

# Assessing Change in the Market Value of Rural Real Property Post-Wildfire in the Great Plains

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## Abstract

This article provides a framework for assessing change in rural real property values after a wildfire. The research literature addresses some of the impacts on real property, but the specific effects of wildfire on rural property values are under-explored. This article fills that gap by offering a systematic approach, using recognized professional methods to analyze highest and best use, identify the need for additional experts, and assess market expectations post-wildfire. It also addresses potential mitigation strategies, offering practical guidance for property owners, insurers, and policymakers.

## Introduction

The United States has faced an increasing number of disasters in recent years, ranging from natural events like wildfire to man-made crises, all of which can significantly disrupt real property markets. From 2014 to 2023, an annual average of 62,277 wildfires burned an average of 7.02 million acres. Three times during that period, the total annual area burned exceeded 10 million acres. The trend continued through 2023, with 56,580 wildfires across the US burning a total of 2,693,910 acres and destroying 4,318 structures, including 3,060 homes.<sup>1</sup> Although we focus on the effect of wildfire on rural property in the Great Plains, wildfires have been a significant influence on real property markets in urban and suburban markets in other areas, such as the Southern California

fires that damaged or destroyed more than 15,000 structures with a total expected economic loss of between \$250 and \$275 billion.<sup>2</sup>

Wildfires in rural areas of the Great Plains have become increasingly frequent and severe, posing significant challenges to the valuation of real property. A study conducted over a 30-year period (1985-2014) across the Great Plains revealed alarming trends in wildfire activity.<sup>3</sup> The average number of large wildfires (more than 400 hectares) increased from  $33.4 \pm 5.6$  per year between 1985 and 1994 to  $116.8 \pm 28.8$  per year between 2005 and 2014. The total area burned by large wildfires also increased by 400%, with more than half of the ecoregions having a greater than 70% probability of experiencing a large wildfire in the last decade. Great Plains grasslands are notoriously highly fragmented, having been converted

1. National Interagency Coordination Center, "Wildfires and Acres: Total Wildland Fires and Acres (1983-2024)," National Interagency Fire Center (NIFC), 2024, <https://bit.ly/47Qs150>.
2. Motal Real Estate Group, "Motal Real Estate Group offers Complimentary Real Estate Services to Families Affected by the Southern California Wildfires," *Business Wire* (Jan. 22, 2025), available online at <https://www.businesswire.com/news/home/20250122406804/en/>; B.K. Sullivan, "Los Angeles Fires to Top \$50 Billion in Damage, AccuWeather Says," *Business Source Elite* (2025) Available online at [https://www.bloomberglaw.com/content/dam/bloomberglaw/pdfs/2025/01/08/20250108\\_los\\_angeles\\_fires\\_damage\\_50\\_billion.pdf](https://www.bloomberglaw.com/content/dam/bloomberglaw/pdfs/2025/01/08/20250108_los_angeles_fires_damage_50_billion.pdf); and R. Vincent, "Estimated Cost of Fire Damage Ballons to More than \$250 Billion," *Los Angeles Times* (Jan. 24, 2025).
3. Victoria M. Donovan et al., "Surging Wildfire Activity in a Grassland Biome," *Geophysical Research Letters* 44, no. 12 (2017): 5986-5993.

into other land uses, particularly cropland.<sup>4</sup> However, recent federal policy and economic pressures have reduced cropland area in favor of mostly monocultures of seeded grasses—much of which is neither grazed nor prescribed burned, thereby increasing the potential for larger wildfires.<sup>5</sup> These findings underscore the growing risk and frequency of wildfires in rural areas.

Wildfire can also impose a significant emotional and financial toll on farmers and ranchers, particularly in the southern Great Plains. A recent study was conducted in southwest Kansas, western Oklahoma, and the Texas Panhandle on the experiences and perceptions of farmers and ranchers regarding the socioeconomic impacts of wildfires.<sup>6</sup> Impacts can include loss of structures, livestock, and standing forage, as well as disruptions in agricultural productivity and economic stability.

