
CoreLogic
Understanding and Modeling Wildfire Risk
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CoreLogic Spatial Solutions
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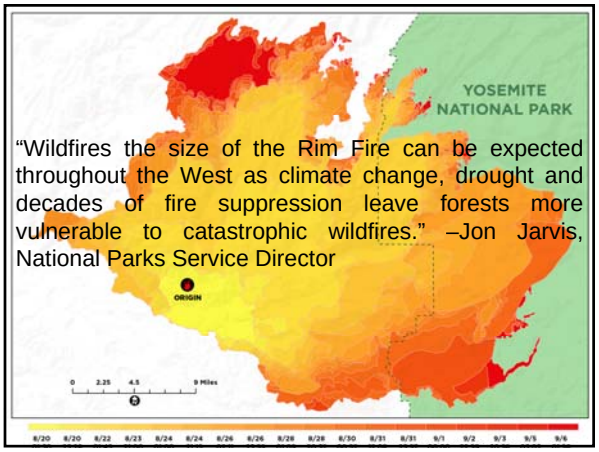
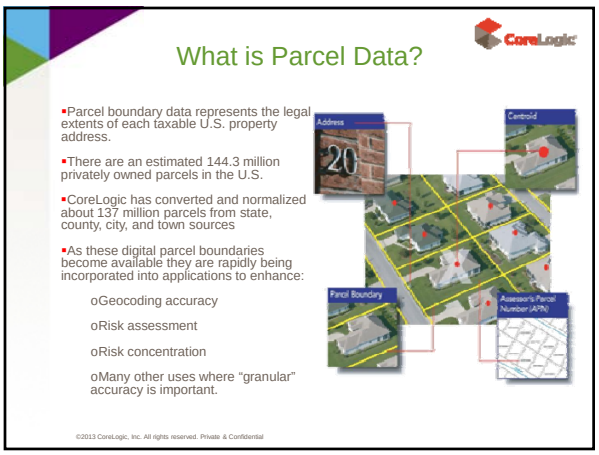

YOSEMITE
NATIONAL PARK
"Wildfires the size of the Rim Fire can be expected throughout the West as climate change, drought and decades of fire suppression leave forests more vulnerable to catastrophic wildfires." –Jon Jarvis, National Parks Service Director
ORIGIN


What is Parcel Data?
CoreLogic
Parcel boundary data represents the legal extents of each taxable U.S. property address.
There are an estimated 144.3 million privately owned parcels in the U.S.
CoreLogic has converted and normalized about 137 million parcels from state, county, city, and town sources
As these digital parcel boundaries become available they are rapidly being incorporated into applications to enhance:
oGeocoding accuracy
oRisk assessment
oRisk concentration
oMany other uses where "granular" accuracy is important.
Address
Centroid
Parcel Boundary
Assessor's Parcel Number (APN)
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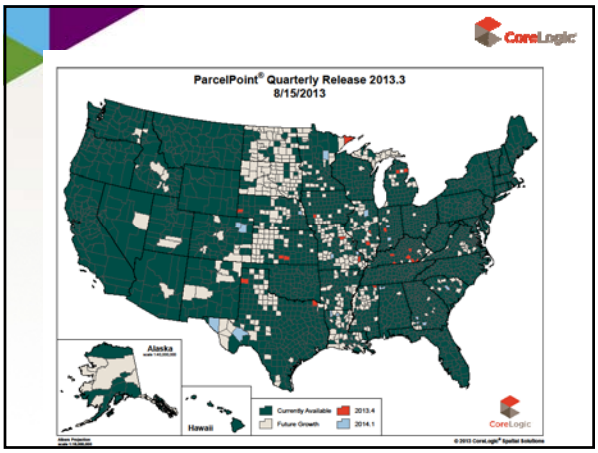
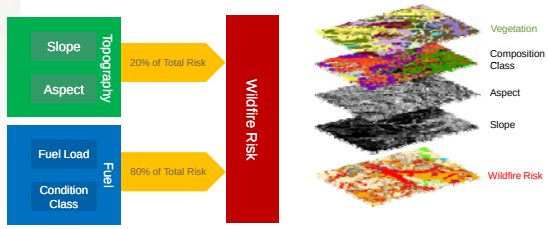


