## Appendix B   Geographic Information Systems Data Sources

Table B-1 provides a list of the geographic information systems (GIS) data sources that were used to develop the RCIS. Table B-2 outlines the specific data used to develop the vegetation and land cover dataset, which was synthesized using the best available data. Due to the scale of the planning, however, it was not feasible to incorporate property-specific vegetation data.

The RCIS was developed using available information for the planning area, which oftentimes included regional spatial data (B). While these data are appropriate for planning purposes, they may not always accurately depict conditions at the site level, where additional assessments and planning may be required during implementation of the RCIS. Notably, wetlands were largely mapped through vegetation mapping, which is conducted through aerial image analysis; as a result, these features are often not completely mapped. Additional wetlands, including one-parameter wetlands, likely occur within the RCIS Area.

**Table B-1: GIS Data Sources**

| Theme and Dataset | Reference | Sources |
|---|---|---|
| Base Reference (included on most figures) | | |
| RCIS Area | prepared for this RCIS | BAOSC 2019 |
| Drop Shadow and Mask | prepared for this RCIS | |
| Coast Fade | prepared for this RCIS | |
| County Boundaries | BAOSC 2019 | |
| City Limits | County of Santa Cruz 2020a | |
| Streams | Mackenzie et al. 2011 | USGS 2010 |
| Waterbodies | Mackenzie et al. 2011, BAOSC 2019 | USGS 2010 |
| Highways | USCB2000 | |
| Major Roads | BAOSC 2019, USCB 2000 | |
| 30m Digital Elevation Model | BAOSC 2021 | |
| California Hillshade | Mackenzie et al. 2011 | |
| California Urban | Mackenzie et al. 2011 | DOC 2008 |
| World Terrain Base | ESRI 2020 | |
| Land Use | | |
| General Land Use | Prepared for this RCIS | County of Santa Cruz 2020a, City of Santa Cruz 2020a, AMBAG 2018 |

| Theme and Dataset | Reference | Sources |
|---|---|---|
| Coastal Zone | County of Santa Cruz 2020a | |
| **Infrastructure** | | |
| Water Management Agencies | DWR 2019 | |
| Electric Transmission Lines | CEC 2020 | |
| Substations | CEC 2020 | |
| Power Generating Facilities | CEC 2020 | |
| Natural Gas Transmission Mainlines | OES 2020 | |
| Regional Planned Transportation Projects | RTC 2020 | |
| State Planned Transportation Projects | Caltrans 2017 | |
| **Protected Lands** | | |
| Protected Lands (Ownership and Gap Status) | Prepared for this RCIS | GIN 2021, USGS 2018, L. McLendon pers. comm. 2020 |
| **Conservation and Mitigation Banks** | | |
| Conservation and Mitigation Banks Service Areas | RIBITS 2020, McGraw 2007c | |
| Conservation Bank Location | CDFW 2020b | |
| **Ecoregions** | | |
| Ecological Provinces | Prepared for this RCIS | McNab et al. 2007 |
| Ecological Sections | Prepared for this RCIS | McNab et al. 2007 |
| Ecological Subsections | Prepared for this RCIS | McNab et al. 2007 |
| **Aquatic Resources** | | |
| Watershed Regions | Prepared for this RCIS | Mackenzie et al. 2011 |
| Priority Sub-watersheds | Mackenzie et al. 2011 | California Interagency Watershed Mapping Committee (2004) |
| Water and Wetlands | Prepared for this RCIS | Mackenzie et al 2011, County of Santa Cruz 2020a, SFEI 2017, AIS 2007, SMGWA 2021 |
| Priority Fish Streams | Mackenzie et al. 2011 | |

| Theme and Dataset | Reference | Sources |
|---|---|---|
| Pond | Prepared for this RCIS | Mackenzie et al. 2011, SMGWA 2021, SFEI 2017 |
| Seep or Spring | Prepared for this RCIS | Mackenzie et al. 2011, Nolan Associates 2016 |
| **Land Cover** | | |
| Natural Communities and other Land Cover | Prepared for this RCIS | Mackenzie et al. 2011, DOC 2016, County of Santa Cruz 2020a, SFEI 2017, AIS 2007, McGraw 2007c, McGraw 2015a, SMGWA 2021, Mendonca and Smith 2017 |
| **Habitat Connectivity** | | |
| Habitat Patches | Mackenzie et al. 2011 | Merenlender and Feirer 2011 |
| Significant Habitat Patches and Complexes | Mackenzie et al. 2011 | Merenlender and Feirer 2011 |
| Ben Lomond Mountain Patch Complex | Mackenzie et al. 2011 | Merenlender and Feirer 2011 |
| Critical Areas to Maintain Landscape Permeability | Mackenzie et al. 2011 | |
| Critical Landscape Linkages | Mackenzie et al. 2011 | |
| Large Landscape Blocks | Penrod et al. 2013 | |
| Linkage Designs | Penrod et al. 2013 | |
| Key Riparian Corridors | Penrod et al. 2013 | |
| Riparian Buffer Zones | Penrod et al. 2013 | |
| Wildlife Movement Barrier Priorities | CDFW 2020d | |
| **Working Lands** | | |
| Cultivated | Prepared for this RCIS | DOC 2016, Mackenzie et al. 2011 |
| Rangelands | DOC 2016 | |
| Urban and Built-up Land | DOC 2016 | |
| Agricultural Resource Protection Area | County of Santa Cruz 2020a | |
| Williamson Act | BAOSC 2019 | |
| Timber Harvests (2010-2019) | CalFire 2020 | |