For real property appraisers, the growing prevalence of wildfire in rural areas highlights the urgent need for accurate property valuations before and after these events. As wildfire becomes more widespread in the Great Plains, the role of appraisers in determining the highest and best use of the land, both pre- and post-wildfire, becomes increasingly crucial. Wildfire can also mobilize significant cleanup and ordinarily have no consequential hazmat considerations. For valuation, confirmation of the site's cleanup status—debris removal, hazardous waste handling, erosion controls, and any agency 'closure' letters—often conditions marketability, exposure time, and buyer risk premiums. This includes assessing the impact of potential losses caused by wildfire, understanding market dynamics in the aftermath, and providing well-supported valuations that reflect the market's expectations and the property's adjusted risk profile. This paper addresses the need for a systematic framework for assessing change in the market value of rural real property following wildfire in the Great Plains.

## A Framework for Assessing Wildfire Impact on Rural Properties

### Disaster Impact Modeling

The framework for the proper analysis of wildfire begins with the Uniform Standards of Professional Appraisal Practice (USPAP). The purpose of USPAP is "to promote and maintain a high level of public trust in appraisal practice by establishing requirements for appraisers. It is essential that appraisers develop and communicate their analyses, opinions, and conclusions to intended users of their services in a manner that is meaningful and not misleading."<sup>7</sup> USPAP sets the minimum standard for real estate valuation professionals. The appraiser should consider both the typical expectations of regular intended users of similar assignments and the standard practices that peers would follow in performing the same or a similar assignment, in addition to the recognized methods and techniques of the profession.

### The Challenges of Appraising After a Wildfire

Wildfire often creates unstable conditions and benefits that challenge traditional appraisal methodologies, making it difficult for appraisers to develop credible market value opinions. Wildfire can cause widespread losses and uncertainty, which complicates the valuation process. The process becomes more complicated for many reasons, but in part due to a scarcity of relevant data and changes in overall supply and demand.

Additionally, the process of dissecting market value into its constituent parts and establishing their relationship to the property's total market value can be an intricate and time-intensive undertaking. This level of detailed examination requires significant time and resources, and it goes beyond standard appraisal practices. Additional items that may be considered when comparing the contributory value of the component

4. Fred B. Samson et al., "Great Plains Ecosystems: Past, Present, and Future," *Wildlife Society Bulletin* 32, no. 1 (2004): 6-15.

5. David Augustine et al., "Thinking Like a Grassland: Challenges and Opportunities for Biodiversity Conservation in the Great Plains of North America," *Rangeland Ecology & Management* 78 (2021): 281-295.

6. Jason S. Bergtold et al., "Wildfire Across Agricultural Landscapes: Farmer and Rancher Experiences and Perceptions in the Southern Great Plains," *Environmental Hazards* 23, no. 4 (2024): 364-389.

7. *Uniform Standards of Professional Appraisal Practice (USPAP)*, 2024 ed. (The Appraisal Foundation, 2024), Preamble, p. 1, lines 1-4.

## Comparison of Features of Farms and Ranches

A farm primarily involves tillable land devoted to crop production (generally, annual crops like corn). Its function centers on cultivating crops or feed products, often involving site improvements such as irrigation wells, drainage systems, and crop storage. Value is linked to potential crop yield modulated by soil productivity, water availability, and the cost efficiency of cultivating mostly annual and relatively few perennial crops. However, many farms also produce livestock such as cattle or hogs, meaning that overall farm value may derive not only from crop yield but also from animal production, feed efficiency, and the integration between crop and livestock operations. Farmland requires intensive land management through cultivation, seeding, and fertilization.

A ranch, by contrast, primarily produces domestic livestock on land that usually cannot be cultivated but produces perennial forage plants, mainly grasses grazed by livestock (i.e., rangeland). Common improvements include perimeter and cross-fencing, stock-water tanks, corrals, and working pens. Value is linked to carrying capacity and the ecological condition of the rangeland rather than crop yield. Rangelands are extensively managed through grazing management practices like manipulating stocking rate and grazing season.

