Table A2-1—Summary of data variables or tools and their sources, locations, and descriptions useful in developing a postfire restoration portfolio (continued)

Variable/tool	Source	Data location	Scale	Description
Climate metrics	Basin Characterization Model (BCM), U.S. Geological Survey (USGS)	California Landscape Conservation Cooperative, Climate Commons (CA Climate Commons); http://climate.calcommons.org/dataset/2014-CA-BCM	270 m	The next four climate metrics were derived from Parameter-elevation Regressions on Independent Slopes Model (PRISM) data using a BCM). Grids represent historical (1900 to 2010) and future climates modeled based on two General Circulation Models: the National Oceanic and Atmospheric Administration Geophysical Fluid Dynamics Laboratory (GFDL) model and National Center for Atmospheric Research Parallel Climate Model (PCM) from 2010 to 2100 in 30-year means, providing monthly blocks of variables. Raster file.
Potential evapotranspiration (PET)	BCM, USGS	CA Climate Commons; http://climate.calcommons.org/dataset/2014-CA-BCM	270 m	PET is the total amount of water that can evaporate from the ground surface or be transpired by plants summed annually. Raster file.
Actual evapotranspiration (AET)	BCM, USGS	CA Climate Commons; http://climate.calcommons.org/dataset/2014-CA-BCM	270 m	AET is the amount of water that evaporates from the surface and is transpired by plants if the total amount of water is not limited, summed annually. AET measures when conditions (energy + water) for plants are favorable to support photosynthesis. Raster file.
Climatic water deficit (CWD)	BCM, USGS	CA Climate Commons; http://climate.calcommons.org/dataset/2014-CA-BCM	270 m	CWD is annual evaporative demand that exceeds available water, summed annually. It is calculated based on potential evapotranspiration minus actual evapotranspiration. CWD measures when plants have insufficient water to support photosynthesis. Raster file.
Water balance (WB)	BCM, USGS	CA Climate Commons; http://climate.calcommons.org/dataset/2014-CA-BCM	270 m	Combinations of AET/CWD. Raster file.
Future climate metrics	CalAdapt	https://cal-adapt.org/	Varies	Projected future temperature, precipitation, snowpack, drought, wildfire, sea level rise, and streamflow for user-defined areas.
Historic climate metrics	Climate Engine	https://app.climateengine.org/climateEngine	Varies	Historical climate data using a number of geospatial climate tools (such as gridMET, PRISM, TerraClimate) for user defined areas.
Digital elevation models (DEMs)	LANDFIRE	Landfire.gov -> tools -> download data or download toolbar to identify area of interest and then download data	30 m	1 arc second (30 m) national elevation dataset DEM was projected from Geographic to Albers and clipped out to the LANDFIRE boundary. Raster file.

Table A2-1—Summary of data variables or tools and their sources, locations, and descriptions useful in developing a postfire restoration portfolio (continued)

Variable/tool	Source	Data location	Scale	Description
Landscape management unit tool	General Technical Report PSW-GTR-237, University of California–Davis	Tool website: http://ice.ucdavis.edu/project/landscape_management_unit_lmu_tool (Best to download with Internet Explorer)	10 or 30 m	A Geographic Information System (GIS) tool developed to parse a landscape into basic topographic categories. The landscape management unit (LMU) tool has two versions: version 1 bins the landscape into three slope positions crossed with three aspects (Underwood et al. 2010); version 2 addresses management needs by condensing topographic categories present in version 1, while adding a category based on mechanical operation limitations that usually occur around >30 percent slopes. The second version also allows the user to modify topographic categories. Raster file.
Vegetation layer, EVeg	Remote Sensing Lab, U.S. Forest Service, Pacific Southwest Region (R5)	https://www.fs.usda.gov/detail/r5/landmanagement/resourcemanagement/?cid=stelprdb5347192 https://enterprisecontentnew-usfs.hub.arcgis.com/	30 m	The R5 CALVEG classification system conforms to the upper levels of the National Vegetation Classification Standard (USNVC) hierarchy as it currently exists (http://usnvc.org/data-standard/natural-vegetation-classification/). The USNVC sets guidelines for all federal agencies involved in this work. Lowest (floristic) levels of this hierarchy are currently being developed and have not yet been finalized for their applicability to California. Vector file.
Presettlement fire regime (PFR)	Research Paper PSW-RP-266, Safford & Van de Water 2014	https://www.fs.usda.gov/detail/r5/landmanagement/gis/?cid=STELPRDB5327836	Min map unit 5 ac	Crosswalk from the current vegetation type to its probable historical fire regime (by "historical," we refer to the three or four centuries before Euro-American settlement). Each PFR is named for the dominant existing vegetation type supported by that PFR. Vector file.
Biophysical Settings (BpS)	LANDFIRE	http://www.landfire.gov/NationalProductDescriptions20.php	30 m	The BpS layer represents the vegetation that may have been dominant on the landscape prior to Euro-American settlement and is based on the current biophysical environment and an approximation of the historical disturbance regime. Each BpS map unit is matched with a nonspatial model of vegetation succession. LANDFIRE uses BpS models to depict reference conditions of vegetation across landscapes. The actual time period for this data set is a composite of both the historical context provided by the fire regime and vegetation dynamics models and the more recent field and geospatial data used to create it. Although the spatial resolution is 30 m, analysis of LANDFIRE data is most appropriate at sub-regional, regional, and national scales due to potential inaccuracies at smaller spatial scales. Raster file.