Wildfire Risk Determination

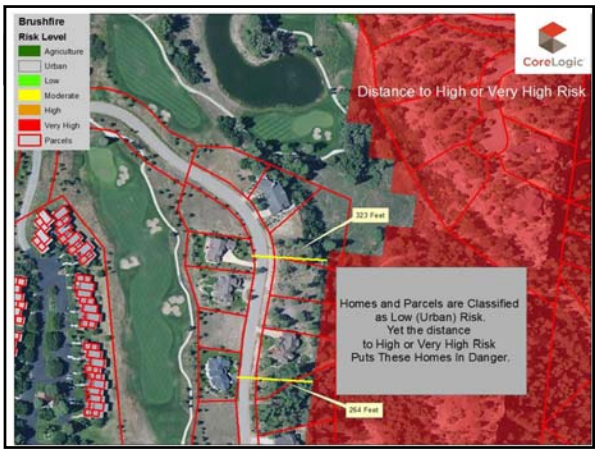
Data Elements
- Digital Elevation Model (DEM)
- Satellite Imagery
- Vegetation Condition Class data

Data Granularity
- Input cell size based on 30m grid
- All layers sampled at 30m



Understanding the Risk Near the Property

- Properties on the urban edge are often Low risk
  - Manicured lawn and decorative trees/shrubs
- Just beyond the urban edge is High risk
  - Natural vegetation/fuel – dense chaparral or forest
- Fire may not burn veg/fuel on the property but windblown embers will carry from the natural vegetation to the property.
- Embers can carry ½ mile due to wind
  - Not limited to high wind events (Santa Ana winds)



The Impact of Windblown Embers

Approximately 55% of the properties lost in the Waldo Canyon fire were due to firebrands or (windblown embers

Windblown embers ignited these structures – no evidence of fire moving at ground level. (Waldo Canyon, 2012)

Wildland Urban Interface Classification

- Classification developed to identify Wildland Urban Interface (WUI).
  - Residential density (houses per ¼ mile grid cell)

Classification	Definition	Importance
Urban	>160 households	Interface
High density res	41-160	Interface
Medium density res	9-40	Interface
Low density res	3-8	Interface
Scattered res	1-2	Interface
Wildland	0	Potential high fuel load

** Number of households per ¼ mile grid. 160 hh ~ 1 house per acre.*

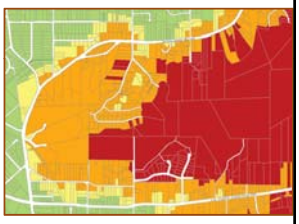
Wildland/Urban Interface (WUI)

Single Wildfire Score Calculation

Considers all of the following:

- Wildfire risk on the property
- Distance to nearest High or Very High risk
- Distance to Wildland

Risk Score	Decision Type
81 - 100	Recommended – Do Not Write
61 - 80	Inspection Required
51 - 60	Refer to Underwriter
0 - 50	Acceptable Risk



Wildfire Risk

Western States Wildfire Risk

Residential exposure for the western U.S. by Wildfire Risk Score

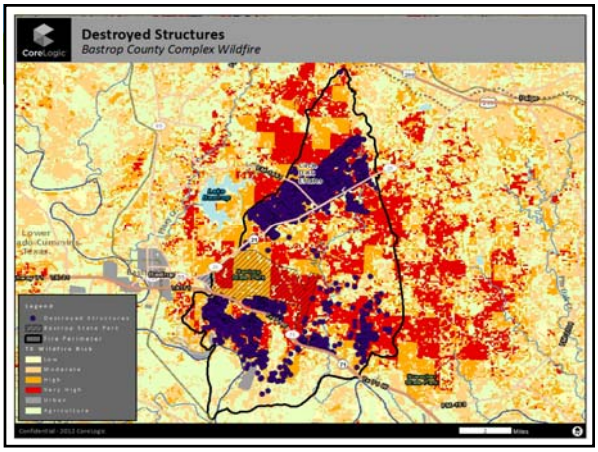
Wildfire Risk Score (1-100)	Total Properties	Total Estimated Structure Value
81-100	905,397	$161,371,288,370
61-80	1,083,968	$216,027,903,174
51-60	466,590	$87,029,431,767
1-50	25,431,565	$3,606,671,218,032

Source: CoreLogic, 2012. Based on estimated property values as of May 15, 2012.

