WEB-HOSTED APPLICATION MAP PROJECTS	
Project	**Description**
2013 Wildfire Season: An Overview. Southwestern U.S.	It is important to review the major fires in a region to help the public and fire professionals understand the situation more completely. A great deal of information about what happened is available, but rarely does everyone see post-fire information on burn severity or comparisons between fires. This report is an attempt to fill the need for a concise, timely publication that summarizes the season's fire details in the Southwest, and compares the major fires and demonstrates regional trends from this past fire season. LANDFIRE EVT and VCC were key components of the analysis
Alaska: Seward Peninsula–Nulato Hills–Kotzebue Lowlands Rapid Ecoregional Assessment	The Bureau of Land Management in conjunction with NatureServe is conducting a Rapid Ecoregional Assessment for the Seward Peninsula, Nulato Hills, and Kotzebue Sound Lowlands Ecoregions in Alaska. The goals are to understand the ecoregions' existing conditions and to determine how the regions might respond to ongoing environmental changes and land use demands. LANDFIRE products, including vegetation type and vegetation dynamics models, are being used along with other data sets to answer these questions.
Arizona: Carbon Credit Possibilities and Economic Implications of Fuel Reduction Treatments	Authors assessed carbon stocks in treated and untreated Ponderosa Pine forests of the Apache and Sitgreaves National Forests, N. AZ over 100 years under assumed treatment scenarios, wildfire frequency, and annual percentage of area burned. The heavier thinning treatment resulted in lower carbon emissions from wildfires than with the lighter thinning treatment, and both treatment scenarios resulted in lower total carbon stocks than the no treatment scenario. LANDFIRE 2008 Vegetation Departure data were used to prioritize treatment areas.
Arizona: Representation of Ecological Systems in U.S. Protected Areas	Aycrigg and others evaluated the Representation of Ecological Systems within the Protected Areas Network of the Continental United States using land cover data from GAP and LANDFIRE. Their study found that certain vegetation communities were underrepresented and they explored ways to increase the representation of ecological systems in U.S. protected areas.
Arizona: Southwest Forests and Grasslands Ecological Assessments	The U.S. Forest Service Southwestern Region used LANDFIRE data to inform its Forest and Grassland Ecological Assessments as part of the forest plan revision process. Revision of the region's forest plans involves ecological, social, and economic assessments that determine which elements of the current plan need to be changed. The region's analysis team used LANDFIRE's Vegetation Dynamics Models, Vegetation Condition Class maps and other map data to characterize historical and current vegetation

	conditions, as required for the development of ecological assessments.
Arkansas: Simulating Treatment Effects in Pine-Oak Forests of the Ouachita Mountains	In their extended abstract, Simulating Treatment Effects in Pine-Oak Forests of the Ouachita Mountains, Shlisky and others describe how a LANDFIRE vegetation dynamics model for pine-oak forest was adapted for the Ouachita National Forest, AR to demonstrate the use of the models in project planning and creating "what if" scenarios to supplement project environmental impact assessment.
California: Bodie Hills Landscape Conservation Forecasting™	In September 2007, the Bureau of Land Management's Bishop Field Office entered into a cooperative agreement with The Nature Conservancy to develop a conservation action plan using Landscape Conservation Forecasting™ methods. Approximately 200,000 acres in California's Bodie Hills and northern Mono Basin are in the study area. LANDFIRE data and models were used to compare current vegetation departure with reference conditions. The results help land managers make decisions based on best return on investment scenarios.
California: Effectiveness of Fuels Treatments in the Context of Climate Change	In the study Assessing Fuels Treatments in Southern California National Forests in the Context of Climate Change, Brown and others modeled fire behavior using LANDFIRE fuels layers to test the effectiveness of six fuel treatments under projected future extreme fire weather.
California: Fire Frequency in California	This project was designed to generate a current, comprehensive summary of pre-settlement fire frequency estimates for California ecosystems that are dominated by woody plants, and then develop a foundational fire return interval departure (FRID) mapping and analysis report. LANDFIRE Biophysical Setting information provided the framework for the analysis.
California: Genetics of Bobcats	The impact of habitat fragmentation on the functional connectivity in bobcat populations in coastal southern California was investigated by E.W. Ruell et al. and reported in American Midland Naturalist, 2012. Land-use dataset and vegetation cover data were supplied by LANDFIRE.
California: Mojave Basin and Range Rapid Ecoregional Assessment	The Bureau of Land Management in conjunction with NatureServe is conducting a Rapid Ecoregional Assessment for the Mojave Basin and Range Ecoregion. The assessment area covers 50,000 square miles, mainly in southeast California and southwest Nevada, and includes all or portions of 14 BLM field offices. The goals are to understand existing ecoregion conditions and to determine how they might respond to environmental changes and land use demands. Along with other datasets, LANDFIRE products, including vegetation sample data, vegetation type, fuel model and fire regime maps and vegetation dynamics models, are being used.

