Supplement S4. Supporting Figures and Tables

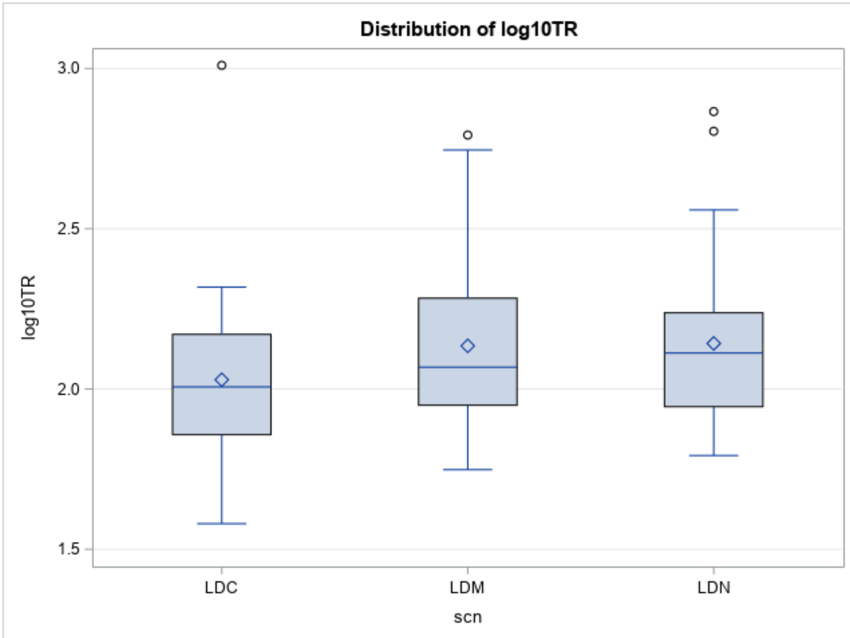
The TOC and lists of figures and tables are hotlinked to their respective locations in the Supplement. For easiest navigation, also open the bookmarks. Use the TOC to locate a desired figure or table and then use the bookmarks to return to the TOC or go to any other section.

Table of Contents

List of Figures

List of Tables

(A)



(B)

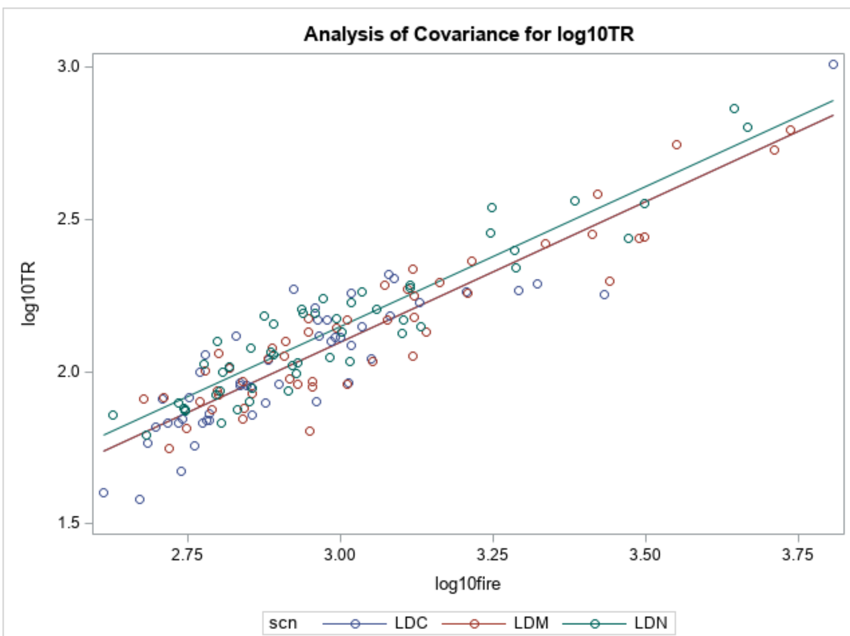
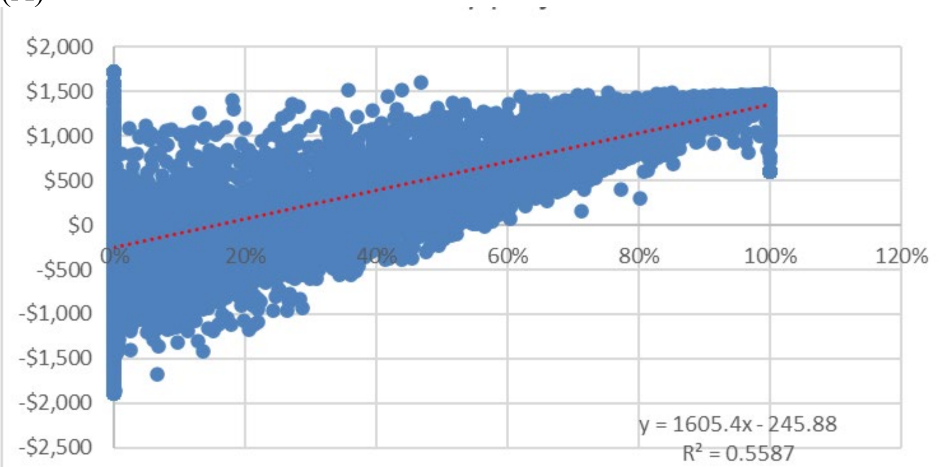