Table A2-1—Summary of data variables or tools and their sources, locations, and descriptions useful in developing a postfire restoration portfolio (continued)

Variable/tool	Source	Data location	Scale	Description
Vegetation fire severity	Rapid Assessment of Vegetation Condition after Wildfire (RAVG)	http://www.fs.fed.us/postfirevegcondition/whatis.shtml	30 m	The RAVG products produced at the Remote Sensing Applications Center (RSAC) include the following for each wildfire processed: Map and GIS products showing location of basal area or canopy cover loss within fire perimeter. Summary table of vegetation affected by the fire, separated into four or seven classes of basal area loss. RAVG uses the relativized normalized burn ratio (RdNBR) and can be calibrated using field data. Raster file.
Vegetation fire severity	Remote Sensing Lab, U.S. Forest Service, Pacific Southwest Region	https://www.fs.usda.gov/detail/r5/landmanagement/gis/?cid=STELPRDB5327833	30 m	Maps derived from RdNBR for immediate and 1-year postfire images calibrated to basal area (BA) change of trees or canopy loss. This data product is preferred in the Pacific Southwest Region because it is based on extensive field validation (Miller and Thode 2007), but it is not produced until one year after the fire through 2018. Vector file.
Vegetation fire severity	Monitoring Trends in Burn Severity (MTBS)	http://www.mtbs.gov/	30 m	MTBS uses the differenced normalized burn ratio (dNBR), which is correlated to the amount of prefire chlorophyll. This analysis is typically done 1 year postfire on all fires greater than 500 ac. Raster file.
Burned area reflectance classification (BARC)	U.S. Remote Sensing Applications Center, Salt Lake City, Utah	http://www.fs.fed.us/eng/rsac/baer/. Work with the Burned Area Emergency Response (BAER) team to determine if they have already requested the data. If not put in a request to the Remote Sensing Applications Center for data.	30 m	Satellite-derived data layer of postfire vegetation condition. The BARC has four classes: high, moderate, low, and unburned. This product is used as an input to the soil burn severity map produced by the BAER teams. Raster file.
Soil burn severity (SBS)	Remote Sensing Applications Center, Salt Lake City, Utah; Local BAER team	http://www.fs.fed.us/eng/rsac/baer/. If data is not yet available, work with the BAER team as they will be reclassifying and field verifying this layer.	30 m	BAER team reclassifies and field verifies the BARC data to map soil severity. Raster and vector files.
Soil survey geographic database	U.S. Natural Resources Conservation Service	https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm	10 m	Soil survey data provides soil physical, chemical, and health properties; erosion factors; and qualities and features. Raster and vector files.

