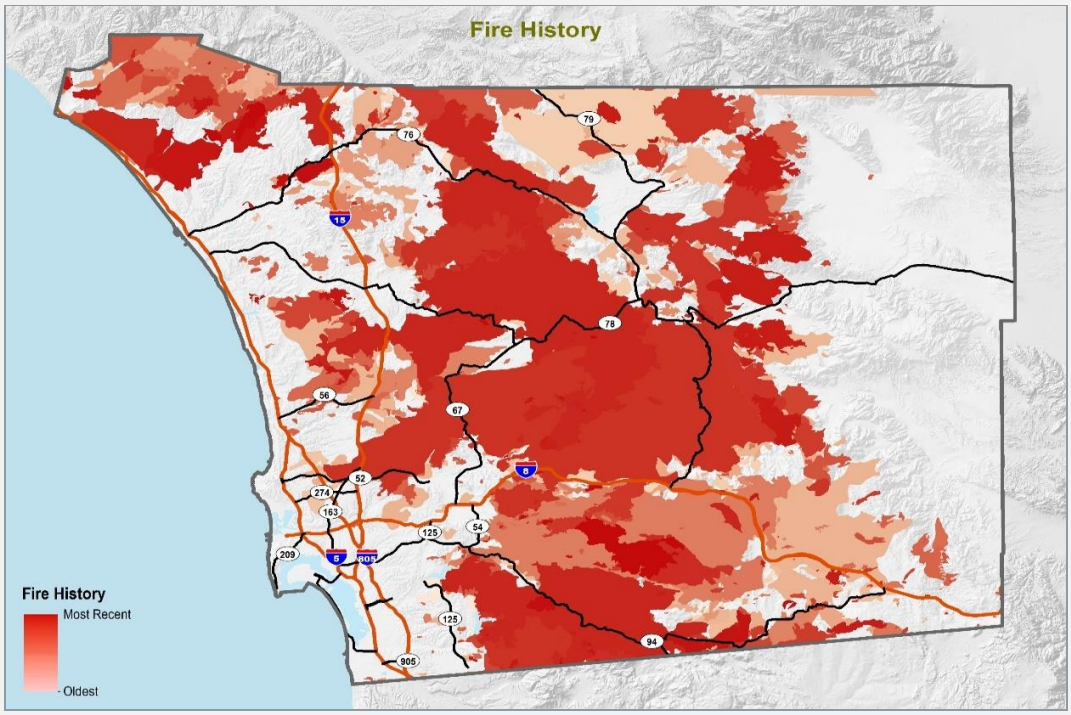
Fire Management

Maintenance of the carbon storage provided in the natural lands, often referred to as carbon persistence, is important to meeting GHG goals. Wildland fires present a challenge for maintaining carbon storage within aboveground carbon in the vegetation of natural lands. As highlighted in the California Forest Carbon Plan, managing California's natural lands as a net carbon sink is a statewide climate goal, and wildfires have a direct effect on carbon storage/sequestration (Forest Climate Action Team 2018). Wildfires partially convert carbon stored in live and dead aboveground biomass to atmospheric carbon. As discussed with regard to the carbon inventory prepared for this study, major wildland fires occurred during the reference period in 2003 and 2007, and numerous other fires have also occurred and are expected to occur over the forecast period. Figure 11 shows the fire history (for records from 1910 to 2020) for San Diego County.

The age classes of the vegetation types in San Diego County, as influenced by numerous factors, including fire history, affect the current carbon storage and the carbon sequestered over time. Further, the effect of wildfire on storage/sequestration differs by vegetation type; scrub, chaparral, and grassland communities tend to burn more completely, whereas wildfires in riparian, wetland, and oak woodlands tend to burn less intensely, leaving more live and dead aboveground carbon on the landscape in these communities. Because this study was a snapshot in time and because fires have occurred in the past and will likely occur in the future in these lands, the results of this study provide a reasonable estimate of the average or baseline amount of carbon stored in the study area. Areas with more recent fires are likely to have somewhat lower carbon storage/density than

estimated in this study, yet will accumulate carbon at a higher rate for a period of time going forward. Older age class areas with less recent fire activity are likely to have somewhat higher carbon storage/density than estimated here, but will also accumulate carbon at a slower rate going forward. Managing wildland fires, such as wildfire planning and fire suppression, is an important factor in maintaining the persistence of the carbon storage in natural lands over the forecast period.

Figure 11. Fire History in San Diego County



Planning and Management to Avoid Natural Land Conversion

Avoided conversion to urban is precisely that: retaining and gaining carbon and achieving other benefits by keeping the landscape natural as conservation land or working land. Land use planning and policies implemented by SANDAG, the County of San Diego, and cities and local municipalities within San Diego County influence land development and the amount of conversion of the natural lands to lower-carbon-storage land covers. Further, entities with responsibilities for land management in natural lands implement measures, such as invasive plant species management and access control, that can prevent and minimize the conversion of higher-carbon land cover types to lower-carbon land cover types.

Based on the carbon density values used in this study, urban lands have an average carbon density of 20.0 MT C/acre, which is equivalent to 73.2 MT CO_2e per acre. Avoiding the conversion of higher-carbon natural land cover types to urban uses has the potential to avoid the loss of carbon storage over time, as follows:

- Avoided Conversion of Oak Woodland: Oak woodlands in San Diego County have an average carbon density of 65.8 MT C/acre (241.3 MT CO_2e per acre). Avoiding the conversion of oak woodlands to urban has the potential to maintain 168.1 MT CO_2e per acre of carbon storage. Avoiding the conversion of 1,000 acres of oak woodland by the 2050 forecast year has the potential to maintain 168,093 MT CO_2e of carbon storage, and avoiding the conversion of 10,000 acres of oak woodland by the 2050 forecast year has the potential to maintain 1,680,928 MT CO_2e of carbon storage.
- Avoided Conversion of Riparian: Riparian communities in San Diego County have an average carbon density of 51.4 MT C/acre (188.7 MT CO_2e per acre). Avoiding the conversion of riparian to urban has the potential to maintain 115.5 MT CO_2e/acre of carbon storage. Avoiding the conversion of 1,000 acres of riparian by the 2050 forecast year has the potential to maintain 115,487 MT CO_2e of carbon storage, and avoiding the conversion of 10,000 acres of riparian by the 2050 forecast year has the potential to maintain 1,154,974 MT CO_2e of carbon storage.
- Avoided Conversion of Chaparral and Coastal Sage Scrub: Chaparral communities in San Diego County have an average carbon density of 31.1 MT C/acre (114.0 MT CO_2e per acre), and coastal sage scrub in San Diego County has an average carbon density of 24.6 MT C/acre (90.3 MT CO_2e per acre). Avoiding the conversion of chaparral to urban has the potential to maintain 40.7 MT CO_2e per acre of carbon storage, and avoiding the conversion of coastal sage scrub to urban has the potential to maintain 17.1 MT CO_2e per acre of carbon storage. Avoiding the conversion of 1,000 acres of chaparral or coastal sage scrub by the 2050 forecast year has the potential to maintain 17,096 to 40,734 MT CO_2e of carbon storage, and avoiding the conversion of 10,000 acres of chaparral or coastal sage scrub by the 2050 forecast year has the potential to maintain 170,962 to 407,342 MT CO_2e of carbon storage.

In addition to maintaining carbon in the natural landscape, avoided conversion to urban activities results in numerous positive outcomes across complementary benefits associated with agricultural quality, water quality, biodiversity, and human wellbeing and resilience.

6.1.3 Urban Land Management Activities

Urban forests come in many different shapes and sizes and can include urban parks, street trees, landscaped boulevards, gardens, coastal promenades, greenways, and wetlands. Urban trees and their urban canopy cover provide a multitude of benefits, including storing carbon, providing shade that can reduce building heating and cooling needs, providing wildlife habitat, and sequestering criteria air pollutants. Managing urban forests, specifically the planting and maintenance care of trees, can increase stored carbon within San Diego County.

Trees sequester CO_2 while they are actively growing, and the amount of CO_2 sequestered depends on the type of tree. Thereafter, the accumulation of carbon in biomass slows with age, and is assumed to be offset by losses from clipping, pruning, and death. Active growing periods are subject to, among other things, species, climate regime, and planting density. In addition, trees are subject to mortality and other types of losses, and therefore may need to be replaced and/or relocated to ensure carbon is stored and continues to be sequestered overtime.

The activity sheet for the Merced County project identifies a method to estimate activity-based CO_2 removals as a result of committing to the maintenance and increase of CO_2e in trees within the urban land cover from sequestration on existing trees and/or newly planted trees. The total estimated GHG emissions reduction/removal is based on a per-acre annual reduction/removal rate of 133.14 tons of CO_2e per acre per year multiplied by the total acreage upon which the activity is to be implemented, which is then multiplied by the duration of the activity in years. A leakage discount is also considered in the equation; however, the default is set at 0% for this activity. As an example, in applying this equation, 1 acre of urban forest over 20 years would result in 2,416 MT CO_2e removed over that time; over 50 years, which is the activity sheet's maximum duration of activity, 1 acre of urban forest would remove 6,039 MT CO_2e. Complementary benefits identified with this activity include air quality, scenic value, watershed integrity, terrestrial connectivity, natural habitat area, and terrestrial habitat area.

The California Emissions Estimator Model (CalEEMod) includes a method for estimating carbon gain from tree planting on a per-tree basis. The gain of sequestered carbon resulting from planting and growth of trees is estimated based on the carbon sequestration rate for the tree species, the number of new trees, and the growing period. CalEEMod has default carbon content values (in units of MT CO_2 per tree per year) for 10 different general tree species plus a miscellaneous tree category.[6] The miscellaneous tree species category CO_2 sequestration rate, which represents the average carbon content across the 10 tree species, is 0.0354 MT CO_2 per tree per year. Accordingly, planting one tree would generate a net gain in carbon of 0.71 MT CO_2e over the assumed active growing period of 20 years, consistent with the Intergovernmental Panel on Climate Change's assumption.[7] Scaling that up, planting and growth of 1,000 miscellaneous trees would generate a gain in carbon of 708 MT CO_2e.

Additional tools are available to more precisely estimate carbon storage and sequestration rates for trees, provided information about the specific tree is available. Tree-specific carbon storage tools includes the United States Department of Agriculture's Forest Service Center for Urban Forest Research Tree Carbon Calculator, and the Forest Service iTree tools for assessing and managing forests and community trees. Both the Tree Carbon Calculator and the iTree Planting Calculator can provide quantification of additional tree benefits, such as energy conserved, air pollutant captured and avoided, stormwater filtered, and ecosystem services, which are complementary benefits to urban tree planting for carbon storage. Using the iTree Planting Calculator Version 2.1.3, Table 6 provides examples of carbon storage calculations for various common trees in the San Diego region after 20 years and after 40 years (iTree default value) of growth on a per-tree basis. In contrast to the CalEEMod 20-year growing period assumption, the iTree model shows that substantial carbon gains can be achieved as trees continue to grow overtime, which varies by tree species.

As shown in Table 6, different trees have different carbon storage potential; however, all trees store carbon and, collectively, tree planting could result in considerable natural carbon storage for the San Diego region.

6 Aspen, soft maple, mixed hardwood, hardwood maple, juniper, cedar/larch, Douglas fir, true fir/hemlock, pine, spruce, and miscellaneous.

7 The sequestered carbon from new trees modeling does not include CO_2 emissions estimates associated with planting, care, and maintenance activities (e.g., tree planting and care vehicle travel and maintenance equipment operation).

Table 6. Example Tree Carbon Storage

Tree Type (Common Name (*Scientific Name*))	Total Carbon Storage after 20 Years (MT CO_2e per 1 Tree)	Total Carbon Storage after 40 Years (MT CO_2e per 1 Tree)
Afghan Pine (*Pinus eldarica*)	1.62	7.27
Chinese Flame Tree (*Koelreuteria bipinnata*)	1.43	2.59
Chinese Pistache (*Pistacia chinensis*)	0.75	3.28
Coastal Live Oak/California Live Oak (*Quercus agrifolia*)	0.70	3.44
Crapemyrtle (*Lagerstroemia indica*)	1.28	2.29
Deodar Cedar (*Cedrus deodara*)	1.79	7.19
Fern Pine (*Podocarpus gracilior*)	0.45	1.96
Green Acacia (*Acacia decurrens*)	0.34	0.57
Jacaranda (*Jacaranda mimosifolia*)	1.38	4.75
Paperbark (*Melaleuca quinquenervia*)	0.27	1.31
Raywood Ash (*Fraxinus oxycarpa* 'Raywood')	1.04	4.49
Strawberry Tree (*Arbutus unedo*)	0.78	2.41
Western Redbud (*Cercis canadensis* var. *texensis*)	1.77	2.40
Wilga/Australian Willow (*Geijera parviflora*)	2.52	3.41

Notes: MT CO_2e = metric tons of carbon dioxide equivalent
iTree Planting Calculator Version 2.1.3. iTree assumptions include the following: the City of San Diego as the region, full sun exposure, all trees are in good condition, a 0% mortality rate, and a starting 1-inch diameter at breast height equating to an approximately 15-gallon tree pot. Assumed diameter at breast height is the size of the trunk, specifically the diameter of the truck, measured at 4.5 feet (1.5 meters) above the ground in centimeters or inches.

6.2 Development Scenarios

To evaluate the effects of development scenarios on landscape carbon storage and GHG emissions relative to the reference years and the baseline reference scenario, two scenarios were developed: a development only scenario and a moderated baseline scenario. The development only scenario was based on spatial data of projected change in urban land cover types for the 2050 forecast year and is summarized in Section 6.2.1. The moderated baseline scenario was based on moderation of the baseline reference scenario trends (25% and 50% of the reference year trends used for the baseline reference scenario from Section 4) and is summarized in Section 6.2.2.

6.2.1 Development Only Scenario

For the development only scenario, spatial data was provided by SANDAG for the projected increases in residential, mixed use, commercial, and industrial development (grouped together as urban) for the 2050 forecast year based on SANDAG's 2021 Regional Plan and Sustainable Communities Strategy (SANDAG 2021a); these increases were not urban land covers in 2016. Based on SANDAG spatial data for 2050 urban development, this scenario used an urban land cover of 608,922 acres, which is an increase of approximately 10,722 acres of urban land cover compared to the 2016 urban land cover of 598,200 acres (Table 1). Changes in non-urban land covers were the result of losses to urban development only. Table 7 summarizes the land cover change between 2016 and 2050 for the development only scenario.

Table 7. Land Cover Change Between 2016 and 2050 for the Development Only Scenario

Land Cover Class	2016 Acres	2050 Acres	Change
Barren	348,341	348,188	-153
Forest	199,831	199,535	-296
Grassland	117,419	115,802	-1,617
Irrigated Pasture	3,295	3,293	-1
Orchard	36,781	35,970	-811
Row Crop	17,585	17,114	-471
Shrubland	1,357,890	1,350,642	-7,248
Urban	598,200	608,922	10,722
Vineyard	880	876	-4
Water	23,388	23,372	-16
Wetland	23,507	23,402	-105
Total	**2,727,116**	**2,727,116**	**0**

Notes: Totals may not sum due to rounding. Development only scenario used SANDAG spatial data for the projected increases in residential, mixed use, commercial, and industrial development (grouped together as urban) for the 2050 forecast year to project changes in land cover classes.

Using the changes in land covers from the development only scenario, the change in landscape carbon storage and GHG emissions was estimated. Table 8 summarizes the landscape carbon storage change between 2016 and 2050 for the development only scenario. Table 9 summarizes the annual GHG emissions change between 2016 and 2050 for the development only scenario.

Table 8. Landscape Carbon Storage Change Between 2016 and 2050 for the Development Only Scenario

Land Cover Class	2016 Total Carbon Storage (MT CO_2e)	2050 Total Carbon Storage (MT CO_2e)	Change
Barren	2,602,038	2,594,200	-7,837
Forest	46,830,230	46,764,854	-65,376
Grassland	7,806,193	7,680,100	-126,093
Irrigated Pasture	169,076	169,004	-72
Orchard	2,573,414	2,517,309	-56,105
Row Crop	854,521	833,340	-21,181
Shrubland	143,267,417	142,404,791	-862,626
Urban	33,064,922	33,633,012	568,090
Vineyard	49,896	49,728	-168
Water	78,740	78,590	-151
Wetland	1,203,641	1,197,521	-6,121
Total	**238,500,087**	**237,922,447**	**-577,640**

Notes: MT CO_2e = metric tons of carbon dioxide equivalent
Projected change in carbon storage based on the development only scenario, which used SANDAG spatial data for the projected increases in residential, mixed use, commercial, and industrial development (grouped together as urban) for the 2050 forecast year.

Table 9. Annual Greenhouse Gas Emissions Change Between 2016 and 2050 for the Development Only Scenario

Land Cover Class	2016 Total Annual Carbon Emissions (MT CO_2e per year)	2050 Total Annual Carbon Emissions (MT CO_2e per year)	Change
Barren	—	—	—
Forest	—	—	—
Grassland	2,854	2,814	-39
Irrigated Pasture	2,903	2,902	-1
Orchard	29,425	28,776	-649
Row Crop	18,328	17,838	-490
Shrubland	—	—	—
Urban	—	—	—
Vineyard	324	323	-1
Water	—	—	—
Wetland	35,270	35,113	-157
Total	**89,104**	**87,766**	**-1,338**

Notes: Greenhouse gas (N_2O and CH_4) emissions assigned to certain land cover types based on DOC and TNC n.d., expressed in metric tons of carbon dioxide equivalent per year (MT CO_2e per year). Projected change in greenhouse gas emissions based on the development only scenario, which used SANDAG spatial data for the projected increases in residential, mixed use, commercial, and industrial development (grouped together as urban) for the 2050 forecast year.

6.2.2 Moderated Baseline Scenario

The baseline reference scenario evaluated in Section 3 was based on extrapolating trends in the change in carbon for the land cover classes over the reference period to the 2050 forecast year. As noted in the description of the baseline reference scenario, the reference period (2001 through 2016) was characterized by several trends that lead to relatively large changes in the projected estimates for the forecast year, including substantial increases in urban development, substantial decreases in grassland and agriculture, and significant wildfires resulting in decreases in forest and increases in shrubland. To develop the moderated baseline scenario, the baseline reference trends were moderated using 25% of the reference year trend and 50% of the reference year trend to explore the carbon storage and emissions implications of more modest changes on the landscape in San Diego County. Table 10 provides a summary of landscape carbon storage of the 2050 moderated baseline scenario and Table 11 provides a summary of the annual GHG emissions of the 2050 moderated baseline scenario.

Table 10. Landscape Carbon Storage for the 2050 Moderated Baseline Scenario

Land Cover Class	Moderated Annual Trend (25% of Baseline)	2050 Moderated Scenario (25%) Total Carbon Storage (MT CO_2e)	Moderated Annual Trend (50% of Baseline)	2050 Moderated Scenario (50%) Total Carbon Storage (MT CO_2e)
Barren	1.1%	3,173,111	2.1%	3,744,185
Forest	-0.4%	37,684,144	-0.9%	28,538,057
Grassland	-0.4%	6,433,749	-0.8%	5,061,306
Irrigated Pasture	-1.4%	0	-2.8%	0
Orchard	-0.6%	1,668,255	-1.3%	763,096
Row Crop	-0.8%	454,647	-1.5%	54,773

Table 10. Landscape Carbon Storage for the 2050 Moderated Baseline Scenario

Land Cover Class	Moderated Annual Trend (25% of Baseline)	2050 Moderated Scenario (25%) Total Carbon Storage (MT CO_2e)	Moderated Annual Trend (50% of Baseline)	2050 Moderated Scenario (50%) Total Carbon Storage (MT CO_2e)
Shrubland	0.0%	140,835,390	-0.1%	138,403,364
Urban	0.1%	33,750,583	0.1%	33,750,583
Vineyard	8.0%	73,272	15.9%	96,647
Water	0.0%	78,740	0.0%	78,740
Wetland	0.0%	1,203,641	0.0%	1,203,641
	Total	**225,355,532**	**Total**	**211,694,393**

Notes: MT CO_2e = metric tons of carbon dioxide equivalent
The annual trend in total carbon storage for the water and wetland land cover classes between 2001 and 2016 was a reflection of LANDFIRE classification changes; therefore, the 2016 carbon storage values for these land cover classes were maintained for the forecast year and were not based on the trend. Change in urban land cover based on SANDAG spatial data for the projected increases in residential, mixed use, commercial, and industrial development (grouped together as urban) for the 2050 forecast year are consistent with the development only scenario described in Section 6.2.1.

Table 11. Annual Greenhouse Gas Emissions for the 2050 Moderated Baseline Scenario

Land Cover Class	Moderated Annual Trend (25% of Baseline)	2050 Moderated Scenario (25%) Total Carbon Emissions (MT CO_2e per year)	Moderated Annual Trend (50% of Baseline)	2050 Moderated Scenario (50%) Total Carbon Emissions (MT CO_2e per year)
Barren	—	—	—	—
Forest	—	—	—	—
Grassland	-0.9%	1,103	-1.7%	-648
Irrigated Pasture	-1.4%	-4,426	-2.7%	-11,754
Orchard	-0.5%	21,435	-1.1%	13,445
Row Crop	-0.7%	11,265	-1.4%	4,201
Shrubland	—	—	—	—
Urban	—	—	—	—
Vineyard	8.9%	478	17.7%	633
Water	—	—	—	—
Wetland	0.0%	35,270	0.0%	35,270
	Total	**65,126**	**Total**	**41,148**

Notes: Greenhouse gas (N_2O and CH_4) emissions assigned to certain land cover types based on DOC and TNC n.d., expressed in metric tons of carbon dioxide equivalent per year (MT CO_2e per year). As noted in regard to the land cover mapping that supports this carbon emissions accounting, the increase in wetland in 2016 is largely the result of LANDFIRE classification changes; therefore, the 2016 emissions values for wetlands were maintained for the forecast year and were not based on the trend.

6.3 Forecasting Discussion

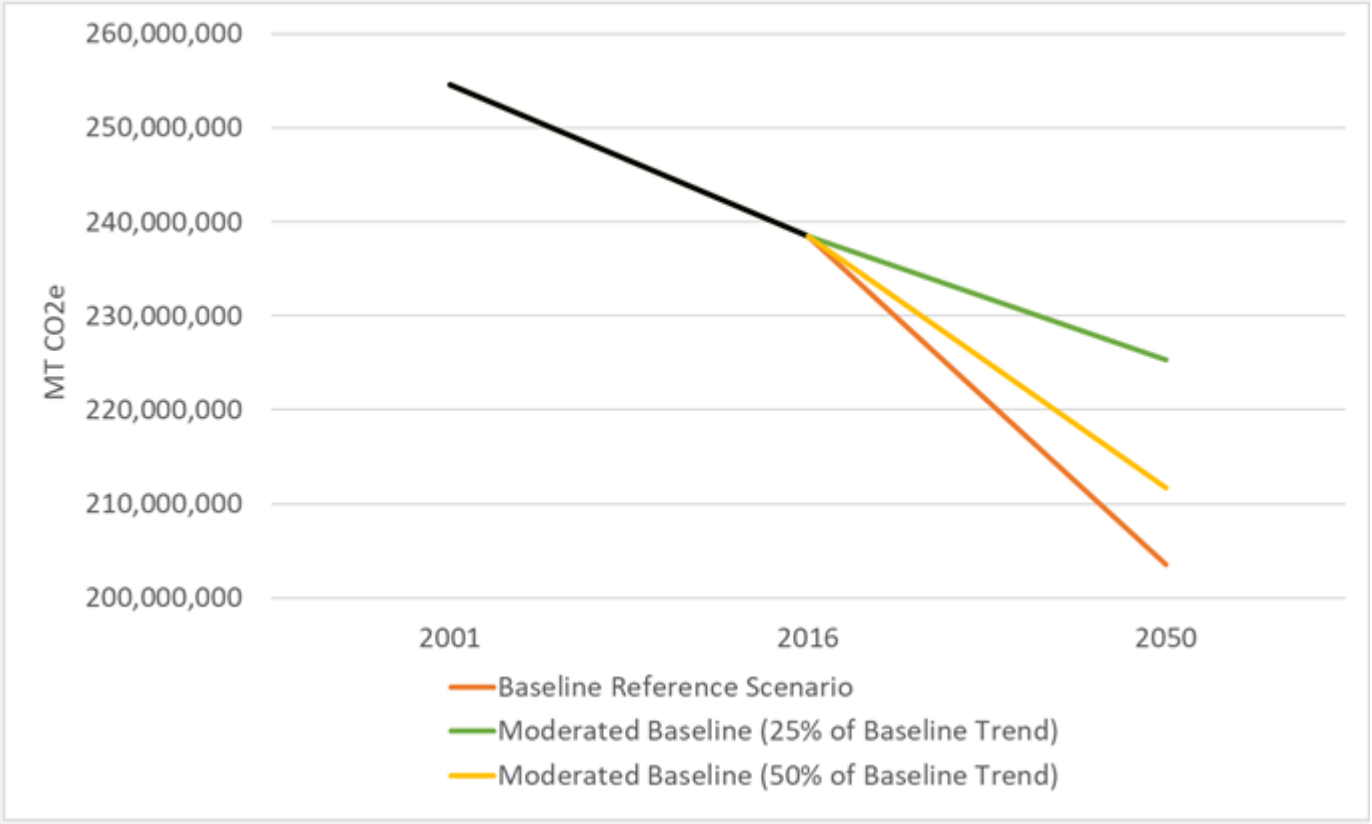
As illustrated by the land management activities described in Section 6.1 and the development scenarios outlined in Section 6.2, the carbon storage and sequestration trajectory for San Diego County can be improved above the baseline reference scenario projection in many ways.

Implementing carbon reduction/removal activities in working lands can reduce GHG emissions from agriculture. Restoring high-carbon habitats for increased carbon storage in natural lands, instituting land use policies to prevent the conversion of high carbon natural lands, and active tree planting can increase the carbon storage and sequestration in urban lands. The baseline reference scenario projection (Section 4) did not account for any of these active land management activities.

In terms of development scenarios, the development only scenario shows that projected residential, mixed use, commercial, and industrial development would increase urban land cover by 10,722 acres for the 2050 forecast year based on the 2021 Regional Plan and Sustainable Communities Strategy (SANDAG 2021a). Considering only this change in land use/land cover, carbon storage in San Diego County would decline by 0.24% (577,640 MT CO_2e) over the forecast period relative to the carbon storage in 2016. In comparison with the baseline reference scenario, the development only scenario would have a projected total carbon storage that is 16.9% above (237,922,447 MT CO_2e) that of the baseline reference scenario (203,531,831 MT CO_2e). Annual GHG emissions in the development only scenario would be 144% more (87,766 MT CO_2e per year) than the baseline reference scenario (35,921 MT CO_2e per year).

Because the baseline reference scenario was based on trends from 2001 to 2016 in San Diego County that may not be expected to continue out to the 2050 forecast year, the moderated baseline scenario was developed. Using the moderated baseline scenario at 25% of the reference period trend, total carbon storage in San Diego County would be 10.7% above (225,355,532 MT CO_2e) that of the baseline reference scenario (203,531,831 MT CO_2e). Annual GHG emissions in the moderated baseline scenario (25%) would be 81.3% more (65,126 MT CO_2e per year) than the baseline reference scenario (35,921 MT CO_2e per year). Using the moderated baseline scenario at 50% of the reference period trend, total carbon storage in San Diego County would be 4.0% above (211,694,393 MT CO_2e) that of the baseline reference scenario (203,531,831 MT CO_2e). Annual GHG emissions in the moderated baseline scenario (50%) would be 14.6% more (41,148 MT CO_2e per year) than the baseline reference scenario (35,921 MT CO_2e per year). Figure 12 provides a comparison of the total

Figure 12. Total Carbon Storage comparison between the Baseline Reference Scenario and the Moderated Baseline Trend Scenarios



7 Conclusion

This study provides an assessment of the historic and projected landscape carbon storage and GHG emissions of the natural and working lands of San Diego County for use by policy and decision makers to plan actions to meet climate goals. As this study illustrates, the historic trends show a decrease in landscape carbon storage in San Diego County due to land use changes, wildfire, drought, and other factors. Although land use changes were a major driver of the declining trend in landscape carbon storage, and this trend may not be expected to continue at this rate into the future, declines in carbon storage are projected to continue absent proactive measures to moderate these changes in the natural and working lands. Implementing carbon management activities in the working, natural, and urban lands is demonstrated to maintain and increase carbon storage and sequestration and has numerous complementary benefits for San Diego County.

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8 Limitations, Challenges, and Future Considerations

Very few carbon storage and sequestration assessments for natural and working lands have been conducted at the local or regional jurisdictional level, and the data and methods for conducting these assessments are just now becoming standardized. Due to the relatively new nature of carbon assessments, notable limitations and challenges were encountered during development of this study. In an effort to better future similar studies, key considerations and recommendations are presented herein as organized by report section.