Figure S4.1. Threatened residences as a function of total area burned and scenario. (A) The number of threatened residences varied by scenario but the effect was largely overwhelmed by within-scenario variability. (B) When the total area burned was taken into account, it showed that the No management scenario increased residential risk over the other two scenarios for the same burned area. Figure 3B suggests this was due to its higher proportion of mixed- and high-severity fire (ANOVA $F(2, 147) = 131.22$, $p < 0.001$), which in our model overcame the protection of defensible space practices.

(A)



(B)

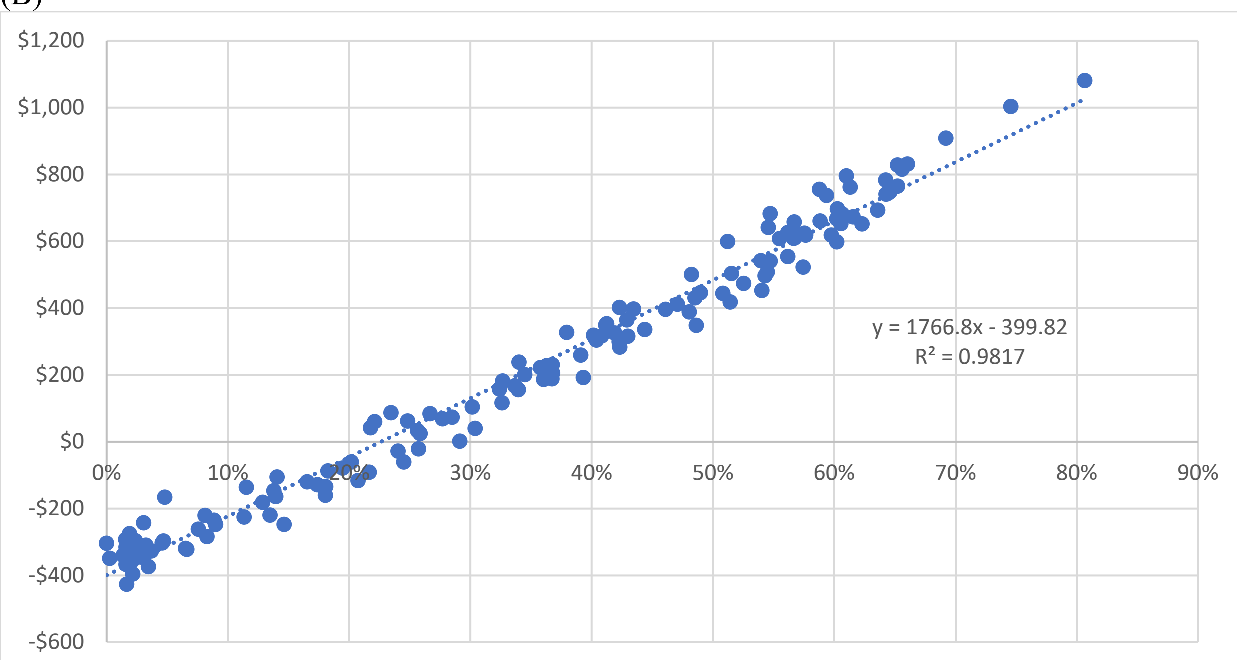


Figure S4.2. Relationship of cost/ha to retreatment percent for incentivized density thinning in Hazard Reduction scenarios. (A) by individual fuels treatments project (only) and (B) averaged across all fuels treatment projects in a given year. Results shown for the 150 years (50 years/run) of HAZ-max, HAZ-med, and HAZ-min of the Low climate impacts, Dispersed development scenarios.

Table S4.1. Study area cover type change from 1851 to present. Study area totals from 1851 derived from the PNW-ERC VEG1851_V4 grid, re-classed to 12 categories. Present day values were derived from a synthesis of multiple existing data layers [1, 2] and classified by cover types used in this study.

