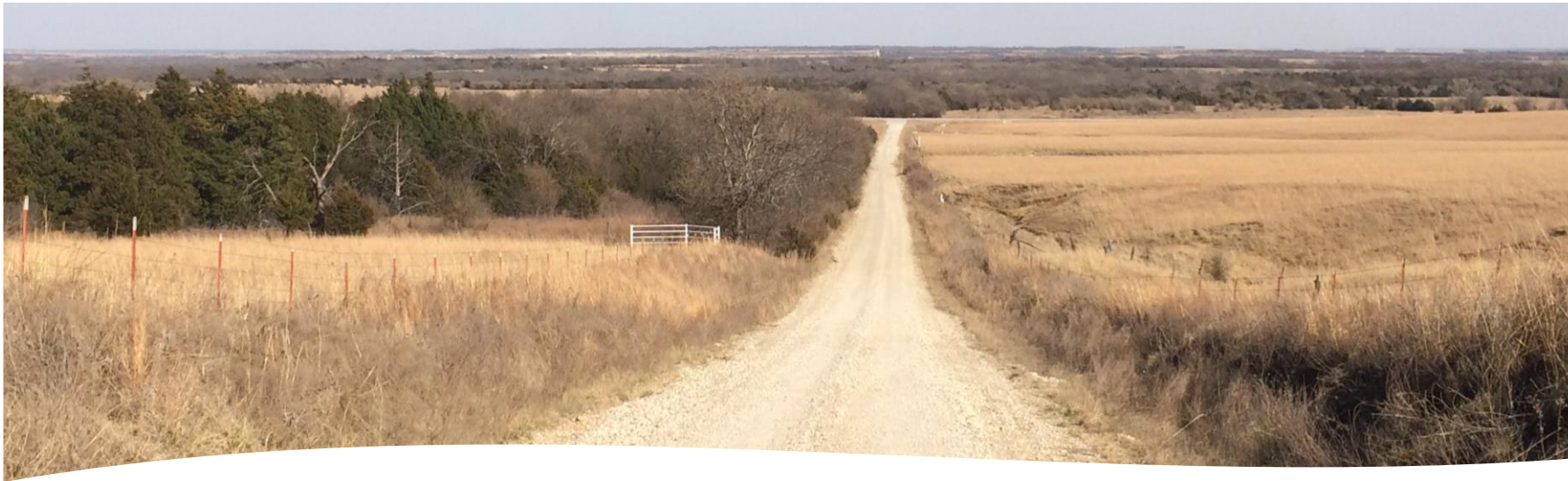


Unwrapping WRAP

October 10th in Wichita
October 12th in Manhattan



Agenda

- What is the Wildfire Risk Explorer?
- What data is in the analysis?
- How are the data layers used?
- How does the data impact the output?
- What are the differences between West Wide Assessment and KS WRAP?
- What is the future of KS WRAP?

Basic Viewer vs. Advanced Viewer

www.kansaswildfirerisk.org

Basic Viewer

- Wildfire Risk
 - 4 classes
- Local Report
- No login required
- 3 wildfire data layers
- 6 reference layers