Landscape Carbon Inventory. The carbon storage and sequestration field is growing and evolving, with new data and different methods being developed and becoming available. Landscape carbon inventories are based on two primary data and information inputs: (1) land cover and soils mapping and (2) carbon density values for the carbon pools. For this study, land cover mapping was based primarily on LANDFIRE datasets because the study approach involved developing a landscape carbon inventory for two historical years to develop the reference period trend to project to a forecast year. LANDFIRE was ideally suited for this purpose because these products are released regularly over time and are developed using consistent methods. Additionally, carbon density values for the aboveground live, aboveground dead, and belowground live carbon pools provided by CARB were linked to the LANDFIRE land cover types. Although LANDFIRE was useful for this study, this land cover data is a nationwide product collected through remote sensing and may not represent the on-the-ground conditions of the vegetation types as accurately as other available local or regional vegetation community mapping data. Additionally, carbon density values for vegetation and soils are constantly being improved, which would further improve the accuracy of landscape carbon inventories.

Baseline Reference Scenario. The 2001 to 2016 reference period used in this study to project a landscape carbon storage and sequestration trajectory for San Diego County was characterized by substantial land use change and numerous, large wildland fires. Thus, the baseline reference scenario developed using this approach for the 2050 forecast year is likely not as realistic for San Diego County as it would be for other regions or jurisdictions with less change during the reference period. Further, the land use changes and effects of wildfire during the reference period overshadow potential gains from carbon sequestration that might otherwise have been realized in the forecast year. Additionally, this study ultimately did not use the DOC TerraCount tool; therefore, a spatial model of the baseline reference scenario representing where the projected change in carbon storage would occur in San Diego County for the forecast year was not developed.

Complementary Benefits. Maintaining and managing carbon storage in natural and working lands provides a variety of complementary benefits, as described in this study; however, this study did not quantify forecasted changes in complementary benefits resulting from projected changes in carbon storage over time. Future studies that spatially model forecasted landscape carbon storage and use tools like that provided by TerraCount could provide quantification of various complementary benefits.

Forecasting. This study quantifies the carbon storage and sequestration potential of various land management activities and development scenarios; however, like the baseline reference scenario, these forecasting products are non-spatial.

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9 Acknowledgements and Preparers

This study is the product of a collaborative, multi-year effort that involved input from a variety of stakeholders and outside experts. The San Diego County Farm Bureau provided input on data sources and land management activities related to working lands. Members of the SANDAG Environmental Mitigation Program Working Group provided feedback on the study approach and land management activities relevant to San Diego County. Nate Roth, chief scientific and data advisor at the DOC, and members of the DOC TerraCount User Group provided guidance on data sources and methods for the study. CARB and Megan Jennings, research ecologist from San Diego State University, provided data and source information related to carbon density values for vegetation communities used in this study.

This study was prepared by Dudek and SANDAG, and the key contributors are listed below.

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Appendix A

2001 and 2016 Itemized Carbon Inventories

SANDAG Carbon Inventory - 2001

ROW	Land Cover Class	Land Cover Type	01_TotalMTCha (Non-Soil C)	SOC_MT_Cha_1 (Soil C)	01_TOTALC_MTCha (Non-soil+Soil)	01_TOTALC_MTCO2eha (Non-soil_Soil MT CO2e/ha)	01_TOTALC_MTCO2epixel (convert to pixels)	Number of Pixels (# of pixels)	01_TOTALC_MTCO2e (Total CO2e)	Acres	TOTAL C/Acre (Total CO2e/acre)
1	Barren	Barren	0.0000	0.000000	0.0000	0.0000	0.0000	159891.0000	0.0000	35558.8790	0.0000
2	Barren	Barren	0.0000	19.000000	19.0000	69.7300	6.2757	211844.0000	1329469.3908	47112.9405	28.2188
3	Barren	Barren	0.0000	38.000000	38.0000	139.4600	12.5514	15959.0000	200307.7926	3549.1938	56.4375
4	Barren	Barren	0.0000	88.000000	88.0000	322.9600	29.0664	303.0000	8807.1192	67.3855	130.6975
5	Barren	Barren	0.0000	0.0000	0.0000	0.0000	0.0000	1082241.0000	0.0000	240684.4461	0.0000
6	Barren	Mediterranean California Sparsely Vegetated Systems	3.4780	0.000000	3.4780	12.7643	1.1488	141.0000	161.9785	31.3576	5.1655
7	Barren	Mediterranean California Sparsely Vegetated Systems	3.4780	19.000000	22.4780	82.4943	7.4245	158.0000	1173.0684	35.1383	33.3843
8	Barren	Mediterranean California Sparsely Vegetated Systems	3.4780	38.000000	41.4780	152.2243	13.7002	312.0000	4274.4572	69.3871	61.6031
9	Barren	Mediterranean California Sparsely Vegetated Systems	3.4780	88.000000	91.4780	335.7243	30.2152	22.0000	664.7340	4.8927	135.8630
10	Barren	Mediterranean California Sparsely Vegetated Systems	3.4780	0.0000	3.4780	12.7643	1.1488	231.0000	265.3690	51.3731	5.1655
11	Barren	North American Warm Desert Sparsely Vegetated Systems	1.0246	0.000000	1.0246	3.7603	0.3384	2686.0000	909.0106	597.3516	1.5217
12	Barren	North American Warm Desert Sparsely Vegetated Systems	1.0246	19.000000	20.0246	73.4903	6.6141	5797.0000	38342.0848	1289.2209	29.7405
13	Barren	North American Warm Desert Sparsely Vegetated Systems	1.0246	38.000000	39.0246	143.2203	12.8898	65.0000	837.8386	14.4556	57.9593
14	Barren	North American Warm Desert Sparsely Vegetated Systems	1.0246	0.0000	1.0246	3.7603	0.3384	25201.0000	8528.6580	5604.5638	1.5217
15	Barren	Quarries-Strip Mines-Gravel Pits	0.0000	0.000000	0.0000	0.0000	0.0000	29.0000	0.0000	6.4494	0.0000
16	Barren	Quarries-Strip Mines-Gravel Pits	0.0000	19.000000	19.0000	69.7300	6.2757	5.0000	31.3785	1.1120	28.2188
17	Barren	Quarries-Strip Mines-Gravel Pits	0.0000	38.000000	38.0000	139.4600	12.5514	18.0000	225.9252	4.0031	56.4375
18	Barren	Quarries-Strip Mines-Gravel Pits	0.0000	88.000000	88.0000	322.9600	29.0664	9.0000	261.5976	2.0016	130.6975
19	Forest	California Central Valley Mixed Oak Savanna	97.9692	0.000000	97.9692	359.5468	32.3592	2.0000	64.7184	0.4448	145.5036
20	Forest	California Central Valley Mixed Oak Savanna	97.9692	38.000000	135.9692	499.0068	44.9106	1.0000	44.9106	0.2224	201.9412
21	Forest	California Coastal Live Oak Woodland and Savanna	75.8298	19.000000	94.8298	348.0254	31.3223	1.0000	31.3223	0.2224	140.8411
22	Forest	California Coastal Live Oak Woodland and Savanna	96.9364	0.000000	96.9364	355.7566	32.0181	322.0000	10309.8276	71.6110	143.9698
23	Forest	California Coastal Live Oak Woodland and Savanna	96.9364	19.000000	115.9364	425.4866	38.2938	237.0000	9075.6301	52.7075	172.1886
24	Forest	California Coastal Live Oak Woodland and Savanna	96.9364	38.000000	134.9364	495.2166	44.5695	388.0000	17292.9652	86.2891	200.4074
25	Forest	California Coastal Live Oak Woodland and Savanna	96.9364	0.0000	96.9364	355.7566	32.0181	2.0000	64.0362	0.4448	143.9698
26	Forest	California Coastal Live Oak Woodland and Savanna	123.0533	0.000000	123.0533	451.6057	40.6445	1282.0000	52106.2601	285.1097	182.7586
27	Forest	California Coastal Live Oak Woodland and Savanna	123.0533	19.000000	142.0533	521.3357	46.9202	1380.0000	64749.8880	306.9044	210.9774
28	Forest	California Coastal Live Oak Woodland and Savanna	123.0533	38.000000	161.0533	591.0657	53.1959	3026.0000	160970.8196	672.9658	239.1962
29	Forest	California Coastal Live Oak Woodland and Savanna	140.0344	19.000000	159.0344	583.6563	52.5291	2.0000	105.0581	0.4448	236.1977
30	Forest	California Lower Montane Blue Oak-Foothill Pine Woodland and Savanna	76.1247	38.000000	114.1247	418.8377	37.6954	1.0000	37.6954	0.2224	169.4979
31	Forest	California Lower Montane Blue Oak-Foothill Pine Woodland and Savanna	98.2553	19.000000	117.2553	430.3270	38.7294	4.0000	154.9177	0.8896	174.1474
32	Forest	California Lower Montane Blue Oak-Foothill Pine Woodland and Savanna	98.2553	38.000000	136.2553	500.0570	45.0051	21.0000	945.1077	4.6703	202.3662
33	Forest	California Lower Montane Blue Oak-Foothill Pine Woodland and Savanna	124.9067	38.000000	162.9067	597.8675	53.8081	6.0000	322.8485	1.3344	241.9488
34	Forest	California Montane Jeffrey Pine(-Ponderosa Pine) Woodland	87.9018	38.000000	125.9018	462.0594	41.5853	1.0000	41.5853	0.2224	186.9891
35	Forest	California Montane Jeffrey Pine(-Ponderosa Pine) Woodland	124.0213	38.000000	162.0213	594.6180	53.5156	1.0000	53.5156	0.2224	240.6337
36	Forest	California Montane Riparian Systems	85.1558	0.000000	85.1558	312.5217	28.1270	122.0000	3431.4882	27.1321	126.4732
37	Forest	California Montane Riparian Systems	85.1558	19.000000	104.1558	382.2517	34.4027	171.0000	5882.8536	38.0295	154.6920
38	Forest	California Montane Riparian Systems	85.1558	38.000000	123.1558	451.9817	40.6784	317.0000	12895.0377	70.4991	182.9108
39	Forest	California Montane Riparian Systems	99.3322	0.000000	99.3322	364.5490	32.8094	486.0000	15945.3728	108.0837	147.5280
40	Forest	California Montane Riparian Systems	99.3322	19.000000	118.3322	434.2790	39.0851	608.0000	23763.7464	135.2159	175.7467
41	Forest	California Montane Riparian Systems	99.3322	38.000000	137.3322	504.0090	45.3608	1016.0000	46086.5821	225.9528	203.9655
42	Forest	California Montane Riparian Systems	99.3322	88.000000	187.3322	687.5090	61.8758	1.0000	61.8758	0.2224	278.2254
43	Forest	California Montane Riparian Systems	99.3322	0.0000	99.3322	364.5490	32.8094	6.0000	196.8565	1.3344	147.5280
44	Forest	California Montane Riparian Systems	124.8759	0.000000	124.8759	458.2944	41.2465	23.0000	948.6695	5.1151	185.4655
45	Forest	California Montane Riparian Systems	124.8759	19.000000	143.8759	528.0244	47.5222	2.0000	95.0444	0.4448	213.6842
46	Forest	California Montane Riparian Systems	124.8759	38.000000	162.8759	597.7544	53.7979	4.0000	215.1916	0.8896	241.9030
47	Forest	California Montane Riparian Systems	124.8759	0.0000	124.8759	458.2944	41.2465	1.0000	41.2465	0.2224	185.4655
48	Forest	California Montane Riparian Systems	126.9165	0.000000	126.9165	465.7834	41.9205	216.0000	9054.8287	48.0372	188.4961
49	Forest	California Montane Riparian Systems	126.9165	19.000000	145.9165	535.5134	48.1962	124.0000	5976.3292	27.5769	216.7149
50	Forest	California Montane Riparian Systems	126.9165	38.000000	164.9165	605.2434	54.4719	451.0000	24566.8284	100.2999	244.9337
51	Forest	California Montane Riparian Systems	126.9165	0.0000	126.9165	465.7834	41.9205	12.0000	503.0460	2.6687	188.4961
52	Forest	California Montane Riparian Systems	151.1567	0.000000	151.1567	554.7451	49.9271	7133.0000	356129.7048	1586.3400	224.4977
53	Forest	California Montane Riparian Systems	151.1567	19.000000	170.1567	624.4751	56.2028	7063.0000	396960.0798	1570.7724	252.7165
54	Forest	California Montane Riparian Systems	151.1567	38.000000	189.1567	694.2051	62.4785	21861.0000	1365841.5706	4861.7662	280.9353
55	Forest	California Montane Riparian Systems	151.1567	0.0000	151.1567	554.7451	49.9271	147.0000	7339.2775	32.6920	224.4977
56	Forest	California Montane Riparian Systems	188.7739	0.000000	188.7739	692.8003	62.3520	1.0000	62.3520	0.2224	280.3668
57	Forest	California Montane Riparian Systems	188.7739	19.000000	207.7739	762.5303	68.6277	2.0000	137.2555	0.4448	308.5856
58	Forest	California Montane Riparian Systems	188.7739	38.000000	226.7739	832.2603	74.9034	4.0000	299.6137	0.8896	336.8043
59	Forest	California Montane Riparian Systems	188.7739	0.0000	188.7739	692.8003	62.3520	1.0000	62.3520	0.2224	280.3668
60	Forest	California Montane Riparian Systems	188.7739	0.000000	188.7739	692.8003	62.3520	5118.0000	319117.6905	1138.2151	280.3668
61	Forest	California Montane Riparian Systems	188.7739	19.000000	207.7739	762.5303	68.6277	4737.0000	325089.5579	1053.4827	308.5856
62	Forest	California Montane Riparian Systems	188.7739	38.000000	226.7739	832.2603	74.9034	18070.0000	1353504.9834	4018.6686	336.8043
63	Forest	California Montane Riparian Systems	188.7739	88.000000	276.7739	1015.7603	91.4184	6.0000	548.5106	1.3344	411.0643
64	Forest	California Montane Riparian Systems	188.7739	0.0000	188.7739	692.8003	62.3520	239.0000	14902.1352	53.1523	280.3668
65	Forest	California Montane Riparian Systems	307.6667	0.000000	307.6667	1129.1368	101.6223	11.0000	1117.8454	2.4463	456.9462
66	Forest	California Montane Riparian Systems	307.6667	19.000000	326.6667	1198.8668	107.8980	1.0000	107.8980	0.2224	485.1649
67	Forest	California Montane Riparian Systems	307.6667	38.000000	345.6667	1268.5968	114.1737	129.0000	14728.4087	28.6889	513.3837
68	Forest	California Montane Riparian Systems	356.2130	0.000000	356.2130	1307.3017	117.6572	1.0000	117.6572	0.2224	529.0470
69	Forest	California Montane Riparian Systems	356.2130	38.000000	394.2130	1446.7617	130.2086	2.0000	260.4171	0.4448	585.4846
70	Forest	California Montane Riparian Systems	623.6947	38.000000	661.6947	2428.4195	218.5578	3.0000	655.6733	0.6672	982.7480
71	Forest	Central and Southern California Mixed Evergreen Woodland	66.5226	0.000000	66.5226	244.1380	21.9724	1549.0000	34035.2833	344.4891	98.7993
72	Forest	Central and Southern California Mixed Evergreen Woodland	66.5226	19.000000	85.5226	313.8680	28.2481	1237.0000	34942.9282	275.1020	127.0181
73	Forest	Central and Southern California Mixed Evergreen Woodland	66.5226	38.000000	104.5226	383.5980	34.5238	7320.0000	252714.3846	1627.9277	155.2369

SANDAG Carbon Inventory - 2001			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil MT CO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Class	Land Cover Type	01_TotalMTCha	SOC_MT_Cha_1	01_TOTALC_MTCha	01_TOTALC_MTCO2eha	01_TOTALC_MTCO2epixel	Number of Pixels	01_TOTALC_MTCO2e	Acres	TOTAL C/Acre
74	Forest	Central and Southern California Mixed Evergreen Woodland	66.5226	0.0000	66.5226	244.1380	21.9724	701.0000	15402.6685	155.8985	98.7993
75	Forest	Central and Southern California Mixed Evergreen Woodland	77.4067	0.000000	77.4067	284.0824	25.5674	5480.0000	140109.4424	1218.7219	114.9642
76	Forest	Central and Southern California Mixed Evergreen Woodland	77.4067	19.000000	96.4067	353.8124	31.8431	4889.0000	155680.9965	1087.2867	143.1830
77	Forest	Central and Southern California Mixed Evergreen Woodland	77.4067	38.000000	115.4067	423.5424	38.1188	15853.0000	604297.5979	3525.6200	171.4018
78	Forest	Central and Southern California Mixed Evergreen Woodland	77.4067	0.0000	77.4067	284.0824	25.5674	2778.0000	71026.2830	617.8119	114.9642
79	Forest	Central and Southern California Mixed Evergreen Woodland	90.6348	0.000000	90.6348	332.6297	29.9367	200.0000	5987.3349	44.4789	134.6107
80	Forest	Central and Southern California Mixed Evergreen Woodland	90.6348	19.000000	109.6348	402.3597	36.2124	85.0000	3078.0518	18.9035	162.8295
81	Forest	Central and Southern California Mixed Evergreen Woodland	90.6348	38.000000	128.6348	472.0897	42.4881	2794.0000	118711.6800	621.3702	191.0482
82	Forest	Central and Southern California Mixed Evergreen Woodland	90.6348	0.0000	90.6348	332.6297	29.9367	65.0000	1945.8838	14.4556	134.6107
83	Forest	Central and Southern California Mixed Evergreen Woodland	105.1030	0.000000	105.1030	385.7279	34.7155	15.0000	520.7326	3.3359	156.0988
84	Forest	Central and Southern California Mixed Evergreen Woodland	105.1030	19.000000	124.1030	455.4579	40.9912	13.0000	532.8857	2.8911	184.3176
85	Forest	Central and Southern California Mixed Evergreen Woodland	105.1030	38.000000	143.1030	525.1879	47.2669	172.0000	8129.9085	38.2519	212.5363
86	Forest	Central and Southern California Mixed Evergreen Woodland	105.1030	0.0000	105.1030	385.7279	34.7155	3.0000	104.1465	0.6672	156.0988
87	Forest	Central and Southern California Mixed Evergreen Woodland	111.2302	0.000000	111.2302	408.2148	36.7393	27505.0000	1010515.4108	6116.9607	165.1989
88	Forest	Central and Southern California Mixed Evergreen Woodland	111.2302	19.000000	130.2302	477.9448	43.0150	9741.0000	419009.4565	2166.3448	193.4177
89	Forest	Central and Southern California Mixed Evergreen Woodland	111.2302	38.000000	149.2302	547.6748	49.2907	159338.0000	7853887.1430	35435.8948	221.6365
90	Forest	Central and Southern California Mixed Evergreen Woodland	111.2302	0.0000	111.2302	408.2148	36.7393	5644.0000	207356.8071	1255.1946	165.1989
91	Forest	Central and Southern California Mixed Evergreen Woodland	150.6005	0.000000	150.6005	552.7040	49.7434	5761.0000	286571.4748	1281.2147	223.6717
92	Forest	Central and Southern California Mixed Evergreen Woodland	150.6005	19.000000	169.6005	622.4340	56.0191	1970.0000	110357.5406	438.1172	251.8905
93	Forest	Central and Southern California Mixed Evergreen Woodland	150.6005	38.000000	188.6005	692.1640	62.2948	46223.0000	2879450.5140	10279.7410	280.1092
94	Forest	Central and Southern California Mixed Evergreen Woodland	150.6005	0.0000	150.6005	552.7040	49.7434	234.0000	11639.9453	52.0403	223.6717
95	Forest	Central and Southern California Mixed Evergreen Woodland	191.4404	0.000000	191.4404	702.5863	63.2328	1.0000	63.2328	0.2224	284.3270
96	Forest	Central and Southern California Mixed Evergreen Woodland	237.1479	0.000000	237.1479	870.3328	78.3300	4.0000	313.3198	0.8896	352.2117
97	Forest	Central and Southern California Mixed Evergreen Woodland	237.1479	38.000000	275.1479	1009.7928	90.8814	192.0000	17449.2195	42.6997	408.6493
98	Forest	Central and Southern California Mixed Evergreen Woodland	485.6886	38.000000	523.6886	1921.9372	172.9743	10.0000	1729.7434	2.2239	777.7816
99	Forest	Central and Southern California Mixed Evergreen Woodland	485.6886	38.000000	523.6886	1921.9372	172.9743	1.0000	172.9743	0.2224	777.7816
100	Forest	Great Basin Pinyon-Juniper Woodland	71.3202	0.000000	71.3202	261.7450	23.5570	13.0000	306.2416	2.8911	105.9246
101	Forest	Great Basin Pinyon-Juniper Woodland	71.3202	38.000000	109.3202	401.2050	36.1084	2.0000	72.2169	0.4448	162.3621
102	Forest	Great Basin Pinyon-Juniper Woodland	71.3202	0.0000	71.3202	261.7450	23.5570	5.0000	117.7852	1.1120	105.9246
103	Forest	Great Basin Pinyon-Juniper Woodland	76.3856	0.0000	76.3856	280.3351	25.2302	1.0000	25.2302	0.2224	113.4477
104	Forest	Great Basin Pinyon-Juniper Woodland	92.4161	0.000000	92.4161	339.1671	30.5250	3.0000	91.5751	0.6672	137.2563
105	Forest	Great Basin Pinyon-Juniper Woodland	92.4161	38.000000	130.4161	478.6271	43.0764	75.0000	3230.7328	16.6796	193.6938
106	Forest	Great Basin Pinyon-Juniper Woodland	100.8879	0.000000	100.8879	370.2584	33.3233	27.0000	899.7279	6.0047	149.8385
107	Forest	Great Basin Pinyon-Juniper Woodland	100.8879	38.000000	138.8879	509.7184	45.8747	1683.0000	77207.0475	374.2899	206.2760
108	Forest	Great Basin Pinyon-Juniper Woodland	100.8879	0.0000	100.8879	370.2584	33.3233	35.0000	1166.3140	7.7838	149.8385
109	Forest	Great Basin Pinyon-Juniper Woodland	113.5739	38.000000	151.5739	556.2763	50.0649	983.0000	49213.7674	218.6138	225.1174
110	Forest	Great Basin Pinyon-Juniper Woodland	140.2175	0.000000	140.2175	514.5980	46.3138	78.0000	3612.4783	17.3468	208.2508
111	Forest	Great Basin Pinyon-Juniper Woodland	140.2175	38.000000	178.2175	654.0580	58.8652	196.0000	11537.5839	43.5893	264.6883
112	Forest	Great Basin Pinyon-Juniper Woodland	140.2175	0.0000	140.2175	514.5980	46.3138	15.0000	694.7074	3.3359	208.2508
113	Forest	Great Basin Pinyon-Juniper Woodland	151.0862	0.000000	151.0862	554.4864	49.9038	17.0000	848.3641	3.7807	224.3930
114	Forest	Great Basin Pinyon-Juniper Woodland	151.0862	38.000000	189.0862	693.9464	62.4552	146.0000	9118.4551	32.4696	280.8306
115	Forest	Great Basin Pinyon-Juniper Woodland	151.0862	0.0000	151.0862	554.4864	49.9038	19.0000	948.1717	4.2255	224.3930
116	Forest	Great Basin Pinyon-Juniper Woodland	166.8876	38.000000	204.8876	751.9375	67.6744	1.0000	67.6744	0.2224	304.2988
117	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	68.3180	0.000000	68.3180	250.7272	22.5654	3221.0000	72683.2940	716.3327	101.4658
118	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	68.3180	19.000000	87.3180	320.4572	28.8411	384.0000	11074.9992	85.3995	129.6846
119	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	68.3180	38.000000	106.3180	390.1872	35.1168	10212.0000	358613.2074	2271.0926	157.9034
120	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	68.3180	0.0000	68.3180	250.7272	22.5654	772.0000	17420.5225	171.6886	101.4658
121	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	82.1936	0.000000	82.1936	301.6505	27.1485	2159.0000	58613.7110	480.1497	122.0738
122	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	82.1936	19.000000	101.1936	371.3805	33.4242	124.0000	4144.6065	27.5769	150.2926
123	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	82.1936	38.000000	120.1936	441.1105	39.6999	10043.0000	398706.5585	2233.5080	178.5114
124	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	82.1936	0.0000	82.1936	301.6505	27.1485	766.0000	20795.7863	170.3542	122.0738
125	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	96.4746	0.000000	96.4746	354.0616	31.8655	703.0000	22401.4773	156.3433	143.2839
126	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	96.4746	19.000000	115.4746	423.7916	38.1412	407.0000	15523.4863	90.5146	171.5026
127	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	96.4746	38.000000	134.4746	493.5216	44.4169	7015.0000	311584.8612	1560.0974	199.7214
128	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	96.4746	0.0000	96.4746	354.0616	31.8655	156.0000	4971.0248	34.6935	143.2839
129	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	114.7380	0.000000	114.7380	421.0883	37.8980	3.0000	113.6939	0.6672	170.4087
130	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	114.7380	19.000000	133.7380	490.8183	44.1737	1.0000	44.1737	0.2224	198.6274
131	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	114.7380	38.000000	152.7380	560.5483	50.4494	70.0000	3531.4545	15.5676	226.8462
132	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	114.7380	0.0000	114.7380	421.0883	37.8980	3.0000	113.6939	0.6672	170.4087
133	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	121.6313	0.000000	121.6313	446.3869	40.1748	30207.0000	1213560.7391	6717.8707	180.6466
134	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	121.6313	19.000000	140.6313	516.1169	46.4505	6956.0000	323109.8059	1546.9761	208.8654
135	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	121.6313	38.000000	159.6313	585.8469	52.7262	163258.0000	8607976.9619	36307.6813	237.0842
136	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	121.6313	0.0000	121.6313	446.3869	40.1748	3516.0000	141254.6615	781.9391	180.6466
137	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	167.8182	0.000000	167.8182	615.8928	55.4304	9028.0000	500425.2130	2007.7775	249.2434
138	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	167.8182	19.000000	186.8182	685.6228	61.7061	2090.0000	128965.6476	464.8045	277.4621
139	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	167.8182	38.000000	205.8182	755.3528	67.9818	61010.0000	4147566.6566	13568.2884	305.6809
140	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	167.8182	0.0000	167.8182	615.8928	55.4304	291.0000	16130.2323	64.7168	249.2434
141	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	205.6438	0.000000	205.6438	754.7127	67.9241	226.0000	15350.8573	50.2612	305.4219
142	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	205.6438	19.000000	224.6438	824.4427	74.1998	208.0000	15433.5682	46.2581	333.6407
143	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	205.6438	38.000000	243.6438	894.1727	80.4755	2668.0000	214708.7598	593.3485	361.8594
144	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	205.6438	0.0000	205.6438	754.7127	67.9241	41.0000	2784.8900	9.1182	305.4219
145	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	269.0092	0.000000	269.0092	987.2638	88.8537	3656.0000	324849.2689	813.0743	399.5321
146	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	269.0092	19.000000	288.0092	1056.9938	95.1294	758.0000	72108.1146	168.5750	427.7509