Cover Type	**1851**	**Present**
Upland and Wetland Prairie	32%	3%
Oak Savanna	25%	3%
Oak Woodland	-	9%
Oak/Douglas-Fir Woodland	14%	0%
Oak/Douglas-fir Forest	1%	5%
Douglas-Fir/Oak Forest	-	14%
Douglas Fir Woodland	3%	-
Upland Conifer Forest	15%	29%
Douglas-Fir Forest	-	*11%*
Douglas-Fir/Grand Fir Forest	-	*2%*
Douglas-Fir/Maple	-	*16%*
Mesic Hardwood Forest*	9%	4%
Emergent Wetland	0%	0%
Agricultural Crop	-	8%
Grass Seed and Hay	-	6%
Pasture	-	14%
Tree Crops	-	2%
Roads	-	1%
Urban	-	1%
Unvegetated (incl. water)	1%	1%
Total	**100%**	**100%**

* 1851 “Riparian Forest”

Table S4.2. Cover types burned in Black Swan fire and consequences for rural residences. DU = Dwelling Units (in 2007 at run initiation and then in 2035, the year of the fire); DSP = Defensible Space Practices; NewDU = New Dwelling Units constructed since model year 0; TR = Threatened Residences, PR = protected residences (exposed to low-intensity fire and protected by defensible space). Run = HAZ-max, year 45. Does not include small areas within the fire perimeter with unburnable fuels.

	Component of Entire Fire											By Cover Type	
Cover Type	Area (ha)	2007 DU	2035 DU	2035 DU/ha	%DSP	%LSF	TR	PR	%Area	%TR	%PR	%TR	%PR
Agriculture	1130	137	338	0.30	56%	96%	161	177	20%	18%	42%	48%	52%
Oak -Prairie Restoration	397	26	89	0.22	66%	95%	32	57	7%	4%	14%	36%	64%
TFB Forest & Woodland	1014	63	246	0.24	67%	55%	161	85	18%	18%	20%	65%	35%
Unmanaged Succ. Veg.	3181	162	651	0.20	71%	27%	551	100	56%	61%	24%	85%	15%
Totals	5722	388	1324	0.23	66%		905	419	100%	100%	100%		

Table S4.3. Example of net costs ($/ha) for initial and renewal treatments in a forest stand with merchantable trees. Vegetation class is a mixed Douglas-fir and oak forest with dominant trees in the 25-50 cm diameter class. Treatment costs were based on a suite of 1-5 best management practices (BMPs) selected and priced for each treatment type as applied to each specific vegetation class. Log and chip volumes were based on the calculated board feet of timber and cubic feet of chips produced to meet treatment goals. Net log and chip income were based on estimated gross sales receipts, minus processing and transportation costs. Gross sales receipts were based on the average market conditions of 2000 and 2010, representing a recent market peak and low point. STR = structural restoration; HQ = high quality restoration.

Management Type	**Net Profit or Cost**	**BMP Cost**	**Net Log Income**	**Net Chip Income**
Initial Treatments				
Density Thinning	$250	$(1,000)	$800	$450
Oak Woodland STR	$370	$(1,680)	$1,450	$600
Oak Woodland HQ	$(155)	$(2,205)	$1,450	$600
Savanna STR	$820	$(1,680)	$1,800	$700
Savanna HQ	$295	$(2,205)	$1,800	$700
Renewal treatments				
Density Thinning	$(600)	$(600)	--	--
Oak Woodland STR	$(300)	$(300)	--	--
Oak Woodland HQ	$(250)	$(250)	--	--
Savanna STR	$(300)	$(300)	--	--
Savanna HQ	$(250)	$(250)	--	--

Table S4.4. A growing body of global WUI-related wildfire literature. The WUI fire phenomena is not unique to the US, as documented in reviews that span large parts of the globe, and in studies of specific countries and regions, including Australia; large areas of Europe, particularly those with Mediterranean climates such as France, Greece, Italy, and Portugal; and South America, including Argentina and Chile; with only preliminary understanding of WUI fire risk in Asia and Africa. In all these regions, particularly in Mediterranean and other summer-drought climates, climate change is expected to further exacerbate wildfire risk.

Region	**Citations**
Regions around the globe	[3-7]
Australia	[8-12]
Large areas of Europe	[13-15]
France	[16, 17]
Greece	[18, 19]
Italy	[20]
Portugal	[21, 22]
South America	
Argentina	[23, 24]
Chile	[25-27]
Asia and Africa (Preliminary)	[6, 28-35]

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