California: Natural Ecosystems: A Report Prepared for the National Climate Assessment	Existing relations among land cover, species distributions, ecosystem processes (such as the flow of water and decomposition of organic matter), and human land use are the basis for projecting ranges of ecological responses to different scenarios of climate change. However, because such relations evolve, projections based on current relations are likely to be inaccurate. Additionally, changes in climate, land use, species distributions, and disturbance regimes (such as fire and outbreaks of disease), will affect the ability of ecosystems to provide habitat for animals and plants that society values, to maintain ecosystem processes, and to serve as reservoirs of carbon. LANDFIRE Existing Cover data was used to map forested areas.
California: Northern Sierra Nevada Climate Change Analysis	The Northern Sierra Partnership initiated the Northern Sierra Climate Change Project to examine how potential future climates will affect the flora and fauna of the northern Sierra Nevada. The goal of the project was to assess the predicted impacts of climate change on the region and identify cost–effective strategies for maintaining ecosystem resilience in the face of change. The five–million–acre landscape is of particular interest with regard to climate change because it comprises a high diversity of environmental gradients, ecosystems, and species. LANDFIRE vegetation dynamics models, biophysical settings maps, and succession class maps were modified and used along with other datasets to complete the assessment.
California: Value of Wildland Habitat for Pollination Study	LANDFIRE existing vegetation data were used to create a "pollinator–relevant natural habitat map" for estimating the value of pollination services provided by wild bees to California agriculture. Read the report Agriculture. "Society *for Range Management*, June 2011. 36–41. Authors are Rebecca Chaplin–Kramer, Karin Tuxen–Bettman, and Claire Kremen.
Colorado: Development and Assessment of 30-meter Pine Density Maps for Landscape-level Modeling of Mountain Pine Beetle Dynamics	The authors developed spatially explicit datasets of pine density at 30m resolution using existing geospatial datasets of vegetation composition and structure. Regression analyses based upon LANDFIRE ecological systems classifications showed that the best pine density estimates explained 75 - 98% of cumulative MPB-caused tree mortality. LANDFIRE Existing Vegetation Types effectively delineate distinct vegetation types that are meaningful suitability indicators for MPB-caused tree mortality. More information here.
Colorado: Fire Emissions and Carbon	A regional model was used to estimate the potential reduction in fire emissions when a prescribed burn is applied in the dry, temperate forested systems of the western U.S. LANDFIRE maps and data indicate which forest classes would be suitable for prescribed burns.

Colorado: Fish Assemblages with Current Projected Oil and Gas Development	This research explored potential relationships between energy development and fish associations in the western U.S. Colorado River Basin. Although existing development has not substantially influenced regional fish assemblage structure, it appears to affect a subset of species. Understanding assemblage-level responses to development can help land managers determine appropriate development levels, prioritize areas for monitoring associated with future development, and identify where land protection measures may be needed to offset potential risks. Riparian classes were selected from LANDFIRE Existing Vegetation Type to narrow analysis area, and as factor in regression analysis.
Colorado: Plant Abundance in the Great Plains	A study by Nicholas Young et al. compared the results and accuracy between plant abundance models that were developed locally and extrapolated regionally, and those that were developed regionally and extrapolated locally. A key spatial data layer in the analysis was LANDFIRE Existing Vegetation Type.
Colorado: State Forest Assessment	Colorado State Forest Service contracted with The Nature Conservancy's Colorado Chapter to aid in the development of its Statewide Forest Assessment. An interagency, interdisciplinary team identified data needs and reviewed and selected the best available data sources. All analyses regarding vegetation types were based on LANDFIRE vegetation data. To assess current forest conditions, the team used the LANDFIRE Fire Regime Condition Class Departure index. Data indicated that of the state's 24.4m acres of forests and woodlands, forest types on 6.8 million acres are significantly departed from expected reference conditions. The land management practice of virtually excluding fire from the landscape for more than a hundred years is the primary cause for departure.
Colorado: Upper Monument Creek Forest Planning	The Nature Conservancy in Colorado, collaborating with the Pike San Isabel National Forest, is using Landscape Conservation Forecasting™ concepts to explore the current status of major vegetation ecosystems on the 70,000-acre Upper Monument Creek (UMC) planning area in the Pike Ranger District. To provide a foundation for the work, LANDFIRE models were adapted to reflect historic conditions in the UMC watershed. Because the 2012 Waldo Canyon fire occurred in this region, the impacts of that fire on current vs. desired future conditions will be in the mix. In an adaptive NEPA process, the Forest Service will evaluate the potential outcomes that are generated. A significant public organization is involved in this effort: the Front Range Roundtable.