Advanced Viewer

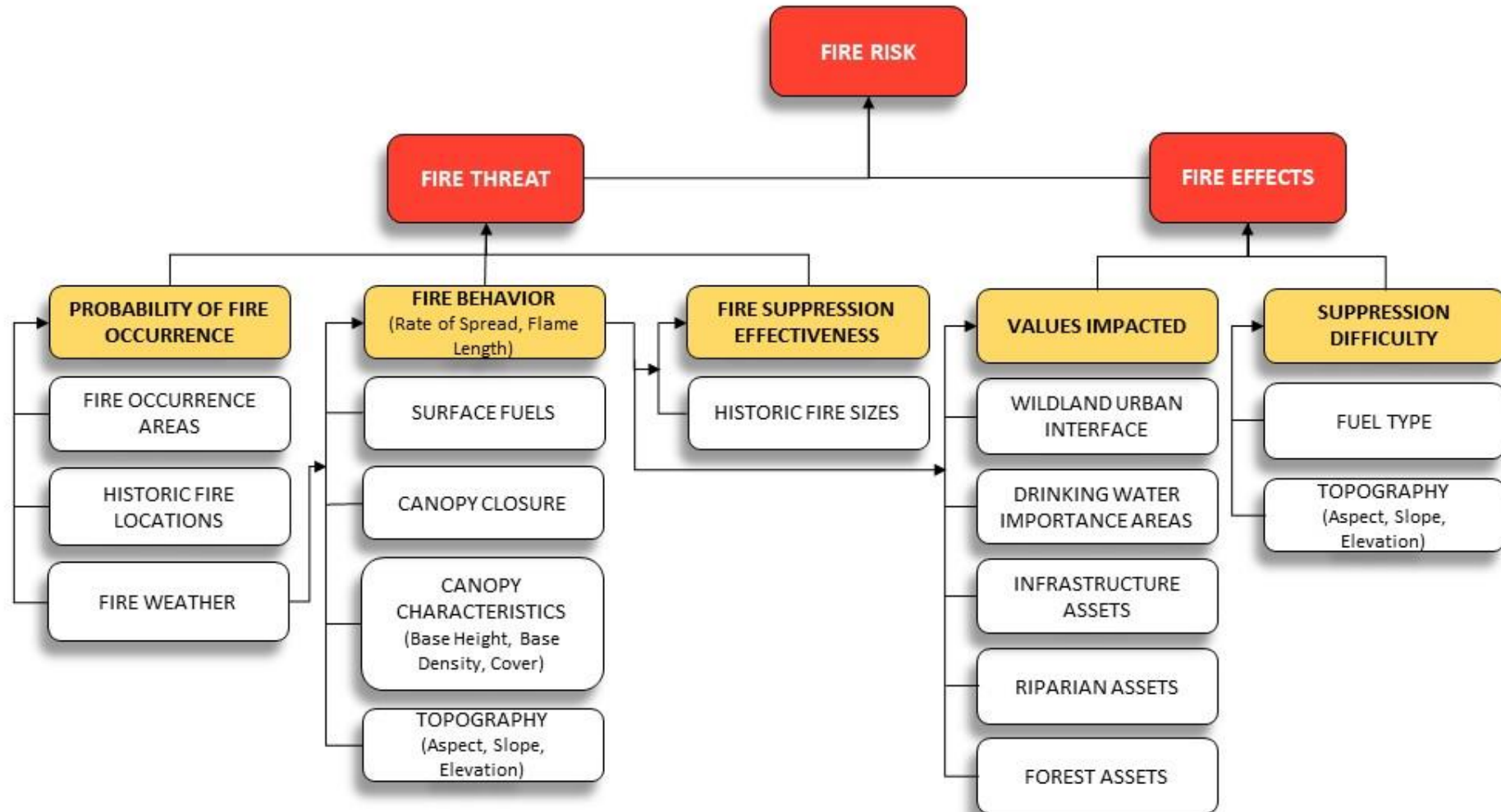
- Wildfire Risk
 - 9 classes
- Broader report – choose your AOI
- Login required
- 16 wildfire data layers
- 7 reference layers



What data is in the analysis?

KANSAS WILDFIRE RISK ASSESSMENT PORTAL

Providing a data backed web application to assist first responders, community leaders and landowners to better prepare for future wildfires