SANDAG Carbon Inventory - 2001			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil MT CO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Class	Land Cover Type	01_TotalMTCha	SOC_MT_Cha_1	01_TOTALC_MTCha	01_TOTALC_MTCO2eha	01_TOTALC_MTCO2epixel	Number of Pixels	01_TOTALC_MTCO2e	Acres	TOTAL C/Acre
147	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	269.0092	38.000000	307.0092	1126.7238	101.4051	35499.0000	3599781.0208	7894.7824	455.9696
148	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	269.0092	0.0000	269.0092	987.2638	88.8537	12.0000	1066.2449	2.6687	399.5321
149	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	329.8977	0.0000	329.8977	1210.7246	108.9652	1.0000	108.9652	0.2224	489.9636
150	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	329.8977	38.000000	367.8977	1350.1846	121.5166	3.0000	364.5498	0.6672	546.4011
151	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	470.4982	0.000000	470.4982	1726.7284	155.4056	32.0000	4972.9778	7.1166	698.7833
152	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	470.4982	19.000000	489.4982	1796.4584	161.6813	97.0000	15683.0818	21.5723	727.0020
153	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	470.4982	38.000000	508.4982	1866.1884	167.9570	316.0000	53074.3979	70.2767	755.2208
154	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	560.1758	0.000000	560.1758	2055.8451	185.0261	151.0000	27938.9344	33.5816	831.9723
155	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	560.1758	19.000000	579.1758	2125.5751	191.3018	13.0000	2486.9228	2.8911	860.1910
156	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	560.1758	38.000000	598.1758	2195.3051	197.5775	726.0000	143441.2329	161.4584	888.4098
157	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	102.6198	0.000000	102.6198	376.6147	33.8953	27.0000	915.1736	6.0047	152.4108
158	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	138.0766	0.000000	138.0766	506.7411	45.6067	445.0000	20294.9819	98.9656	205.0712
159	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	138.0766	19.000000	157.0766	576.4711	51.8824	3.0000	155.6472	0.6672	233.2899
160	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	138.0766	38.000000	176.0766	646.2011	58.1581	726.0000	42222.7813	161.4584	261.5087
161	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	186.9268	0.000000	186.9268	686.0215	61.7419	243.0000	15003.2897	54.0419	277.6235
162	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	186.9268	38.000000	224.9268	825.4815	74.2933	468.0000	34769.2799	104.0806	334.0610
163	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	216.0614	0.000000	216.0614	792.9452	71.3651	943.0000	67297.2553	209.7180	320.8940
164	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	216.0614	19.000000	235.0614	862.6752	77.6408	7.0000	543.4853	1.5568	349.1128
165	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	216.0614	38.000000	254.0614	932.4052	83.9165	2798.0000	234798.2660	622.2598	377.3316
166	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	293.3944	0.000000	293.3944	1076.7573	96.9082	2991.0000	289852.3045	665.1819	435.7489
167	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	293.3944	19.000000	312.3944	1146.4873	103.1839	17.0000	1754.1256	3.7807	463.9677
168	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	293.3944	38.000000	331.3944	1216.2173	109.4596	5129.0000	561418.0797	1140.6614	492.1864
169	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	467.7111	0.000000	467.7111	1716.4997	154.4850	6.0000	926.9099	1.3344	694.6439
170	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	467.7111	38.000000	505.7111	1855.9597	167.0364	21.0000	3507.7639	4.6703	751.0814
171	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	613.2106	0.000000	613.2106	2250.4828	202.5435	72.0000	14583.1284	16.0124	910.7395
172	Forest	Mediterranean California Mesic Mixed Conifer Forest and Woodland	613.2106	38.000000	651.2106	2389.9428	215.0949	91.0000	19573.6314	20.2379	967.1770
173	Forest	Mediterranean California Mixed Oak Woodland	71.8994	0.000000	71.8994	263.8709	23.7484	397.0000	9428.1069	88.2906	106.7849
174	Forest	Mediterranean California Mixed Oak Woodland	71.8994	19.000000	90.8994	333.6009	30.0241	48.0000	1441.1558	10.6749	135.0037
175	Forest	Mediterranean California Mixed Oak Woodland	71.8994	38.000000	109.8994	403.3309	36.2998	2690.0000	97646.4084	598.2412	163.2225
176	Forest	Mediterranean California Mixed Oak Woodland	71.8994	0.0000	71.8994	263.8709	23.7484	302.0000	7172.0108	67.1631	106.7849
177	Forest	Mediterranean California Mixed Oak Woodland	85.0254	0.000000	85.0254	312.0430	28.0839	408.0000	11458.2202	90.7370	126.2795
178	Forest	Mediterranean California Mixed Oak Woodland	85.0254	19.000000	104.0254	381.7730	34.3596	10.0000	343.5957	2.2239	154.4983
179	Forest	Mediterranean California Mixed Oak Woodland	85.0254	38.000000	123.0254	451.5030	40.6353	3008.0000	122230.9015	668.9627	182.7171
180	Forest	Mediterranean California Mixed Oak Woodland	85.0254	0.0000	85.0254	312.0430	28.0839	549.0000	15418.0463	122.0946	126.2795
181	Forest	Mediterranean California Mixed Oak Woodland	96.3265	0.000000	96.3265	353.5183	31.8166	11.0000	349.9831	2.4463	143.0640
182	Forest	Mediterranean California Mixed Oak Woodland	96.3265	19.000000	115.3265	423.2483	38.0923	18.0000	685.6622	4.0031	171.2828
183	Forest	Mediterranean California Mixed Oak Woodland	96.3265	38.000000	134.3265	492.9783	44.3680	825.0000	36603.6354	183.4755	199.5015
184	Forest	Mediterranean California Mixed Oak Woodland	96.3265	0.0000	96.3265	353.5183	31.8166	4.0000	127.2666	0.8896	143.0640
185	Forest	Mediterranean California Mixed Oak Woodland	111.2843	0.000000	111.2843	408.4132	36.7572	4.0000	147.0288	0.8896	165.2792
186	Forest	Mediterranean California Mixed Oak Woodland	111.2843	38.000000	149.2843	547.8732	49.3086	20.0000	986.1718	4.4479	221.7168
187	Forest	Mediterranean California Mixed Oak Woodland	111.2843	0.0000	111.2843	408.4132	36.7572	1.0000	36.7572	0.2224	165.2792
188	Forest	Mediterranean California Mixed Oak Woodland	115.9749	0.000000	115.9749	425.6277	38.3065	2746.0000	105189.6297	610.6953	172.2457
189	Forest	Mediterranean California Mixed Oak Woodland	115.9749	19.000000	134.9749	495.3577	44.5822	186.0000	8292.2879	41.3654	200.4645
190	Forest	Mediterranean California Mixed Oak Woodland	115.9749	38.000000	153.9749	565.0877	50.8579	25370.0000	1290264.7443	5642.1485	228.6832
191	Forest	Mediterranean California Mixed Oak Woodland	115.9749	0.0000	115.9749	425.6277	38.3065	863.0000	33058.5034	191.9265	172.2457
192	Forest	Mediterranean California Mixed Oak Woodland	149.9237	0.000000	149.9237	550.2201	49.5198	1780.0000	88145.2602	395.8622	222.6665
193	Forest	Mediterranean California Mixed Oak Woodland	149.9237	19.000000	168.9237	619.9501	55.7955	157.0000	8759.8949	34.9159	250.8853
194	Forest	Mediterranean California Mixed Oak Woodland	149.9237	38.000000	187.9237	689.6801	62.0712	21180.0000	1314668.2092	4710.3155	279.1041
195	Forest	Mediterranean California Mixed Oak Woodland	149.9237	0.0000	149.9237	550.2201	49.5198	64.0000	3169.2678	14.2332	222.6665
196	Forest	Mediterranean California Mixed Oak Woodland	261.7242	38.000000	299.7242	1099.9878	98.9989	2.0000	197.9978	0.4448	445.1500
197	Forest	Mediterranean California Mixed Oak Woodland	419.3246	0.000000	419.3246	1538.9213	138.5029	5.0000	692.5146	1.1120	622.7803
198	Forest	Mediterranean California Mixed Oak Woodland	419.3246	19.000000	438.3246	1608.6513	144.7786	2.0000	289.5572	0.4448	650.9991
199	Forest	Mediterranean California Mixed Oak Woodland	419.3246	38.000000	457.3246	1678.3813	151.0543	117.0000	17673.3549	26.0202	679.2179
200	Forest	Recently Disturbed Forest	1.5040	0.000000	1.5040	5.5197	0.4968	27.0000	13.4128	6.0047	2.2337
201	Forest	Recently Disturbed Forest	1.5040	19.000000	20.5040	75.2497	6.7725	34.0000	230.2640	7.5614	30.4525
202	Forest	Recently Disturbed Forest	1.5040	38.000000	39.5040	144.9797	13.0482	28.0000	365.3488	6.2270	58.6713
203	Forest	Recently Disturbed Forest	1.5040	88.000000	89.5040	328.4797	29.5632	2.0000	59.1263	0.4448	132.9312
204	Forest	Southern California Oak Woodland and Savanna	74.1366	0.000000	74.1366	272.0814	24.4873	4730.0000	115825.0578	1051.9260	110.1076
205	Forest	Southern California Oak Woodland and Savanna	74.1366	19.000000	93.1366	341.8114	30.7630	11277.0000	346914.6582	2507.9428	138.3264
206	Forest	Southern California Oak Woodland and Savanna	74.1366	38.000000	112.1366	411.5414	37.0387	29783.0000	1103124.4133	6623.5754	166.5452
207	Forest	Southern California Oak Woodland and Savanna	74.1366	0.0000	74.1366	272.0814	24.4873	1536.0000	37612.5346	341.5980	110.1076
208	Forest	Southern California Oak Woodland and Savanna	82.6472	0.000000	82.6472	303.3150	27.2984	390.0000	10646.3579	86.7339	122.7474
209	Forest	Southern California Oak Woodland and Savanna	82.6472	19.000000	101.6472	373.0450	33.5741	1202.0000	40356.0125	267.3182	150.9662
210	Forest	Southern California Oak Woodland and Savanna	82.6472	38.000000	120.6472	442.7750	39.8498	4558.0000	181635.1771	1013.6741	179.1850
211	Forest	Southern California Oak Woodland and Savanna	82.6472	0.0000	82.6472	303.3150	27.2984	53.0000	1446.8127	11.7869	122.7474
212	Forest	Southern California Oak Woodland and Savanna	83.9444	0.000000	83.9444	308.0758	27.7268	8724.0000	241888.7673	1940.1696	124.6740
213	Forest	Southern California Oak Woodland and Savanna	83.9444	19.000000	102.9444	377.8058	34.0025	36595.0000	1244322.1757	8138.5267	152.8928
214	Forest	Southern California Oak Woodland and Savanna	83.9444	38.000000	121.9444	447.5358	40.2782	46516.0000	1873581.6259	10344.9026	181.1116
215	Forest	Southern California Oak Woodland and Savanna	83.9444	88.000000	171.9444	631.0358	56.7932	1.0000	56.7932	0.2224	255.3715
216	Forest	Southern California Oak Woodland and Savanna	83.9444	0.0000	83.9444	308.0758	27.7268	1316.0000	36488.4935	292.6712	124.6740
217	Forest	Southern California Oak Woodland and Savanna	96.8036	0.000000	96.8036	355.2690	31.9742	15953.0000	510084.6130	3547.8595	143.7725
218	Forest	Southern California Oak Woodland and Savanna	96.8036	19.000000	115.8036	424.9990	38.2499	56917.0000	2177070.2735	12658.0278	171.9913
219	Forest	Southern California Oak Woodland and Savanna	96.8036	38.000000	134.8036	494.7290	44.5256	148805.0000	6625633.7777	33093.4136	200.2100

SANDAG Carbon Inventory - 2001			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil MT CO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Class	Land Cover Type	01_TotalMTCha	SOC_MT_Cha_1	01_TOTALC_MTCha	01_TOTALC_MTCO2eha	01_TOTALC_MTCO2epixel	Number of Pixels	01_TOTALC_MTCO2e	Acres	TOTAL C/Acre
220	Forest	Southern California Oak Woodland and Savanna	96.8036	88.000000	184.8036	678.2290	61.0406	1.0000	61.0406	0.2224	274.4700
221	Forest	Southern California Oak Woodland and Savanna	96.8036	0.0000	96.8036	355.2690	31.9742	1582.0000	50583.2043	351.8281	143.7725
222	Forest	Southern California Oak Woodland and Savanna	102.8344	0.000000	102.8344	377.4024	33.9662	27.0000	917.0878	6.0047	152.7296
223	Forest	Southern California Oak Woodland and Savanna	102.8344	19.000000	121.8344	447.1324	40.2419	341.0000	13722.4924	75.8365	180.9483
224	Forest	Southern California Oak Woodland and Savanna	102.8344	38.000000	140.8344	516.8624	46.5176	433.0000	20142.1266	96.2968	209.1671
225	Forest	Southern California Oak Woodland and Savanna	102.8344	0.0000	102.8344	377.4024	33.9662	1.0000	33.9662	0.2224	152.7296
226	Forest	Southern California Oak Woodland and Savanna	121.1347	0.000000	121.1347	444.5642	40.0108	3696.0000	147879.8444	821.9701	179.9090
227	Forest	Southern California Oak Woodland and Savanna	121.1347	19.000000	140.1347	514.2942	46.2865	13885.0000	642687.7804	3087.9476	208.1278
228	Forest	Southern California Oak Woodland and Savanna	121.1347	38.000000	159.1347	584.0242	52.5622	59808.0000	3143638.8854	13300.9703	236.3466
229	Forest	Southern California Oak Woodland and Savanna	121.1347	0.0000	121.1347	444.5642	40.0108	67.0000	2680.7223	14.9004	179.9090
230	Forest	Southern California Oak Woodland and Savanna	145.1360	0.000000	145.1360	532.6491	47.9384	10.0000	479.3842	2.2239	215.5558
231	Forest	Southern California Oak Woodland and Savanna	145.1360	19.000000	164.1360	602.3791	54.2141	45.0000	2439.6354	10.0078	243.7746
232	Forest	Southern California Oak Woodland and Savanna	145.1360	38.000000	183.1360	672.1091	60.4898	101.0000	6109.4719	22.4618	271.9933
233	Forest	Southern California Oak Woodland and Savanna	159.0339	19.000000	178.0339	653.3844	58.8046	9.0000	529.2414	2.0016	264.4157
234	Forest	Southern California Oak Woodland and Savanna	159.0339	38.000000	197.0339	723.1144	65.0803	13.0000	846.0439	2.8911	292.6345
235	Forest	Southern California Oak Woodland and Savanna	258.3183	19.000000	277.3183	1017.7580	91.5982	10.0000	915.9822	2.2239	411.8727
236	Forest	Southern California Oak Woodland and Savanna	258.3183	38.000000	296.3183	1087.4880	97.8739	60.0000	5872.4354	13.3437	440.0915
237	Grassland	California Annual Grassland	6.1476	0.000000	6.1476	22.5617	2.0306	25228.0000	51226.7729	5610.5684	9.1304
238	Grassland	California Annual Grassland	6.1476	19.000000	25.1476	92.2917	8.3063	57375.0000	476571.2246	12759.8844	37.3492
239	Grassland	California Annual Grassland	6.1476	38.000000	44.1476	162.0217	14.5820	349777.0000	5100431.5226	77788.4810	65.5680
240	Grassland	California Annual Grassland	6.1476	88.000000	94.1476	345.5217	31.0970	604.0000	18782.5592	134.3263	139.8279
241	Grassland	California Annual Grassland	6.1476	0.0000	6.1476	22.5617	2.0306	47107.0000	95653.2263	10476.3377	9.1304
242	Grassland	California Central Valley and Southern Coastal Grassland	6.1476	0.000000	6.1476	22.5617	2.0306	1357.0000	2755.4594	301.7893	9.1304
243	Grassland	California Central Valley and Southern Coastal Grassland	6.1476	19.000000	25.1476	92.2917	8.3063	3158.0000	26231.1447	702.3218	37.3492
244	Grassland	California Central Valley and Southern Coastal Grassland	6.1476	38.000000	44.1476	162.0217	14.5820	19454.0000	283677.2997	4326.4626	65.5680
245	Grassland	California Central Valley and Southern Coastal Grassland	6.1476	88.000000	94.1476	345.5217	31.0970	38.0000	1181.6842	8.4510	139.8279
246	Grassland	California Central Valley and Southern Coastal Grassland	6.1476	0.0000	6.1476	22.5617	2.0306	305.0000	619.3184	67.8303	9.1304
247	Grassland	California Mesic Serpentine Grassland	6.1476	0.000000	6.1476	22.5617	2.0306	2.0000	4.0611	0.4448	9.1304
248	Grassland	California Mesic Serpentine Grassland	6.1476	19.000000	25.1476	92.2917	8.3063	1.0000	8.3063	0.2224	37.3492
249	Grassland	California Northern Coastal Grassland	6.1476	38.000000	44.1476	162.0217	14.5820	2.0000	29.1639	0.4448	65.5680
250	Grassland	Herbaceous Semi-dry	0.0000	0.000000	0.0000	0.0000	0.0000	26.0000	0.0000	5.7823	0.0000
251	Grassland	Herbaceous Semi-dry	0.0000	19.000000	19.0000	69.7300	6.2757	2.0000	12.5514	0.4448	28.2188
252	Grassland	Herbaceous Semi-dry	0.0000	38.000000	38.0000	139.4600	12.5514	194.0000	2434.9716	43.1445	56.4375
253	Grassland	Herbaceous Semi-wet	0.0000	0.000000	0.0000	0.0000	0.0000	8.0000	0.0000	1.7792	0.0000
254	Grassland	Herbaceous Semi-wet	0.0000	19.000000	19.0000	69.7300	6.2757	55.0000	345.1635	12.2317	28.2188
255	Grassland	Herbaceous Semi-wet	0.0000	38.000000	38.0000	139.4600	12.5514	236.0000	2962.1304	52.4851	56.4375
256	Grassland	Introduced Upland Vegetation-Annual and Biennial Forbland	6.1476	0.000000	6.1476	22.5617	2.0306	459.0000	932.0235	102.0791	9.1304
257	Grassland	Introduced Upland Vegetation-Annual and Biennial Forbland	6.1476	19.000000	25.1476	92.2917	8.3063	928.0000	7708.2021	206.3821	37.3492
258	Grassland	Introduced Upland Vegetation-Annual and Biennial Forbland	6.1476	38.000000	44.1476	162.0217	14.5820	5524.0000	80550.7044	1228.5072	65.5680
259	Grassland	Introduced Upland Vegetation-Annual and Biennial Forbland	6.1476	88.000000	94.1476	345.5217	31.0970	63.0000	1959.1080	14.0109	139.8279
260	Grassland	Introduced Upland Vegetation-Annual and Biennial Forbland	6.1476	0.0000	6.1476	22.5617	2.0306	7.0000	14.2139	1.5568	9.1304
261	Grassland	Introduced Upland Vegetation-Annual Grassland	6.1476	0.000000	6.1476	22.5617	2.0306	64306.0000	130576.6949	14301.3007	9.1304
262	Grassland	Introduced Upland Vegetation-Annual Grassland	6.1476	19.000000	25.1476	92.2917	8.3063	64290.0000	534008.9591	14297.7424	37.3492
263	Grassland	Introduced Upland Vegetation-Annual Grassland	6.1476	38.000000	44.1476	162.0217	14.5820	196398.0000	2863866.2639	43677.8350	65.5680
264	Grassland	Introduced Upland Vegetation-Annual Grassland	6.1476	0.0000	6.1476	22.5617	2.0306	261537.0000	531064.5517	58164.3903	9.1304
265	Grassland	Introduced Upland Vegetation-Perennial Grassland and Forbland	6.1476	0.000000	6.1476	22.5617	2.0306	90.0000	182.7497	20.0155	9.1304
266	Grassland	Introduced Upland Vegetation-Perennial Grassland and Forbland	6.1476	19.000000	25.1476	92.2917	8.3063	128.0000	1063.2003	28.4665	37.3492
267	Grassland	Introduced Upland Vegetation-Perennial Grassland and Forbland	6.1476	38.000000	44.1476	162.0217	14.5820	905.0000	13196.6668	201.2670	65.5680
268	Grassland	Introduced Upland Vegetation-Perennial Grassland and Forbland	6.1476	88.000000	94.1476	345.5217	31.0970	1.0000	31.0970	0.2224	139.8279
269	Grassland	NASS-Fallow/Idle Cropland	1.0000	19.000000	20.0000	73.4000	6.6060	1.0000	6.6060	0.2224	29.7040
270	Grassland	NASS-Fallow/Idle Cropland	1.0000	38.000000	39.0000	143.1300	12.8817	5.0000	64.4085	1.1120	57.9227
271	Irrigated Pasture	Agriculture-Pasture and Hay	5.7477	0.000000	5.7477	21.0942	1.8985	801.0000	1520.6800	178.1380	8.5365
272	Irrigated Pasture	Agriculture-Pasture and Hay	5.7477	19.000000	24.7477	90.8242	8.1742	4606.0000	37650.2589	1024.3491	36.7553
273	Irrigated Pasture	Agriculture-Pasture and Hay	5.7477	38.000000	43.7477	160.5542	14.4499	10305.0000	148905.9816	2291.7753	64.9741
274	Irrigated Pasture	Agriculture-Pasture and Hay	5.7477	0.0000	5.7477	21.0942	1.8985	41.0000	77.8376	9.1182	8.5365
275	Irrigated Pasture	GRAIN AND HAY CROPS	5.7477	0.000000	5.7477	21.0942	1.8985	444.0000	842.9237	98.7432	8.5365
276	Irrigated Pasture	GRAIN AND HAY CROPS	5.7477	19.000000	24.7477	90.8242	8.1742	1839.0000	15032.3113	408.9835	36.7553
277	Irrigated Pasture	GRAIN AND HAY CROPS	5.7477	38.000000	43.7477	160.5542	14.4499	34634.0000	500457.0370	7702.4111	64.9741
278	Irrigated Pasture	NASS-Pasture and Hayland	5.7477	38.000000	43.7477	160.5542	14.4499	2.0000	28.8998	0.4448	64.9741
279	Irrigated Pasture	PASTURE	5.7477	0.000000	5.7477	21.0942	1.8985	495.0000	939.7461	110.0853	8.5365
280	Irrigated Pasture	PASTURE	5.7477	19.000000	24.7477	90.8242	8.1742	5239.0000	42824.5129	1165.1248	36.7553
281	Irrigated Pasture	PASTURE	5.7477	38.000000	43.7477	160.5542	14.4499	22337.0000	322766.9006	4967.6259	64.9741
282	Irrigated Pasture	PASTURE	5.7477	0.0000	5.7477	21.0942	1.8985	72.0000	136.6903	16.0124	8.5365
283	Orchard	CITRUS AND SUBTROPICAL	24.6300	0.000000	24.6300	90.3921	8.1353	13391.0000	108939.6550	2978.0847	36.5804
284	Orchard	CITRUS AND SUBTROPICAL	24.6300	19.000000	43.6300	160.1221	14.4110	115037.0000	1657796.9416	25583.5961	64.7992
285	Orchard	CITRUS AND SUBTROPICAL	24.6300	38.000000	62.6300	229.8521	20.6867	116203.0000	2403855.3219	25842.9081	93.0180
286	Orchard	NASS-Orchard	24.6300	19.000000	43.6300	160.1221	14.4110	4.0000	57.6440	0.8896	64.7992
287	Orchard	NASS-Orchard	24.6300	38.000000	62.6300	229.8521	20.6867	5.0000	103.4334	1.1120	93.0180
288	Row Crop	Agriculture-Cultivated Crops and Irrigated Agriculture	5.0000	0.000000	5.0000	18.3500	1.6515	6452.0000	10655.4780	1434.8893	7.4260
289	Row Crop	Agriculture-Cultivated Crops and Irrigated Agriculture	5.0000	19.000000	24.0000	88.0800	7.9272	20002.0000	158559.8544	4448.3348	35.6448
290	Row Crop	Agriculture-Cultivated Crops and Irrigated Agriculture	5.0000	38.000000	43.0000	157.8100	14.2029	37282.0000	529512.5178	8291.3117	63.8635
291	Row Crop	Agriculture-Cultivated Crops and Irrigated Agriculture	5.0000	88.000000	93.0000	341.3100	30.7179	847.0000	26018.0613	188.3681	138.1235
292	Row Crop	Agriculture-Cultivated Crops and Irrigated Agriculture	5.0000	0.0000	5.0000	18.3500	1.6515	26.0000	42.9390	5.7823	7.4260

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ROW	Land Cover Class	Land Cover Type	Non-Soil C 01_TotalMTCha	Soil C SOC_MT_Cha_1	Non-soil+Soil 01_TOTALC_MTCha	Non-soil_Soil MT CO2e/ha 01_TOTALC_MTCO2eha	convert to pixels 01_TOTALC_MTCO2epixel	# of pixels Number of Pixels	Total CO2e 01_TOTALC_MTCO2e	Total CO2e/acre Acres	TOTAL C/Acre
293	Row Crop	FIELD CROPS	5.0000	0.000000	5.0000	18.3500	1.6515	8.0000	13.2120	1.7792	7.4260
294	Row Crop	FIELD CROPS	5.0000	19.000000	24.0000	88.0800	7.9272	258.0000	2045.2176	57.3778	35.6448
295	Row Crop	FIELD CROPS	5.0000	38.000000	43.0000	157.8100	14.2029	1887.0000	26800.8723	419.6584	63.8635
296	Row Crop	NASS-Close Grown Crop	5.0000	19.000000	24.0000	88.0800	7.9272	15.0000	118.9080	3.3359	35.6448
297	Row Crop	NASS-Close Grown Crop	5.0000	38.000000	43.0000	157.8100	14.2029	51.0000	724.3479	11.3421	63.8635
298	Row Crop	NASS-Row Crop	5.0000	0.000000	5.0000	18.3500	1.6515	2.0000	3.3030	0.4448	7.4260
299	Row Crop	NASS-Row Crop	5.0000	19.000000	24.0000	88.0800	7.9272	51.0000	404.2872	11.3421	35.6448
300	Row Crop	NASS-Row Crop	5.0000	38.000000	43.0000	157.8100	14.2029	39.0000	553.9131	8.6734	63.8635
301	Row Crop	NASS-Row Crop-Close Grown Crop	5.0000	0.000000	5.0000	18.3500	1.6515	2.0000	3.3030	0.4448	7.4260
302	Row Crop	NASS-Row Crop-Close Grown Crop	5.0000	19.000000	24.0000	88.0800	7.9272	2.0000	15.8544	0.4448	35.6448
303	Row Crop	NASS-Row Crop-Close Grown Crop	5.0000	38.000000	43.0000	157.8100	14.2029	1.0000	14.2029	0.2224	63.8635
304	Row Crop	TILLED LANDS	5.0000	0.000000	5.0000	18.3500	1.6515	1497.0000	2472.2955	332.9246	7.4260
305	Row Crop	TILLED LANDS	5.0000	19.000000	24.0000	88.0800	7.9272	18019.0000	142840.2168	4007.3265	35.6448
306	Row Crop	TILLED LANDS	5.0000	38.000000	43.0000	157.8100	14.2029	46387.0000	658829.9223	10316.2137	63.8635
307	Row Crop	TILLED LANDS	5.0000	88.000000	93.0000	341.3100	30.7179	18.0000	552.9222	4.0031	138.1235
308	Shrubland	California Maritime Chaparral	2.6477	0.000000	2.6477	9.7169	0.8745	570.0000	498.4789	126.7649	3.9323
309	Shrubland	California Maritime Chaparral	2.6477	19.000000	21.6477	79.4469	7.1502	1185.0000	8473.0158	263.5375	32.1511
310	Shrubland	California Maritime Chaparral	2.6477	38.000000	40.6477	149.1769	13.4259	2539.0000	34088.4218	564.6596	60.3699
311	Shrubland	California Mesic Chaparral	71.6797	0.000000	71.6797	263.0645	23.6758	246597.0000	5838382.4634	54841.8165	106.4586
312	Shrubland	California Mesic Chaparral	71.6797	19.000000	90.6797	332.7945	29.9515	374723.0000	11223517.7744	83336.3342	134.6774
313	Shrubland	California Mesic Chaparral	71.6797	38.000000	109.6797	402.5245	36.2272	697809.0000	25279669.6310	155188.8837	162.8961
314	Shrubland	California Mesic Chaparral	71.6797	88.000000	159.6797	586.0245	52.7422	227.0000	11972.4805	50.4836	237.1561
315	Shrubland	California Mesic Chaparral	71.6797	0.0000	71.6797	263.0645	23.6758	83299.0000	1972170.8732	18525.2395	106.4586
316	Shrubland	California Montane Woodland and Chaparral	87.8712	0.000000	87.8712	322.4873	29.0239	3440.0000	99842.0693	765.0371	130.5062
317	Shrubland	California Montane Woodland and Chaparral	87.8712	19.000000	106.8712	392.2173	35.2996	1152.0000	40665.0901	256.1985	158.7250
318	Shrubland	California Montane Woodland and Chaparral	87.8712	38.000000	125.8712	461.9473	41.5753	22610.0000	940016.5689	5028.3396	186.9437
319	Shrubland	California Montane Woodland and Chaparral	87.8712	0.0000	87.8712	322.4873	29.0239	609.0000	17675.5291	135.4383	130.5062
320	Shrubland	California Xeric Serpentine Chaparral	2.6477	0.000000	2.6477	9.7169	0.8745	3241.0000	2834.3333	720.7806	3.9323
321	Shrubland	California Xeric Serpentine Chaparral	2.6477	19.000000	21.6477	79.4469	7.1502	15716.0000	112372.9251	3495.1520	32.1511
322	Shrubland	California Xeric Serpentine Chaparral	2.6477	38.000000	40.6477	149.1769	13.4259	24678.0000	331324.9599	5488.2515	60.3699
323	Shrubland	California Xeric Serpentine Chaparral	2.6477	88.000000	90.6477	332.6769	29.9409	6.0000	179.6455	1.3344	134.6298
324	Shrubland	California Xeric Serpentine Chaparral	2.6477	0.0000	2.6477	9.7169	0.8745	1122.0000	981.2163	249.5266	3.9323
325	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	67.3393	0.000000	67.3393	247.1350	22.2422	4.0000	88.9686	0.8896	100.0122
326	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	67.3393	19.000000	86.3393	316.8650	28.5179	8.0000	228.1428	1.7792	128.2309
327	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	67.3393	38.000000	105.3393	386.5950	34.7936	18.0000	626.2840	4.0031	156.4497
328	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	67.3393	0.0000	67.3393	247.1350	22.2422	1.0000	22.2422	0.2224	100.0122
329	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	77.6170	0.000000	77.6170	284.8543	25.6369	1.0000	25.6369	0.2224	115.2766
330	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	77.6170	19.000000	96.6170	354.5843	31.9126	1.0000	31.9126	0.2224	143.4954
331	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	77.6170	38.000000	115.6170	424.3143	38.1883	2.0000	76.3766	0.4448	171.7142
332	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	99.7693	0.000000	99.7693	366.1531	32.9538	25.0000	823.8446	5.5599	148.1772
333	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	99.7693	19.000000	118.7693	435.8831	39.2295	60.0000	2353.7690	13.3437	176.3959
334	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	99.7693	38.000000	137.7693	505.6131	45.5052	231.0000	10511.6973	51.3731	204.6147
335	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	99.7693	0.0000	99.7693	366.1531	32.9538	3.0000	98.8613	0.6672	148.1772
336	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	122.5643	0.000000	122.5643	449.8108	40.4830	42.0000	1700.2848	9.3406	182.0323
337	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	122.5643	19.000000	141.5643	519.5408	46.7587	106.0000	4956.4192	23.5738	210.2510
338	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	122.5643	38.000000	160.5643	589.2708	53.0344	169.0000	8962.8088	37.5847	238.4698
339	Shrubland	Mediterranean California Mesic Serpentine Woodland and Chaparral	161.9134	38.000000	199.9134	733.6823	66.0314	3.0000	198.0942	0.6672	296.9112
340	Shrubland	Mojave Mid-Elevation Mixed Desert Scrub	2.3101	0.000000	2.3101	8.4779	0.7630	44027.0000	33593.0199	9791.3627	3.4309
341	Shrubland	Mojave Mid-Elevation Mixed Desert Scrub	2.3101	19.000000	21.3101	78.2079	7.0387	35079.0000	246910.8911	7801.3767	31.6497
342	Shrubland	Mojave Mid-Elevation Mixed Desert Scrub	2.3101	38.000000	40.3101	147.9379	13.3144	89253.0000	1188350.9924	19849.3763	59.8684
343	Shrubland	Mojave Mid-Elevation Mixed Desert Scrub	2.3101	0.0000	2.3101	8.4779	0.7630	178479.0000	136181.1752	39692.7480	3.4309
344	Shrubland	North American Warm Desert Riparian Systems	63.8636	0.000000	63.8636	234.3794	21.0941	2.0000	42.1883	0.4448	94.8501
345	Shrubland	North American Warm Desert Riparian Systems	63.8636	19.000000	82.8636	304.1094	27.3698	44.0000	1204.2733	9.7854	123.0689
346	Shrubland	North American Warm Desert Riparian Systems	63.8636	38.000000	101.8636	373.8394	33.6455	7.0000	235.5188	1.5568	151.2877
347	Shrubland	North American Warm Desert Riparian Systems	98.5567	0.000000	98.5567	361.7029	32.5533	83.0000	2701.9207	18.4587	146.3762
348	Shrubland	North American Warm Desert Riparian Systems	98.5567	19.000000	117.5567	431.4329	38.8290	332.0000	12891.2152	73.8350	174.5950
349	Shrubland	North American Warm Desert Riparian Systems	98.5567	38.000000	136.5567	501.1629	45.1047	587.0000	26476.4363	130.5456	202.8137
350	Shrubland	North American Warm Desert Riparian Systems	98.5567	0.0000	98.5567	361.7029	32.5533	2.0000	65.1065	0.4448	146.3762
351	Shrubland	North American Warm Desert Riparian Systems	142.1327	38.000000	180.1327	661.0870	59.4978	1.0000	59.4978	0.2224	267.5328
352	Shrubland	North American Warm Desert Riparian Systems	161.4372	0.000000	161.4372	592.4744	53.3227	108.0000	5758.8512	24.0186	239.7663
353	Shrubland	North American Warm Desert Riparian Systems	161.4372	19.000000	180.4372	662.2044	59.5984	309.0000	18415.9044	68.7199	267.9850
354	Shrubland	North American Warm Desert Riparian Systems	161.4372	38.000000	199.4372	731.9344	65.8741	526.0000	34649.7746	116.9795	296.2038
355	Shrubland	North American Warm Desert Riparian Systems	225.1159	19.000000	244.1159	895.9054	80.6315	2.0000	161.2630	0.4448	362.5606
356	Shrubland	Northern and Central California Dry-Mesic Chaparral	54.8678	0.000000	54.8678	201.3648	18.1228	10352.0000	187607.5811	2302.2279	81.4896
357	Shrubland	Northern and Central California Dry-Mesic Chaparral	54.8678	19.000000	73.8678	271.0948	24.3985	2901.0000	70780.1481	645.1664	109.7084
358	Shrubland	Northern and Central California Dry-Mesic Chaparral	54.8678	38.000000	92.8678	340.8248	30.6742	36076.0000	1106603.6780	8023.1040	137.9271
359	Shrubland	Northern and Central California Dry-Mesic Chaparral	54.8678	0.0000	54.8678	201.3648	18.1228	10325.0000	187118.2646	2296.2232	81.4896
360	Shrubland	Northern California Coastal Scrub	2.3798	0.000000	2.3798	8.7337	0.7860	5.0000	3.9302	1.1120	3.5344
361	Shrubland	Northern California Coastal Scrub	2.3798	19.000000	21.3798	78.4637	7.0617	2.0000	14.1235	0.4448	31.7532
362	Shrubland	Northern California Coastal Scrub	2.3798	38.000000	40.3798	148.1937	13.3374	3.0000	40.0123	0.6672	59.9720
363	Shrubland	Northern California Coastal Scrub	2.3798	88.000000	90.3798	331.6937	29.8524	2.0000	59.7049	0.4448	134.2319
364	Shrubland	Northern California Coastal Scrub	2.3798	0.0000	2.3798	8.7337	0.7860	3.0000	2.3581	0.6672	3.5344
365	Shrubland	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	0.6878	0.000000	0.6878	2.5241	0.2272	13942.0000	3167.1948	3100.6241	1.0215