Table A2-1—Summary of data variables or tools and their sources, locations, and descriptions useful in developing a postfire restoration portfolio (continued)

Variable/tool	Source	Data location	Scale	Description
Fire return interval departure (FRID)	U.S. Forest Service, Pacific Southwest Region	http://www.fs.usda.gov/detail/r5/landmanagement/gis/?cid=STELPRDB5327836 (internal) Pacific Southwest Region Ecology Program, Hugh Safford	Min map unit 5 ac	This polygon layer consists of information compiled about fire return intervals for major vegetation types on the national forests in California and adjacent land jurisdictions. Comparisons are made between pre-Euro-American settlement and contemporary fire return intervals (FRIs). Current departures from the pre-Euro-American settlement FRIs are calculated based on mean, median, minimum, and maximum FRI values. Vector file.
U.S. Forest Service, Pacific Southwest Region rapid assessment of postfire condition data	U.S. Forest Service, Pacific Southwest Region	ftp://fsweb.rsac.fs.fed.us/RAVG/California/ (internal to the U.S. Forest Service)	Min map unit 5 ac	This dataset looks at the potential for natural revegetation by combining RAVG, prefire vegetation, and land suitability data. Vector file.
Ecosystem Disturbance and Recovery Tracker (eDaRT)	Remote Sensing Lab, U.S. Forest Service, Pacific Southwest Region	Contact: Michèle Slaton, ecologist; Pacific Southwest Region, Remote Sensing Lab: michele.slaton@usda.gov	30 m	Time series algorithm using all available Landsat images to detect forest disturbance of all types, 1980s to present.
F3 (forest structure metrics)	Remote Sensing Lab, U.S. Forest Service, Pacific Southwest Region	Contact: Shengli Huang, senior remote sensing scientist; U.S. Forest Service, Pacific Southwest Region Remote Sensing Lab, shenglihuang@usda.gov	Typically 30 m, but project-dependent, up to 10 m	Imputation algorithm uses plot-based and remote sensing data to generate landscape-scale grids of vegetation structure and composition metrics, including recent historic, current, and predicted conditions under various management scenarios. F3 is a model that integrates Forest Inventory and Analysis (FIA) plot data, Forest Vegetation Simulator (FVS), and the FastEmap (field and satellite for ecosystem mapping) tool.
Nitrogen deposition	Center for Conservation Biology, University of California–Riverside	http://ccb.ucr.edu/biocommaps.html	4 km for high-deposition areas; 36 km for low-deposition areas	Raw nitrogen deposition data from 2002. Raster file.

Table A2-1—Summary of data variables or tools and their sources, locations, and descriptions useful in developing a postfire restoration portfolio (continued)

Variable/tool	Source	Data location	Scale	Description
Insect and disease detection survey data	U.S. Forest Service, Forest Health Technology Enterprise Team	http://foresthealth.fs.usda.gov/portal/Flex/IDS	Size of mapped polygon	Aerial detection surveys are collected by aerial observers from the U.S. Forest Service and other cooperating state and federal agencies. Areas of damage are captured as polygons on hardcopy 1:100,000 scale maps or through a Digital Aerial Sketch-mapping System (D-ASM). Polygons are coded to identify the damage agent, damage type, and other attributes. Reporting the number of dead trees or dead trees per acre is required for areas with mortality. Areas with mortality are summarized on this map by 12-digit or 6th-level USGS subwatersheds. Vector file.
Terrestrial ecological unit inventory (TEUI)	U.S. Forest Service, Pacific Southwest Region	TEUI maps are available from individual national forest GIS coordinators (i.e., there is not a national spatial data clearing house for the TEUI program).	Min map unit of 1,000 ac (land type associations [LTAs]) and 10 ac (land types [LTs])	LTAs are mapped for most national forests in the Pacific Southwest Region. LTs are mapped, but not field validated, at the intensity required in the terrestrial ecosystem unit inventory guide (Winthers et al. 2005) for the Lake Tahoe Basin Management Unit; the Inyo, Eldorado, and Mendocino National Forests; and the Monterey District of the Los Padres National Forest.
Mechanical treatments opportunities	U.S. Forest Service, Pacific Southwest Region	https://www.fs.usda.gov/detail/r5/landmanagement/gis/?cid=STELPRDB5327833	30 m	This dataset represents four scenarios (A-D) of mechanical treatment opportunities in Sierra Nevada National Forests based on a hierarchy of biological (i.e., nonproductive forest), legal (i.e., wilderness), operational (i.e., equipment access), and administrative (i.e., at-risk species and riparian areas) constraints, under forest plan standards and guidelines. Scenario descriptions and analysis are provided in North et al. (2015).

Note: Some of the data sources mentioned in the table are only available through the Forest Service network, while others require establishing an account with the California Landscape Conservation Cooperative, Climate Commons. It is important to recognize that at the time of publication these were the best available data. However, spatial data evolve rapidly, allowing for the release of updated information on a regular basis. URLs, data locations, and contacts may change or terminate over time.

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