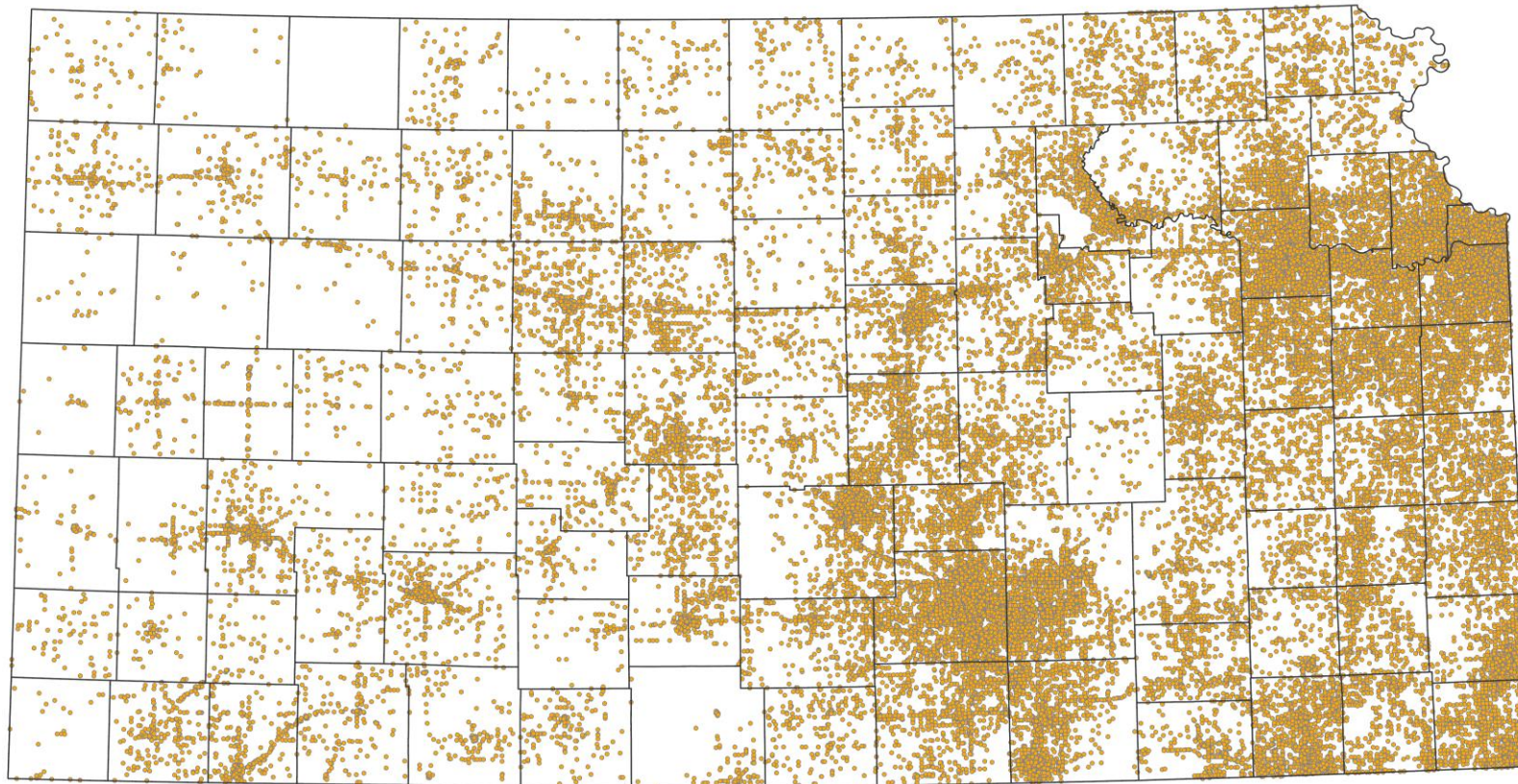


Wildfire Risk Assessment Details:

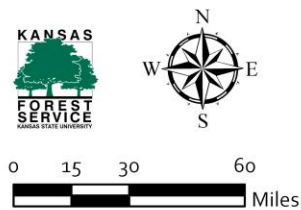
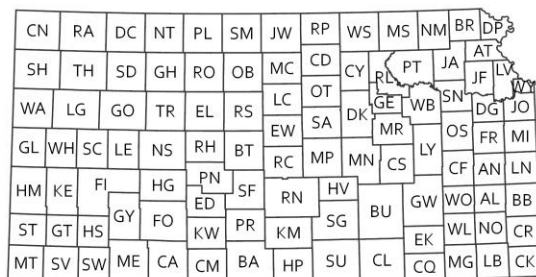
- Project originally commissioned by The Council of Western State Foresters (CWSF) in 2005
- Kansas Forest Service updated with more accurate data
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- 34 datasets were used to create the Wildfire Risk
- Methods and procedures were created and supplied by Sanborn Map Company