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ROW	Land Cover Class	Land Cover Type	Non-Soil C 01_TotalMTCha	Soil C SOC_MT_Cha_1	Non-soil+Soil 01_TOTALC_MTCha	Non-soil_Soil MT CO2e/ha 01_TOTALC_MTCO2eha	convert to pixels 01_TOTALC_MTCO2epixel	# of pixels Number of Pixels	Total CO2e 01_TOTALC_MTCO2e	Acres	Total CO2e/acre TOTAL C/Acre
366	Shrubland	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	0.6878	19.000000	19.6878	72.2541	6.5029	17589.0000	114378.9686	3911.6969	29.2402
367	Shrubland	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	0.6878	38.000000	38.6878	141.9841	12.7786	1237.0000	15807.0903	275.1020	57.4590
368	Shrubland	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	0.6878	0.0000	0.6878	2.5241	0.2272	107652.0000	24455.2327	23941.2127	1.0215
369	Shrubland	Sonora-Mojave Mixed Salt Desert Scrub	2.2936	0.000000	2.2936	8.4175	0.7576	433.0000	328.0304	96.2968	3.4065
370	Shrubland	Sonora-Mojave Mixed Salt Desert Scrub	2.2936	19.000000	21.2936	78.1475	7.0333	608.0000	4276.2319	135.2159	31.6252
371	Shrubland	Sonora-Mojave Mixed Salt Desert Scrub	2.2936	0.0000	2.2936	8.4175	0.7576	7085.0000	5367.4265	1575.6650	3.4065
372	Shrubland	Sonora-Mojave Semi-Desert Chaparral	6.2212	0.000000	6.2212	22.8319	2.0549	22459.0000	46150.4010	4994.7581	9.2398
373	Shrubland	Sonora-Mojave Semi-Desert Chaparral	6.2212	19.000000	25.2212	92.5619	8.3306	3574.0000	29773.4692	794.8379	37.4585
374	Shrubland	Sonora-Mojave Semi-Desert Chaparral	6.2212	38.000000	44.2212	162.2919	14.6063	23153.0000	338179.0473	5149.0999	65.6773
375	Shrubland	Sonora-Mojave Semi-Desert Chaparral	6.2212	0.0000	6.2212	22.8319	2.0549	57869.0000	118913.4670	12869.7473	9.2398
376	Shrubland	Sonoran Paloverde-Mixed Cacti Desert Scrub	2.2106	0.000000	2.2106	8.1128	0.7302	22.0000	16.0633	4.8927	3.2831
377	Shrubland	Sonoran Paloverde-Mixed Cacti Desert Scrub	2.2106	0.0000	2.2106	8.1128	0.7302	2289.0000	1671.3137	509.0610	3.2831
378	Shrubland	Southern California Coastal Scrub	36.5989	0.000000	36.5989	134.3180	12.0886	122205.0000	1477289.4002	27177.7199	54.3566
379	Shrubland	Southern California Coastal Scrub	36.5989	19.000000	55.5989	204.0480	18.3643	438868.0000	8059510.9283	97601.8294	82.5754
380	Shrubland	Southern California Coastal Scrub	36.5989	38.000000	74.5989	273.7780	24.6400	663497.0000	16348577.1405	147558.0836	110.7942
381	Shrubland	Southern California Coastal Scrub	36.5989	88.000000	124.5989	457.2780	41.1550	142.0000	5844.0124	31.5800	185.0541
382	Shrubland	Southern California Coastal Scrub	36.5989	0.0000	36.5989	134.3180	12.0886	159114.0000	1923468.1528	35386.0785	54.3566
383	Shrubland	Southern California Dry-Mesic Chaparral	73.4281	0.000000	73.4281	269.4811	24.2533	296817.0000	7198792.1705	66010.4683	109.0553
384	Shrubland	Southern California Dry-Mesic Chaparral	73.4281	19.000000	92.4281	339.2111	30.5290	376719.0000	11500854.8897	83780.2336	137.2741
385	Shrubland	Southern California Dry-Mesic Chaparral	73.4281	38.000000	111.4281	408.9411	36.8047	1203913.0000	44309658.5127	267743.6297	165.4929
386	Shrubland	Southern California Dry-Mesic Chaparral	73.4281	0.0000	73.4281	269.4811	24.2533	281506.0000	6827449.8724	62605.3861	109.0553
387	Urban	Developed-High Intensity	0.0000	0.000000	0.0000	0.0000	0.0000	28340.0000	0.0000	6302.6601	0.0000
388	Urban	Developed-High Intensity	0.0000	19.000000	19.0000	69.7300	6.2757	15652.0000	98227.2564	3480.9187	28.2188
389	Urban	Developed-High Intensity	0.0000	38.000000	38.0000	139.4600	12.5514	78824.0000	989351.5536	17530.0241	56.4375
390	Urban	Developed-High Intensity	0.0000	88.000000	88.0000	322.9600	29.0664	439.0000	12760.1496	97.6312	130.6975
391	Urban	Developed-High Intensity	0.0000	0.0000	0.0000	0.0000	0.0000	31.0000	0.0000	6.8942	0.0000
392	Urban	Developed-Medium Intensity	7.6584	0.000000	7.6584	28.1065	2.5296	46921.0000	118690.6093	10434.9723	11.3743
393	Urban	Developed-Medium Intensity	7.6584	19.000000	26.6584	97.8365	8.8053	55187.0000	485937.2063	12273.2853	39.5931
394	Urban	Developed-Medium Intensity	7.6584	38.000000	45.6584	167.5665	15.0810	351763.0000	5304932.1633	78230.1565	67.8119
395	Urban	Developed-Medium Intensity	7.6584	88.000000	95.6584	351.0665	31.5960	1991.0000	62907.6041	442.7874	142.0718
396	Urban	Developed-Medium Intensity	7.6584	0.0000	7.6584	28.1065	2.5296	321.0000	811.9965	71.3886	11.3743
397	Urban	Developed-Roads	0.0000	0.000000	0.0000	0.0000	0.0000	69238.0000	0.0000	15398.1504	0.0000
398	Urban	Developed-Roads	0.0000	19.000000	19.0000	69.7300	6.2757	119009.0000	746864.7813	26466.9471	28.2188
399	Urban	Developed-Roads	0.0000	38.000000	38.0000	139.4600	12.5514	510068.0000	6402067.4952	113436.3178	56.4375
400	Urban	Developed-Roads	0.0000	88.000000	88.0000	322.9600	29.0664	503.0000	14620.3992	111.8644	130.6975
401	Urban	Developed-Roads	0.0000	0.0000	0.0000	0.0000	0.0000	15663.0000	0.0000	3483.3651	0.0000
402	Urban	Developed-Upland Deciduous Forest	7.6584	0.000000	7.6584	28.1065	2.5296	7177.0000	18154.8241	1596.1253	11.3743
403	Urban	Developed-Upland Deciduous Forest	7.6584	19.000000	26.6584	97.8365	8.8053	15651.0000	137811.4994	3480.6963	39.5931
404	Urban	Developed-Upland Deciduous Forest	7.6584	38.000000	45.6584	167.5665	15.0810	56643.0000	854232.1749	12597.0917	67.8119
405	Urban	Developed-Upland Deciduous Forest	7.6584	88.000000	95.6584	351.0665	31.5960	141.0000	4455.0337	31.3576	142.0718
406	Urban	Developed-Upland Deciduous Forest	7.6584	0.0000	7.6584	28.1065	2.5296	10.0000	25.2958	2.2239	11.3743
407	Urban	Developed-Upland Evergreen Forest	7.6584	0.000000	7.6584	28.1065	2.5296	3650.0000	9232.9815	811.7399	11.3743
408	Urban	Developed-Upland Evergreen Forest	7.6584	19.000000	26.6584	97.8365	8.8053	4495.0000	39579.7514	999.6633	39.5931
409	Urban	Developed-Upland Evergreen Forest	7.6584	38.000000	45.6584	167.5665	15.0810	12456.0000	187848.7363	2770.1459	67.8119
410	Urban	Developed-Upland Evergreen Forest	7.6584	88.000000	95.6584	351.0665	31.5960	435.0000	13744.2530	96.7416	142.0718
411	Urban	Developed-Upland Evergreen Forest	7.6584	0.0000	7.6584	28.1065	2.5296	52.0000	131.5384	11.5645	11.3743
412	Urban	Developed-Upland Herbaceous	7.6584	0.000000	7.6584	28.1065	2.5296	10083.0000	25505.7951	2242.4037	11.3743
413	Urban	Developed-Upland Herbaceous	7.6584	19.000000	26.6584	97.8365	8.8053	33368.0000	293814.7154	7420.8597	39.5931
414	Urban	Developed-Upland Herbaceous	7.6584	38.000000	45.6584	167.5665	15.0810	135719.0000	2046776.0631	30183.1591	67.8119
415	Urban	Developed-Upland Herbaceous	7.6584	88.000000	95.6584	351.0665	31.5960	1018.0000	32164.7117	226.3976	142.0718
416	Urban	Developed-Upland Herbaceous	7.6584	0.0000	7.6584	28.1065	2.5296	5720.0000	14469.2203	1272.0965	11.3743
417	Urban	Developed-Upland Mixed Forest	7.6584	0.000000	7.6584	28.1065	2.5296	9487.0000	23998.1631	2109.8566	11.3743
418	Urban	Developed-Upland Mixed Forest	7.6584	19.000000	26.6584	97.8365	8.8053	31104.0000	273879.5525	6917.3585	39.5931
419	Urban	Developed-Upland Mixed Forest	7.6584	38.000000	45.6584	167.5665	15.0810	103150.0000	1555603.4962	22939.9927	67.8119
420	Urban	Developed-Upland Mixed Forest	7.6584	88.000000	95.6584	351.0665	31.5960	795.0000	25118.8073	176.8036	142.0718
421	Urban	Developed-Upland Mixed Forest	7.6584	0.0000	7.6584	28.1065	2.5296	130.0000	328.8459	28.9113	11.3743
422	Urban	Developed-Upland Shrubland	7.6584	0.000000	7.6584	28.1065	2.5296	26541.0000	67137.6881	5902.5724	11.3743
423	Urban	Developed-Upland Shrubland	7.6584	19.000000	26.6584	97.8365	8.8053	77375.0000	681308.8470	17207.7744	39.5931
424	Urban	Developed-Upland Shrubland	7.6584	38.000000	45.6584	167.5665	15.0810	298262.0000	4498084.4401	66331.8284	67.8119
425	Urban	Developed-Upland Shrubland	7.6584	88.000000	95.6584	351.0665	31.5960	1853.0000	58547.3583	412.0970	142.0718
426	Urban	Developed-Upland Shrubland	7.6584	0.0000	7.6584	28.1065	2.5296	458.0000	1158.5495	101.8567	11.3743
427	Vineyard	VINEYARDS	6.4400	0.000000	6.4400	23.6348	2.1271	3.0000	6.3814	0.6672	9.5647
428	Vineyard	VINEYARDS	6.4400	19.000000	25.4400	93.3648	8.4028	83.0000	697.4351	18.4587	37.7835
429	Vineyard	VINEYARDS	6.4400	38.000000	44.4400	163.0948	14.6785	541.0000	7941.0858	120.3154	66.0022
430	Water	Open Water	0.0000	0.000000	0.0000	0.0000	0.0000	91598.0000	0.0000	20370.8914	0.0000
431	Water	Open Water	0.0000	19.000000	19.0000	69.7300	6.2757	1383.0000	8679.2931	307.5716	28.2188
432	Water	Open Water	0.0000	38.000000	38.0000	139.4600	12.5514	1342.0000	16843.9788	298.4534	56.4375
433	Water	Open Water	0.0000	88.000000	88.0000	322.9600	29.0664	1149.0000	33397.2936	255.5313	130.6975
434	Water	Open Water	0.0000	0.0000	0.0000	0.0000	0.0000	6026.0000	0.0000	1340.1493	0.0000
435	Wetland	Herbaceous Wetlands	4.8974	0.000000	4.8974	17.9735	1.6176	5863.0000	9484.0546	1303.8990	7.2736
436	Wetland	Herbaceous Wetlands	4.8974	19.000000	23.8974	87.7035	7.8933	1426.0000	11255.8618	317.1346	35.4924
437	Wetland	Herbaceous Wetlands	4.8974	38.000000	42.8974	157.4335	14.1690	6289.0000	89108.9116	1398.6390	63.7112
438	Wetland	Herbaceous Wetlands	4.8974	88.000000	92.8974	340.9335	30.6840	4254.0000	130529.7837	946.0662	137.9711

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ROW	Land Cover Class	Land Cover Type	01_TotalMTCha	SOC_MT_Cha_1	01_TOTALC_MTCha	01_TOTALC_MTCO2eha	01_TOTALC_MTCO2epixel	Number of Pixels	01_TOTALC_MTCO2e	Acres	TOTAL C/Acre
			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil MT CO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
439	Wetland	Herbaceous Wetlands	4.8974	0.0000	4.8974	17.9735	1.6176	144.0000	232.9360	32.0248	7.2736
440	Wetland	Pacific Coastal Marsh Systems	6.1476	0.000000	6.1476	22.5617	2.0306	465.0000	944.2068	103.4134	9.1304
441	Wetland	Pacific Coastal Marsh Systems	6.1476	19.000000	25.1476	92.2917	8.3063	244.0000	2026.7256	54.2643	37.3492
442	Wetland	Pacific Coastal Marsh Systems	6.1476	38.000000	44.1476	162.0217	14.5820	1098.0000	16010.9836	244.1892	65.5680
443	Wetland	Pacific Coastal Marsh Systems	6.1476	88.000000	94.1476	345.5217	31.0970	752.0000	23384.9081	167.2407	139.8279
444	Wetland	Pacific Coastal Marsh Systems		0.0000	0.0000	0.0000	0.0000	13.0000	0.0000	2.8911	0.0000
	Total							12,262,515	254,604,968	2,727,116	

SANDAG Carbon Inventory - 2016			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil_MTCO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Clas	Land Cover Type	16_TotalMTCha	16_SOC_MT_Cha	16_TOTALC_MCTha	16_TOTALC_MTCO2eha	16_TOTALC_MTCO2epixel	Number of Pixels	16_TOTALC_MTCO2e	Acres	TOTAL MTCO2e/Acre
1	Barren	Mediterranean California Southern Coastal Dune	3.4780	0.000000	3.4780	12.7643	1.1488	3210.0000	3687.5947	713.8863	5.1655
2	Barren	Mediterranean California Southern Coastal Dune	3.4780	19.000000	22.4780	82.4943	7.4245	705.0000	5234.2608	156.7881	33.3843
3	Barren	Mediterranean California Southern Coastal Dune	3.4780	38.000000	41.4780	152.2243	13.7002	592.0000	8110.5086	131.6575	61.6031
4	Barren	Mediterranean California Southern Coastal Dune	3.4780	88.000000	91.4780	335.7243	30.2152	250.0000	7553.7959	55.5986	135.8630
5	Barren	Mediterranean California Southern Coastal Dune	3.4780	0.0000	3.4780	12.7643	1.1488	5.0000	5.7439	1.1120	5.1655
6	Barren	North American Warm Desert Active and Stabilized Dune	1.3203	0.000000	1.3203	4.8454	0.4361	261.0000	113.8187	58.0450	1.9609
7	Barren	North American Warm Desert Active and Stabilized Dune	1.3203	19.000000	20.3203	74.5754	6.7118	144.0000	966.4973	32.0248	30.1796
8	Barren	North American Warm Desert Active and Stabilized Dune	1.3203	0.0000	1.3203	4.8454	0.4361	867.0000	378.0874	192.8160	1.9609
9	Barren	North American Warm Desert Bedrock Cliff and Outcrop	2.6477	0.000000	2.6477	9.7169	0.8745	102251.0000	89420.9842	22740.0600	3.9323
10	Barren	North American Warm Desert Bedrock Cliff and Outcrop	2.6477	19.000000	21.6477	79.4469	7.1502	11344.0000	81112.1445	2522.8432	32.1511
11	Barren	North American Warm Desert Bedrock Cliff and Outcrop	2.6477	38.000000	40.6477	149.1769	13.4259	1636.0000	21964.8122	363.8374	60.3699
12	Barren	North American Warm Desert Bedrock Cliff and Outcrop	2.6477	0.0000	2.6477	9.7169	0.8745	731879.0000	640045.9702	162765.8643	3.9323
13	Barren	North American Warm Desert Pavement	1.3203	0.000000	1.3203	4.8454	0.4361	53875.0000	23494.1831	11981.5037	1.9609
14	Barren	North American Warm Desert Pavement	1.3203	19.000000	20.3203	74.5754	6.7118	183073.0000	1228746.9679	40714.4283	30.1796
15	Barren	North American Warm Desert Pavement	1.3203	38.000000	39.3203	144.3054	12.9875	33.0000	428.5871	7.3390	58.3984
16	Barren	North American Warm Desert Pavement	1.3203	0.0000	1.3203	4.8454	0.4361	393420.0000	171565.3184	87494.4442	1.9609
17	Barren	North American Warm Desert Playa	1.3203	0.000000	1.3203	4.8454	0.4361	6745.0000	2941.4063	1500.0509	1.9609
18	Barren	North American Warm Desert Playa	1.3203	19.000000	20.3203	74.5754	6.7118	18261.0000	122563.9411	4061.1460	30.1796
19	Barren	North American Warm Desert Playa	1.3203	0.0000	1.3203	4.8454	0.4361	35980.0000	15690.4076	8001.7541	1.9609
20	Barren	Quarries-Strip Mines-Gravel Pits-Well and Wind Pads	0.0000	0.000000	0.0000	0.0000	0.0000	307.0000	0.0000	68.2751	0.0000
21	Barren	Quarries-Strip Mines-Gravel Pits-Well and Wind Pads	0.0000	19.000000	19.0000	69.7300	6.2757	530.0000	3326.1210	117.8691	28.2188
22	Barren	Quarries-Strip Mines-Gravel Pits-Well and Wind Pads	0.0000	38.000000	38.0000	139.4600	12.5514	589.0000	7392.7746	130.9904	56.4375
23	Barren	Southern California Coast Ranges Cliff and Canyon	3.4780	0.000000	3.4780	12.7643	1.1488	5719.0000	6569.8923	1271.8741	5.1655
24	Barren	Southern California Coast Ranges Cliff and Canyon	3.4780	19.000000	22.4780	82.4943	7.4245	3004.0000	22303.1481	668.0731	33.3843
25	Barren	Southern California Coast Ranges Cliff and Canyon	3.4780	38.000000	41.4780	152.2243	13.7002	9854.0000	135001.6072	2191.4754	61.6031
26	Barren	Southern California Coast Ranges Cliff and Canyon	3.4780	88.000000	91.4780	335.7243	30.2152	47.0000	1420.1136	10.4525	135.8630
27	Barren	Southern California Coast Ranges Cliff and Canyon	3.4780	0.0000	3.4780	12.7643	1.1488	1740.0000	1998.8831	386.9664	5.1655
28	Forest	California Coastal Live Oak Woodland and Savanna	75.8298	0.000000	75.8298	278.2954	25.0466	440.0000	11020.4965	97.8536	112.6223
29	Forest	California Coastal Live Oak Woodland and Savanna	75.8298	19.000000	94.8298	348.0254	31.3223	312.0000	9772.5523	69.3871	140.8411
30	Forest	California Coastal Live Oak Woodland and Savanna	75.8298	38.000000	113.8298	417.7554	37.5980	325.0000	12219.3445	72.2782	169.0599
31	Forest	California Coastal Live Oak Woodland and Savanna	75.8298	88.000000	163.8298	601.2554	54.1130	2.0000	108.2260	0.4448	243.3198
32	Forest	California Coastal Live Oak Woodland and Savanna	75.8298	0.0000	75.8298	278.2954	25.0466	1.0000	25.0466	0.2224	112.6223
33	Forest	California Coastal Live Oak Woodland and Savanna	79.8577	0.000000	79.8577	293.0778	26.3770	839.0000	22130.3016	186.5890	118.6045
34	Forest	California Coastal Live Oak Woodland and Savanna	79.8577	19.000000	98.8577	362.8078	32.6527	1053.0000	34383.2913	234.1814	146.8233
35	Forest	California Coastal Live Oak Woodland and Savanna	79.8577	38.000000	117.8577	432.5378	38.9284	934.0000	36359.1240	207.7165	175.0421
36	Forest	California Coastal Live Oak Woodland and Savanna	79.8577	88.000000	167.8577	616.0378	55.4434	1.0000	55.4434	0.2224	249.3020
37	Forest	California Coastal Live Oak Woodland and Savanna	89.2648	0.000000	89.2648	327.6016	29.4841	108.0000	3184.2879	24.0186	132.5759
38	Forest	California Coastal Live Oak Woodland and Savanna	89.2648	19.000000	108.2648	397.3316	35.7598	231.0000	8260.5246	51.3731	160.7947
39	Forest	California Coastal Live Oak Woodland and Savanna	89.2648	38.000000	127.2648	467.0616	42.0355	351.0000	14754.4770	78.0605	189.0134
40	Forest	California Coastal Live Oak Woodland and Savanna	90.9121	0.000000	90.9121	333.6474	30.0283	191.0000	5735.3989	42.4773	135.0225
41	Forest	California Coastal Live Oak Woodland and Savanna	90.9121	19.000000	109.9121	403.3774	36.3040	357.0000	12960.5161	79.3948	163.2413
42	Forest	California Coastal Live Oak Woodland and Savanna	90.9121	38.000000	128.9121	473.1074	42.5797	560.0000	23844.6133	124.5409	191.4601
43	Forest	California Coastal Live Oak Woodland and Savanna	90.9121	88.000000	178.9121	656.6074	59.0947	3.0000	177.2840	0.6672	265.7200
44	Forest	California Coastal Live Oak Woodland and Savanna	97.9692	0.000000	97.9692	359.5468	32.3592	5420.0000	175386.9195	1205.3782	145.5036
45	Forest	California Coastal Live Oak Woodland and Savanna	97.9692	19.000000	116.9692	429.2768	38.6349	23389.0000	903631.9157	5201.5850	173.7224
46	Forest	California Coastal Live Oak Woodland and Savanna	97.9692	38.000000	135.9692	499.0068	44.9106	16807.0000	754812.6264	3737.7844	201.9412
47	Forest	California Coastal Live Oak Woodland and Savanna	97.9692	88.000000	185.9692	682.5068	61.4256	12.0000	737.1073	2.6687	276.2011
48	Forest	California Coastal Live Oak Woodland and Savanna	97.9692	0.0000	97.9692	359.5468	32.3592	10.0000	323.5921	2.2239	145.5036
49	Forest	California Coastal Live Oak Woodland and Savanna	111.7049	0.000000	111.7049	409.9570	36.8961	6995.0000	258088.4186	1555.6495	165.9040
50	Forest	California Coastal Live Oak Woodland and Savanna	111.7049	19.000000	130.7049	479.6870	43.1718	45068.0000	1945667.9655	10022.8753	194.1227
51	Forest	California Coastal Live Oak Woodland and Savanna	111.7049	38.000000	149.7049	549.4170	49.4475	32337.0000	1598984.7281	7191.5709	222.3415
52	Forest	California Coastal Live Oak Woodland and Savanna	111.7049	88.000000	199.7049	732.9170	65.9625	7.0000	461.7377	1.5568	296.6014
53	Forest	California Coastal Live Oak Woodland and Savanna	111.7049	0.0000	111.7049	409.9570	36.8961	6.0000	221.3768	1.3344	165.9040
54	Forest	California Coastal Live Oak Woodland and Savanna	118.6412	38.000000	156.6412	574.8731	51.7386	1.0000	51.7386	0.2224	232.6432
55	Forest	California Coastal Live Oak Woodland and Savanna	132.1123	0.000000	132.1123	484.8521	43.6367	26.0000	1134.5540	5.7823	196.2130
56	Forest	California Coastal Live Oak Woodland and Savanna	132.1123	19.000000	151.1123	554.5821	49.9124	40.0000	1996.4957	8.8958	224.4318
57	Forest	California Coastal Live Oak Woodland and Savanna	132.1123	38.000000	170.1123	624.3121	56.1881	37.0000	2078.9594	8.2286	252.6505
58	Forest	California Coastal Live Oak Woodland and Savanna	151.2570	0.000000	151.2570	555.1131	49.9602	555.0000	27727.8977	123.4289	224.6466
59	Forest	California Coastal Live Oak Woodland and Savanna	151.2570	19.000000	170.2570	624.8431	56.2359	1532.0000	86153.3622	340.7084	252.8654
60	Forest	California Coastal Live Oak Woodland and Savanna	151.2570	38.000000	189.2570	694.5731	62.5116	1341.0000	83828.0235	298.2310	281.0842
61	Forest	California Coastal Live Oak Woodland and Savanna	151.2570	88.000000	239.2570	878.0731	79.0266	1.0000	79.0266	0.2224	355.3441
62	Forest	California Coastal Live Oak Woodland and Savanna	202.3413	0.000000	202.3413	742.5924	66.8333	183.0000	12230.4976	40.6982	300.5170
63	Forest	California Coastal Live Oak Woodland and Savanna	202.3413	19.000000	221.3413	812.3224	73.1090	652.0000	47667.0813	145.0012	328.7357
64	Forest	California Coastal Live Oak Woodland and Savanna	202.3413	38.000000	240.3413	882.0524	79.3847	642.0000	50964.9905	142.7773	356.9545
65	Forest	California Coastal Live Oak Woodland and Savanna	202.3413	88.000000	290.3413	1065.5524	95.8997	3.0000	287.6992	0.6672	431.2144
66	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	73.2906	0.000000	73.2906	268.9766	24.2079	3.0000	72.6237	0.6672	108.8511
67	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	73.2906	19.000000	92.2906	338.7066	30.4836	1.0000	30.4836	0.2224	137.0699
68	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	73.2906	38.000000	111.2906	408.4366	36.7593	14.0000	514.6301	3.1135	165.2887
69	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	73.2906	0.0000	73.2906	268.9766	24.2079	1.0000	24.2079	0.2224	108.8511
70	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	87.9018	0.000000	87.9018	322.5994	29.0339	2.0000	58.0679	0.4448	130.5516
71	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	87.9018	38.000000	125.9018	462.0594	41.5853	19.0000	790.1216	4.2255	186.9891
72	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	101.4166	0.000000	101.4166	372.1989	33.4979	5.0000	167.4895	1.1120	150.6238
73	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	101.4166	19.000000	120.4166	441.9289	39.7736	1.0000	39.7736	0.2224	178.8426