| Theme and Dataset | Reference | Sources |
|---|---|---|
| Timber Production Zones (TPZ) | Mackenzie et al. 2011 | |
| **Other Conservation Elements** | | |
| Fire Perimeters | CalFire 2021 | |
| Stream Valleys | BAOSC 2021 | |
| Sea Level Rise 8-Ft Scenario | NOAA 2017 | |
| Fish Bearing Streams | County of Santa Cruz2021 | |
| Fish Passage Barriers | County of Santa Cruz 2021 | |
| Other Streams | County of Santa Cruz 2020a | |
| Marble Outcrops | Nolan Associates 2016 | |
| Karst Springs | Nolan Associates 2016 | |
| Well Records | Nolan Associates 2016 | |
| Critical Habitat (polygon) | USFWS 2020a | |
| Critical Habitat (line) | NOAA 2020 | |
| Documented Occurrences (CNDDB) | CDFW 2019d | |
| Santa Cruz Long-toed Salamander Population Boundaries | USFWS 2004b | |
| Santa Cruz Long-toed Salamander Range | CDFW 2020a | |
| Mountain Lion Range | CDFW 2020a | |
| Coho Priority Restoration Areas | NOAA 2021 | |
| Marbled Murrelet Important Areas | Singer 2012b | CDFW 2008a,b, CDFW 2011, Singer 2012b, TNC 2002b, USFWS 2011 |
| Marbled Murrelet Nest Range | Singer 2012b | CDFW 2008a,b, CDFW 2011, |

**Table B-2: Vegetation Compilation Sources and Priorities**

| Vegetation and Land Cover Data | Priority Level[1] | Source | Area | Description |
|---|---|---|---|---|
| These layers and adjustments were used to create a composite vegetation and land cover dataset | | | | |
| Conservation Blueprint Vegetation | Low (although sensitive communities remained High) | Mackenzie et al. 2011 | Entire County | CALVEG (USFS 2000) with the following changes to geometry and typing: 1)sandhills (McGraw 2005), 2) sand parkland (McGraw 2005), 3) Santa Cruz cypress (McGraw 2007c), and 4) cultivated and built up (DOC 2008) Additionally, some type changes made including coyote brush scrub reclassified as maritime chaparral in many places. |
| Urban and Cultivated | Medium- Low | DOC 2016 | Entire County | Updated the Urban and Cultivated areas in Conservation Blueprint Vegetation Layer per changes since 2008. Cultivated included these categories: Prime farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance; Urban included: Urban and Built-up Land. Sandhills habitat and other important natural communities were retained when bringing in urban and cultivated areas, due to the latter's importance |
| Riparian Woodlands | Medium | County of Santa Cruz 1994 | Entire County | The riparian areas mapped in the Conservation Blueprint Vegetation layer were supplemented by this map, which was not allowed to override other sensitive communities due to its coarser level of mapping. |

| Vegetation and Land Cover Data | Priority Level[1] | Source | Area | Description |
|---|---|---|---|---|
| CARI Wetlands | Medium | SFEI 2017 | Entire County | A combination of the attribute fields was used to select wetlands (vegetated), and water (non-vegetated), and identify saline influenced or freshwater, using this layer, which integrates the National Hydrographic Dataset (NHD) and the National Wetlands Inventory (NWI). Linear stream features classified as "Freshwater Forested Shrub/Wetland" were not included to avoid redundancy with the linear stream layer used as an overlay (i.e., streams were not integrated into the land cover data). |
| MROSD | High | AIS 2007 | ~2,500 acres on the northern border | This layer has been accepted by VegCAMP staff to meet the Survey of California Vegetation standards, and therefore was not superseded by any other layers. The attribute was cross walked to the Conservation Blueprint Vegetation Types. |
| Sandhills and Sand Parkland Adjustment | High | McGraw 2020 | | Sandhills and sand parkland geometry were adjusted to reflect updates since 2011. |
| Santa Cruz Cypress Adjustment | High | McGraw 2015a | Bracken Brae patch | Recovery plan data were replaced with more precise mapping for the Bracken Brae stand. |
| Ponds and Wetlands | High | SMGA 2021 | Santa Margarita Groundwater Basin | Ponds and wetlands were added that were mapped as part of the Groundwater Dependent Ecosystems in the draft Groundwater Sustainability Plan. |
| Estuarine Complex Adjustment | High | Mendonca and Smith 2017 | Coast | Estuarine, Coastal Salt Marsh and adjacent Freshwater Wetlands were adjusted to reflect more accurate conditions using aerial imagery and the Mendonca and Smith 2017 report. |

| Vegetation and Land Cover Data | Priority Level[1] | Source | Area | Description |
|---|---|---|---|---|
| **The following layers were not integrated into the vegetation layer, but instead, were used as overlays to estimate the areal extent of these features.** | | | | |
| Old Growth/Older Second Growth | Overlay | SRL 2008, Singer 2012a | | These layers will be used to identify old-growth and older second growth forests |
| Streams | Overlay | County of Santa Cruz 2020a | Entire County | This layer mapped from several sources including the 2003 and 2007 ortho-imagery and was deemed more accurate than NHD. It was not integrated into vegetation layer and instead used as overlay. |

[1] Available GIS data were incorporated in a stepwise fashion and decision rules were developed to control which layers were given priority in areas of overlap so that more accurate and/or more biologically relevant information was reflected in the final map and table. Lower priority layers were superseded by higher priority layers that featured more accurate and/or more important data.