In some markets, wildlife enterprises—such as hunting leases—have become increasingly valuable supplemental uses of rangeland, although wildlife enterprises remain secondary to the primary livestock grazing enterprise. Timber production enterprises, although rarely encountered in rangeland assignments, typically warrant consultation with a forestry specialist.

In practice, the line between a farm and a ranch can blur, particularly in areas where both crop and livestock production occur on the same tract or under the same management. This overlap can complicate the determination of the larger parcel and ultimately the highest and best use, as the economic and physical characteristics supporting one use may also contribute to the viability of the other.

From an ecological standpoint, wildfires neither contaminate nor fertilize rangeland soils. Instead, fire serves as a natural process, removing accumulated thatch and dead grasses, ultimately improving forage quality for livestock, and suppressing invasive woody species such as the eastern red cedar. When followed by adequate rainfall, a post-fire landscape often exhibits increased carrying capacity and improved ecological condition.

| Feature/Component                  | Farm                                                                              | Ranch                                                                                                                                                       |
|------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Primary use                        | Crop production (row crops, orchards, vegetables, hay)                            | Livestock grazing (cattle, sheep, etc.) of rangeland and perennial seeded pasture                                                                           |
| Forage and land productivity       | Emphasis on soil fertility, weed management, and optimal crop yield               | Emphasis on carrying capacity, brush management, and ecological condition                                                                                   |
| Water/irrigation                   | Irrigation systems, pivot systems, drainage, canals                               | Distributed water systems, stock tanks, springs, wells, pipelines across pastures                                                                           |
| Fencing/internal division          | Boundary fencing or interior cross-fencing tends to be less intensive             | Ownership boundary perimeter fencing and interior cross-fencing to create pasture units                                                                     |
| Animal handling facilities         | Secondarily, may have barns, livestock handling equipment, feed silos             | Corrals, chutes, loading ramps, handling pens are central improvements                                                                                      |
| Mixed uses/amenity value           | Uncommonly include recreation enterprises, may include farmhouse                  | Often include recreation enterprises including hunting leases, scenic viewsheds, often include ranch headquarters with house, barns, and other improvements |
| Grazing permits/public land use    | Rarely involved                                                                   | Possible inclusion of public land grazing permits or leases                                                                                                 |
| Water and mineral rights           | Water rights may be irrigation-related, mineral rights less often active          | Water rights, mineral/timber rights more likely to be relevant                                                                                              |
| Income streams                     | Possibly lease income                                                             | Livestock sales, grazing leases, hay sales, recreation leases, possible timber or mineral income                                                            |
| Highest and best use complexity    | More often a single use (cropland agriculture) unless development pressure exists | More frequent mixed or concurrent uses (crop + recreation + residential) requiring layered analysis                                                         |
| Depreciation and improvement types | Storage barns, irrigation equipment, implements, silos                            | Specialized improvements for livestock, widely distributed improvements across land                                                                         |
| Risk and sensitivity factors       | Crop price volatility, weather, input costs                                       | Drought, forage fluctuation, livestock markets, wildfires, remoteness, and accessibility                                                                    |

parts to the market value of the whole are items such as fencing, trees, landscaping, and the like.<sup>8</sup>

To address these challenges, the Appraisal Institute introduced Guide Note 10, a resource designed to help appraisers navigate the complexities of disaster-impacted markets. The 15th edition of *The Appraisal of Real Estate* (published in 2020) also provides a foundational framework for determining market value in the aftermath of a disaster. While wildfires are not frequently discussed in appraisal literature, the literature does offer valuable insights into damage analysis by focusing on three critical components: cost, use, and risk.<sup>9</sup>

For example, in disaster-affected markets, key characteristics that typically define market value and a market in general—such as informed buyers and sellers, highest and best use, reasonable exposure times, and competitive market conditions—may be absent or distorted. Appraisers should rely on the market analysis of available data surrounding such issues as supply and demand, anticipation, change, substitution, and contribution in these situations. These traditional and time-tested appraisal analyses serve as a foundation for navigating uncertainty and ensuring credible valuations despite limited or unreliable market data.