Colorado Wildfire Risk Assessment Portal (CO-WRAP)	CO-WRAP is a web-mapping tool that provides access to statewide wildfire risk assessment information. Through CO-WRAP, wildfire mitigation/prevention planners and interested citizens can generate maps and download data and reports that describe defined project areas or areas that may require additional planning. LANDFIRE 2008 (V1.1.0) surface fuels (FBFM) and EVT layers were utilized in the project.
Colorado: Wildland Fire Decision Support System	The Wildland Fire Decision Support System (WFDSS) helps fire managers and analysts make strategic and tactical decisions for wildland fire incidents. WFDSS combines various incident management applications into a single system, thus streamlining the analysis and reporting processes. LANDFIRE fire behavior fuel model layers support the WFDSS when local data are not available.
Hawai'i: Assessment & Resource Strategy Analysis	The Hawai'i Department of Forestry and Wildlife developed its Statewide Assessment of Forest Conditions and Resource Strategy in 2010, and LANDFIRE data sets were key resources in the effort. For each of the nine issues that stakeholders examined, trends, existing conditions, threats and benefits for forests and treed landscapes were characterized. Partners created maps and developed a set of strategies to address their concerns. The project resulted in the Assessment and the development of a 5– to 10–year resource strategy.
Idaho: Clearwater Basin Collaborative Landscape Assessment	A group of conservation, business, government, and tribal leaders in northern Idaho are working together through the Clearwater Basin Collaborative (CBC) to resolve longstanding land management conflicts. While there is good synergy between forest restoration proponents and the forest industry, the lack of detailed information about current ecological conditions has been problematic and defining forest restoration needs and/or identifying long-term ecological, economic, and social outcomes of different forest management strategies is challenging. The CBC Landscape Assessment will use LANDFIRE data to summarize current ecological forest conditions throughout the Basin, and across all ownerships and management allocations. The assessment findings will support the development of a shared vision for forest management activities, help define restoration/management needs, and provide ecological context for CBC conversations on forest management.
Idaho: Fire Program Analysis	The purpose of the Fire Program Analysis (FPA) system is to create a common, interagency process led by the U.S. Forest Service focused on strategic fire management planning and budgeting. FPA is being used to evaluate and compare the effectiveness of different management strategies. The LANDFIRE fire behavior fuel model spatial data are an important source for FPA.

Idaho: Payette National Forest Bighorn Sheep Viability Analysis	In response to a Forest Plan appeal reversal by the Washington Office in 2005, the Payette National Forest (PNF) completed an assessment and a report of a plan designed to maintain habitat for viable populations of bighorn sheep. LANDFIRE's existing vegetation type and canopy cover data provided the spatial extent and scale needed to complete this analysis of the Hell's Canyon and the PNF areas, and allowed for a view of bighorn sheep habitat far beyond the PNF boundary. The broader view allows the team to look at the possible vectors of disease transmission to and from bighorn sheep herds both on and near the forest.
Illinois: Landscape Change Driven by Biofuels Mandate	LANDFIRE data was used to project the potential impacts, including a substantial increase in production of corn, of the biofuel mandate targets set by the 2007 Energy Independence and Security Act. Details are available in the report "Midwest U.S. landscape change to 2020 driven by biofuel mandates," in *Ecological Applications*. 22(1): 8–19. 2012. Authors are M. Mehaffey, E. Smith and R.V. Remortel.
Iowa: Ecosystem Services in the Midwest	LANDFIRE existing vegetation data were used to assess ecosystem services in Midwest. Read the paper "Developing a dataset to assess ecosystem services in the Midwest United States" in the *International Journal of Geographical Information Science*. 25(4): 681-695. 2011. Authors are M. Mehaffey, R. Van Remortel, E. Smith, and R. Bruins.
Kansas: Using State-and-Transition Models to Simulate Large-Scale Changes in Land Use and the Impacts on Ecosystem Carbon Dynamics Under a Range of Future Global Change Scenarios	Data and models were developed to provide spatial and ecoregional-scale projections of land-use change and how those changes might impact terrestrial carbon stocks. Numerous national-scale datasets were leveraged and integrated into a state-and-transition model to project future changes in land use, land cover, ecosystem composition, and carbon dynamics, under a wide range of future socioeconomic and climate-change scenarios. Various LANDFIRE products were key inputs to the model simulations because there seem to be no other alternative products available, particularly with regard to forest and vegetation characterization.
Maine: Appalachian Trail Decision Support System	In the paper Development of a Decision Support System for Monitoring, Reporting and Forecasting Ecological Conditions of the Appalachian Trail, Wang and others discuss a multi-agency effort to create a MEGA-Transect Decision Support System designed to monitor, report and forecast conditions along the Appalachian Trail. The habitat monitoring and modeling component of the system uses LANDFIRE existing vegetation type, cover, height and succession.