SANDAG Carbon Inventory - 2016			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil_MTCO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Clas	Land Cover Type	16_TotalMTCha	16_SOC_MT_Cha	16_TOTALC_MCTha	16_TOTALC_MTCO2eha	16_TOTALC_MTCO2epixel	Number of Pixels	16_TOTALC_MTCO2e	Acres	TOTAL MTCO2e/Acre
74	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	101.4166	38.000000	139.4166	511.6589	46.0493	3.0000	138.1479	0.6672	207.0613
75	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	124.0213	0.000000	124.0213	455.1580	40.9642	27.0000	1106.0339	6.0047	184.1962
76	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	124.0213	38.000000	162.0213	594.6180	53.5156	57.0000	3050.3903	12.6765	240.6337
77	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	124.0213	0.0000	124.0213	455.1580	40.9642	2.0000	81.9284	0.4448	184.1962
78	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	165.8771	38.000000	203.8771	748.2290	67.3406	1.0000	67.3406	0.2224	302.7980
79	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	197.4376	0.000000	197.4376	724.5960	65.2136	1.0000	65.2136	0.2224	293.2340
80	Forest	California Montane Jeffrey Pine-(Ponderosa Pine) Woodland	197.4376	38.000000	235.4376	864.0560	77.7650	23.0000	1788.5959	5.1151	349.6716
81	Forest	Californian Ruderal Forest	62.0000	0.000000	62.0000	227.5400	20.4786	847.0000	17345.3742	188.3681	92.0823
82	Forest	Californian Ruderal Forest	62.0000	19.000000	81.0000	297.2700	26.7543	1820.0000	48692.8260	404.7580	120.3011
83	Forest	Californian Ruderal Forest	62.0000	38.000000	100.0000	367.0000	33.0300	2822.0000	93210.6600	627.5973	148.5199
84	Forest	Californian Ruderal Forest	62.0000	0.0000	62.0000	227.5400	20.4786	1.0000	20.4786	0.2224	92.0823
85	Forest	Central and Southern California Mixed Evergreen Woodland	66.5226	0.000000	66.5226	244.1380	21.9724	1549.0000	34035.2833	344.4891	98.7993
86	Forest	Central and Southern California Mixed Evergreen Woodland	66.5226	19.000000	85.5226	313.8680	28.2481	155.0000	4378.4591	34.4711	127.0181
87	Forest	Central and Southern California Mixed Evergreen Woodland	66.5226	38.000000	104.5226	383.5980	34.5238	808.0000	27895.2490	179.6948	155.2369
88	Forest	Central and Southern California Mixed Evergreen Woodland	66.5226	88.000000	154.5226	567.0980	51.0388	5.0000	255.1941	1.1120	229.4968
89	Forest	Central and Southern California Mixed Evergreen Woodland	66.5226	0.0000	66.5226	244.1380	21.9724	450.0000	9887.5904	100.0775	98.7993
90	Forest	Central and Southern California Mixed Evergreen Woodland	77.4067	0.000000	77.4067	284.0824	25.5674	1200.0000	30680.8998	266.8734	114.9642
91	Forest	Central and Southern California Mixed Evergreen Woodland	77.4067	19.000000	96.4067	353.8124	31.8431	76.0000	2420.0769	16.9020	143.1830
92	Forest	Central and Southern California Mixed Evergreen Woodland	77.4067	38.000000	115.4067	423.5424	38.1188	962.0000	36670.3015	213.9435	171.4018
93	Forest	Central and Southern California Mixed Evergreen Woodland	77.4067	88.000000	165.4067	607.0424	54.6338	12.0000	655.6058	2.6687	245.6617
94	Forest	Central and Southern California Mixed Evergreen Woodland	77.4067	0.0000	77.4067	284.0824	25.5674	514.0000	13141.6521	114.3108	114.9642
95	Forest	Central and Southern California Mixed Evergreen Woodland	90.6348	0.000000	90.6348	332.6297	29.9367	613.0000	18351.1814	136.3278	134.6107
96	Forest	Central and Southern California Mixed Evergreen Woodland	90.6348	19.000000	109.6348	402.3597	36.2124	429.0000	15535.1086	95.4072	162.8295
97	Forest	Central and Southern California Mixed Evergreen Woodland	90.6348	38.000000	128.6348	472.0897	42.4881	945.0000	40151.2303	210.1628	191.0482
98	Forest	Central and Southern California Mixed Evergreen Woodland	90.6348	0.0000	90.6348	332.6297	29.9367	18.0000	538.8601	4.0031	134.6107
99	Forest	Central and Southern California Mixed Evergreen Woodland	105.1030	0.000000	105.1030	385.7279	34.7155	1.0000	34.7155	0.2224	156.0988
100	Forest	Central and Southern California Mixed Evergreen Woodland	105.1030	38.000000	143.1030	525.1879	47.2669	4.0000	189.0676	0.8896	212.5363
101	Forest	Central and Southern California Mixed Evergreen Woodland	111.2302	0.000000	111.2302	408.2148	36.7393	6470.0000	237703.4978	1438.8924	165.1989
102	Forest	Central and Southern California Mixed Evergreen Woodland	111.2302	19.000000	130.2302	477.9448	43.0150	3748.0000	161220.3514	833.5346	193.4177
103	Forest	Central and Southern California Mixed Evergreen Woodland	111.2302	38.000000	149.2302	547.6748	49.2907	18910.0000	932087.8000	4205.4800	221.6365
104	Forest	Central and Southern California Mixed Evergreen Woodland	111.2302	88.000000	199.2302	731.1748	65.8057	5.0000	329.0287	1.1120	295.8964
105	Forest	Central and Southern California Mixed Evergreen Woodland	111.2302	0.0000	111.2302	408.2148	36.7393	529.0000	19435.1082	117.6467	165.1989
106	Forest	Central and Southern California Mixed Evergreen Woodland	150.6005	0.000000	150.6005	552.7040	49.7434	95.0000	4725.6188	21.1275	223.6717
107	Forest	Central and Southern California Mixed Evergreen Woodland	150.6005	19.000000	169.6005	622.4340	56.0191	34.0000	1904.6479	7.5614	251.8905
108	Forest	Central and Southern California Mixed Evergreen Woodland	150.6005	38.000000	188.6005	692.1640	62.2948	1222.0000	76124.1920	271.7661	280.1092
109	Forest	Central and Southern California Mixed Evergreen Woodland	158.2302	0.000000	158.2302	580.7048	52.2634	17.0000	888.4784	3.7807	235.0033
110	Forest	Central and Southern California Mixed Evergreen Woodland	158.2302	19.000000	177.2302	650.4348	58.5391	78.0000	4566.0525	17.3468	263.2220
111	Forest	Central and Southern California Mixed Evergreen Woodland	158.2302	38.000000	196.2302	720.1648	64.8148	99.0000	6416.6687	22.0171	291.4408
112	Forest	Central and Southern California Mixed Evergreen Woodland	183.4034	0.000000	183.4034	673.0905	60.5781	4987.0000	302103.1992	1109.0814	272.3905
113	Forest	Central and Southern California Mixed Evergreen Woodland	183.4034	19.000000	202.4034	742.8205	66.8538	5834.0000	390025.3202	1297.4495	300.6092
114	Forest	Central and Southern California Mixed Evergreen Woodland	183.4034	38.000000	221.4034	812.5505	73.1295	41218.0000	3014253.5042	9166.6565	328.8280
115	Forest	Central and Southern California Mixed Evergreen Woodland	183.4034	88.000000	271.4034	996.0505	89.6445	2.0000	179.2891	0.4448	403.0879
116	Forest	Central and Southern California Mixed Evergreen Woodland	183.4034	0.0000	183.4034	673.0905	60.5781	249.0000	15083.9576	55.3762	272.3905
117	Forest	Central and Southern California Mixed Evergreen Woodland	237.1479	0.000000	237.1479	870.3328	78.3300	1193.0000	93447.6320	265.3166	352.2117
118	Forest	Central and Southern California Mixed Evergreen Woodland	237.1479	19.000000	256.1479	940.0628	84.6057	1224.0000	103557.3173	272.2109	380.4305
119	Forest	Central and Southern California Mixed Evergreen Woodland	237.1479	38.000000	275.1479	1009.7928	90.8814	31050.0000	2821865.9600	6905.3492	408.6493
120	Forest	Central and Southern California Mixed Evergreen Woodland	237.1479	0.0000	237.1479	870.3328	78.3300	2.0000	156.6599	0.4448	352.2117
121	Forest	Central and Southern California Mixed Evergreen Woodland	424.2220	0.000000	424.2220	1556.8947	140.1205	176.0000	24661.2127	39.1414	630.0539
122	Forest	Central and Southern California Mixed Evergreen Woodland	424.2220	19.000000	443.2220	1626.6247	146.3962	169.0000	24740.9623	37.5847	658.2727
123	Forest	Central and Southern California Mixed Evergreen Woodland	424.2220	38.000000	462.2220	1696.3547	152.6719	3521.0000	537557.8536	783.0510	686.4915
124	Forest	Central and Southern California Mixed Evergreen Woodland	424.2220	0.0000	424.2220	1556.8947	140.1205	5.0000	700.6026	1.1120	630.0539
125	Forest	Central and Southern California Mixed Evergreen Woodland	485.6886	0.000000	485.6886	1782.4772	160.4229	175.0000	28074.0153	38.9190	721.3440
126	Forest	Central and Southern California Mixed Evergreen Woodland	485.6886	19.000000	504.6886	1852.2072	166.6986	165.0000	27505.2764	36.6951	749.5628
127	Forest	Central and Southern California Mixed Evergreen Woodland	485.6886	38.000000	523.6886	1921.9372	172.9743	5387.0000	931812.7943	1198.0392	777.7816
128	Forest	Central and Southern California Mixed Evergreen Woodland	485.6886	0.0000	485.6886	1782.4772	160.4229	4.0000	641.6918	0.8896	721.3440
129	Forest	Great Basin Pinyon-Juniper Woodland	71.3202	0.000000	71.3202	261.7450	23.5570	6099.0000	143674.4208	1356.3841	105.9246
130	Forest	Great Basin Pinyon-Juniper Woodland	71.3202	19.000000	90.3202	331.4750	29.8327	761.0000	22702.7194	169.2422	134.1434
131	Forest	Great Basin Pinyon-Juniper Woodland	71.3202	38.000000	109.3202	401.2050	36.1084	5878.0000	212245.4429	1307.2349	162.3621
132	Forest	Great Basin Pinyon-Juniper Woodland	71.3202	0.0000	71.3202	261.7450	23.5570	10204.0000	240376.0927	2269.3135	105.9246
133	Forest	Great Basin Pinyon-Juniper Woodland	76.3856	0.000000	76.3856	280.3351	25.2302	2034.0000	51318.1361	452.3504	113.4477
134	Forest	Great Basin Pinyon-Juniper Woodland	76.3856	19.000000	95.3856	350.0651	31.5059	300.0000	9451.7566	66.7184	141.6665
135	Forest	Great Basin Pinyon-Juniper Woodland	76.3856	38.000000	114.3856	419.7951	37.7816	5352.0000	202206.8846	1190.2554	169.8853
136	Forest	Great Basin Pinyon-Juniper Woodland	76.3856	0.0000	76.3856	280.3351	25.2302	3393.0000	85605.9173	754.5845	113.4477
137	Forest	Great Basin Pinyon-Juniper Woodland	92.4161	0.000000	92.4161	339.1671	30.5250	1435.0000	43803.4293	319.1361	137.2563
138	Forest	Great Basin Pinyon-Juniper Woodland	92.4161	19.000000	111.4161	408.8971	36.8007	94.0000	3459.2694	20.9051	165.4750
139	Forest	Great Basin Pinyon-Juniper Woodland	92.4161	38.000000	130.4161	478.6271	43.0764	1160.0000	49968.6679	257.9776	193.6938
140	Forest	Great Basin Pinyon-Juniper Woodland	92.4161	0.0000	92.4161	339.1671	30.5250	1613.0000	49236.8860	358.7223	137.2563
141	Forest	Great Basin Pinyon-Juniper Woodland	100.8879	0.000000	100.8879	370.2584	33.3233	831.0000	27691.6264	184.8098	149.8385
142	Forest	Great Basin Pinyon-Juniper Woodland	100.8879	19.000000	119.8879	439.9884	39.5990	357.0000	14136.8276	79.3948	178.0573
143	Forest	Great Basin Pinyon-Juniper Woodland	100.8879	38.000000	138.8879	509.7184	45.8747	2596.0000	119090.6092	577.3361	206.2760
144	Forest	Great Basin Pinyon-Juniper Woodland	100.8879	0.0000	100.8879	370.2584	33.3233	1236.0000	41187.5455	274.8796	149.8385
145	Forest	Great Basin Pinyon-Juniper Woodland	140.2175	38.000000	178.2175	654.0580	58.8652	2.0000	117.7304	0.4448	264.6883
146	Forest	Great Basin Pinyon-Juniper Woodland	151.0862	38.000000	189.0862	693.9464	62.4552	16.0000	999.2827	3.5583	280.8306

SANDAG Carbon Inventory - 2016			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil_MTCO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Clas	Land Cover Type	16_TotalMTCha	16_SOC_MT_Cha	16_TOTALC_MCTha	16_TOTALC_MTCO2eha	16_TOTALC_MTCO2epixel	Number of Pixels	16_TOTALC_MTCO2e	Acres	TOTAL MTCO2e/Acre
147	Forest	Great Basin Pinyon-Juniper Woodland	151.0862	0.0000	151.0862	554.4864	49.9038	1.0000	49.9038	0.2224	224.3930
148	Forest	Interior West Ruderal Riparian Forest	62.0000	0.000000	62.0000	227.5400	20.4786	6.0000	122.8716	1.3344	92.0823
149	Forest	Interior West Ruderal Riparian Forest	62.0000	19.000000	81.0000	297.2700	26.7543	362.0000	9685.0566	80.5068	120.3011
150	Forest	Interior West Ruderal Riparian Forest	62.0000	38.000000	100.0000	367.0000	33.0300	2.0000	66.0600	0.4448	148.5199
151	Forest	Interior West Ruderal Riparian Forest	62.0000	0.0000	62.0000	227.5400	20.4786	336.0000	6880.8096	74.7246	92.0823
152	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	68.3180	0.000000	68.3180	250.7272	22.5654	182.0000	4106.9107	40.4758	101.4658
153	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	68.3180	19.000000	87.3180	320.4572	28.8411	1.0000	28.8411	0.2224	129.6846
154	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	68.3180	38.000000	106.3180	390.1872	35.1168	293.0000	10289.2352	65.1616	157.9034
155	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	68.3180	0.0000	68.3180	250.7272	22.5654	106.0000	2391.9370	23.5738	101.4658
156	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	82.1936	0.000000	82.1936	301.6505	27.1485	137.0000	3719.3508	30.4680	122.0738
157	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	82.1936	19.000000	101.1936	371.3805	33.4242	1.0000	33.4242	0.2224	150.2926
158	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	82.1936	38.000000	120.1936	441.1105	39.6999	339.0000	13458.2817	75.3917	178.5114
159	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	82.1936	0.0000	82.1936	301.6505	27.1485	157.0000	4262.3217	34.9159	122.0738
160	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	96.4746	0.000000	96.4746	354.0616	31.8655	1759.0000	56051.4917	391.1919	143.2839
161	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	96.4746	19.000000	115.4746	423.7916	38.1412	3.0000	114.4237	0.6672	171.5026
162	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	96.4746	38.000000	134.4746	493.5216	44.4169	1084.0000	48147.9671	241.0756	199.7214
163	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	96.4746	0.0000	96.4746	354.0616	31.8655	9.0000	286.7899	2.0016	143.2839
164	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	121.6313	0.000000	121.6313	446.3869	40.1748	4180.0000	167930.7409	929.6090	180.6466
165	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	121.6313	19.000000	140.6313	516.1169	46.4505	45.0000	2090.2733	10.0078	208.8654
166	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	121.6313	38.000000	159.6313	585.8469	52.7262	11846.0000	624594.7830	2634.4852	237.0842
167	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	121.6313	0.0000	121.6313	446.3869	40.1748	115.0000	4620.1041	25.5754	180.6466
168	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	166.8359	0.000000	166.8359	612.2878	55.1059	45.0000	2479.7654	10.0078	247.7844
169	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	166.8359	38.000000	204.8359	751.7478	67.6573	121.0000	8186.5330	26.9097	304.2220
170	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	167.8182	0.000000	167.8182	615.8928	55.4304	9.0000	498.8732	2.0016	249.2434
171	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	167.8182	38.000000	205.8182	755.3528	67.9818	315.0000	21414.2517	70.0543	305.6809
172	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	205.6438	0.000000	205.6438	754.7127	67.9241	1847.0000	125455.8998	410.7626	305.4219
173	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	205.6438	19.000000	224.6438	824.4427	74.1998	109.0000	8087.7833	24.2410	333.6407
174	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	205.6438	38.000000	243.6438	894.1727	80.4755	17081.0000	1374602.8207	3798.7205	361.8594
175	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	205.6438	0.0000	205.6438	754.7127	67.9241	91.0000	6181.0974	20.2379	305.4219
176	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	269.0092	0.000000	269.0092	987.2638	88.8537	57.0000	5064.6631	12.6765	399.5321
177	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	269.0092	19.000000	288.0092	1056.9938	95.1294	26.0000	2473.3654	5.7823	427.7509
178	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	269.0092	38.000000	307.0092	1126.7238	101.4051	4026.0000	408257.0886	895.3603	455.9696
179	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	269.0092	0.0000	269.0092	987.2638	88.8537	7.0000	621.9762	1.5568	399.5321
180	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	413.0478	0.000000	413.0478	1515.8852	136.4297	1.0000	136.4297	0.2224	613.4579
181	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	470.4982	0.000000	470.4982	1726.7284	155.4056	88.0000	13675.6889	19.5707	698.7833
182	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	470.4982	19.000000	489.4982	1796.4584	161.6813	6.0000	970.0875	1.3344	727.0020
183	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	470.4982	38.000000	508.4982	1866.1884	167.9570	1588.0000	266715.6453	353.1625	755.2208
184	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	470.4982	0.0000	470.4982	1726.7284	155.4056	14.0000	2175.6778	3.1135	698.7833
185	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	560.1758	0.000000	560.1758	2055.8451	185.0261	7.0000	1295.1824	1.5568	831.9723
186	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	560.1758	19.000000	579.1758	2125.5751	191.3018	5.0000	956.5088	1.1120	860.1910
187	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	560.1758	38.000000	598.1758	2195.3051	197.5775	762.0000	150554.0213	169.4646	888.4098
188	Forest	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	560.1758	0.0000	560.1758	2055.8451	185.0261	6.0000	1110.1563	1.3344	831.9723
189	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	63.8636	0.000000	63.8636	234.3794	21.0941	233.0000	4914.9363	51.8179	94.8501
190	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	63.8636	19.000000	82.8636	304.1094	27.3698	93.0000	2545.3958	20.6827	123.0689
191	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	63.8636	38.000000	101.8636	373.8394	33.6455	265.0000	8916.0700	58.9345	151.2877
192	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	63.8636	88.000000	151.8636	557.3394	50.1605	8.0000	401.2844	1.7792	225.5476
193	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	63.8636	0.0000	63.8636	234.3794	21.0941	3.0000	63.2824	0.6672	94.8501
194	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	64.8224	0.000000	64.8224	237.8982	21.4108	75.0000	1605.8129	16.6796	96.2741
195	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	64.8224	19.000000	83.8224	307.6282	27.6865	21.0000	581.4173	4.6703	124.4929
196	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	64.8224	38.000000	102.8224	377.3582	33.9622	107.0000	3633.9595	23.7962	152.7117
197	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	70.8478	0.000000	70.8478	260.0114	23.4010	249.0000	5826.8561	55.3762	105.2231
198	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	70.8478	19.000000	89.8478	329.7414	29.6767	84.0000	2492.8452	18.6811	133.4418
199	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	70.8478	38.000000	108.8478	399.4714	35.9524	249.0000	8952.1547	55.3762	161.6606
200	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	70.8478	88.000000	158.8478	582.9714	52.4674	47.0000	2465.9691	10.4525	235.9205
201	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	70.8478	0.0000	70.8478	260.0114	23.4010	9.0000	210.6093	2.0016	105.2231
202	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	93.1775	0.000000	93.1775	341.9614	30.7765	2189.0000	67369.8203	486.8216	138.3871
203	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	93.1775	19.000000	112.1775	411.6914	37.0522	2090.0000	77439.1570	464.8045	166.6059
204	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	93.1775	38.000000	131.1775	481.4214	43.3279	7282.0000	315513.9735	1619.4767	194.8246
205	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	93.1775	88.000000	181.1775	664.9214	59.8429	103.0000	6163.8216	22.9066	269.0846
206	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	93.1775	0.0000	93.1775	341.9614	30.7765	20.0000	615.5306	4.4479	138.3871
207	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	98.5567	0.000000	98.5567	361.7029	32.5533	4240.0000	138025.8287	942.9527	146.3762
208	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	98.5567	19.000000	117.5567	431.4329	38.8290	2885.0000	112021.5539	641.6081	174.5950
209	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	98.5567	38.000000	136.5567	501.1629	45.1047	6591.0000	297284.8239	1465.8021	202.8137
210	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	98.5567	88.000000	186.5567	684.6629	61.6197	531.0000	32720.0403	118.0915	277.0737
211	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	98.5567	0.0000	98.5567	361.7029	32.5533	29.0000	944.0446	6.4494	146.3762
212	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	104.9299	0.000000	104.9299	385.0925	34.6583	1025.0000	35524.7877	227.9544	155.8417
213	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	104.9299	19.000000	123.9299	454.8225	40.9340	739.0000	30250.2478	164.3495	184.0604
214	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	104.9299	38.000000	142.9299	524.5525	47.2097	1520.0000	71758.7888	338.0396	212.2792
215	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	104.9299	88.000000	192.9299	708.0525	63.7247	415.0000	26445.7627	92.2937	286.5391
216	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	104.9299	0.0000	104.9299	385.0925	34.6583	17.0000	589.1916	3.7807	155.8417
217	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	157.1570	0.000000	157.1570	576.7663	51.9090	650.0000	33740.8293	144.5564	233.4094
218	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	157.1570	19.000000	176.1570	646.4963	58.1847	686.0000	39914.6823	152.5626	261.6282
219	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	157.1570	38.000000	195.1570	716.2263	64.4604	2560.0000	165018.5424	569.3299	289.8470

SANDAG Carbon Inventory - 2016			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil_MTCO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Clas	Land Cover Type	16_TotalMTCha	16_SOC_MT_Cha	16_TOTALC_MCTha	16_TOTALC_MTCO2eha	16_TOTALC_MTCO2epixel	Number of Pixels	16_TOTALC_MTCO2e	Acres	TOTAL MTCO2e/Acre
220	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	157.1570	88.000000	245.1570	899.7263	80.9754	101.0000	8178.5122	22.4618	364.1069
221	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	157.1570	0.0000	157.1570	576.7663	51.9090	8.0000	415.2717	1.7792	233.4094
222	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	159.5298	0.000000	159.5298	585.4742	52.6927	32.0000	1686.1656	7.1166	236.9334
223	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	159.5298	19.000000	178.5298	655.2042	58.9684	20.0000	1179.3675	4.4479	265.1521
224	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	159.5298	38.000000	197.5298	724.9342	65.2441	36.0000	2348.7868	8.0062	293.3709
225	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	159.5298	88.000000	247.5298	908.4342	81.7591	9.0000	735.8317	2.0016	367.6308
226	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	159.5298	0.0000	159.5298	585.4742	52.6927	1.0000	52.6927	0.2224	236.9334
227	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	161.4372	0.000000	161.4372	592.4744	53.3227	347.0000	18502.9756	77.1709	239.7663
228	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	161.4372	19.000000	180.4372	662.2044	59.5984	244.0000	14542.0087	54.2643	267.9850
229	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	161.4372	38.000000	199.4372	731.9344	65.8741	710.0000	46770.6083	157.9001	296.2038
230	Forest	Mediterranean California Foothill and Lower Montane Riparian Woodland	161.4372	88.000000	249.4372	915.4344	82.3891	94.0000	7744.5750	20.9051	370.4637
231	Forest	Mediterranean California Lower Montane Black Oak Forest and Woodland	72.6397	38.000000	110.6397	406.0476	36.5443	2.0000	73.0886	0.4448	164.3219
232	Forest	Mediterranean California Lower Montane Black Oak Forest and Woodland	83.0232	0.000000	83.0232	304.6950	27.4225	2.0000	54.8451	0.4448	123.3059
233	Forest	Mediterranean California Lower Montane Black Oak Forest and Woodland	83.0232	38.000000	121.0232	444.1550	39.9739	11.0000	439.7134	2.4463	179.7434
234	Forest	Mediterranean California Lower Montane Black Oak Forest and Woodland	110.1022	38.000000	148.1022	543.5351	48.9182	1.0000	48.9182	0.2224	219.9612
235	Forest	Mediterranean California Lower Montane Black Oak Forest and Woodland	129.8610	0.000000	129.8610	476.5899	42.8931	1.0000	42.8931	0.2224	192.8694
236	Forest	Mediterranean California Lower Montane Black Oak Forest and Woodland	129.8610	38.000000	167.8610	616.0499	55.4445	63.0000	3493.0028	14.0109	249.3069
237	Forest	Mediterranean California Lower Montane Black Oak Forest and Woodland	233.0848	38.000000	271.0848	994.8810	89.5393	13.0000	1164.0108	2.8911	402.6147
238	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	72.6397	0.000000	72.6397	266.5876	23.9929	33.0000	791.7652	7.3390	107.8843
239	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	72.6397	38.000000	110.6397	406.0476	36.5443	56.0000	2046.4799	12.4541	164.3219
240	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	72.6397	0.0000	72.6397	266.5876	23.9929	3.0000	71.9787	0.6672	107.8843
241	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	83.0232	0.000000	83.0232	304.6950	27.4225	21.0000	575.8735	4.6703	123.3059
242	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	83.0232	38.000000	121.0232	444.1550	39.9739	77.0000	3077.9939	17.1244	179.7434
243	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	83.0232	0.0000	83.0232	304.6950	27.4225	5.0000	137.1127	1.1120	123.3059
244	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	102.5548	38.000000	140.5548	515.8361	46.4252	3.0000	139.2757	0.6672	208.7518
245	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	110.1022	0.000000	110.1022	404.0751	36.3668	73.0000	2654.7732	16.2348	163.5236
246	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	110.1022	38.000000	148.1022	543.5351	48.9182	65.0000	3179.6802	14.4556	219.9612
247	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	110.1022	0.0000	110.1022	404.0751	36.3668	1.0000	36.3668	0.2224	163.5236
248	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	129.8610	0.000000	129.8610	476.5899	42.8931	282.0000	12095.8509	62.7152	192.8694
249	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	129.8610	19.000000	148.8610	546.3199	49.1688	4.0000	196.6752	0.8896	221.0881
250	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	129.8610	38.000000	167.8610	616.0499	55.4445	1129.0000	62596.8273	251.0834	249.3069
251	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	129.8610	0.0000	129.8610	476.5899	42.8931	38.0000	1629.9374	8.4510	192.8694
252	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	160.6491	0.000000	160.6491	589.5823	53.0624	4.0000	212.2496	0.8896	238.5959
253	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	160.6491	38.000000	198.6491	729.0423	65.6138	18.0000	1181.0486	4.0031	295.0334
254	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	202.3961	0.000000	202.3961	742.7937	66.8514	4.0000	267.4057	0.8896	300.5984
255	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	202.3961	38.000000	240.3961	882.2537	79.4028	6.0000	476.4170	1.3344	357.0360
256	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	233.0848	0.000000	233.0848	855.4210	76.9879	305.0000	23481.3073	67.8303	346.1771
257	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	233.0848	19.000000	252.0848	925.1510	83.2636	3.0000	249.7908	0.6672	374.3959
258	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	233.0848	38.000000	271.0848	994.8810	89.5393	1309.0000	117206.9344	291.1144	402.6147
259	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	233.0848	0.0000	233.0848	855.4210	76.9879	10.0000	769.8789	2.2239	346.1771
260	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	277.6462	0.000000	277.6462	1018.9617	91.7066	8.0000	733.6524	1.7792	412.3598
261	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	277.6462	38.000000	315.6462	1158.4217	104.2580	54.0000	5629.9293	12.0093	468.7973
262	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	566.6062	0.000000	566.6062	2079.4446	187.1500	21.0000	3930.1502	4.6703	841.5227
263	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	566.6062	38.000000	604.6062	2218.9046	199.7014	121.0000	24163.8708	26.9097	897.9602
264	Forest	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	630.6695	38.000000	668.6695	2454.0171	220.8615	30.0000	6625.8461	6.6718	993.1070
265	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	72.6397	0.000000	72.6397	266.5876	23.9929	124.0000	2975.1177	27.5769	107.8843
266	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	72.6397	19.000000	91.6397	336.3176	30.2686	5.0000	151.3429	1.1120	136.1031
267	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	72.6397	38.000000	110.6397	406.0476	36.5443	404.0000	14763.8910	89.8474	164.3219
268	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	72.6397	0.0000	72.6397	266.5876	23.9929	61.0000	1463.5660	13.5661	107.8843
269	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	83.0232	0.000000	83.0232	304.6950	27.4225	94.0000	2577.7194	20.9051	123.3059
270	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	83.0232	19.000000	102.0232	374.4250	33.6982	7.0000	235.8877	1.5568	151.5246
271	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	83.0232	38.000000	121.0232	444.1550	39.9739	539.0000	21545.9571	119.8706	179.7434
272	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	83.0232	0.0000	83.0232	304.6950	27.4225	129.0000	3537.5085	28.6889	123.3059
273	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	102.5548	38.000000	140.5548	515.8361	46.4252	1.0000	46.4252	0.2224	208.7518
274	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	110.1022	0.000000	110.1022	404.0751	36.3668	227.0000	8255.2538	50.4836	163.5236
275	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	110.1022	19.000000	129.1022	473.8051	42.6425	4.0000	170.5698	0.8896	191.7424
276	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	110.1022	38.000000	148.1022	543.5351	48.9182	504.0000	24654.7510	112.0868	219.9612
277	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	110.1022	0.0000	110.1022	404.0751	36.3668	7.0000	254.5673	1.5568	163.5236
278	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	129.8610	0.000000	129.8610	476.5899	42.8931	1064.0000	45638.2460	236.6277	192.8694
279	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	129.8610	19.000000	148.8610	546.3199	49.1688	50.0000	2458.4394	11.1197	221.0881
280	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	129.8610	38.000000	167.8610	616.0499	55.4445	7043.0000	390495.5311	1566.3245	249.3069
281	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	129.8610	0.0000	129.8610	476.5899	42.8931	572.0000	24534.8465	127.2097	192.8694
282	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	160.6491	0.000000	160.6491	589.5823	53.0624	1.0000	53.0624	0.2224	238.5959
283	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	160.6491	19.000000	179.6491	659.3123	59.3381	1.0000	59.3381	0.2224	266.8146
284	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	160.6491	38.000000	198.6491	729.0423	65.6138	46.0000	3018.2352	10.2301	295.0334
285	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	160.6491	0.0000	160.6491	589.5823	53.0624	2.0000	106.1248	0.4448	238.5959
286	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	202.3961	0.000000	202.3961	742.7937	66.8514	13.0000	869.0686	2.8911	300.5984
287	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	202.3961	38.000000	240.3961	882.2537	79.4028	30.0000	2382.0850	6.6718	357.0360
288	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	233.0848	0.000000	233.0848	855.4210	76.9879	724.0000	55739.2345	161.0136	346.1771
289	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	233.0848	19.000000	252.0848	925.1510	83.2636	42.0000	3497.0709	9.3406	374.3959
290	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	233.0848	38.000000	271.0848	994.8810	89.5393	8161.0000	730730.1696	1814.9615	402.6147
291	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	233.0848	0.0000	233.0848	855.4210	76.9879	198.0000	15243.6028	44.0341	346.1771
292	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	277.6462	0.000000	277.6462	1018.9617	91.7066	14.0000	1283.8917	3.1135	412.3598