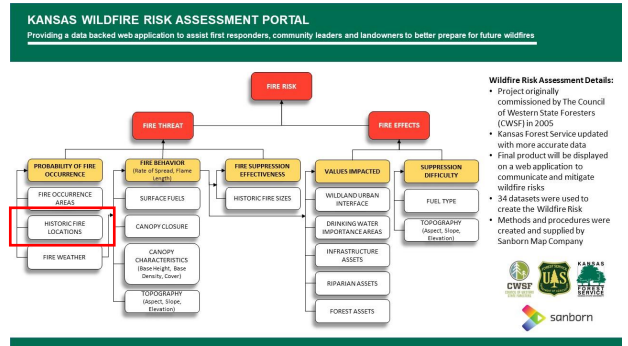
Wildfire Occurrences



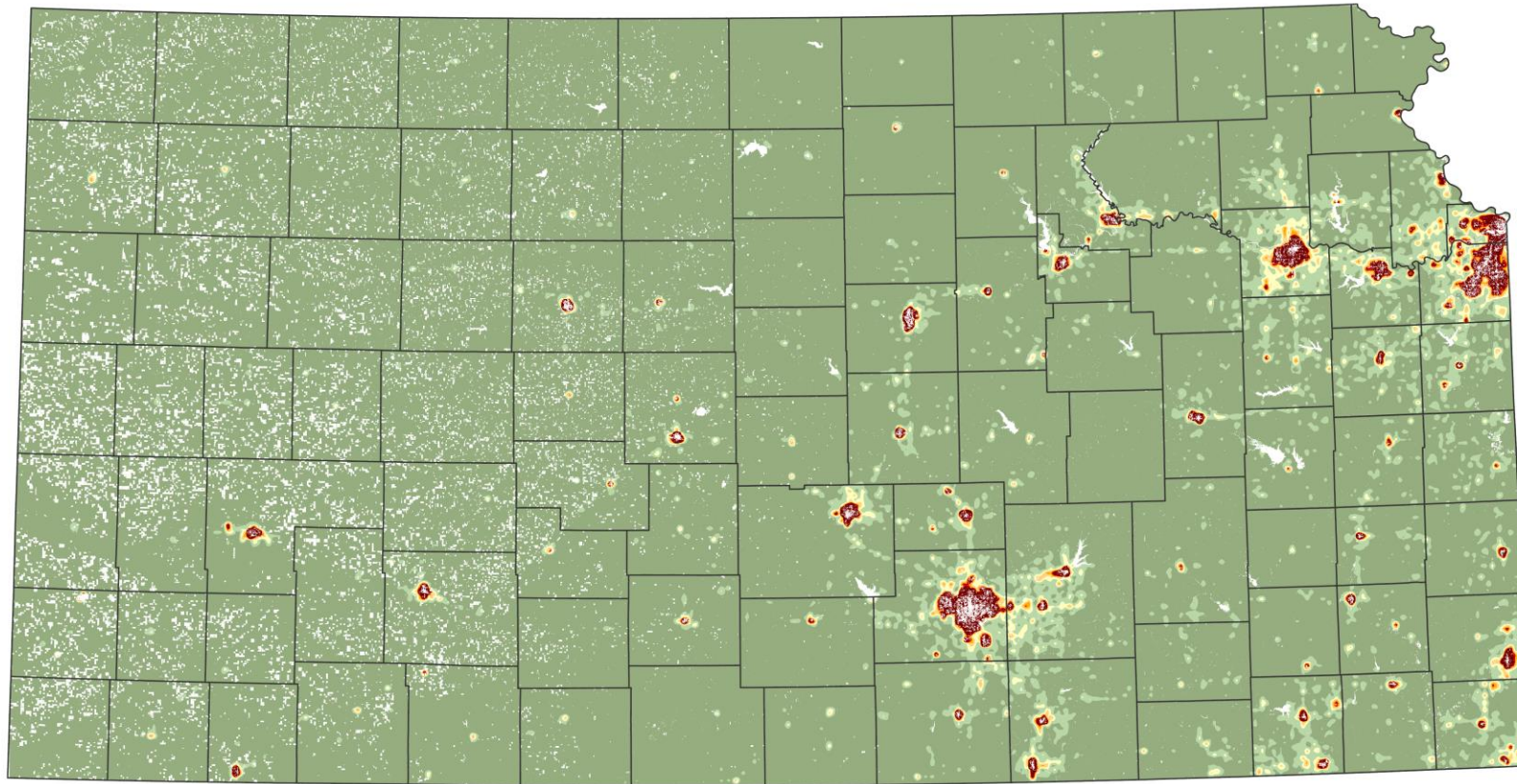
• Location Specific Ignition



Reported wildfires in KFIRS



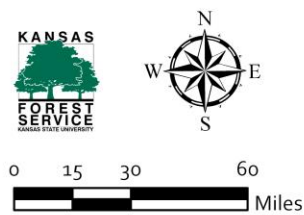
Wildfire Occurrence Density



Fires/1000 ac./Yr.

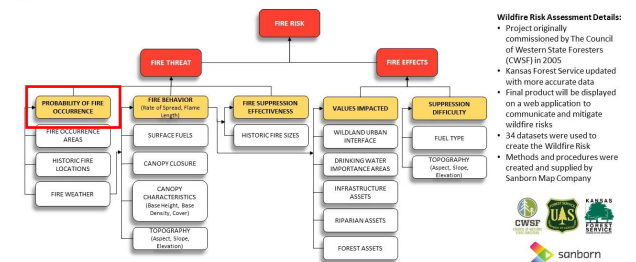


CN	RA	DC	NT	PL	SM	JW	RP	WS	MS	NM	BR	DP
SH	TH	SD	GH	RO	OB	MC	CD	CY	PT	JA	AT	LV
WA	LG	GO	TR	EL	RS	LC	OT	GE	WB	SN	DG	JO
GL	WH	SC	LE	NS	RH	BT	RC	MP	MN	CS	LY	FR
HM	KE	FI		HG	PN	SF	RN	HV		CF	AN	LN
ST	GT	HS	GY	FO	ED	PR	KM	SG	BU	GW	WO	AL
SV	SW	ME	CA	CM	BA	HP	SU	CL	CQ	EK	WL	NO
											MG	LB
											CK	