Massachusetts: National Biomass and Carbon Dataset	Scientists at Woods Hole Research Center created a high–resolution National Biomass and Carbon Dataset for the year 2000, the first–ever spatially explicit inventory of its kind. The dataset was produced as part of a project funded under NASA's Terrestrial Ecology Program with additional support from LANDFIRE. The project has generated a high–resolution (30 m), year–2000 baseline estimate of basal area–weighted canopy height, above ground live dry biomass, and standing carbon stock for the conterminous US.
Michigan: Ecological Conservation Risk of the Conterminous U.S	In their paper Accounting for Ecosystem Alteration Doubles Estimates of Conservation Risk in the Conterminous United States, Swaty and others used LANDFIRE?s Vegetation Condition Class map in combination with other datasets to assess the conservation risk of the ecoregions of the conterminous U.S.
Michigan: Eliciting Expert Knowledge to Inform Landscape Modeling of Conservation Scenarios	Price and others used LANDFIRE vegetation dynamics models and land cover data to model alternative scenarios of land cover change and conservation outcomes in forests of the northern Great Lakes region. The study, Eliciting expert knowledge to inform landscape modeling of conservation scenarios, was designed to help inform current and future forest conservation efforts.
Michigan: Hiawatha National Forest Planning	The Hiawatha National Forest and The Nature Conservancy have been using LANDFIRE tools and data to complete a Community Wildfire Protection Plan. The purpose is to develop descriptions of land type associations and to inform current climate change and fire planning efforts.
Michigan: Forest Scenarios - Two Hearted River Site	The Nature Conservancy in Wisconsin collaborated with the University of Wisconsin–Madison to develop an expert–and data–based modeling project whose objective was to test the potential effectiveness of conservation strategies, both with and without projected climate change scenarios. The collaborators used LANDFIRE Vegetation Dynamics Development Tool models and spatial data as the foundation for scenario modeling efforts.
Minnesota: Are Investments to Promote Biodiversity Conservation and Ecosystem Services Aligned?	This paper provides an important examination of environmental protection activities designed primarily for land and water vis-a-vis environmental protection designed primarily for people. The authors used LANDFIRE Biophysical Settings data along with several other datasets to evaluate both scenarios. The findings show that protecting land for human benefit provides commensurate benefit to biodiversity, and that protecting land and water for the sake of biodiversity can result in clear human benefit as well.

Montana: Extent of Conterminous US Rangelands	The authors mapped the extent of rangelands according to the National Resources Inventory (NRI) and Forest Inventory and Analysis (FIA) definitions using unmodified LANDFIRE 2001 Existing Vegetation Type (EVT), Existing Vegetation Cover (EVC), Existing Vegetation Height (EVH) and Biophysical Settings (BpS) data. LANDFIRE data were the only resources available for the conterminous U.S. that could provide the information that was required to complete the analysis. This work provides a reliable estimate of the extent of rangelands in the U.S., which is valuable for estimating carbon sequestration and forage availability, providing a baseline for measuring change in rangeland extent over time and can support development of management and monitoring plans. For more information, read the full report.
Montana: Fire Management in the National Wildlife Refuge System - A Case Study of the Charles M. Russell National Wildlife Refuge, Montana	Reid and Fuhlendorf (2011) examined the fire regime of the Charles M. Russell National Wildlife Refuge (CMR) over the previous 28 years and compared it to historical fire regime reconstructions using LANDFIRE National Fire Regime Condition Class, Fire Regime Group, and Mean Fire Return Interval layers. By comparing the refuge records to what was available through LANDFIRE, they determined that a large majority of the refuge was moderately or highly departed from the historic fire regime. The average mean fire return interval for the refuge based on LANDFIRE reconstructions was 48 years compared to 134 years as calculated based on refuge records from 1980-2008.
Montana: Fire Regime Syntheses	The Fire Effects Information System's (FEIS) Fire Regime Syntheses are designed to provide managers and planners with scientifically sound, up-to-date information on historical fire regimes. To do this they bring together information from two sources: the scientific literature and Biophysical Settings models and associated geospatial data developed by LANDFIRE. The syntheses present current information on historical fire frequency, spatial pattern, extent, and seasonality; historical natural and human-caused ignition sources; and typical patterns of fire intensity and severity. The syntheses also provide information on contemporary changes in fuels, especially in relation to their potential to influence fire regimes. This discussion addresses possible influences from invasive species and climate change. Each synthesis links to related species reviews in FEIS. To access the syntheses in FEIS click on "fire regimes of the U.S. based on Biophysical Settings" in the left-hand margin.