SANDAG Carbon Inventory - 2016			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil_MTCO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Clas	Land Cover Type	16_TotalMTCha	16_SOC_MT_Cha	16_TOTALC_MCTha	16_TOTALC_MTCO2eha	16_TOTALC_MTCO2epixel	Number of Pixels	16_TOTALC_MTCO2e	Acres	TOTAL MTCO2e/Acre
293	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	277.6462	19.000000	296.6462	1088.6917	97.9823	4.0000	391.9290	0.8896	440.5786
294	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	277.6462	38.000000	315.6462	1158.4217	104.2580	659.0000	68705.9896	146.5580	468.7973
295	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	277.6462	0.0000	277.6462	1018.9617	91.7066	2.0000	183.4131	0.4448	412.3598
296	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	566.6062	0.000000	566.6062	2079.4446	187.1500	25.0000	4678.7503	5.5599	841.5227
297	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	566.6062	19.000000	585.6062	2149.1746	193.4257	3.0000	580.2771	0.6672	869.7414
298	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	566.6062	38.000000	604.6062	2218.9046	199.7014	644.0000	128607.7089	143.2221	897.9602
299	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	566.6062	0.0000	566.6062	2079.4446	187.1500	8.0000	1497.2001	1.7792	841.5227
300	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	630.6695	19.000000	649.6695	2384.2871	214.5858	1.0000	214.5858	0.2224	964.8882
301	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	630.6695	38.000000	668.6695	2454.0171	220.8615	165.0000	36442.1534	36.6951	993.1070
302	Forest	Mediterranean California Lower Montane Conifer Forest and Woodland	630.6695	0.0000	630.6695	2314.5571	208.3101	2.0000	416.6203	0.4448	936.6695
303	Forest	Mediterranean California Mixed Oak Woodland	71.8994	0.000000	71.8994	263.8709	23.7484	51.0000	1211.1674	11.3421	106.7849
304	Forest	Mediterranean California Mixed Oak Woodland	71.8994	19.000000	90.8994	333.6009	30.0241	4.0000	120.0963	0.8896	135.0037
305	Forest	Mediterranean California Mixed Oak Woodland	71.8994	38.000000	109.8994	403.3309	36.2998	97.0000	3521.0787	21.5723	163.2225
306	Forest	Mediterranean California Mixed Oak Woodland	71.8994	0.0000	71.8994	263.8709	23.7484	34.0000	807.4449	7.5614	106.7849
307	Forest	Mediterranean California Mixed Oak Woodland	85.0254	0.000000	85.0254	312.0430	28.0839	123.0000	3454.3164	27.3545	126.2795
308	Forest	Mediterranean California Mixed Oak Woodland	85.0254	19.000000	104.0254	381.7730	34.3596	4.0000	137.4383	0.8896	154.4983
309	Forest	Mediterranean California Mixed Oak Woodland	85.0254	38.000000	123.0254	451.5030	40.6353	198.0000	8045.7841	44.0341	182.7171
310	Forest	Mediterranean California Mixed Oak Woodland	85.0254	0.0000	85.0254	312.0430	28.0839	71.0000	1993.9550	15.7900	126.2795
311	Forest	Mediterranean California Mixed Oak Woodland	96.3265	0.000000	96.3265	353.5183	31.8166	152.0000	4836.1297	33.8040	143.0640
312	Forest	Mediterranean California Mixed Oak Woodland	96.3265	19.000000	115.3265	423.2483	38.0923	8.0000	304.7387	1.7792	171.2828
313	Forest	Mediterranean California Mixed Oak Woodland	96.3265	38.000000	134.3265	492.9783	44.3680	165.0000	7320.7271	36.6951	199.5015
314	Forest	Mediterranean California Mixed Oak Woodland	96.3265	0.0000	96.3265	353.5183	31.8166	5.0000	159.0832	1.1120	143.0640
315	Forest	Mediterranean California Mixed Oak Woodland	115.9749	0.000000	115.9749	425.6277	38.3065	1934.0000	74084.7574	430.1110	172.2457
316	Forest	Mediterranean California Mixed Oak Woodland	115.9749	19.000000	134.9749	495.3577	44.5822	139.0000	6196.9248	30.9128	200.4645
317	Forest	Mediterranean California Mixed Oak Woodland	115.9749	38.000000	153.9749	565.0877	50.8579	5102.0000	259476.9699	1134.6567	228.6832
318	Forest	Mediterranean California Mixed Oak Woodland	115.9749	0.0000	115.9749	425.6277	38.3065	235.0000	9002.0258	52.2627	172.2457
319	Forest	Mediterranean California Mixed Oak Woodland	149.9237	0.000000	149.9237	550.2201	49.5198	13.0000	643.7575	2.8911	222.6665
320	Forest	Mediterranean California Mixed Oak Woodland	149.9237	19.000000	168.9237	619.9501	55.7955	1.0000	55.7955	0.2224	250.8853
321	Forest	Mediterranean California Mixed Oak Woodland	149.9237	38.000000	187.9237	689.6801	62.0712	45.0000	2793.2044	10.0078	279.1041
322	Forest	Mediterranean California Mixed Oak Woodland	151.9604	0.000000	151.9604	557.6947	50.1925	10.0000	501.9252	2.2239	225.6914
323	Forest	Mediterranean California Mixed Oak Woodland	151.9604	19.000000	170.9604	627.4247	56.4682	1.0000	56.4682	0.2224	253.9101
324	Forest	Mediterranean California Mixed Oak Woodland	151.9604	38.000000	189.9604	697.1547	62.7439	38.0000	2384.2690	8.4510	282.1289
325	Forest	Mediterranean California Mixed Oak Woodland	178.4614	0.000000	178.4614	654.9532	58.9458	1700.0000	100207.8326	378.0707	265.0505
326	Forest	Mediterranean California Mixed Oak Woodland	178.4614	19.000000	197.4614	724.6832	65.2215	88.0000	5739.4906	19.5707	293.2693
327	Forest	Mediterranean California Mixed Oak Woodland	178.4614	38.000000	216.4614	794.4132	71.4972	9365.0000	669571.1273	2082.7245	321.4881
328	Forest	Mediterranean California Mixed Oak Woodland	178.4614	0.0000	178.4614	654.9532	58.9458	159.0000	9372.3796	35.3607	265.0505
329	Forest	Mediterranean California Mixed Oak Woodland	221.0927	0.000000	221.0927	811.4102	73.0269	56.0000	4089.5075	12.4541	328.3666
330	Forest	Mediterranean California Mixed Oak Woodland	221.0927	19.000000	240.0927	881.1402	79.3026	15.0000	1189.5393	3.3359	356.5853
331	Forest	Mediterranean California Mixed Oak Woodland	221.0927	38.000000	259.0927	950.8702	85.5783	798.0000	68291.4984	177.4708	384.8041
332	Forest	Mediterranean California Mixed Oak Woodland	221.0927	0.0000	221.0927	811.4102	73.0269	2.0000	146.0538	0.4448	328.3666
333	Forest	Mediterranean California Mixed Oak Woodland	376.3384	0.000000	376.3384	1381.1619	124.3046	88.0000	10938.8025	19.5707	558.9373
334	Forest	Mediterranean California Mixed Oak Woodland	376.3384	19.000000	395.3384	1450.8919	130.5803	3.0000	391.7408	0.6672	587.1560
335	Forest	Mediterranean California Mixed Oak Woodland	376.3384	38.000000	414.3384	1520.6219	136.8560	1014.0000	138771.9571	225.5080	615.3748
336	Forest	Mediterranean California Mixed Oak Woodland	376.3384	0.0000	376.3384	1381.1619	124.3046	6.0000	745.8274	1.3344	558.9373
337	Forest	Mediterranean California Mixed Oak Woodland	419.3246	0.000000	419.3246	1538.9213	138.5029	12.0000	1662.0350	2.6687	622.7803
338	Forest	Mediterranean California Mixed Oak Woodland	419.3246	19.000000	438.3246	1608.6513	144.7786	3.0000	434.3358	0.6672	650.9991
339	Forest	Mediterranean California Mixed Oak Woodland	419.3246	38.000000	457.3246	1678.3813	151.0543	288.0000	43503.6428	64.0496	679.2179
340	Forest	Mediterranean California Mixed Oak Woodland	419.3246	0.0000	419.3246	1538.9213	138.5029	1.0000	138.5029	0.2224	622.7803
341	Forest	North American Warm Desert Lower Montane Riparian Woodland	63.8636	0.000000	63.8636	234.3794	21.0941	18.0000	379.6946	4.0031	94.8501
342	Forest	North American Warm Desert Lower Montane Riparian Woodland	63.8636	19.000000	82.8636	304.1094	27.3698	49.0000	1341.1225	10.8973	123.0689
343	Forest	North American Warm Desert Lower Montane Riparian Woodland	63.8636	38.000000	101.8636	373.8394	33.6455	75.0000	2523.4160	16.6796	151.2877
344	Forest	North American Warm Desert Lower Montane Riparian Woodland	63.8636	0.0000	63.8636	234.3794	21.0941	12.0000	253.1298	2.6687	94.8501
345	Forest	North American Warm Desert Lower Montane Riparian Woodland	70.8478	0.000000	70.8478	260.0114	23.4010	25.0000	585.0257	5.5599	105.2231
346	Forest	North American Warm Desert Lower Montane Riparian Woodland	70.8478	19.000000	89.8478	329.7414	29.6767	24.0000	712.2415	5.3375	133.4418
347	Forest	North American Warm Desert Lower Montane Riparian Woodland	70.8478	38.000000	108.8478	399.4714	35.9524	27.0000	970.7156	6.0047	161.6606
348	Forest	North American Warm Desert Lower Montane Riparian Woodland	70.8478	0.0000	70.8478	260.0114	23.4010	11.0000	257.4113	2.4463	105.2231
349	Forest	North American Warm Desert Lower Montane Riparian Woodland	98.5567	0.000000	98.5567	361.7029	32.5533	128.0000	4166.8175	28.4665	146.3762
350	Forest	North American Warm Desert Lower Montane Riparian Woodland	98.5567	19.000000	117.5567	431.4329	38.8290	746.0000	28966.4053	165.9063	174.5950
351	Forest	North American Warm Desert Lower Montane Riparian Woodland	98.5567	38.000000	136.5567	501.1629	45.1047	144.0000	6495.0713	32.0248	202.8137
352	Forest	North American Warm Desert Lower Montane Riparian Woodland	98.5567	0.0000	98.5567	361.7029	32.5533	47.0000	1530.0033	10.4525	146.3762
353	Forest	North American Warm Desert Lower Montane Riparian Woodland	104.9299	0.000000	104.9299	385.0925	34.6583	72.0000	2495.3997	16.0124	155.8417
354	Forest	North American Warm Desert Lower Montane Riparian Woodland	104.9299	19.000000	123.9299	454.8225	40.9340	236.0000	9660.4310	52.4851	184.0604
355	Forest	North American Warm Desert Lower Montane Riparian Woodland	104.9299	38.000000	142.9299	524.5525	47.2097	101.0000	4768.1827	22.4618	212.2792
356	Forest	North American Warm Desert Lower Montane Riparian Woodland	104.9299	0.0000	104.9299	385.0925	34.6583	18.0000	623.8499	4.0031	155.8417
357	Forest	North American Warm Desert Lower Montane Riparian Woodland	159.5298	0.000000	159.5298	585.4742	52.6927	1.0000	52.6927	0.2224	236.9334
358	Forest	North American Warm Desert Lower Montane Riparian Woodland	159.5298	19.000000	178.5298	655.2042	58.9684	1.0000	58.9684	0.2224	265.1521
359	Forest	North American Warm Desert Lower Montane Riparian Woodland	159.5298	38.000000	197.5298	724.9342	65.2441	1.0000	65.2441	0.2224	293.3709
360	Forest	North American Warm Desert Lower Montane Riparian Woodland	161.4372	0.000000	161.4372	592.4744	53.3227	26.0000	1386.3901	5.7823	239.7663
361	Forest	North American Warm Desert Lower Montane Riparian Woodland	161.4372	19.000000	180.4372	662.2044	59.5984	172.0000	10250.9241	38.2519	267.9850
362	Forest	North American Warm Desert Lower Montane Riparian Woodland	161.4372	38.000000	199.4372	731.9344	65.8741	19.0000	1251.6078	4.2255	296.2038
363	Forest	North American Warm Desert Lower Montane Riparian Woodland	161.4372	0.0000	161.4372	592.4744	53.3227	1.0000	53.3227	0.2224	239.7663
364	Forest	North American Warm Desert Riparian Mesquite Bosque Woodland	51.8470	0.000000	51.8470	190.2786	17.1251	51.0000	873.3789	11.3421	77.0031
365	Forest	North American Warm Desert Riparian Mesquite Bosque Woodland	51.8470	19.000000	70.8470	260.0086	23.4008	392.0000	9173.1042	87.1786	105.2219

SANDAG Carbon Inventory - 2016			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil_MTCO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Clas	Land Cover Type	16_TotalMTCha	16_SOC_MT_Cha	16_TOTALC_MCTha	16_TOTALC_MTCO2eha	16_TOTALC_MTCO2epixel	Number of Pixels	16_TOTALC_MTCO2e	Acres	TOTAL MTCO2e/Acre
366	Forest	North American Warm Desert Riparian Mesquite Bosque Woodland	51.8470	38.000000	89.8470	329.7386	29.6765	44.0000	1305.7649	9.7854	133.4407
367	Forest	North American Warm Desert Riparian Mesquite Bosque Woodland	51.8470	0.0000	51.8470	190.2786	17.1251	98.0000	1678.2575	21.7947	77.0031
368	Forest	North American Warm Desert Riparian Woodland	63.8636	0.000000	63.8636	234.3794	21.0941	3.0000	63.2824	0.6672	94.8501
369	Forest	North American Warm Desert Riparian Woodland	63.8636	19.000000	82.8636	304.1094	27.3698	46.0000	1259.0130	10.2301	123.0689
370	Forest	North American Warm Desert Riparian Woodland	63.8636	38.000000	101.8636	373.8394	33.6455	6.0000	201.8733	1.3344	151.2877
371	Forest	North American Warm Desert Riparian Woodland	63.8636	0.0000	63.8636	234.3794	21.0941	36.0000	759.3893	8.0062	94.8501
372	Forest	North American Warm Desert Riparian Woodland	70.8478	0.000000	70.8478	260.0114	23.4010	9.0000	210.6093	2.0016	105.2231
373	Forest	North American Warm Desert Riparian Woodland	70.8478	19.000000	89.8478	329.7414	29.6767	128.0000	3798.6212	28.4665	133.4418
374	Forest	North American Warm Desert Riparian Woodland	70.8478	38.000000	108.8478	399.4714	35.9524	9.0000	323.5719	2.0016	161.6606
375	Forest	North American Warm Desert Riparian Woodland	70.8478	0.0000	70.8478	260.0114	23.4010	50.0000	1170.0514	11.1197	105.2231
376	Forest	North American Warm Desert Riparian Woodland	98.5567	0.000000	98.5567	361.7029	32.5533	18.0000	585.9587	4.0031	146.3762
377	Forest	North American Warm Desert Riparian Woodland	98.5567	19.000000	117.5567	431.4329	38.8290	428.0000	16618.7955	95.1848	174.5950
378	Forest	North American Warm Desert Riparian Woodland	98.5567	38.000000	136.5567	501.1629	45.1047	29.0000	1308.0352	6.4494	202.8137
379	Forest	North American Warm Desert Riparian Woodland	98.5567	0.0000	98.5567	361.7029	32.5533	445.0000	14486.2014	98.9656	146.3762
380	Forest	North American Warm Desert Riparian Woodland	104.9299	0.000000	104.9299	385.0925	34.6583	10.0000	346.5833	2.2239	155.8417
381	Forest	North American Warm Desert Riparian Woodland	104.9299	19.000000	123.9299	454.8225	40.9340	120.0000	4912.0835	26.6873	184.0604
382	Forest	North American Warm Desert Riparian Woodland	104.9299	38.000000	142.9299	524.5525	47.2097	12.0000	566.5168	2.6687	212.2792
383	Forest	North American Warm Desert Riparian Woodland	104.9299	0.0000	104.9299	385.0925	34.6583	76.0000	2634.0330	16.9020	155.8417
384	Forest	North American Warm Desert Riparian Woodland	161.4372	0.000000	161.4372	592.4744	53.3227	1.0000	53.3227	0.2224	239.7663
385	Forest	North American Warm Desert Riparian Woodland	161.4372	19.000000	180.4372	662.2044	59.5984	60.0000	3575.9038	13.3437	267.9850
386	Forest	North American Warm Desert Riparian Woodland	161.4372	38.000000	199.4372	731.9344	65.8741	8.0000	526.9928	1.7792	296.2038
387	Forest	North American Warm Desert Riparian Woodland	161.4372	0.0000	161.4372	592.4744	53.3227	37.0000	1972.9398	8.2286	239.7663
388	Forest	North American Warm Desert Wash Woodland	63.8636	0.0000	63.8636	234.3794	21.0941	1.0000	21.0941	0.2224	94.8501
389	Forest	North American Warm Desert Wash Woodland	70.8478	19.000000	89.8478	329.7414	29.6767	19.0000	563.8578	4.2255	133.4418
390	Forest	North American Warm Desert Wash Woodland	70.8478	38.000000	108.8478	399.4714	35.9524	3.0000	107.8573	0.6672	161.6606
391	Forest	North American Warm Desert Wash Woodland	70.8478	0.0000	70.8478	260.0114	23.4010	19.0000	444.6195	4.2255	105.2231
392	Forest	Recently Burned-Tree Cover	1.5040	0.000000	1.5040	5.5197	0.4968	4780.0000	2374.5663	1063.0457	2.2337
393	Forest	Recently Burned-Tree Cover	1.5040	19.000000	20.5040	75.2497	6.7725	9388.0000	63579.9596	2087.8396	30.4525
394	Forest	Recently Burned-Tree Cover	1.5040	38.000000	39.5040	144.9797	13.0482	33840.0000	441550.1134	7525.8299	58.6713
395	Forest	Recently Burned-Tree Cover	1.5040	0.0000	1.5040	5.5197	0.4968	165.0000	81.9672	36.6951	2.2337
396	Forest	Recently Disturbed Other-Tree Cover	1.5040	0.000000	1.5040	5.5197	0.4968	11.0000	5.4645	2.4463	2.2337
397	Forest	Recently Disturbed Other-Tree Cover	1.5040	38.000000	39.5040	144.9797	13.0482	78.0000	1017.7574	17.3468	58.6713
398	Forest	Recently Logged-Tree Cover	1.5040	19.000000	20.5040	75.2497	6.7725	57.0000	386.0309	12.6765	30.4525
399	Forest	Recently Logged-Tree Cover	1.5040	38.000000	39.5040	144.9797	13.0482	60.0000	782.8903	13.3437	58.6713
400	Forest	Southern California Oak Woodland and Savanna	74.1366	0.000000	74.1366	272.0814	24.4873	1616.0000	39571.5208	359.3895	110.1076
401	Forest	Southern California Oak Woodland and Savanna	74.1366	19.000000	93.1366	341.8114	30.7630	484.0000	14889.3052	107.6389	138.3264
402	Forest	Southern California Oak Woodland and Savanna	74.1366	38.000000	112.1366	411.5414	37.0387	1672.0000	61928.7519	371.8436	166.5452
403	Forest	Southern California Oak Woodland and Savanna	74.1366	0.0000	74.1366	272.0814	24.4873	327.0000	8007.3560	72.7230	110.1076
404	Forest	Southern California Oak Woodland and Savanna	82.6472	0.000000	82.6472	303.3150	27.2984	1258.0000	34341.3289	279.7723	122.7474
405	Forest	Southern California Oak Woodland and Savanna	82.6472	19.000000	101.6472	373.0450	33.5741	1230.0000	41296.0860	273.5452	150.9662
406	Forest	Southern California Oak Woodland and Savanna	82.6472	38.000000	120.6472	442.7750	39.8498	3467.0000	138159.0959	771.0417	179.1850
407	Forest	Southern California Oak Woodland and Savanna	82.6472	0.0000	82.6472	303.3150	27.2984	34.0000	928.1440	7.5614	122.7474
408	Forest	Southern California Oak Woodland and Savanna	83.9444	0.000000	83.9444	308.0758	27.7268	1272.0000	35268.5135	282.8858	124.6740
409	Forest	Southern California Oak Woodland and Savanna	83.9444	19.000000	102.9444	377.8058	34.0025	283.0000	9622.7128	62.9376	152.8928
410	Forest	Southern California Oak Woodland and Savanna	83.9444	38.000000	121.9444	447.5358	40.2782	1483.0000	59732.5985	329.8110	181.1116
411	Forest	Southern California Oak Woodland and Savanna	83.9444	0.0000	83.9444	308.0758	27.7268	441.0000	12227.5271	98.0760	124.6740
412	Forest	Southern California Oak Woodland and Savanna	96.8036	0.000000	96.8036	355.2690	31.9742	15513.0000	496015.9595	3450.0059	143.7725
413	Forest	Southern California Oak Woodland and Savanna	96.8036	19.000000	115.8036	424.9990	38.2499	18802.0000	719174.8560	4181.4614	171.9913
414	Forest	Southern California Oak Woodland and Savanna	96.8036	38.000000	134.8036	494.7290	44.5256	55720.0000	2480967.1321	12391.8215	200.2100
415	Forest	Southern California Oak Woodland and Savanna	96.8036	88.000000	184.8036	678.2290	61.0406	1.0000	61.0406	0.2224	274.4700
416	Forest	Southern California Oak Woodland and Savanna	96.8036	0.0000	96.8036	355.2690	31.9742	1167.0000	37313.9061	259.5344	143.7725
417	Forest	Southern California Oak Woodland and Savanna	102.8344	38.000000	140.8344	516.8624	46.5176	1.0000	46.5176	0.2224	209.1671
418	Forest	Southern California Oak Woodland and Savanna	108.3632	0.000000	108.3632	397.6929	35.7924	66.0000	2362.2961	14.6780	160.9409
419	Forest	Southern California Oak Woodland and Savanna	108.3632	19.000000	127.3632	467.4229	42.0681	300.0000	12620.4195	66.7184	189.1596
420	Forest	Southern California Oak Woodland and Savanna	108.3632	38.000000	146.3632	537.1529	48.3438	1318.0000	63717.0822	293.1160	217.3784
421	Forest	Southern California Oak Woodland and Savanna	121.1347	0.000000	121.1347	444.5642	40.0108	103.0000	4121.1104	22.9066	179.9090
422	Forest	Southern California Oak Woodland and Savanna	121.1347	19.000000	140.1347	514.2942	46.2865	22.0000	1018.3026	4.8927	208.1278
423	Forest	Southern California Oak Woodland and Savanna	121.1347	38.000000	159.1347	584.0242	52.5622	325.0000	17082.7086	72.2782	236.3466
424	Forest	Southern California Oak Woodland and Savanna	124.2140	0.000000	124.2140	455.8652	41.0279	19664.0000	806771.9902	4373.1654	184.4824
425	Forest	Southern California Oak Woodland and Savanna	124.2140	19.000000	143.2140	525.5952	47.3036	41731.0000	1974025.1831	9280.7449	212.7012
426	Forest	Southern California Oak Woodland and Savanna	124.2140	38.000000	162.2140	595.3252	53.5793	172147.0000	9223510.1942	38284.5460	240.9199
427	Forest	Southern California Oak Woodland and Savanna	124.2140	0.0000	124.2140	455.8652	41.0279	1021.0000	41889.4529	227.0648	184.4824
428	Forest	Southern California Oak Woodland and Savanna	156.3173	0.000000	156.3173	573.6845	51.6316	1107.0000	57156.1858	246.1907	232.1622
429	Forest	Southern California Oak Woodland and Savanna	156.3173	19.000000	175.3173	643.4145	57.9073	1130.0000	65435.2537	251.3058	260.3810
430	Forest	Southern California Oak Woodland and Savanna	156.3173	38.000000	194.3173	713.1445	64.1830	10541.0000	676553.0472	2344.2604	288.5998
431	Forest	Southern California Oak Woodland and Savanna	156.3173	0.0000	156.3173	573.6845	51.6316	5.0000	258.1580	1.1120	232.1622
432	Forest	Southern California Oak Woodland and Savanna	219.4430	0.000000	219.4430	805.3558	72.4820	1147.0000	83136.8803	255.0865	325.9164
433	Forest	Southern California Oak Woodland and Savanna	219.4430	19.000000	238.4430	875.0858	78.7577	2894.0000	227924.8501	643.6097	354.1352
434	Forest	Southern California Oak Woodland and Savanna	219.4430	38.000000	257.4430	944.8158	85.0334	27394.0000	2329405.5869	6092.2749	382.3540
435	Forest	Southern California Oak Woodland and Savanna	219.4430	0.0000	219.4430	805.3558	72.4820	30.0000	2174.4607	6.6718	325.9164
436	Forest	Southern California Oak Woodland and Savanna	258.3183	0.000000	258.3183	948.0280	85.3225	379.0000	32337.2364	84.2875	383.6539
437	Forest	Southern California Oak Woodland and Savanna	258.3183	19.000000	277.3183	1017.7580	91.5982	430.0000	39387.2361	95.6296	411.8727
438	Forest	Southern California Oak Woodland and Savanna	258.3183	38.000000	296.3183	1087.4880	97.8739	4255.0000	416453.5444	946.2886	440.0915