Residential properties potentially at risk of wildfire damage by risk score

State	1-50	51-60	61-80	81-100
AZ	1,817,404	14,097	25,622	17,984
CA	9,135,909	149,447	371,274	246,302
CO	1,369,165	48,225	110,430	121,249
ID	372,316	4,991	14,293	19,030
MT	209,601	11,558	22,130	25,357
NV	796,465	2,774	8,953	7,172
NM	495,603	12,157	27,316	39,084
OK	1,077,998	707	1,007	381
OR	974,987	16,894	33,368	52,173
TX	6,343,436	184,196	434,528	352,240
UT	739,062	14,517	21,845	7,930
WY	153,179	873	1,543	2,827
WA	1,946,440	6,154	11,659	13,667

Source: CoreLogic, 2012.

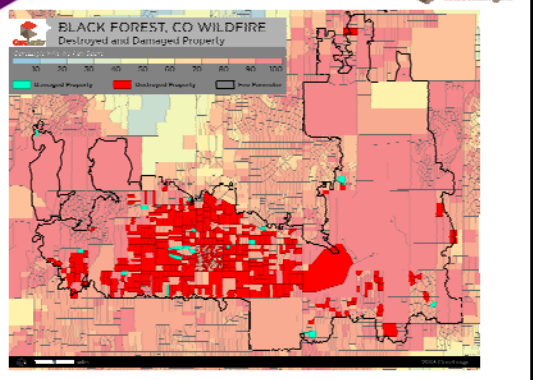


Summary Statistics from Bastrop, TX

- % of properties damaged increases with Wildfire Risk Score
- Eliminating the worst scoring properties eliminates a much higher % of losses; for example excluding (through not writing the properties) properties with scores 91-100 removes 10.7% of properties, but a larger 23.6% of losses.

Results of Underwriting Selections

Eliminate scores:	% of properties	% of losses
96 - 100	2.3%	6.2%
91 - 100	10.7%	23.6%
86 - 100	23.6%	54.1%
81 - 100	42.1%	81.6%
71 - 100	60.9%	97.3%
61 - 100	73.7%	99.5%
51 - 100	80.3%	100.0%
41 - 100	89.3%	100.0%

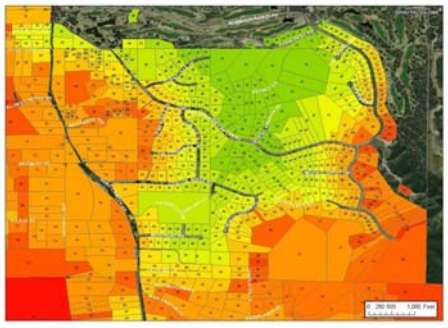


Black Forest Fire, Colorado Springs, CO

Brushfire Risk	# Homes	Percent Properties By Risk Category	Home Value Total by Risk
Agriculture (Low)	1	0.19%	$734,500
Urban (Low)	0	0.00%	$0
Low	19	3.67%	$4,849,100
Moderate	0	0.00%	$0
High	51	9.85%	$11,692,333
Very High	445	86.30%	$115,476,700

Wildfire Single Score	# Homes	Percent Properties By Single Score	Average Distance to WUI	Home Values By 0-100 Category
0 to 50	0	0.00%	N/A	N/A
51 to 60	0	0.00%	N/A	N/A
61 to 80	15	2.90%	6,311.33	$3,092,700.00
81 to 100	501	97.10%	4,070.78	$129,659,933.00
Total Properties	516	100.00%		$132,752,633.00

Robinson Ranch, Canyon Country, CA



Summary– The Importance of Wildfire Risk Modeling

Allows companies to create a proprietary set of conditional rules that enable them to more accurately define locations so they can:

- Supports by-peril risk underwriting and pricing.
- Write policies without extensive on-site investigation, e.g. dramatically reduce the number of house inspections required (cost per inspection ranges from $50 to $500 per house).
- Differentiate between policies in potentially high risk wildfire areas.
- Flag locations for on-site inspection where risk has been increased by surrounding (off-property) brushfire risk factors.
- Requires annual updates to account for changes in urban growth, previous year wildfires and other factors which influence an area's propensity to burn.
- Offers accurate identification of the Wildland/Urban Interface (WUI).