Determining the larger parcel and highest and best use are the “what” of the valuation process. They identify the property that is to be appraised, whether that is one parcel or numerous parcels used as one economic unit. The larger parcel is often cited in condemnation cases, particularly partial takings, but can apply to a potential detrimental conditions issue. The key elements of the “larger parcel” concept in real estate appraisal include unity of ownership, contiguity, and unity of highest and best use.

Unity of ownership indicates that the parcels are typically under the beneficial control of a single individual or entity. While physical contiguity is often considered, it is not an absolute requirement. Instead, the contiguity related to the highest and best use of the property holds greater significance.

The unity of highest and best use is perhaps the most critical element. The parcels should either share the same highest and best use or have an integrated use that enhances their value collectively.

Ultimately, the larger parcel concept emphasizes that contiguity of highest and best use is more important than mere physical adjacency. This means that even noncontiguous parcels can be regarded as part of a larger parcel if they exhibit a unified highest and best use. Appraisers must carefully evaluate these factors when determining the larger parcel in eminent domain cases or for valuation purposes, as their application can vary based on specific circumstances and legal interpretations.

Rural properties in the Midwest and western United States, often referred to as “flyover states,” frequently feature diverse and unconventional uses that may not be immediately apparent as the highest and best use. These properties often integrate multiple uses within a single operation, forming a larger parcel. For example, a farming enterprise might combine:

- Cattle operations with corresponding facilities
- Hunting improvements for recreational leasing
- Irrigated cropland for feed production
- Timberland for supplementary income
- Water rights for irrigation or livestock needs
- Auction facilities for livestock sales
- Feedlots for finishing cattle

Determining the highest and best use for these mixed-use properties presents unique challenges. The appraiser must carefully analyze the interrelationship of these uses to determine the overall value of the larger parcel and highest and best use. While these components could function independently as standalone uses, prudent operators often integrate them into a cohesive larger parcel that maximizes utility and profitability.

The appraiser’s role becomes critical in identifying both the larger parcel of these properties and ultimately determining what constitutes the

8. *Guide Notes to the Standards of Professional Practice of the Appraisal Institute* (Appraisal Institute, 2021), Guide Note 10: Development of an Opinion of Market Value in the Aftermath of a Disaster.

9. *USPAP Guidance and Reference Manual*, 2024 ed. (The Appraisal Foundation, 2024), Advisory Opinion 9 (AO-9): The Appraisal of Real Property That May Be Impacted by Environmental Contamination.”

highest and best use. This task becomes even more important in pre- or post-wildfire scenarios, where land use may shift due to damage. For example, a property that supported a mixture of livestock grazing and timber production pre-fire might support only livestock grazing post-fire.

### Foundational Principles: Cost, Use, and Risk

The concept and proper order of analysis can be found throughout the appraisal literature. A detrimental condition can impact the market value of a parcel temporarily, permanently, or both through a cost, use, and/or risk impact. The Detrimental Condition Matrix and its different stages (shown in Figure 1) can assist an appraiser in analyzing the term and stage of any loss. The matrix provides a rough outline of proper analysis for real estate appraisers.

Hazardous materials or cleanup conditions fit the cost-use-risk frame: cost (testing, removal, disposal), use (temporary limits on occupancy/grazing until clearance), and risk (stigma, disclosure, and financing/insurance frictions even post-cleanup). Assumptions about presence/absence and cleanup completion should be explicit.