Montana: Northern Divide Grizzly Bear Project	The Northern Continental Divide grizzly bear population in northwest Montana is one of six threatened populations identified in the US Fish and Wildlife Service's Grizzly Bear Recovery Plan. The primary objectives of the Northern Divide Grizzly Bear Project were to develop a statistically rigorous estimate of grizzly bear population size and assess variation in the density of bears. LANDFIRE provided accurate data that covered the full study area at a resolution appropriate for multi–scale analysis that combined variables such as vegetation type and successional state. A resulting map is being used to evaluate the quality of grizzly bear habitat.
Montana: Wildland Fire Potential Map	The map of wildland fire potential (WFP) produced by the USDA Forest Service Fire Modeling Institute depicts the relative potential for wildfires that would be difficult to suppress. The 2012 WFP map was based on past fire occurrence, 2008 fuels data from LANDFIRE, and 2012 estimates of wildfire likelihood and intensity from FSim. The map and data can be used to support wildfire risk assessments or hazardous fuel treatment prioritization efforts across large landscapes.
Nebraska: Future Grassland Productivity and Biofuels for Greater Platte River Basin	This study projects future (e.g., 2050 and 2099) grassland productivities in the Greater Platte River Basin (GPRB) using ecosystem performance (EP, a surrogate for measuring ecosystem productivity) models and future climate projections. LANDFIRE National Environmental Site Potential was one component of multiple used to estimate ecosystem site potential.
Nevada: Central Basin and Range Rapid Ecoregional Assessment	The Bureau of Land Management in conjunction with NatureServe is conducting a Rapid Ecoregional Assessment for the Central Basin and Range Ecoregion in Nevada and Utah. The area covers 120,000 square miles, and includes all or portions of 16 BLM field offices. The goals are to understand the ecoregion's current conditions and to determine how they might respond to ongoing environmental changes and land use demands. LANDFIRE products, including vegetation sample data, vegetation type, fuel model and fire regime maps and vegetation dynamics models along with other data sets answer these questions.
Nevada: Economics of Fuel Management	In the article *The economics of fuel management: Wildfire, invasive plants, and the dynamics of sagebrush rangelands in the western United States*, Taylor and others (2013) document their work to develop a model that simulates the cost of wildfire suppression with and without fuel treatments. The model was applied to Wyoming Sagebrush Steppe and Mountain Big Sagebrush ecosystems in the Great Basin. Vegetation dynamics models offering fire frequency estimates from the LANDFIRE Rapid Assessment Wyoming Sagebrush Steppe and Mountain Big Sagebrush with Conifers were used in the simulation model. The results

	indicate that, in terms of wildfire suppression cost savings, fuel treatments are cost-efficient where ecosystems are in good ecological health, and inefficient when systems are in poor ecological health.
Nevada: Great Basin National Park Landscape Conservation Forecasting™	Enhanced Landscape Conservation Forecasting™ (eCAP) was used by The Nature Conservancy's Nevada Chapter and local stakeholders to evaluate the costs and benefits of alternative management scenarios for the Great Basin National Park. LANDFIRE biophysical settings models were the starting point for ecological explorations into the Park's vegetation systems.
Nevada: Greater Sage-Grouse Characteristics and Dynamics	LANDFIRE Existing Vegetation data were used in support of a Greater Sage-Grouse study by Connelly and others that evaluated the ecology and conservation interactions for sage-grouse and sagebrush spatial patterns. Connectivity analysis provided a framework for quantifying the range-wide pattern of sage-grouse populations that integrated landscape arrangement of habitat and populations, population dynamics within components, and exchange of sage-grouse individuals among leks and components. The analysis of spatial patterns in sage-grouse populations reflects processes such as dispersal and response to changes in their environment that can be incorporated into range-wide and regional conservation strategies. Read the LANDFIRE Summary.
Nevada: Mt. Grant/Hawthorne Army Depot Management Planning	Louis Provencher, Jeff Campbell and Jan Nachlinger used mid-scale fire regime condition class (also known as vegetation condition class) mapping to provide Hawthorne Army Depot in the Mount Grant area of Nevada with data layers to plan fuels restoration projects to meet resource management goals. (From Provencher et al. 2008 International Journal of Wildland Fire 2008, 17, 390–406).
Nevada: North Schell Creek Conservation Planning	A team at Nevada's North Schell Creek Range devised an innovative approach to setting priorities that helps facilitate the public review process. Combining The Nature Conservancy's Conservation Action Planning framework, LANDFIRE data and analysis products, and a novel return on investment tool, the project team generated a large volume of scientifically defensible documentation that was used during the review process.
Nevada: South Spring and Hamblin Valleys Conservation Planning	The Ely district of the Bureau of Land Management used LANDFIRE data in Evaluation Reports that are aimed at evaluating resource conditions' status. Specifically, they depended on LANDFIRE's Fire Regime Condition Class (Vegetation Condition Class) to assess ecological conditions in the watershed management units.

Nevada: Ward Mountain Restoration Project	The Nevada Chapter of The Nature Conservancy completed a joint Landscape Conservation Forecasting™ project with the Bureau of Land Management and US Forest Service for the Ward Mountain project that would lead to restoration of ecosystems and fire protection in the town of Ely.
New Mexico: Signal Peak Fuels Prioritization and Planning	The Signal Peak Assessment prioritized treatment across a 360,000–acre landscape in southwest New Mexico that included U.S. Forest Service, Bureau of Land Management, and state and private ownership. The goal of the assessment was to identify areas for treatment that would simultaneously reduce the risk of wildfire to communities and restore fire–adapted ecosystems. LANDFIRE provided the only continuous, consistent maps of multiple related data products (including vegetation, fuels, and environmental information) that covered all lands within the assessment area.
New Mexico: Upper Mimbres Watershed Assessment	The Nature Conservancy's New Mexico Chapter conducted a rapid landscape–scale assessment of the Upper Mimbres Watershed in southwest New Mexico so as to provide the foundation for developing a collaborative fire management plan. Using LANDIFRE data on the 535,000–acre, multi–ownership area, the team calculated fire regime condition class and modeled potential fire behavior, thus helping prioritize treatment areas in the assessment area. Additionally, Wilderness Ranger District and Silver City Ranger District are using some of the results in the Healthy Forest Restoration Act Environmental Assessment for the 125,000–acre Upper Mimbres area, focusing on prescribed fire, fuel reduction, and riparian restoration treatments.
New York: Assessing Forest Ecological Integrity Using LANDFIRE and Forest Inventory Analysis	Assessing the current ecological integrity of a site or landscape requires measures of structure, composition and function, NatureServe has developed a rigorous and adaptable Forest Ecological Integrity Assessment (FIA) that describes the methods and linkages to LANDFIRE spatial datasets and vegetation models.
North Carolina: An Assessment of the Nantahala-Pisgah National Forest and Surrounding Lands: A Synthesis of the eCAP Methodology and LiDAR Vegetation Analysis	The project provided a comparison between current vegetation conditions and desired future conditions, highlighting the management needs of 10 major ecosystems of global conservation significance in a 1.7 million-acre study area. Locally modified LANDFIRE Biophysical Settings models were used as the ecological framework for the assessment.
North Carolina: Evaluating Management Scenarios for Atlantic Coastal Plain Pocosin Soils	The North Carolina Chapter of The Nature Conservancy and partners modified LANDFIRE state–and–transition models and used them to explore management options for restoring longleaf flatwoods, longleaf savannas, and pocosins.