Reported wildfires in KFIRS
Analysis of the number of wildfire occurrences within 1,000 acres

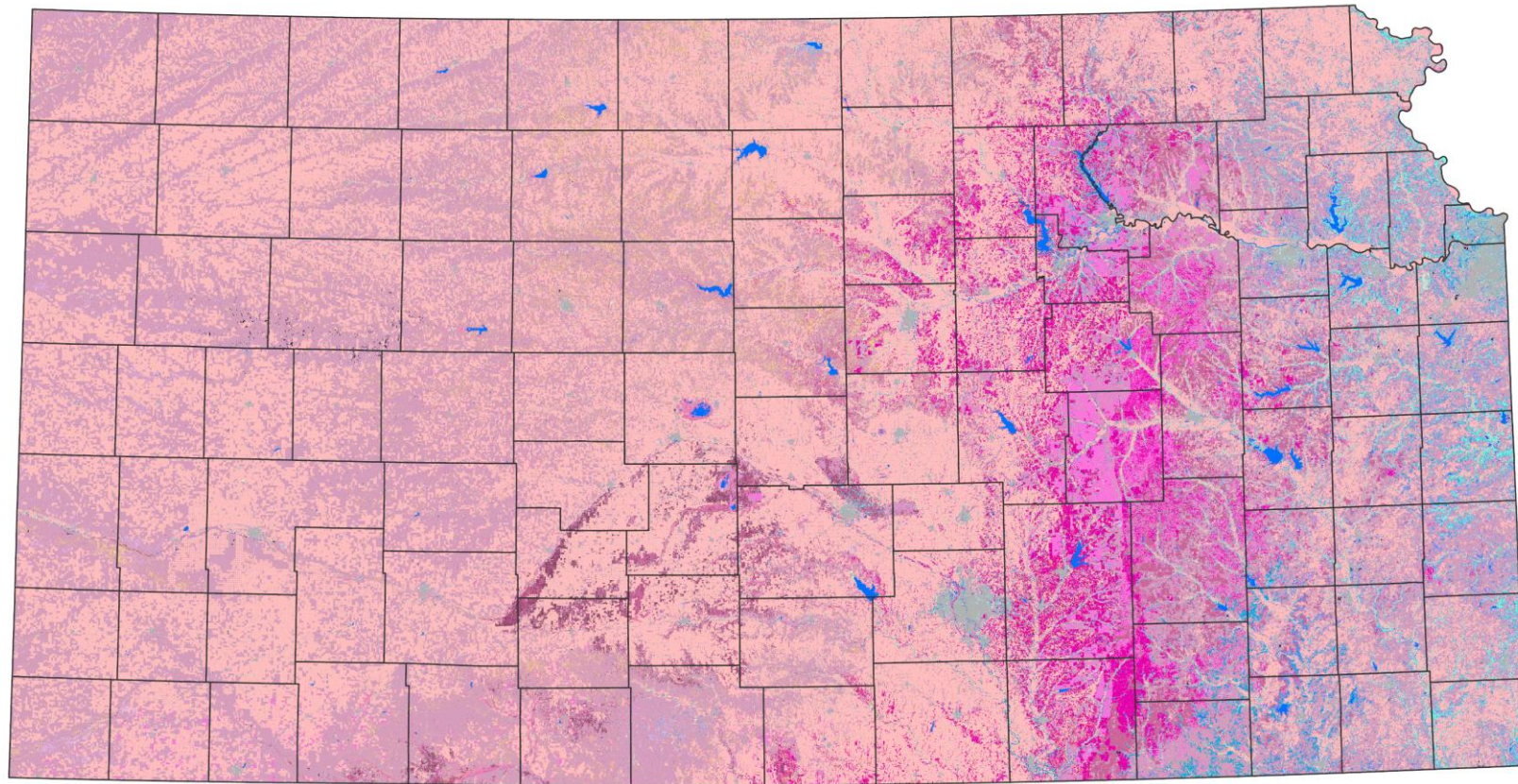
KANSAS WILDFIRE RISK ASSESSMENT PORTAL
Providing a data backed web application to assist first responders, community leaders and landowners to better prepare for future wildfires