In a wildfire scenario, cost effects can be items such as the replacement of structures, landscaping, and the like. Use effects can include temporary grazing and the relocation of livestock. Risk effects can be items such as stigma related to adverse public perception. For the appraiser providing an opinion on market value, each of these items must be correlated with market data. For example, while wildfires can be devastating, they may also create long-term benefits, such as improved stocking rates which can be a result of the fire reducing non-forage and competing plants. Therefore, impact on the underlying land's market value should be determined on a case-by-case basis, considering

**Figure 1.** Detrimental Conditions Matrix

| Detrimental Condition Stages |                                                                                                        |                                                                                           |                                                                                 |
|------------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Detrimental Condition Issues |                                                                                                        |                                                                                           |                                                                                 |
|                              | Assessment                                                                                             | Repair                                                                                    | Ongoing                                                                         |
|                              | <b>Cost</b><br>Cost to assess and responsibility<br>Engineering<br>Phase I, II, III studies            | Repair costs and responsibility<br>Repairs<br>Remediation<br>Contingencies                | Ongoing costs and responsibility<br>Operations and maintenance (O&M) monitoring |
|                              | <b>Use</b><br>All loss of utility while assessed<br>Disruptions<br>Safety concerns<br>Use restrictions | All loss of utility while repaired<br>Income loss<br>Expense increase<br>Use restrictions | Ongoing use disruptions<br>Alterations to highest and best use                  |
| <b>Risk</b>                  | Uncertainty factor<br>Discount, if any, where extent of damage is unknown                              | Project incentive<br>Financial incentive, if any, to complete repairs                     | Market resistance<br>Residual resistance, if any, due to situation              |

Source: Randall Bell, *Property Owners Manual* (Owners Manual Press, 2004).

the property's highest and best use before and after the event, the nature of the larger parcel, and the overall impact on the operation.

While USPAP doesn't explicitly address wildfires, it does discuss damages to real property in the context of environmental damage. Advisory Opinion 9 supports the analysis of the cost, use, and risk effects on real property. These factors, viewed through the lens of temporary and permanent damage, provide a crucial context for determining market value after an event.

### Applying Fundamental Valuation Principles in a Post-Disaster Context

Valuation following a wildfire demands the meticulous application of fundamental appraisal principles. A thorough understanding of the applicable definition of market value is paramount in chaotic or unstable markets. Pre-disaster transactions may not accurately reflect post-disaster market conditions.

USPAP Standards Rule 1-1 requires the appraiser to "be aware of, understand, and correctly employ those recognized methods and techniques."<sup>10</sup> In addition to the standard approaches to market value (cost, sales comparison, and income capitalization approaches), the recognized methods and techniques of the appraisal profession include, in part, the following for damage analysis:

- Paired sales analysis
- Case study analysis
- Linear and multiple regression modeling
- Sale/resale analysis

As an appraiser develops their opinions, it is important to recognize the definition of market value, the interpretation of damages, and their interplay. For example, cost is not always the same as value.

Definitions of market value can vary geographically, particularly concerning timberland or trees. While appraisers are familiar with the standard

definition of market value, legal precedents exist where restoration costs have been awarded even when exceeding the decrease in market value (e.g., *Heninger v. Dunn*).<sup>11</sup> Conversely, other jurisdictions prioritize the impact on the overall market value of the land when considering damages to trees (e.g., *St. Louis R.R. Co. v. Mathews* and *White v. Nat. Gas Pipeline Co. of Am.*).<sup>12</sup>

The contributory market value of trees is contingent upon the tree, the market, and the specific use of the property. In the example of a single-family residence, trees can have significant contributory market value in terms of landscape and aesthetic value. However, in some instances an invasive tree/species such as the Eastern redcedar can be a drag on market value, and thus elimination of the species can enhance the value of rangeland. The USDA, through programs like the Environmental Quality Incentives Program (EQIP), provides financial assistance to landowners for the removal of invasive species such as Eastern redcedar, helping offset the costs of brush management and prescribed burning to restore and enhance rangeland value.