North Carolina: GAP Analysis- National Inventory of Vegetation and Land Use	GAP mappers constructed a seamless representation of current vegetation across the continental U.S. and Alaska by combining data from four regional GAP Analysis Projects and LANDFIRE. In areas of the country that were not covered by a regional GAP Analysis Project (central U.S., Northeast, Alaska), LANDFIRE data were used. Because the methods used by both projects are similar, it was possible to combine the data they derived into one seamless map.
Ohio: Wildfire Hazard Mapping: Exploring Site Conditions in Eastern U.S. Wildland-Urban Interfaces	The authors created monthly wildfire ignition probability maps from environmental predictors and wildfires that occurred between 2000 and 2009 for New Jersey, Ohio and Pennsylvania. Predictor variables included a drought index, long-term soil moisture, percentage forest, and wildland-urban interface classifications. Probability maps generated from modeled (Maxent) extrapolations were used to create monthly hazard maps to aid agencies and managers with resource allocation, and likelihood projections of wildfires across the region. Report results suggest that monthly hazard assessments provide a better indication of potential wildfires than does a single mean annual probability.
Oregon: Climate Change and Salmonids	Percent canopy cover information provided by LANDFIRE contributed to a study by Aaron Ruesch et al. that investigated climate-induced changes in summer thermal habitat for three cold-water fish species: juvenile Chinook salmon, rainbow trout, and bull trout in the John Day River basin in Oregon.
Oregon: Forests and Woodland Conservation Analysis	The Nature Conservancy's Oregon Chapter used LANDFIRE's vegetation condition class and fire regime maps to evaluate the scope of restoration needed to restore Oregon's fire–adapted forests and woodlands. The report indicates that over the next 20–25 years the estimated annual rate of treatment needed on public lands to address uncharacteristic fuel loads, restore fire as a natural process, and reduce fire risk in the Wildland Urban Interface (WUI) is three to four times greater than current agency treatment rates. Their estimates also called attention to restoration needs outside the WUI and highlighted the need for a statewide strategy that would take a comprehensive approach to solving the problem
Oregon: Future Scenarios of Land Use and Land Cover Change in the U.S.	Projecting future changes in land use/cover requires an understanding of the rates and patterns of change, the major driving forces, and the socio-economic and biophysical determinants and capacities of regions. The data presented in this report are the result of an effort by USGS scientists to downscale the Intergovernmental Panel on Climate Change (IPCC) Special Report on Emission Scenarios (SRES) to ecoregions of the conterminous U.S. as part of the USGS Biological Carbon Sequestration Assessment. Spatially explicit data from LANDFIRE and modified vegetation models were utilized in the analysis.