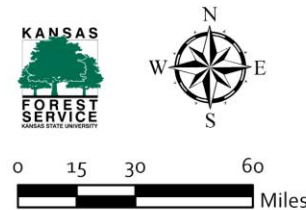
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Surface Fuels

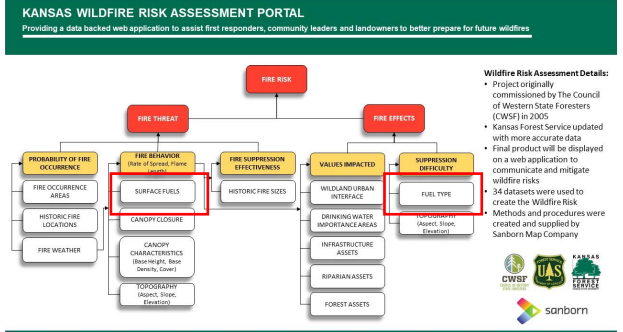


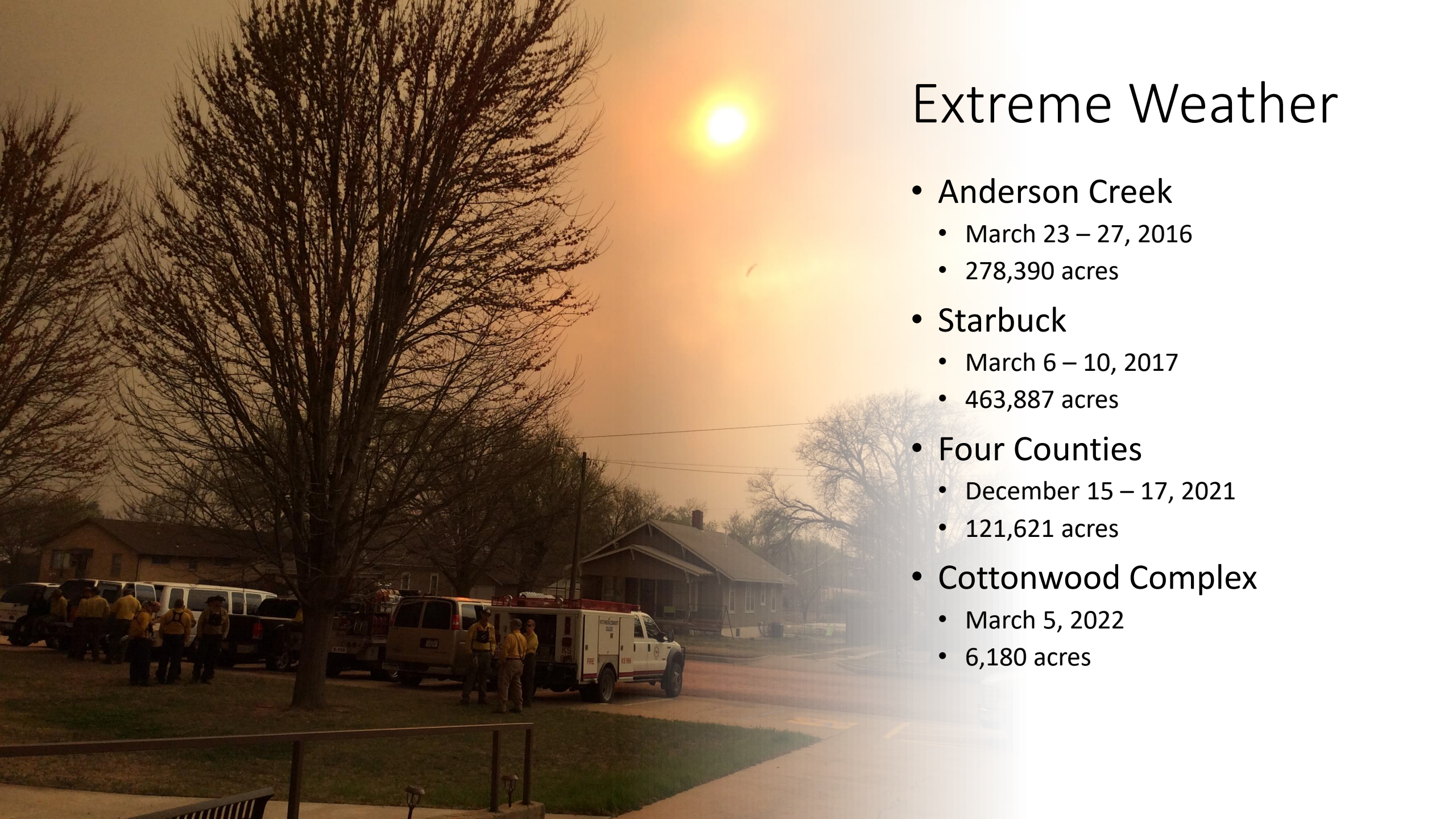
■ NB01 - 91 - Urban/Developed	■ GR08 - 108 - High load, very coarse, humid climate grass	■ TU01 - 161 - Light load, dry climate timber-grass-shrub
■ NB03 - 93 - Agriculture	■ GS01 - 121 - Low load, dry climate grass-shrub	■ TU02 - 162 - Moderate load, humid climate timber-shrub
■ NB08 - 98 - Water	■ GS02 - 122 - Moderate load, dry climate grass-shrub	■ TU05 - 165 - Very high load, dry climate timber-shrub
■ NB09 - 99 - Barren	■ GS03 - 123 - Moderate load, humid climate grass-shrub	■ TL01 - 181 - Low load, compact conifer litter
■ GR01 - 101 - Short, sparse, dry climate grass	■ SH01 - 141 - Low load, dry climate shrub	■ TL02 - 182 - Low load, broadleaf litter
■ GR02 - 102 - Low load, dry climate grass	■ SH02 - 142 - Moderate load, dry climate shrub	■ TL03 - 183 - Moderate load, conifer litter
■ GR03 - 103 - Low load, very coarse, humid climate grass	■ SH03 - 143 - Moderate load, humid climate shrub	■ TL05 - 185 - High load, conifer litter
■ GR04 - 104 - Moderate load, dry climate grass	■ SH04 - 144 - Low load, humid climate timber-shrub	■ TL06 - 186 - Moderate load, broadleaf litter
■ GR05 - 105 - Low load, humid climate grass	■ SH06 - 146 - Low load, humid climate shrub	■ TL08 - 188 - Long-needle litter
■ GR06 - 106 - Moderate load, humid climate grass	■ SH07 - 147 - Very high load, dry climate shrub	■ TL09 - 189 - Very high load, broadleaf litter