SANDAG Carbon Inventory - 2016			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil_MTCO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Clas	Land Cover Type	16_TotalMTCha	16_SOC_MT_Cha	16_TOTALC_MCTha	16_TOTALC_MTCO2eha	16_TOTALC_MTCO2epixel	Number of Pixels	16_TOTALC_MTCO2e	Acres	TOTAL MTCO2e/Acre
439	Forest	Southern California Oak Woodland and Savanna	258.3183	0.0000	258.3183	948.0280	85.3225	4.0000	341.2901	0.8896	383.6539
440	Grassland	California Central Valley and Southern Coastal Grassland	6.1476	0.000000	6.1476	22.5617	2.0306	6399.0000	12993.5040	1423.1024	9.1304
441	Grassland	California Central Valley and Southern Coastal Grassland	6.1476	19.000000	25.1476	92.2917	8.3063	17686.0000	146904.3778	3933.2691	37.3492
442	Grassland	California Central Valley and Southern Coastal Grassland	6.1476	38.000000	44.1476	162.0217	14.5820	58739.0000	856529.2950	13063.2305	65.5680
443	Grassland	California Central Valley and Southern Coastal Grassland	6.1476	88.000000	94.1476	345.5217	31.0970	2.0000	62.1939	0.4448	139.8279
444	Grassland	California Central Valley and Southern Coastal Grassland	6.1476	0.0000	6.1476	22.5617	2.0306	95.0000	192.9025	21.1275	9.1304
445	Grassland	California Central Valley and Southern Coastal Grassland	6.9654	0.000000	6.9654	25.5630	2.3007	352.0000	809.8364	78.2829	10.3450
446	Grassland	California Central Valley and Southern Coastal Grassland	6.9654	19.000000	25.9654	95.2930	8.5764	1891.0000	16217.9187	420.5480	38.5638
447	Grassland	California Central Valley and Southern Coastal Grassland	6.9654	38.000000	44.9654	165.0230	14.8521	4886.0000	72567.2219	1086.6195	66.7825
448	Grassland	California Central Valley and Southern Coastal Grassland	6.9654	0.0000	6.9654	25.5630	2.3007	1.0000	2.3007	0.2224	10.3450
449	Grassland	California Central Valley and Southern Coastal Grassland	7.2850	0.000000	7.2850	26.7360	2.4062	1804.0000	4340.8488	401.1997	10.8197
450	Grassland	California Central Valley and Southern Coastal Grassland	7.2850	19.000000	26.2850	96.4660	8.6819	1474.0000	12797.1729	327.8095	39.0384
451	Grassland	California Central Valley and Southern Coastal Grassland	7.2850	38.000000	45.2850	166.1960	14.9576	3674.0000	54954.3528	817.0774	67.2572
452	Grassland	California Central Valley and Southern Coastal Grassland	7.2850	0.0000	7.2850	26.7360	2.4062	416.0000	1000.9940	92.5161	10.8197
453	Grassland	California Ruderal Grassland and Meadow	17.7000	0.000000	17.7000	64.9590	5.8463	14149.0000	82719.4402	3146.6598	26.2880
454	Grassland	California Ruderal Grassland and Meadow	17.7000	19.000000	36.7000	134.6890	12.1220	44556.0000	540108.2776	9909.0093	54.5068
455	Grassland	California Ruderal Grassland and Meadow	17.7000	38.000000	55.7000	204.4190	18.3977	279686.0000	5145581.9191	62200.6281	82.7256
456	Grassland	California Ruderal Grassland and Meadow	17.7000	88.000000	105.7000	387.9190	34.9127	57.0000	1990.0245	12.6765	156.9855
457	Grassland	California Ruderal Grassland and Meadow	17.7000	0.0000	17.7000	64.9590	5.8463	458.0000	2677.6100	101.8567	26.2880
458	Grassland	North American Warm Desert Riparian Herbaceous	51.8470	0.000000	51.8470	190.2786	17.1251	105.0000	1798.1330	23.3514	77.0031
459	Grassland	North American Warm Desert Riparian Herbaceous	51.8470	19.000000	70.8470	260.0086	23.4008	619.0000	14485.0804	137.6622	105.2219
460	Grassland	North American Warm Desert Riparian Herbaceous	51.8470	38.000000	89.8470	329.7386	29.6765	27.0000	801.2649	6.0047	133.4407
461	Grassland	North American Warm Desert Riparian Herbaceous	51.8470	0.0000	51.8470	190.2786	17.1251	272.0000	4658.0207	60.4913	77.0031
462	Grassland	North American Warm Desert Ruderal & Planted Grassland	17.7000	0.000000	17.7000	64.9590	5.8463	12953.0000	75727.2534	2880.6760	26.2880
463	Grassland	North American Warm Desert Ruderal & Planted Grassland	17.7000	19.000000	36.7000	134.6890	12.1220	20825.0000	252440.8583	4631.3655	54.5068
464	Grassland	North American Warm Desert Ruderal & Planted Grassland	17.7000	38.000000	55.7000	204.4190	18.3977	3220.0000	59240.6262	716.1103	82.7256
465	Grassland	North American Warm Desert Ruderal & Planted Grassland	17.7000	0.0000	17.7000	64.9590	5.8463	26719.0000	156207.5569	5942.1586	26.2880
466	Grassland	Recently Burned-Herb and Grass Cover	6.9654	0.000000	6.9654	25.5630	2.3007	2698.0000	6207.2120	600.0204	10.3450
467	Grassland	Recently Burned-Herb and Grass Cover	6.9654	19.000000	25.9654	95.2930	8.5764	6615.0000	56732.6983	1471.1396	38.5638
468	Grassland	Recently Burned-Herb and Grass Cover	6.9654	38.000000	44.9654	165.0230	14.8521	11241.0000	166952.1371	2499.9366	66.7825
469	Grassland	Recently Burned-Herb and Grass Cover	6.9654	0.0000	6.9654	25.5630	2.3007	684.0000	1573.6594	152.1178	10.3450
470	Grassland	Recently Disturbed Other-Herb and Grass Cover	1.5040	19.000000	20.5040	75.2497	6.7725	6.0000	40.6348	1.3344	30.4525
471	Grassland	Recently Disturbed Other-Herb and Grass Cover	1.5040	38.000000	39.5040	144.9797	13.0482	570.0000	7437.4576	126.7649	58.6713
472	Grassland	Recently Logged-Herb and Grass Cover	1.5040	0.000000	1.5040	5.5197	0.4968	4.0000	1.9871	0.8896	2.2337
473	Grassland	Recently Logged-Herb and Grass Cover	1.5040	19.000000	20.5040	75.2497	6.7725	62.0000	419.8932	13.7885	30.4525
474	Grassland	Recently Logged-Herb and Grass Cover	1.5040	38.000000	39.5040	144.9797	13.0482	41.0000	534.9750	9.1182	58.6713
475	Grassland	Western Warm Temperate Fallow/Idle Cropland	1.0000	0.000000	1.0000	3.6700	0.3303	364.0000	120.2292	80.9516	1.4852
476	Grassland	Western Warm Temperate Fallow/Idle Cropland	1.0000	19.000000	20.0000	73.4000	6.6060	1769.0000	11686.0140	393.4159	29.7040
477	Grassland	Western Warm Temperate Fallow/Idle Cropland	1.0000	38.000000	39.0000	143.1300	12.8817	2847.0000	36674.1999	633.1571	57.9227
478	Grassland	Western Warm Temperate Fallow/Idle Cropland	1.0000	0.0000	1.0000	3.6700	0.3303	8.0000	2.6424	1.7792	1.4852
479	Irrigated Pastur	Miscellaneous Grain and Hay	5.7477	0.000000	5.7477	21.0942	1.8985	48.0000	91.1269	10.6749	8.5365
480	Irrigated Pastur	Miscellaneous Grain and Hay	5.7477	19.000000	24.7477	90.8242	8.1742	133.0000	1087.1655	29.5785	36.7553
481	Irrigated Pastur	Miscellaneous Grain and Hay	5.7477	38.000000	43.7477	160.5542	14.4499	3195.0000	46167.3567	710.5504	64.9741
482	Irrigated Pastur	Miscellaneous Grasses	5.7477	0.000000	5.7477	21.0942	1.8985	5.0000	9.4924	1.1120	8.5365
483	Irrigated Pastur	Miscellaneous Grasses	5.7477	19.000000	24.7477	90.8242	8.1742	3201.0000	26165.5403	711.8848	36.7553
484	Irrigated Pastur	Miscellaneous Grasses	5.7477	38.000000	43.7477	160.5542	14.4499	2770.0000	40026.1591	616.0328	64.9741
485	Irrigated Pastur	Mixed Pasture	5.7477	0.000000	5.7477	21.0942	1.8985	59.0000	112.0101	13.1213	8.5365
486	Irrigated Pastur	Mixed Pasture	5.7477	19.000000	24.7477	90.8242	8.1742	692.0000	5656.5304	153.8970	36.7553
487	Irrigated Pastur	Mixed Pasture	5.7477	38.000000	43.7477	160.5542	14.4499	1905.0000	27527.0155	423.6615	64.9741
488	Irrigated Pastur	Western Warm Temperate Pasture and Hayland	5.7477	0.000000	5.7477	21.0942	1.8985	92.0000	174.6599	20.4603	8.5365
489	Irrigated Pastur	Western Warm Temperate Pasture and Hayland	5.7477	19.000000	24.7477	90.8242	8.1742	2650.0000	21661.5688	589.3454	36.7553
490	Irrigated Pastur	Western Warm Temperate Pasture and Hayland	5.7477	38.000000	43.7477	160.5542	14.4499	22.0000	317.8973	4.8927	64.9741
491	Irrigated Pastur	Western Warm Temperate Pasture and Hayland	5.7477	0.0000	5.7477	21.0942	1.8985	41.0000	77.8376	9.1182	8.5365
492	Irrigated Pastur	Western Warm Temperate Wheat	5.4656	0.000000	5.4656	20.0587	1.8053	1.0000	1.8053	0.2224	8.1175
493	Orchard	Apples	7.5200	0.000000	7.5200	27.5984	2.4839	1.0000	2.4839	0.2224	11.1687
494	Orchard	Apples	7.5200	19.000000	26.5200	97.3284	8.7596	79.0000	692.0049	17.5692	39.3875
495	Orchard	Apples	7.5200	38.000000	45.5200	167.0584	15.0353	557.0000	8374.6376	123.8737	67.6062
496	Orchard	Avocados	20.3300	0.000000	20.3300	74.6111	6.7150	3684.0000	24738.0563	819.3013	30.1941
497	Orchard	Avocados	20.3300	19.000000	39.3300	144.3411	12.9907	50839.0000	660434.1465	11306.3140	58.4129
498	Orchard	Avocados	20.3300	38.000000	58.3300	214.0711	19.2664	32780.0000	631552.5592	7290.0917	86.6316
499	Orchard	Citrus	24.6300	19.000000	43.6300	160.1221	14.4110	76.0000	1095.2352	16.9020	64.7992
500	Orchard	Citrus	24.6300	0.000000	24.6300	90.3921	8.1353	1161.0000	9445.0705	258.2000	36.5804
501	Orchard	Citrus	24.6300	19.000000	43.6300	160.1221	14.4110	21600.0000	311277.3624	4803.7212	64.7992
502	Orchard	Citrus	24.6300	38.000000	62.6300	229.8521	20.6867	17140.0000	354569.8495	3811.8417	93.0180
503	Orchard	Citrus	24.6300	0.0000	24.6300	90.3921	8.1353	6.0000	48.8117	1.3344	36.5804
504	Orchard	Dates	7.5200	19.000000	26.5200	97.3284	8.7596	334.0000	2925.6917	74.2798	39.3875
505	Orchard	Miscellaneous Deciduous	5.0000	0.000000	5.0000	18.3500	1.6515	27.0000	44.5905	6.0047	7.4260
506	Orchard	Miscellaneous Deciduous	5.0000	19.000000	24.0000	88.0800	7.9272	242.0000	1918.3824	53.8195	35.6448
507	Orchard	Miscellaneous Deciduous	5.0000	38.000000	43.0000	157.8100	14.2029	716.0000	10169.2764	159.2345	63.8635
508	Orchard	Olives	2.6900	0.000000	2.6900	9.8723	0.8885	4.0000	3.5540	0.8896	3.9952
509	Orchard	Olives	2.6900	19.000000	21.6900	79.6023	7.1642	122.0000	874.0333	27.1321	32.2140
510	Orchard	Olives	2.6900	38.000000	40.6900	149.3323	13.4399	312.0000	4193.2510	69.3871	60.4327
511	Orchard	Pomegranates	7.5200	19.000000	26.5200	97.3284	8.7596	11.0000	96.3551	2.4463	39.3875

SANDAG Carbon Inventory - 2016			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil_MTCO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Clas	Land Cover Type	16_TotalMTCha	16_SOC_MT_Cha	16_TOTALC_MCTha	16_TOTALC_MTCO2eha	16_TOTALC_MTCO2epixel	Number of Pixels	16_TOTALC_MTCO2e	Acres	TOTAL MTCO2e/Acre
512	Orchard	Pomegranates	7.5200	38.000000	45.5200	167.0584	15.0353	60.0000	902.1154	13.3437	67.6062
513	Orchard	Western Warm Temperate Orchard	20.3300	0.000000	20.3300	74.6111	6.7150	2769.0000	18593.8322	615.8104	30.1941
514	Orchard	Western Warm Temperate Orchard	20.3300	19.000000	39.3300	144.3411	12.9907	16157.0000	209890.7237	3593.2279	58.4129
515	Orchard	Western Warm Temperate Orchard	20.3300	38.000000	58.3300	214.0711	19.2664	16680.0000	321363.5353	3709.5403	86.6316
516	Orchard	Western Warm Temperate Orchard	20.3300	0.0000	20.3300	74.6111	6.7150	31.0000	208.1650	6.8942	30.1941
517	Row Crop	Alfalfa and Alfalfa Mixtures	6.2949	19.000000	25.2949	92.8323	8.3549	233.0000	1946.6936	51.8179	37.5680
518	Row Crop	Alfalfa and Alfalfa Mixtures	6.2949	38.000000	44.2949	162.5623	14.6306	475.0000	6949.5388	105.6374	65.7867
519	Row Crop	Bush Berries	6.4531	0.000000	6.4531	23.6829	2.1315	19.0000	40.4977	4.2255	9.5841
520	Row Crop	Bush Berries	6.4531	19.000000	25.4531	93.4129	8.4072	267.0000	2244.7114	59.3793	37.8029
521	Row Crop	Bush Berries	6.4531	38.000000	44.4531	163.1429	14.6829	1279.0000	18779.3766	284.4426	66.0217
522	Row Crop	Cole Crops	8.6934	38.000000	46.6934	171.3646	15.4228	19.0000	293.0335	4.2255	69.3489
523	Row Crop	Flowers, Nursery and Christmas Tree Farms	2.1400	0.000000	2.1400	7.8538	0.7068	1160.0000	819.9367	257.9776	3.1783
524	Row Crop	Flowers, Nursery and Christmas Tree Farms	2.1400	19.000000	21.1400	77.5838	6.9825	9029.0000	63045.3717	2007.9999	31.3971
525	Row Crop	Flowers, Nursery and Christmas Tree Farms	2.1400	38.000000	40.1400	147.3138	13.2582	17208.0000	228147.8283	3826.9646	59.6159
526	Row Crop	Greenhouse	2.1400	0.000000	2.1400	7.8538	0.7068	1.0000	0.7068	0.2224	3.1783
527	Row Crop	Greenhouse	2.1400	19.000000	21.1400	77.5838	6.9825	69.0000	481.7954	15.3452	31.3971
528	Row Crop	Greenhouse	2.1400	38.000000	40.1400	147.3138	13.2582	261.0000	3460.4012	58.0450	59.6159
529	Row Crop	Idle	1.0000	0.000000	1.0000	3.6700	0.3303	1716.0000	566.7948	381.6290	1.4852
530	Row Crop	Idle	1.0000	19.000000	20.0000	73.4000	6.6060	15403.0000	101752.2180	3425.5425	29.7040
531	Row Crop	Idle	1.0000	38.000000	39.0000	143.1300	12.8817	18457.0000	237757.5369	4104.7353	57.9227
532	Row Crop	Melons, Squash and Cucumbers	19.3186	0.000000	19.3186	70.8991	6.3809	4.0000	25.5237	0.8896	28.6919
533	Row Crop	Melons, Squash and Cucumbers	19.3186	19.000000	38.3186	140.6291	12.6566	78.0000	987.2166	17.3468	56.9107
534	Row Crop	Melons, Squash and Cucumbers	19.3186	38.000000	57.3186	210.3591	18.9323	262.0000	4960.2685	58.2674	85.1295
535	Row Crop	Miscellaneous Subtropical Fruits	24.6300	0.000000	24.6300	90.3921	8.1353	202.0000	1643.3284	44.9237	36.5804
536	Row Crop	Miscellaneous Subtropical Fruits	24.6300	19.000000	43.6300	160.1221	14.4110	1589.0000	22899.0615	353.3849	64.7992
537	Row Crop	Miscellaneous Subtropical Fruits	24.6300	38.000000	62.6300	229.8521	20.6867	2057.0000	42552.5193	457.4655	93.0180
538	Row Crop	Miscellaneous Truck Crops	6.4531	0.000000	6.4531	23.6829	2.1315	132.0000	281.3526	29.3561	9.5841
539	Row Crop	Miscellaneous Truck Crops	6.4531	19.000000	25.4531	93.4129	8.4072	384.0000	3228.3490	85.3995	37.8029
540	Row Crop	Miscellaneous Truck Crops	6.4531	38.000000	44.4531	163.1429	14.6829	2059.0000	30232.0065	457.9103	66.0217
541	Row Crop	Strawberries	35.0369	0.000000	35.0369	128.5853	11.5727	5.0000	57.8634	1.1120	52.0367
542	Row Crop	Strawberries	35.0369	19.000000	54.0369	198.3153	17.8484	145.0000	2588.0141	32.2472	80.2555
543	Row Crop	Strawberries	35.0369	38.000000	73.0369	268.0453	24.1241	274.0000	6609.9961	60.9361	108.4742
544	Row Crop	Tomatoes	5.0000	0.000000	5.0000	18.3500	1.6515	144.0000	237.8160	32.0248	7.4260
545	Row Crop	Tomatoes	5.0000	19.000000	24.0000	88.0800	7.9272	765.0000	6064.3080	170.1318	35.6448
546	Row Crop	Tomatoes	5.0000	38.000000	43.0000	157.8100	14.2029	1766.0000	25082.3214	392.7487	63.8635
547	Row Crop	Western Warm Temperate Bush fruit and berries	6.4531	0.000000	6.4531	23.6829	2.1315	17.0000	36.2348	3.7807	9.5841
548	Row Crop	Western Warm Temperate Bush fruit and berries	6.4531	19.000000	25.4531	93.4129	8.4072	82.0000	689.3870	18.2363	37.8029
549	Row Crop	Western Warm Temperate Bush fruit and berries	6.4531	38.000000	44.4531	163.1429	14.6829	183.0000	2686.9632	40.6982	66.0217
550	Row Crop	Western Warm Temperate Close Grown Crop	6.4531	19.000000	25.4531	93.4129	8.4072	26.0000	218.5861	5.7823	37.8029
551	Row Crop	Western Warm Temperate Row Crop	7.5241	0.000000	7.5241	27.6133	2.4852	186.0000	462.2472	41.3654	11.1747
552	Row Crop	Western Warm Temperate Row Crop	7.5241	19.000000	26.5241	97.3433	8.7609	703.0000	6158.9126	156.3433	39.3935
553	Row Crop	Western Warm Temperate Row Crop	7.5241	38.000000	45.5241	167.0733	15.0366	1080.0000	16239.5278	240.1861	67.6123
554	Row Crop	Western Warm Temperate Row Crop	7.5241	0.0000	7.5241	27.6133	2.4852	2.0000	4.9704	0.4448	11.1747
555	Row Crop	Young Perennials	5.0000	0.000000	5.0000	18.3500	1.6515	52.0000	85.8780	11.5645	7.4260
556	Row Crop	Young Perennials	5.0000	19.000000	24.0000	88.0800	7.9272	627.0000	4970.3544	139.4414	35.6448
557	Row Crop	Young Perennials	5.0000	38.000000	43.0000	157.8100	14.2029	650.0000	9231.8850	144.5564	63.8635
558	Shrubland	California Maritime Chaparral	2.6477	0.000000	2.6477	9.7169	0.8745	536.0000	468.7450	119.2035	3.9323
559	Shrubland	California Maritime Chaparral	2.6477	19.000000	21.6477	79.4469	7.1502	765.0000	5469.9216	170.1318	32.1511
560	Shrubland	California Maritime Chaparral	2.6477	38.000000	40.6477	149.1769	13.4259	1302.0000	17480.5534	289.5576	60.3699
561	Shrubland	California Mesic Chaparral	71.6797	0.000000	71.6797	263.0645	23.6758	46589.0000	1103032.0750	10361.1374	106.4586
562	Shrubland	California Mesic Chaparral	71.6797	19.000000	90.6797	332.7945	29.9515	51498.0000	1542442.5999	11452.8720	134.6774
563	Shrubland	California Mesic Chaparral	71.6797	38.000000	109.6797	402.5245	36.2272	197894.0000	7169146.4885	44010.5372	162.8961
564	Shrubland	California Mesic Chaparral	71.6797	0.0000	71.6797	263.0645	23.6758	3481.0000	82415.4769	774.1553	106.4586
565	Shrubland	California Montane Woodland and Chaparral	87.8712	0.000000	87.8712	322.4873	29.0239	404.0000	11725.6384	89.8474	130.5062
566	Shrubland	California Montane Woodland and Chaparral	87.8712	19.000000	106.8712	392.2173	35.2996	75.0000	2647.4668	16.6796	158.7250
567	Shrubland	California Montane Woodland and Chaparral	87.8712	38.000000	125.8712	461.9473	41.5753	4886.0000	203136.7075	1086.6195	186.9437
568	Shrubland	California Montane Woodland and Chaparral	87.8712	0.0000	87.8712	322.4873	29.0239	57.0000	1654.3599	12.6765	130.5062
569	Shrubland	California Ruderal Scrub	7.4000	0.000000	7.4000	27.1580	2.4442	8883.0000	21712.0063	1975.5303	10.9905
570	Shrubland	California Ruderal Scrub	7.4000	19.000000	26.4000	96.8880	8.7199	32567.0000	283981.6346	7242.7217	39.2092
571	Shrubland	California Ruderal Scrub	7.4000	38.000000	45.4000	166.6180	14.9956	68437.0000	1026255.2459	15220.0124	67.4280
572	Shrubland	California Ruderal Scrub	7.4000	88.000000	95.4000	350.1180	31.5106	230.0000	7247.4426	51.1507	141.6879
573	Shrubland	California Ruderal Scrub	7.4000	0.0000	7.4000	27.1580	2.4442	237.0000	579.2801	52.7075	10.9905
574	Shrubland	California Xeric Serpentine Chaparral	2.6477	0.000000	2.6477	9.7169	0.8745	854.0000	746.8438	189.9249	3.9323
575	Shrubland	California Xeric Serpentine Chaparral	2.6477	19.000000	21.6477	79.4469	7.1502	78.0000	557.7175	17.3468	32.1511
576	Shrubland	California Xeric Serpentine Chaparral	2.6477	38.000000	40.6477	149.1769	13.4259	4002.0000	53730.5490	890.0228	60.3699
577	Shrubland	Interior West Ruderal Riparian Scrub	62.0000	19.000000	81.0000	297.2700	26.7543	23.0000	615.3489	5.1151	120.3011
578	Shrubland	Interior West Ruderal Riparian Scrub	62.0000	0.0000	62.0000	227.5400	20.4786	218.0000	4464.3348	48.4820	92.0823
579	Shrubland	Mediterranean California Foothill and Lower Montane Riparian Shrubland	51.8470	0.000000	51.8470	190.2786	17.1251	16431.0000	281382.1252	3654.1640	77.0031
580	Shrubland	Mediterranean California Foothill and Lower Montane Riparian Shrubland	51.8470	19.000000	70.8470	260.0086	23.4008	8021.0000	187697.6250	1783.8263	105.2219
581	Shrubland	Mediterranean California Foothill and Lower Montane Riparian Shrubland	51.8470	38.000000	89.8470	329.7386	29.6765	42189.0000	1252020.8496	9382.6016	133.4407
582	Shrubland	Mediterranean California Foothill and Lower Montane Riparian Shrubland	51.8470	0.0000	51.8470	190.2786	17.1251	129.0000	2209.1348	28.6889	77.0031
583	Shrubland	Mojave Mid-Elevation Mixed Desert Scrub	2.3101	0.000000	2.3101	8.4779	0.7630	37122.0000	28324.4392	8255.7286	3.4309
584	Shrubland	Mojave Mid-Elevation Mixed Desert Scrub	2.3101	19.000000	21.3101	78.2079	7.0387	4234.0000	29801.8961	941.6183	31.6497