Oregon: Lakeview Restoration and Prioritization Analysis	The Lakeview Stewardship Group used a "values mapping" exercise to develop a spatially explicit set of priority treatment areas that would help preserve large or old–growth trees and restore healthy forest conditions. LANDFIRE forest height, forest cover, fire regime condition class, and reference condition data were used in conjunction with other datasets to inform the values mapping process.
Oregon: Regional Carbon Dioxide	LANDFIRE spatial products were combined with Forest Inventory and Analysis (FIA) plots and other databases to provide new estimates of U.S. West Coast forest biomass carbon stocks, net ecosystem production, net biome production, and their attendant uncertainties.
South Carolina: Modeling Vegetation Dynamics and Habitat Availability in the Southeastern U.S.	The Southeast Gap Analysis Project used LANDFIRE VDDT models as the starting point for vegetation dynamics models. The models were modified to incorporate contemporary fire probabilities and the potential future influence of climate change on fire probabilities; models that represent urban, agricultural, and managed forest lands were added. The project produced wall-to-wall spatially-explicit projections of vegetation and land use dynamics in response to multiple climate change scenarios through time. LANDFIRE data were valuable because they offered a database of VDDT models that already existed for every vegetation type in the landscape.
South Dakota: Fuel Treatment Effectiveness	A methodology for combining data from LANDFIRE and Monitoring Trends in Burn Severity (MTBS) with spatial data on fuel treatment locations was developed to quantify treatment effects on burn severity. This method was used in a case study by Wimberly et al. to assess fuel treatments on three fires occurring in different ecosystems.
Tennessee: Cherokee National Forest Collaborative Restoration Planning	A group of stakeholders coordinated by the Tennessee Chapter of The Nature Conservancy completed an analysis of management options for the North District of the Cherokee National Forest. The process combined local ecological knowledge and spatial data with LANDFIRE spatial data and modified LANDFIRE vegetation models. The analysis resulted in consensus regarding best management approaches for the District.
Texas: Chihuahuan Desert Grassland Bird Habitat Relationships and Abundance	Rocky Mountain Bird Observatory (RMBO) developed habitat-specific relationships to bird density for the Grassland Priority Conservation Areas (GPCA) in the U.S. and Mexico (see Chihuahuan Desert Grassland Bird Conservation Plan and Wintering Grassland Bird Densities in Chihuahuan Desert Grassland Priority Conservation Areas). Using program distance, plus available GIS data from LANDFIRE and Instituto Nacional de Estadística y Geografía (INEGI) corrected by RMBO site verification data, we estimated density and population size for several of the most common passerine grassland bird species wintering in the Chihuahuan

	Desert. Results can be used for Federal, State, and non-governmental organizational planning and management programming.
Utah: Carbon Biomass	Forest Inventory and Analysis (FIA) data, Landsat, and LANDFIRE data were integrated in a statistical model designed to estimate aboveground forest biomass carbon at a 30-meter resolution in the Utah High Plateaus.
Utah: Developing Site-Specific Nutrient Criteria from Empirical Models	Ecologically meaningful and scientifically defensible nutrient criteria are needed to protect the water quality of U.S. streams. By setting and using criteria based on the best understanding of naturally occurring nutrient concentrations, resource managers can take steps to protect both water quality and aquatic biota. The authors developed Random Forest models to predict how baseflow concentrations of total P (TP) and total N (TN) vary among western streams in response to continuous spatial variation in nutrient sources, sinks, or other processes affecting nutrient concentrations. LANDFIRE BpS descriptions and the Version 1.0.5 BpS layer were part of the data suite used in this analysis.
Utah: Fremont River Ranger District Landscape Conservation Forecasting™	The Nature Conservancy in Utah, collaborating with the Dixie–Fishlake National Forest, used the concepts of Landscape Conservation Forecasting™ to explore the current status of major vegetation ecosystems on the 500,000–acre Fremont Ranger District and a range of management options. Of particular importance are missing early succession classes in important and widespread ecosystems, and the abundance of late succession stages with closed canopies. Cost effective strategies for improving vegetation condition were identified. The Landscape Conservation Forecasting™ process was developed by Nature Conservancy staff working with the LANDFIRE Program.
Utah: Grouse Creek/Raft River Mountains Planning	The Nature Conservancy works with partners to improve land management in Utah's Grouse Creek and Raft River mountain ranges. One component of this work is using LANDFIRE's biophysical settings descriptions as benchmarks for restoration. LANDFIRE models and modeling software have been fundamental to the exploration of the potential effectiveness of various management scenarios.
Utah: Powell Ranger District Landscape Conservation Forecasting™	The Nature Conservancy, collaborating with the Dixie–Fishlake National Forest, used the concepts of Landscape Conservation Forecasting™ to explore the current status of major vegetation ecosystems on the 375,000–acre Powell Ranger District and a range of management options. The major issue identified was the over–abundance of late succession stages in aspen, mixed conifer forests and sagebrush systems. Cost–effective strategies for improving vegetation condition were identified. The Landscape Conservation Forecasting™ process was developed by