LANDFIRE

- 40 Scott & Burgan Fire Behavior Fuel Models
- Using 2013-2017 Imagery

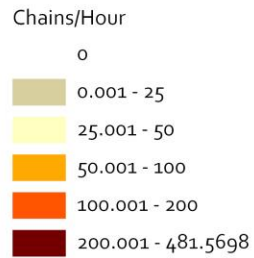
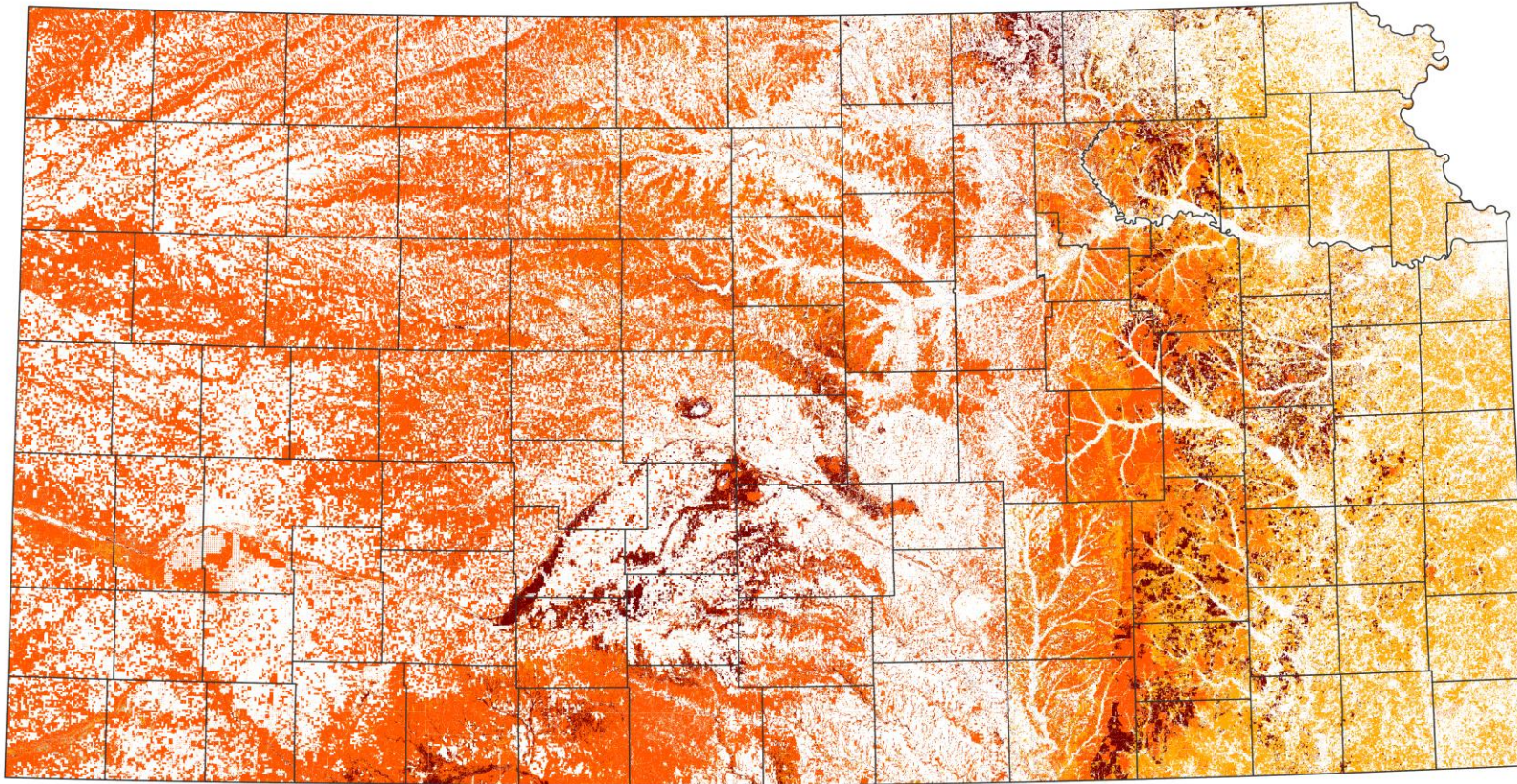