In such situations, consulting with an arborist can be invaluable. The Council of Tree and Landscape Appraisers (CTLA) offers standardized methodologies for appraising the value and health of trees and landscapes. In fact, their latest work, *Guide for Plant Appraisal*, 10th Ed., places emphasis on the valuation being reasonable, credible, and tied to the land it occupies. Their approaches, grounded in the principles of substitution and contribution, align with established real estate appraisal practices.<sup>13</sup>

Some parties involved often have incentives to inflate fire-induced resource losses (e.g., soil lost to erosion) and deflate the post-fire market value of land. The valuation of trees in the Great Plains is primarily complicated because the region is frequently not home to commercial forests. Trees in the Great Plains often serve numerous functions such as windbreaks, shelterbelts, shade for cattle, wildlife habitat, aesthetics, and soil conservation. Bifurcation of the contributory value of these com-

10. USPAP, 2024 ed., Standards Rule 1-1, Preamble, 1.

11. *Heninger v. Dunn*, 101 Cal. App. 3d 858 (Cal. Ct. App. 1980).

12. *St. Louis R.R. Co. v. Mathews*, 98 Tex. 276, 83 S.W. 661 (1904); *White v. Nat. Gas Pipeline Co. of Am.*, 444 S.W.2d 298 (Tex. 1969).

13. Council of Tree and Landscape Appraisers, *Guide for Plant Appraisal*, 10th ed. (International Society of Arboriculture, 2019), 109.



ponents adds to the complexity of the appraisal process. The valuation of rangeland for which use is as a forage resource for grazing and habitat for native wildlife species is predicated on a primary factor necessary for the formation and maintenance of rangelands—that is, frequent fire.

Historical case studies of previous wildfires provide a valuable resource for understanding market reactions to events. Analyzing these events can establish a baseline for assessing cost, use, and risk factors in the current appraisal assignment. Furthermore, the principles of substitution, contribution, and externalities are essential tools. Identifying the subject property's market area, the competing market areas, and the wildfire's impact is vital. Appraisers must recognize and adapt to the potential redefinition of “normal” market conditions.

Given the complexities involved, appraisers operating in post-disaster markets must demonstrate heightened competency. This includes not only advanced valuation skills but also a thorough understanding of the specific conditions prevailing in the affected area. Collaboration with experts in fields such as range management, hydrology, or arboriculture may be necessary to accurately assess damage and its impact on market value.

### **Data Collection, Market Analysis, and Reaching Credible Conclusions**

Data collection for rural properties post-wildfire can be extensive and time-consuming due to their size, unique features, and potential for multiple integrated uses. Data availability may vary. Data may be accessible through an MLS in some regions, while other regions rely on auction or private treaty sales. Transactions that are not exposed to the market often need additional scrutiny, as they may not meet the definition of market value. However, each market is different, and what participants rely upon varies from location to location. In forming credible opinions of market value both before and after the wildfire, differentiating between real property value and going concern value is essential, as is a thorough understanding of the factors driving sales. Additionally, when relevant, the data verification process should document envi-

ronmental cleanup status—e.g., participation in debris-removal programs, asbestos/demolition reports, ash/soil sampling results, and state or county “closure”/“no-further-action” letters.

Market value conclusions must carefully consider the permanency of the wildfire's impact on the larger parcel as well. While structural damage may be permanent, the impact on the land should be evaluated in the context of the market's response. Interviews with market participants (buyers, sellers, agents, etc.) provide valuable insights, particularly when sales data is scarce. In such cases, in-depth market analysis, rather than solely relying on potentially unreliable statistical modeling, is important.

While wildfires can be devastating, they may also create long-term benefits, such as improved stocking rates and overall farming operations. The impact on the underlying land's market value should be determined on a case-by-case basis, considering the property's highest and best use before and after the event, the nature of the larger parcel, and the overall impact on the operation.

As an example, consider Table 1, which illustrates the change in annual average sale price per acre, the number of sales, the average size of parcels sold, and the year-over-year change in sale price. The two areas compared are Woodward County and the northwest region of Oklahoma, which consists of several counties contiguous to and including Woodward County. Woodward County was impacted by wildfire in 2016-2018. The county represents the micro-level data. It is compared to the regional data, a competing portion of the state, which represents the macro-level data. This provides a basis for analysis regarding price, size, and volume trends, and it could lay a foundation for how external factors impact value.

Data from Woodward County from 2016-2018 reveals a slightly decreasing price per acre and a 6% drop in average price per acre reflected in 2020.