SANDAG Carbon Inventory - 2016			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil_MTCO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Clas	Land Cover Type	16_TotalMTCha	16_SOC_MT_Cha	16_TOTALC_MCTha	16_TOTALC_MTCO2eha	16_TOTALC_MTCO2epixel	Number of Pixels	16_TOTALC_MTCO2e	Acres	TOTAL MTCO2e/Acre
585	Shrubland	Mojave Mid-Elevation Mixed Desert Scrub	2.3101	38.000000	40.3101	147.9379	13.3144	108398.0000	1443255.3626	24107.1190	59.8684
586	Shrubland	Mojave Mid-Elevation Mixed Desert Scrub	2.3101	0.0000	2.3101	8.4779	0.7630	110523.0000	84330.1006	24579.7073	3.4309
587	Shrubland	North American Warm Desert Lower Montane Riparian Shrubland	51.8470	0.000000	51.8470	190.2786	17.1251	26.0000	445.2520	5.7823	77.0031
588	Shrubland	North American Warm Desert Lower Montane Riparian Shrubland	51.8470	19.000000	70.8470	260.0086	23.4008	191.0000	4469.5482	42.4773	105.2219
589	Shrubland	North American Warm Desert Lower Montane Riparian Shrubland	51.8470	38.000000	89.8470	329.7386	29.6765	71.0000	2107.0298	15.7900	133.4407
590	Shrubland	North American Warm Desert Lower Montane Riparian Shrubland	51.8470	0.0000	51.8470	190.2786	17.1251	14.0000	239.7511	3.1135	77.0031
591	Shrubland	North American Warm Desert Riparian Mesquite Bosque Shrubland	51.8470	0.000000	51.8470	190.2786	17.1251	311.0000	5325.8987	69.1647	77.0031
592	Shrubland	North American Warm Desert Riparian Mesquite Bosque Shrubland	51.8470	19.000000	70.8470	260.0086	23.4008	1719.0000	40225.9341	382.2961	105.2219
593	Shrubland	North American Warm Desert Riparian Mesquite Bosque Shrubland	51.8470	38.000000	89.8470	329.7386	29.6765	86.0000	2552.1769	19.1259	133.4407
594	Shrubland	North American Warm Desert Riparian Mesquite Bosque Shrubland	51.8470	0.0000	51.8470	190.2786	17.1251	62.0000	1061.7547	13.7885	77.0031
595	Shrubland	North American Warm Desert Riparian Shrubland	51.8470	0.000000	51.8470	190.2786	17.1251	176.0000	3014.0134	39.1414	77.0031
596	Shrubland	North American Warm Desert Riparian Shrubland	51.8470	19.000000	70.8470	260.0086	23.4008	1523.0000	35639.3820	338.7068	105.2219
597	Shrubland	North American Warm Desert Riparian Shrubland	51.8470	38.000000	89.8470	329.7386	29.6765	36.0000	1068.3531	8.0062	133.4407
598	Shrubland	North American Warm Desert Riparian Shrubland	51.8470	0.0000	51.8470	190.2786	17.1251	764.0000	13083.5581	169.9094	77.0031
599	Shrubland	North American Warm Desert Ruderal & Planted Scrub	7.4000	0.000000	7.4000	27.1580	2.4442	61138.0000	149434.7224	13596.7549	10.9905
600	Shrubland	North American Warm Desert Ruderal & Planted Scrub	7.4000	19.000000	26.4000	96.8880	8.7199	59736.0000	520893.1411	13284.9579	39.2092
601	Shrubland	North American Warm Desert Ruderal & Planted Scrub	7.4000	38.000000	45.4000	166.6180	14.9956	9884.0000	148216.7081	2198.1472	67.4280
602	Shrubland	North American Warm Desert Ruderal & Planted Scrub	7.4000	0.0000	7.4000	27.1580	2.4442	312645.0000	764173.1619	69530.5285	10.9905
603	Shrubland	North American Warm Desert Wash Shrubland	70.8478	19.000000	89.8478	329.7414	29.6767	3.0000	89.0302	0.6672	133.4418
604	Shrubland	North American Warm Desert Wash Shrubland	70.8478	38.000000	108.8478	399.4714	35.9524	2.0000	71.9049	0.4448	161.6606
605	Shrubland	North American Warm Desert Wash Shrubland	70.8478	0.0000	70.8478	260.0114	23.4010	599.0000	14017.2160	133.2143	105.2231
606	Shrubland	North American Warm Desert Wash Shrubland	104.9299	19.000000	123.9299	454.8225	40.9340	24.0000	982.4167	5.3375	184.0604
607	Shrubland	North American Warm Desert Wash Shrubland	104.9299	38.000000	142.9299	524.5525	47.2097	7.0000	330.4681	1.5568	212.2792
608	Shrubland	North American Warm Desert Wash Shrubland	104.9299	0.0000	104.9299	385.0925	34.6583	130.0000	4505.5828	28.9113	155.8417
609	Shrubland	Recently Burned-Shrub Cover	1.5040	0.000000	1.5040	5.5197	0.4968	9756.0000	4846.4998	2169.6807	2.2337
610	Shrubland	Recently Burned-Shrub Cover	1.5040	19.000000	20.5040	75.2497	6.7725	15906.0000	107722.9269	3537.4069	30.4525
611	Shrubland	Recently Burned-Shrub Cover	1.5040	38.000000	39.5040	144.9797	13.0482	34856.0000	454807.0553	7751.7827	58.6713
612	Shrubland	Recently Burned-Shrub Cover	1.5040	0.0000	1.5040	5.5197	0.4968	1858.0000	923.0009	413.2090	2.2337
613	Shrubland	Recently Disturbed Other-Shrub Cover	1.5040	0.000000	1.5040	5.5197	0.4968	96.0000	47.6900	21.3499	2.2337
614	Shrubland	Recently Disturbed Other-Shrub Cover	1.5040	38.000000	39.5040	144.9797	13.0482	383.0000	4997.4496	85.1771	58.6713
615	Shrubland	Recently Logged-Shrub Cover	1.5040	0.000000	1.5040	5.5197	0.4968	4.0000	1.9871	0.8896	2.2337
616	Shrubland	Recently Logged-Shrub Cover	1.5040	19.000000	20.5040	75.2497	6.7725	88.0000	595.9775	19.5707	30.4525
617	Shrubland	Recently Logged-Shrub Cover	1.5040	38.000000	39.5040	144.9797	13.0482	130.0000	1696.2623	28.9113	58.6713
618	Shrubland	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	0.6878	0.000000	0.6878	2.5241	0.2272	29707.0000	6748.5193	6606.6734	1.0215
619	Shrubland	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	0.6878	19.000000	19.6878	72.2541	6.5029	24430.0000	158865.0977	5433.0976	29.2402
620	Shrubland	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	0.6878	38.000000	38.6878	141.9841	12.7786	772.0000	9865.0555	171.6886	57.4590
621	Shrubland	Sonora-Mojave Creosotebush-White Bursage Desert Scrub	0.6878	0.0000	0.6878	2.5241	0.2272	365055.0000	82929.2998	81186.2242	1.0215
622	Shrubland	Sonora-Mojave Mixed Salt Desert Scrub	2.2936	0.000000	2.2936	8.4175	0.7576	146.0000	110.6061	32.4696	3.4065
623	Shrubland	Sonora-Mojave Mixed Salt Desert Scrub	2.2936	19.000000	21.2936	78.1475	7.0333	13317.0000	93662.1376	2961.6276	31.6252
624	Shrubland	Sonora-Mojave Mixed Salt Desert Scrub	2.2936	0.0000	2.2936	8.4175	0.7576	1083.0000	820.4549	240.8532	3.4065
625	Shrubland	Sonora-Mojave Semi-Desert Chaparral	6.2212	0.000000	6.2212	22.8319	2.0549	14437.0000	29666.2068	3210.7094	9.2398
626	Shrubland	Sonora-Mojave Semi-Desert Chaparral	6.2212	19.000000	25.2212	92.5619	8.3306	1420.0000	11829.4142	315.8002	37.4585
627	Shrubland	Sonora-Mojave Semi-Desert Chaparral	6.2212	38.000000	44.2212	162.2919	14.6063	70777.0000	1033788.2103	15740.4155	65.6773
628	Shrubland	Sonora-Mojave Semi-Desert Chaparral	6.2212	0.0000	6.2212	22.8319	2.0549	20696.0000	42527.6593	4602.6766	9.2398
629	Shrubland	Sonoran Granite Outcrop Desert Scrub	2.6477	0.0000	2.6477	9.7169	0.8745	8.0000	6.9962	1.7792	3.9323
630	Shrubland	Southern California Coastal Scrub	36.5989	0.000000	36.5989	134.3180	12.0886	148210.0000	1791653.8767	32961.0888	54.3566
631	Shrubland	Southern California Coastal Scrub	36.5989	19.000000	55.5989	204.0480	18.3643	319433.0000	5866168.7668	71040.1423	82.5754
632	Shrubland	Southern California Coastal Scrub	36.5989	38.000000	74.5989	273.7780	24.6400	709308.0000	17477360.9442	157746.1980	110.7942
633	Shrubland	Southern California Coastal Scrub	36.5989	88.000000	124.5989	457.2780	41.1550	324.0000	13334.2254	72.0558	185.0541
634	Shrubland	Southern California Coastal Scrub	36.5989	0.0000	36.5989	134.3180	12.0886	187187.0000	2262831.8886	41629.3593	54.3566
635	Shrubland	Southern California Dry-Mesic Chaparral	73.4281	0.000000	73.4281	269.4811	24.2533	437436.0000	10609267.1643	97283.3605	109.0553
636	Shrubland	Southern California Dry-Mesic Chaparral	73.4281	19.000000	92.4281	339.2111	30.5290	645092.0000	19694014.5905	143464.9128	137.2741
637	Shrubland	Southern California Dry-Mesic Chaparral	73.4281	38.000000	111.4281	408.9411	36.8047	1749965.0000	64406939.3380	389182.5912	165.4929
638	Shrubland	Southern California Dry-Mesic Chaparral	73.4281	0.0000	73.4281	269.4811	24.2533	104683.0000	2538908.3536	23280.9234	109.0553
639	Urban	Developed-High Intensity	0.0000	0.000000	0.0000	0.0000	0.0000	30362.0000	0.0000	6752.3418	0.0000
640	Urban	Developed-High Intensity	0.0000	19.000000	19.0000	69.7300	6.2757	17825.0000	111864.3525	3964.1820	28.2188
641	Urban	Developed-High Intensity	0.0000	38.000000	38.0000	139.4600	12.5514	96766.0000	1214548.7724	21520.2262	56.4375
642	Urban	Developed-High Intensity	0.0000	88.000000	88.0000	322.9600	29.0664	506.0000	14707.5984	112.5316	130.6975
643	Urban	Developed-High Intensity	0.0000	0.0000	0.0000	0.0000	0.0000	69.0000	0.0000	15.3452	0.0000
644	Urban	Developed-Low Intensity	7.6584	0.000000	7.6584	28.1065	2.5296	24186.0000	61180.5178	5378.8334	11.3743
645	Urban	Developed-Low Intensity	7.6584	19.000000	26.6584	97.8365	8.8053	68918.0000	606842.5605	15326.9842	39.5931
646	Urban	Developed-Low Intensity	7.6584	38.000000	45.6584	167.5665	15.0810	307997.0000	4644897.8190	68496.8388	67.8119
647	Urban	Developed-Low Intensity	7.6584	88.000000	95.6584	351.0665	31.5960	2531.0000	79969.4354	562.8805	142.0718
648	Urban	Developed-Low Intensity	7.6584	0.0000	7.6584	28.1065	2.5296	1349.0000	3412.4088	300.0102	11.3743
649	Urban	Developed-Medium Intensity	7.6584	0.000000	7.6584	28.1065	2.5296	45421.0000	114896.2334	10101.3806	11.3743
650	Urban	Developed-Medium Intensity	7.6584	19.000000	26.6584	97.8365	8.8053	56611.0000	498475.9307	12589.9750	39.5931
651	Urban	Developed-Medium Intensity	7.6584	38.000000	45.6584	167.5665	15.0810	370521.0000	5587821.2606	82401.8325	67.8119
652	Urban	Developed-Medium Intensity	7.6584	88.000000	95.6584	351.0665	31.5960	1919.0000	60632.6932	426.7750	142.0718
653	Urban	Developed-Medium Intensity	7.6584	0.0000	7.6584	28.1065	2.5296	347.0000	877.7656	77.1709	11.3743
654	Urban	Developed-Roads	0.0000	0.000000	0.0000	0.0000	0.0000	69259.0000	0.0000	15402.8207	0.0000
655	Urban	Developed-Roads	0.0000	19.000000	19.0000	69.7300	6.2757	117014.0000	734344.7598	26023.2700	28.2188
656	Urban	Developed-Roads	0.0000	38.000000	38.0000	139.4600	12.5514	508199.0000	6378608.9286	113020.6625	56.4375
657	Urban	Developed-Roads	0.0000	88.000000	88.0000	322.9600	29.0664	505.0000	14678.5320	112.3092	130.6975

SANDAG Carbon Inventory - 2016			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil_MTCO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Clas	Land Cover Type	16_TotalMTCha	16_SOC_MT_Cha	16_TOTALC_MCTha	16_TOTALC_MTCO2eha	16_TOTALC_MTCO2epixel	Number of Pixels	16_TOTALC_MTCO2e	Acres	TOTAL MTCO2e/Acre
658	Urban	Developed-Roads	0.0000	0.0000	0.0000	0.0000	0.0000	15662.0000	0.0000	3483.1427	0.0000
659	Urban	Western Warm Temperate Developed Ruderal Deciduous Forest	62.0000	0.000000	62.0000	227.5400	20.4786	1007.0000	20621.9502	223.9513	92.0823
660	Urban	Western Warm Temperate Developed Ruderal Deciduous Forest	62.0000	19.000000	81.0000	297.2700	26.7543	10104.0000	270325.4472	2247.0740	120.3011
661	Urban	Western Warm Temperate Developed Ruderal Deciduous Forest	62.0000	38.000000	100.0000	367.0000	33.0300	16026.0000	529338.7800	3564.0943	148.5199
662	Urban	Western Warm Temperate Developed Ruderal Evergreen Forest	59.0000	0.000000	59.0000	216.5300	19.4877	21.0000	409.2417	4.6703	87.6267
663	Urban	Western Warm Temperate Developed Ruderal Evergreen Forest	59.0000	19.000000	78.0000	286.2600	25.7634	543.0000	13989.5262	120.7602	115.8455
664	Urban	Western Warm Temperate Developed Ruderal Evergreen Forest	59.0000	38.000000	97.0000	355.9900	32.0391	1174.0000	37613.9034	261.0911	144.0643
665	Urban	Western Warm Temperate Developed Ruderal Grassland	17.7000	0.000000	17.7000	64.9590	5.8463	1510.0000	8827.9281	335.8157	26.2880
666	Urban	Western Warm Temperate Developed Ruderal Grassland	17.7000	19.000000	36.7000	134.6890	12.1220	9163.0000	111073.9776	2037.8008	54.5068
667	Urban	Western Warm Temperate Developed Ruderal Grassland	17.7000	38.000000	55.7000	204.4190	18.3977	83808.0000	1541875.2797	18638.4383	82.7256
668	Urban	Western Warm Temperate Developed Ruderal Grassland	17.7000	88.000000	105.7000	387.9190	34.9127	46.0000	1605.9847	10.2301	156.9855
669	Urban	Western Warm Temperate Developed Ruderal Grassland	17.7000	0.0000	17.7000	64.9590	5.8463	8.0000	46.7705	1.7792	26.2880
670	Urban	Western Warm Temperate Developed Ruderal Herbaceous Wetland	4.8974	0.000000	4.8974	17.9735	1.6176	471.0000	761.8949	104.7478	7.2736
671	Urban	Western Warm Temperate Developed Ruderal Herbaceous Wetland	4.8974	19.000000	23.8974	87.7035	7.8933	939.0000	7411.8192	208.8284	35.4924
672	Urban	Western Warm Temperate Developed Ruderal Herbaceous Wetland	4.8974	38.000000	42.8974	157.4335	14.1690	7357.0000	104241.4155	1636.1563	63.7112
673	Urban	Western Warm Temperate Developed Ruderal Mixed Forest	66.0000	0.000000	66.0000	242.2200	21.7998	593.0000	12927.2814	131.8799	98.0231
674	Urban	Western Warm Temperate Developed Ruderal Mixed Forest	66.0000	19.000000	85.0000	311.9500	28.0755	1925.0000	54045.3375	428.1094	126.2419
675	Urban	Western Warm Temperate Developed Ruderal Mixed Forest	66.0000	38.000000	104.0000	381.6800	34.3512	6170.0000	211946.9040	1372.1741	154.4607
676	Urban	Western Warm Temperate Developed Ruderal Mixed Forested Wetland	66.0000	0.000000	66.0000	242.2200	21.7998	738.0000	16088.2524	164.1271	98.0231
677	Urban	Western Warm Temperate Developed Ruderal Mixed Forested Wetland	66.0000	19.000000	85.0000	311.9500	28.0755	682.0000	19147.4910	151.6730	126.2419
678	Urban	Western Warm Temperate Developed Ruderal Mixed Forested Wetland	66.0000	38.000000	104.0000	381.6800	34.3512	2442.0000	83885.6304	543.0874	154.4607
679	Urban	Western Warm Temperate Developed Ruderal Mixed Forested Wetland	66.0000	88.000000	154.0000	565.1800	50.8662	25.0000	1271.6550	5.5599	228.7206
680	Urban	Western Warm Temperate Developed Ruderal Mixed Forested Wetland	66.0000	0.0000	66.0000	242.2200	21.7998	5.0000	108.9990	1.1120	98.0231
681	Urban	Western Warm Temperate Developed Ruderal Shrub Wetland	7.4000	0.000000	7.4000	27.1580	2.4442	665.0000	1625.4063	147.8923	10.9905
682	Urban	Western Warm Temperate Developed Ruderal Shrub Wetland	7.4000	19.000000	26.4000	96.8880	8.7199	1385.0000	12077.0892	308.0164	39.2092
683	Urban	Western Warm Temperate Developed Ruderal Shrub Wetland	7.4000	38.000000	45.4000	166.6180	14.9956	2427.0000	36394.3697	539.7515	67.4280
684	Urban	Western Warm Temperate Developed Ruderal Shrub Wetland	7.4000	88.000000	95.4000	350.1180	31.5106	16.0000	504.1699	3.5583	141.6879
685	Urban	Western Warm Temperate Developed Ruderal Shrub Wetland	7.4000	0.0000	7.4000	27.1580	2.4442	1.0000	2.4442	0.2224	10.9905
686	Urban	Western Warm Temperate Developed Ruderal Shrubland	7.4000	0.000000	7.4000	27.1580	2.4442	10238.0000	25023.9244	2276.8749	10.9905
687	Urban	Western Warm Temperate Developed Ruderal Shrubland	7.4000	19.000000	26.4000	96.8880	8.7199	90922.0000	792832.5662	20220.5527	39.2092
688	Urban	Western Warm Temperate Developed Ruderal Shrubland	7.4000	38.000000	45.4000	166.6180	14.9956	180072.0000	2700291.2846	40047.0224	67.4280
689	Urban	Western Warm Temperate Developed Ruderal Shrubland	7.4000	88.000000	95.4000	350.1180	31.5106	22.0000	693.2336	4.8927	141.6879
690	Urban	Western Warm Temperate Developed Ruderal Shrubland	7.4000	0.0000	7.4000	27.1580	2.4442	784.0000	1916.2685	174.3573	10.9905
691	Urban	Western Warm Temperate Urban Deciduous Forest	0.0000	0.000000	0.0000	0.0000	0.0000	1640.0000	0.0000	364.7270	0.0000
692	Urban	Western Warm Temperate Urban Deciduous Forest	0.0000	19.000000	19.0000	69.7300	6.2757	2687.0000	16862.8059	597.5740	28.2188
693	Urban	Western Warm Temperate Urban Deciduous Forest	0.0000	38.000000	38.0000	139.4600	12.5514	8101.0000	101678.8914	1801.6178	56.4375
694	Urban	Western Warm Temperate Urban Deciduous Forest	0.0000	88.000000	88.0000	322.9600	29.0664	61.0000	1773.0504	13.5661	130.6975
695	Urban	Western Warm Temperate Urban Deciduous Forest	0.0000	0.0000	0.0000	0.0000	0.0000	90.0000	0.0000	20.0155	0.0000
696	Urban	Western Warm Temperate Urban Evergreen Forest	0.0000	0.000000	0.0000	0.0000	0.0000	4473.0000	0.0000	994.7706	0.0000
697	Urban	Western Warm Temperate Urban Evergreen Forest	0.0000	19.000000	19.0000	69.7300	6.2757	10253.0000	64344.7521	2280.2108	28.2188
698	Urban	Western Warm Temperate Urban Evergreen Forest	0.0000	38.000000	38.0000	139.4600	12.5514	30917.0000	388051.6338	6875.7708	56.4375
699	Urban	Western Warm Temperate Urban Evergreen Forest	0.0000	88.000000	88.0000	322.9600	29.0664	209.0000	6074.8776	46.4805	130.6975
700	Urban	Western Warm Temperate Urban Evergreen Forest	0.0000	0.0000	0.0000	0.0000	0.0000	93.0000	0.0000	20.6827	0.0000
701	Urban	Western Warm Temperate Urban Herbaceous	5.0000	0.000000	5.0000	18.3500	1.6515	10480.0000	17307.7200	2330.6944	7.4260
702	Urban	Western Warm Temperate Urban Herbaceous	5.0000	19.000000	24.0000	88.0800	7.9272	28717.0000	227645.4024	6386.5029	35.6448
703	Urban	Western Warm Temperate Urban Herbaceous	5.0000	38.000000	43.0000	157.8100	14.2029	110191.0000	1565031.7539	24505.8723	63.8635
704	Urban	Western Warm Temperate Urban Herbaceous	5.0000	88.000000	93.0000	341.3100	30.7179	591.0000	18154.2789	131.4351	138.1235
705	Urban	Western Warm Temperate Urban Herbaceous	5.0000	0.0000	5.0000	18.3500	1.6515	2377.0000	3925.6155	528.6317	7.4260
706	Urban	Western Warm Temperate Urban Mixed Forest	0.0000	0.000000	0.0000	0.0000	0.0000	3556.0000	0.0000	790.8348	0.0000
707	Urban	Western Warm Temperate Urban Mixed Forest	0.0000	19.000000	19.0000	69.7300	6.2757	6208.0000	38959.5456	1380.6251	28.2188
708	Urban	Western Warm Temperate Urban Mixed Forest	0.0000	38.000000	38.0000	139.4600	12.5514	16170.0000	202956.1380	3596.1191	56.4375
709	Urban	Western Warm Temperate Urban Mixed Forest	0.0000	88.000000	88.0000	322.9600	29.0664	53.0000	1540.5192	11.7869	130.6975
710	Urban	Western Warm Temperate Urban Mixed Forest	0.0000	0.0000	0.0000	0.0000	0.0000	52.0000	0.0000	11.5645	0.0000
711	Urban	Western Warm Temperate Urban Shrubland	7.4000	0.000000	7.4000	27.1580	2.4442	17351.0000	42409.6612	3858.7670	10.9905
712	Urban	Western Warm Temperate Urban Shrubland	7.4000	19.000000	26.4000	96.8880	8.7199	61369.0000	535132.7705	13648.1281	39.2092
713	Urban	Western Warm Temperate Urban Shrubland	7.4000	38.000000	45.4000	166.6180	14.9956	203572.0000	3052688.3546	45273.2932	67.4280
714	Urban	Western Warm Temperate Urban Shrubland	7.4000	88.000000	95.4000	350.1180	31.5106	878.0000	27666.3244	195.2624	141.6879
715	Urban	Western Warm Temperate Urban Shrubland	7.4000	0.0000	7.4000	27.1580	2.4442	2468.0000	6032.3350	548.8696	10.9905
716	Vineyard	Grapes	6.4400	0.000000	6.4400	23.6348	2.1271	53.0000	112.7380	11.7869	9.5647
717	Vineyard	Grapes	6.4400	19.000000	25.4400	93.3648	8.4028	679.0000	5705.5229	151.0059	37.7835
718	Vineyard	Grapes	6.4400	38.000000	44.4400	163.0948	14.6785	2208.0000	32410.1987	491.0471	66.0022
719	Vineyard	Western Warm Temperate Vineyard	4.0050	0.000000	4.0050	14.6984	1.3229	36.0000	47.6229	8.0062	5.9482
720	Vineyard	Western Warm Temperate Vineyard	4.0050	19.000000	23.0050	84.4284	7.5986	315.0000	2393.5456	70.0543	34.1670
721	Vineyard	Western Warm Temperate Vineyard	4.0050	38.000000	42.0050	154.1584	13.8743	665.0000	9226.3812	147.8923	62.3858
722	Water	Open Water	0.0000	0.000000	0.0000	0.0000	0.0000	92954.0000	0.0000	20672.4584	0.0000
723	Water	Open Water	0.0000	19.000000	19.0000	69.7300	6.2757	2960.0000	18576.0720	658.2877	28.2188
724	Water	Open Water	0.0000	38.000000	38.0000	139.4600	12.5514	1989.0000	24964.7346	442.3427	56.4375
725	Water	Open Water	0.0000	88.000000	88.0000	322.9600	29.0664	1211.0000	35199.4104	269.3197	130.6975
726	Water	Open Water	0.0000	0.0000	0.0000	0.0000	0.0000	6051.0000	0.0000	1345.7091	0.0000
727	Wetland	North American Warm Desert Cienega	51.8470	0.000000	51.8470	190.2786	17.1251	127.0000	2174.8847	28.2441	77.0031
728	Wetland	North American Warm Desert Cienega	51.8470	19.000000	70.8470	260.0086	23.4008	510.0000	11934.3958	113.4212	105.2219
729	Wetland	North American Warm Desert Cienega	51.8470	38.000000	89.8470	329.7386	29.6765	49.0000	1454.1473	10.8973	133.4407
730	Wetland	North American Warm Desert Cienega	51.8470	0.0000	51.8470	190.2786	17.1251	8.0000	137.0006	1.7792	77.0031

SANDAG Carbon Inventory - 2016			Non-Soil C	Soil C	Non-soil+Soil	Non-soil_Soil_MTCO2e/ha	convert to pixels	# of pixels	Total CO2e		Total CO2e/acre
ROW	Land Cover Clas	Land Cover Type	16_TotalMTCha	16_SOC_MT_Cha	16_TOTALC_MCTha	16_TOTALC_MTCO2eha	16_TOTALC_MTCO2epixel	Number of Pixels	16_TOTALC_MTCO2e	Acres	TOTAL MTCO2e/Acre
731	Wetland	Temperate Pacific Freshwater Emergent Marsh	4.8974	0.000000	4.8974	17.9735	1.6176	3474.0000	5619.5814	772.5985	7.2736
732	Wetland	Temperate Pacific Freshwater Emergent Marsh	4.8974	19.000000	23.8974	87.7035	7.8933	1615.0000	12747.6976	359.1671	35.4924
733	Wetland	Temperate Pacific Freshwater Emergent Marsh	4.8974	38.000000	42.8974	157.4335	14.1690	7333.0000	103901.3593	1630.8189	63.7112
734	Wetland	Temperate Pacific Freshwater Emergent Marsh	4.8974	88.000000	92.8974	340.9335	30.6840	1.0000	30.6840	0.2224	137.9711
735	Wetland	Temperate Pacific Freshwater Emergent Marsh	4.8974	0.0000	4.8974	17.9735	1.6176	1.0000	1.6176	0.2224	7.2736
736	Wetland	Temperate Pacific Subalpine-Montane Wet Meadow	6.1476	0.000000	6.1476	22.5617	2.0306	1087.0000	2207.2103	241.7428	9.1304
737	Wetland	Temperate Pacific Subalpine-Montane Wet Meadow	6.1476	19.000000	25.1476	92.2917	8.3063	530.0000	4402.3137	117.8691	37.3492
738	Wetland	Temperate Pacific Subalpine-Montane Wet Meadow	6.1476	38.000000	44.1476	162.0217	14.5820	7076.0000	103181.8943	1573.6635	65.5680
739	Wetland	Temperate Pacific Subalpine-Montane Wet Meadow	6.9654	0.000000	6.9654	25.5630	2.3007	424.0000	975.4848	94.2953	10.3450
740	Wetland	Temperate Pacific Subalpine-Montane Wet Meadow	6.9654	19.000000	25.9654	95.2930	8.5764	498.0000	4271.0331	110.7525	38.5638
741	Wetland	Temperate Pacific Subalpine-Montane Wet Meadow	6.9654	38.000000	44.9654	165.0230	14.8521	4130.0000	61339.0558	918.4893	66.7825
742	Wetland	Temperate Pacific Subalpine-Montane Wet Meadow	7.2850	0.000000	7.2850	26.7360	2.4062	28.0000	67.3746	6.2270	10.8197
743	Wetland	Temperate Pacific Subalpine-Montane Wet Meadow	7.2850	19.000000	26.2850	96.4660	8.6819	12.0000	104.1832	2.6687	39.0384
744	Wetland	Temperate Pacific Subalpine-Montane Wet Meadow	7.2850	38.000000	45.2850	166.1960	14.9576	204.0000	3051.3576	45.3685	67.2572
745	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	6.1476	0.000000	6.1476	22.5617	2.0306	1449.0000	2942.2703	322.2496	9.1304
746	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	6.1476	19.000000	25.1476	92.2917	8.3063	777.0000	6453.9580	172.8005	37.3492
747	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	6.1476	38.000000	44.1476	162.0217	14.5820	3159.0000	46064.3873	702.5442	65.5680
748	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	6.1476	88.000000	94.1476	345.5217	31.0970	2862.0000	88999.4774	636.4931	139.8279
749	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	6.1476	0.0000	6.1476	22.5617	2.0306	76.0000	154.3220	16.9020	9.1304
750	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	6.9654	0.000000	6.9654	25.5630	2.3007	149.0000	342.8001	33.1368	10.3450
751	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	6.9654	19.000000	25.9654	95.2930	8.5764	265.0000	2272.7385	58.9345	38.5638
752	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	6.9654	38.000000	44.9654	165.0230	14.8521	475.0000	7054.7340	105.6374	66.7825
753	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	6.9654	88.000000	94.9654	348.5230	31.3671	179.0000	5614.7058	39.8086	141.0425
754	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	6.9654	0.0000	6.9654	25.5630	2.3007	19.0000	43.7128	4.2255	10.3450
755	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	7.2850	0.000000	7.2850	26.7360	2.4062	205.0000	493.2783	45.5909	10.8197
756	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	7.2850	19.000000	26.2850	96.4660	8.6819	89.0000	772.6923	19.7931	39.0384
757	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	7.2850	38.000000	45.2850	166.1960	14.9576	145.0000	2168.8571	32.2472	67.2572
758	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	7.2850	88.000000	95.2850	349.6960	31.4726	253.0000	7962.5768	56.2658	141.5171
759	Wetland	Temperate Pacific Tidal Salt and Brackish Marsh	7.2850	0.0000	7.2850	26.7360	2.4062	8.0000	19.2499	1.7792	10.8197
760	Wetland	Western North American Ruderal Wet Meadow & Marsh	5.0000	0.000000	5.0000	18.3500	1.6515	13147.0000	21712.2705	2923.8205	7.4260
761	Wetland	Western North American Ruderal Wet Meadow & Marsh	5.0000	19.000000	24.0000	88.0800	7.9272	6839.0000	54214.1208	1520.9560	35.6448
762	Wetland	Western North American Ruderal Wet Meadow & Marsh	5.0000	38.000000	43.0000	157.8100	14.2029	31968.0000	454038.3072	7109.5074	63.8635
763	Wetland	Western North American Ruderal Wet Meadow & Marsh	5.0000	88.000000	93.0000	341.3100	30.7179	3.0000	92.1537	0.6672	138.1235
764	Wetland	Western North American Ruderal Wet Meadow & Marsh	5.0000	0.0000	5.0000	18.3500	1.6515	203.0000	335.2545	45.1461	7.4260
765	Wetland	Western North American Ruderal Wet Shrubland	7.4000	0.000000	7.4000	27.1580	2.4442	5061.0000	12370.1974	1125.5386	10.9905
766	Wetland	Western North American Ruderal Wet Shrubland	7.4000	19.000000	26.4000	96.8880	8.7199	3386.0000	29525.6491	753.0278	39.2092
767	Wetland	Western North American Ruderal Wet Shrubland	7.4000	38.000000	45.4000	166.6180	14.9956	6384.0000	95732.0381	1419.7665	67.4280
768	Wetland	Western North American Ruderal Wet Shrubland	7.4000	88.000000	95.4000	350.1180	31.5106	1480.0000	46635.7176	329.1439	141.6879
769	Wetland	Western North American Ruderal Wet Shrubland	7.4000	0.0000	7.4000	27.1580	2.4442	10.0000	24.4422	2.2239	10.9905
	Total							12,262,515	238,500,087	2,727,116	