	Nature Conservancy staff working with the LANDFIRE Program.
Utah: Wildland Fire Entrapment Avoidance: Modeling Evacuation Triggers	One potential tool for assisting fire managers in situations where human factors can hinder decision-making is the Wildland–Urban Interface Evacuation (WUIVAC) model. Utilizing multiple combinations of escape routes and fire environment inputs based on the 2007 Zaca fire in California, the authors created trigger buffers for firefighter evacuations on foot, by engine, and by heavy mechanized equipment (i.e. bulldozer). The primary objective was to examine trigger buffer sensitivity to evacuation mode, and expected weather and fuel conditions. The examined scenarios show that WUIVAC can provide analytically driven, physically based triggers that can assist in entrapment avoidance and ultimately contribute to firefighter safety.
Virginia: Central Appalachians Forest Planning	The U.S. Forest Service and The Nature Conservancy are partnering to assess conditions in the Central Appalachians at a landscape scale, and to identify effective and efficient opportunities for restoration. LANDFIRE products create a common fabric of information for the entire landscape.
Virginia: Decadal RPA Assessment	The 2010 Resources Planning Act (RPA) Assessment summarizes results about the status, trends, and projected future of forests, rangelands, wildlife and fish, biodiversity, water, outdoor recreation, wilderness, and urban forests, as well as the potential impacts of climate change on these resources. Spatially-explicit vegetation data supplied by LANDFIRE, including Existing Vegetation Type, Existing Vegetation Height, Existing Vegetation Cover and Biophysical Settings, were used in the Assessment.
Virginia: Land Carbon Project	The LandCarbon Project seeks to develop and implement a methodology that estimates biological carbon pools and fluxes. The assessment covers all major terrestrial and aquatic ecosystems, is conducted for all 50 states, provides estimates of baseline as well as future potential carbon storage and greenhouse gas fluxes, and conducts analysis of effects of major natural and anthropogenic processes that impact ecosystem carbon storage and greenhouse gas fluxes. The LandCarbon project utilizes spatial data and vegetation transition information supplied by LANDFIRE.
Virginia: Rapid Assessment of U.S. Vegetation and Soil Organic Carbon Storage and Vegetation Carbon Sequestration Capacity	In order to develop a rapid assessment of biological carbon stocks and forest biomass carbon sequestration capacity in the conterminous United States, the U.S. Geological Survey turned to LANDFIRE National spatial products along with off–the–shelf maps and datasets for help. Working under a tight deadline in a short time frame, they were able to make estimates of stocks, sequestration capacity and more. The results can inform planners, frame discussions, and guide policies regarding reducing those levels.

Washington: Carbon Stocks of Trees Killed by Bark Beetles and Wildfire in the Western U.S.	The study's objective was to contribute to the understanding of forest carbon cycling by quantifying the amount of carbon in trees killed by two disturbance types, fires and bark beetles, in the western U.S. in recent decades. The authors combined existing spatial data sets of forest biomass, burn severity, and beetle-caused tree mortality to estimate the amount of aboveground and belowground carbon in killed trees across the region. More than 15% of the carbon in lodgepole pine and spruce/fir forest types appeared in trees that were killed by beetle outbreaks, whereas other forest types had 5-10% of the carbon in killed trees. LANDFIRE Existing Vegetation Types effectively delineated distinct vegetation types that are meaningful suitability indicators for MPB-caused tree mortality.
Washington: Research to Regulation: Cougar Social Behavior as a Guide for Management	Cougar (Puma concolor) populations are a challenge to estimate because of low densities and the difficulty of marking and monitoring individuals. The authors of the study propose an organization that is designed to maintain an older age structure that should promote population stability. LANDFIRE habitat coverage data (2007) provided a foundation from which the authors quantified habitats used by marked cougars. As a result, they were able to recommend a hunter harvest that would be administered within zones approximately 1,000 km2 in size so as to distribute harvests more evenly across the landscape.
Washington, DC: Carbon Dynamics of Forests in Washington	LANDFIRE Environmental Site Potential and Fire Severity data were used to explore the impact of changing age class distributions on carbon dynamics of forests in Washington State.
Washington, DC: Eastern Washington Forests "Whole Systems" Assessment	The Washington Chapter of The Nature Conservancy conducted a broad scale assessment of forest conditions in eastern Washington. The assessment is part of a "whole systems" approach designed to account for ecosystem processes and the needs of human communities while setting conservation goals. LANDFIRE's biophysical settings, succession class, and reference conditions data were used to calculate Ecological Conditions in the study area. The paper *An Ecological Context for Whole Systems Conservation of Eastern Washington Forests* provides an overview of the process and presents key results.
Wisconsin: Wild Rivers Legacy Forest Site	The Nature Conservancy in Wisconsin collaborated with the University of Wisconsin–Madison to develop an expert–and data–based modeling project whose objective was to test the potential effectiveness of conservation strategies, both with and without projected climate change scenarios. The collaborators used LANDFIRE Vegetation Dynamics Development Tool models and spatial data as the foundation for scenario modeling efforts.

Wyoming: Bridger-Teton National Forest Vegetation Condition Assessment	The Bridger-Teton National Forest Vegetation Condition Assessment documents the process and results of a vegetation condition assessment for six Biophysical Settings (BpS) on the Bridger-Teton National Forest. As a stand-alone product, it provides a comparison of reference to current conditions for the dominant BpS on the forest. The assessment calculated several FRCC departure metrics (stratum vegetation departure, stratum vegetation condition class, and S-class relative amount) using LANDFIRE 2001 BpS and S-class grids, LANDFIRE vegetation dynamics models, and two watershed-based summary units. The report provides a detailed comparison of the historical and current distribution of S-classes for each of the major BpS and results indicated that most of the major BpS on the forest were moderately departed from reference conditions.
Wyoming: Wildland Fire in the Urban Interface	Ignition and unsuppressed growth of wildfires starting in a remote portion of the study area were modeled using FSim to support wildland fire management decisions about suppression. The annual area that could burn and the likelihood that wildfires could reach a nearby wildland-urban interface (WUI) defense zone were estimated. LANDFIRE 2001 spatial layers were a primary data source for the study. Report is available in Fire Ecology 8(2), 2012