Initial analysis may conclude an impact on prices from wildfire. However, deeper analysis of local market conditions and individual sales analysis suggests that this decline was influenced by numerous factors, including parcel size, the availability of water, population change, and the area's initial reaction to COVID. Therefore, the change in sale price per acre was not at all indicative of the wildfire but was instead a function of other

**Table 1.** Woodward County, Oklahoma, Compared to the Northwest Region of Oklahoma

| Year | County Sales |    |     |            | Region Sales |     |     |            |
|------|--------------|----|-----|------------|--------------|-----|-----|------------|
|      | \$/Acre      | N  | AS  | YoY Change | \$/Acre      | N   | AS  | YoY Change |
| 2015 | 1,472        | 26 | 299 |            | 1,622        | 146 | 211 |            |
| 2016 | 1,654        | 15 | 261 | 11%        | 1,520        | 171 | 223 | -7%        |
| 2017 | 1,585        | 25 | 265 | -4%        | 1,592        | 144 | 197 | 5%         |
| 2018 | 1,634        | 21 | 154 | 3%         | 1,534        | 158 | 228 | -4%        |
| 2019 | 1,615        | 37 | 183 | -1%        | 1,617        | 197 | 172 | 5%         |
| 2020 | 1,529        | 24 | 383 | -6%        | 1,489        | 154 | 272 | -9%        |

\$/Acre = average annual sale price per acre  
N = number of sales

AS = average tract size  
YoY Change = year-over-year change

market forces. Therefore, while both micro-level data and macro-level data should be analyzed, it is the appraiser's in-depth analysis of individual sales and local market forces that enable the appraiser to make a reliable and credible conclusion of market value.

### Potential Mitigation Strategies for Property Owners, Insurers, and Policy Makers

Landowners lack the knowledge and experience to evaluate the impact of wildfire on land and associated resources, even though an increasing proportion of landowners have experienced a wildfire.<sup>14</sup> Landowner perceptions of damage to land and associated resources from wildfire can differ from empirical evidence, and whole-fire loss estimates often depend on those from economists rather than resource experts.<sup>15</sup>

Based on upward trending wildfire activity in the Great Plains, one might deduce that few

steps can be taken to reduce wildlife spread in the Great Plains. Mitigating the impact of wildfire on rural properties involves a combination of proactive measures and strategic partnerships. As an example, Bergtold et al. highlighted the importance of Rangeland Fire Protection Associations (RFPAs), which are partnerships between private landowners and state or federal agencies—particularly in the western United States, west of the Great Plains—where privately owned lands are intermixed with state and federal ownerships.<sup>16</sup>

Although these associations can play a crucial role in wildfire prevention and response by working collaboratively to manage and reduce wildfire risks on rangelands, they are uncommon in the Great Plains, where 90% of land is privately owned.<sup>17</sup> A kind of corollary across the Great Plains, Prescribed Burn Associations are partnerships among neighboring owners of privately owned land that have proven to manage fire-prone landscapes.<sup>18</sup> Moreover, researchers have identified additional practices to reduce wildfire

14. Bergtold et al., "Wildfire Across Agricultural Landscapes," 364-389.

15. Amy Hagerman and Derrell Peel, *Western District Fires: Overview, Damage Valuation and Recovery Cost (E-1060)* (Oklahoma Cooperative Extension Service, 2024), <https://bit.ly/4hPfMu4>.

16. Bergtold et al., "Wildfire Across Agricultural Landscapes," 364-389.

17. *Great Plains Grasslands Biome: A Framework for Conservation Action, 2021-2025* (US Department of Agriculture, National Resources Conservation Service, and Working Lands for Wildlife, 2021), <https://bit.ly/49dnwnE>.

18. Dirac Twidwell et al., "The Rising Great Plains Fire Campaign: Citizens' Response to Woody Plant Encroachment," *Frontiers in Ecology and the Environment* 11, no. s1 (2013): e64-e71; J. R. Weir et al., *Prescribed Burn Associations (NREM-2880)* (Oklahoma Cooperative Extension Service, 2017); "Prescribed Burn Associations," Great Plains Fire Science Exchange, accessed November 10, 2025, <https://bit.ly/3WO7zNe>.



ignition and spread, and agencies have widely promoted preparedness, mitigation, and protection practices.<sup>19</sup> Management practices aimed at reducing fuel load, such as controlled burns and grazing management, help to minimize the extent and severity of a wildfire.

## Conclusion

As the threat of wildfire continues to grow, real property appraisers play a critical role in providing accurate, market-reflective valuations that guide recovery efforts, inform insurance claims, and support informed policymaking in rural com-

munities. This article highlights the critical role that real property appraisers play in the aftermath of wildfires, particularly in rural areas where the impact on property values can be profound. By integrating recognized professional methods, appraisers can provide accurate valuations that reflect the complexities of the post-wildfire landscape, including shifts in highest and best use, the potential need for additional expertise, and evolving market expectations. The socioeconomic impacts—such as short-term loss of forage, damage to ranch structure, and livestock injury and death—underline the need for comprehensive property valuations that account for both immediate and long-term losses.

19. Twidwell et al., "Rising Great Plains Fire Campaign," e66; Heath D. Starns et al., "Recoupling Fire and Grazing Reduces Wildland Fuel Loads on Rangelands," *Ecosphere* 10, no. 1 (2019): e02578; J. R. Weir et al., *Wildfire: Preparing the Ranch and Farm (E-1048)* (Oklahoma Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources, Oklahoma State University, 2018), <https://bit.ly/4qXx1h6>; "'Ready, Set, Go!' Wildfire Preparedness Saves Lives and Property," Oklahoma Insurance Department, accessed November 10, 2025, <https://bit.ly/47KrEcc>.

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**Thomas C. Hennessey, PhD**, is Emeritus Professor of Forest Ecophysiology in the Department of Natural Resource Ecology and Management at Oklahoma State University. He holds a BS degree from the University of Northern Iowa and a PhD in Forest Biology from Iowa State University. He is author or coauthor of numerous refereed journal articles on tree nutrient and soil water dynamics, forest site productivity, and sustainable agricultural practices. His articles

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appear in peer-reviewed journals, including *Forest Ecology and Management*, the *Canadian Journal of Forest Research*, *Forest Science*, *Tree Physiology*, and the *Journal of Environmental Horticulture*. In addition, he is the coeditor of two books on forest productivity published in Canada and the Netherlands. He received a national award for teaching excellence. Administratively, he served as interim head overseeing the creation of the NREM Department at Oklahoma State University. He serves as a consultant in analyzing and appraising tree and ornamental plant damage from wild-fire, herbicides, hydrocarbon extraction, flooding, air pollution, and site disturbance. In addition, he consults in urban and community forest projects. **Contact: Tom.Hennessey@okstate.edu**

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### **Additional Resources**

Suggested by the Y. T. and Louise Lee Lum Library

#### **Appraisal Institute**

- **Lum Library, Bibliographies [Login required]**
  - Emergency and disaster libraries [Illumin Knowledge Base - 5081]
  - Insurable value - Casualty loss appraisal [Illumin Knowledge Base - 7511]
  - Wildfires [Illumin Knowledge Base - 4921]
- **Publications—*Appraisal Journal* articles**
  - Arlen C. Mills, “Residential Perspective on Data Collection and Property Description in the Valuation Process” (2019)
  - Michael Tachovsky, “Stigma: A Case Study Analysis of Long-Term Environmental Risk Effect” (2022)
  - Benjamin A. Blair, “Cases in Brief: Determination of Loss Value and Covered Loss Value Are Separate Determinations” (Spring-Summer 2023)
- **Publications—*Valuation* articles**
  - Charles Baker, “Consider This: Residential—The High Cost of Total Lost” (2025)
  - Steven Norris, “Consider This: Commercial—Rising from the Ashes” (2025)
  - “For What It’s Worth: Charles Baker on How Malibu Recovered after a Devastating Wildfire” (2020)