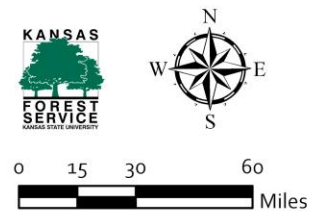
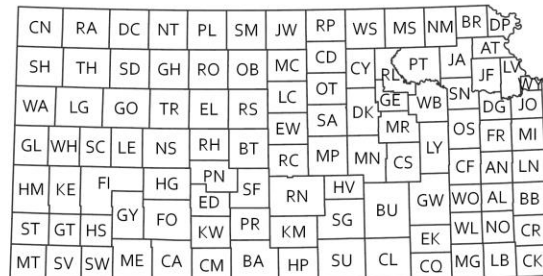
Extreme Weather

- **Anderson Creek**
 - March 23 – 27, 2016
 - 278,390 acres
- **Starbuck**
 - March 6 – 10, 2017
 - 463,887 acres
- **Four Counties**
 - December 15 – 17, 2021
 - 121,621 acres
- **Cottonwood Complex**
 - March 5, 2022
 - 6,180 acres

Rate of Spread

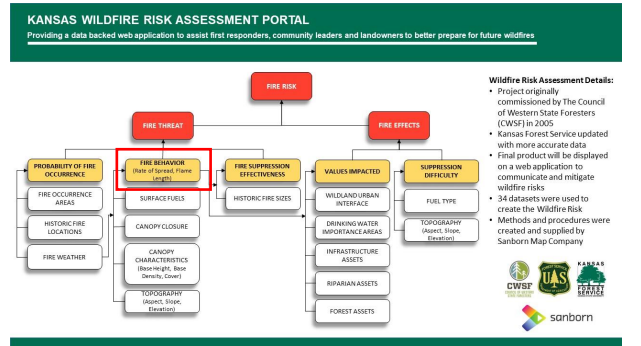


*One chain = 66 feet

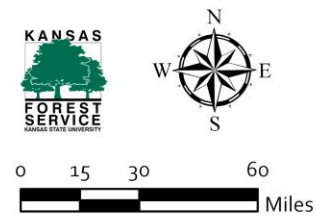
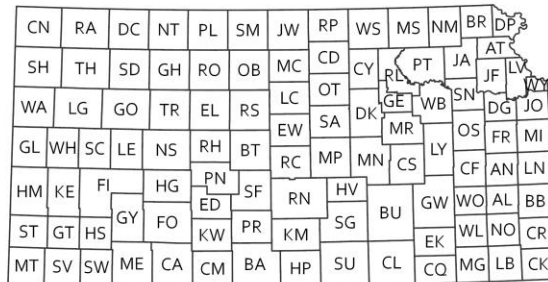
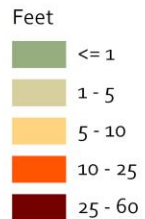
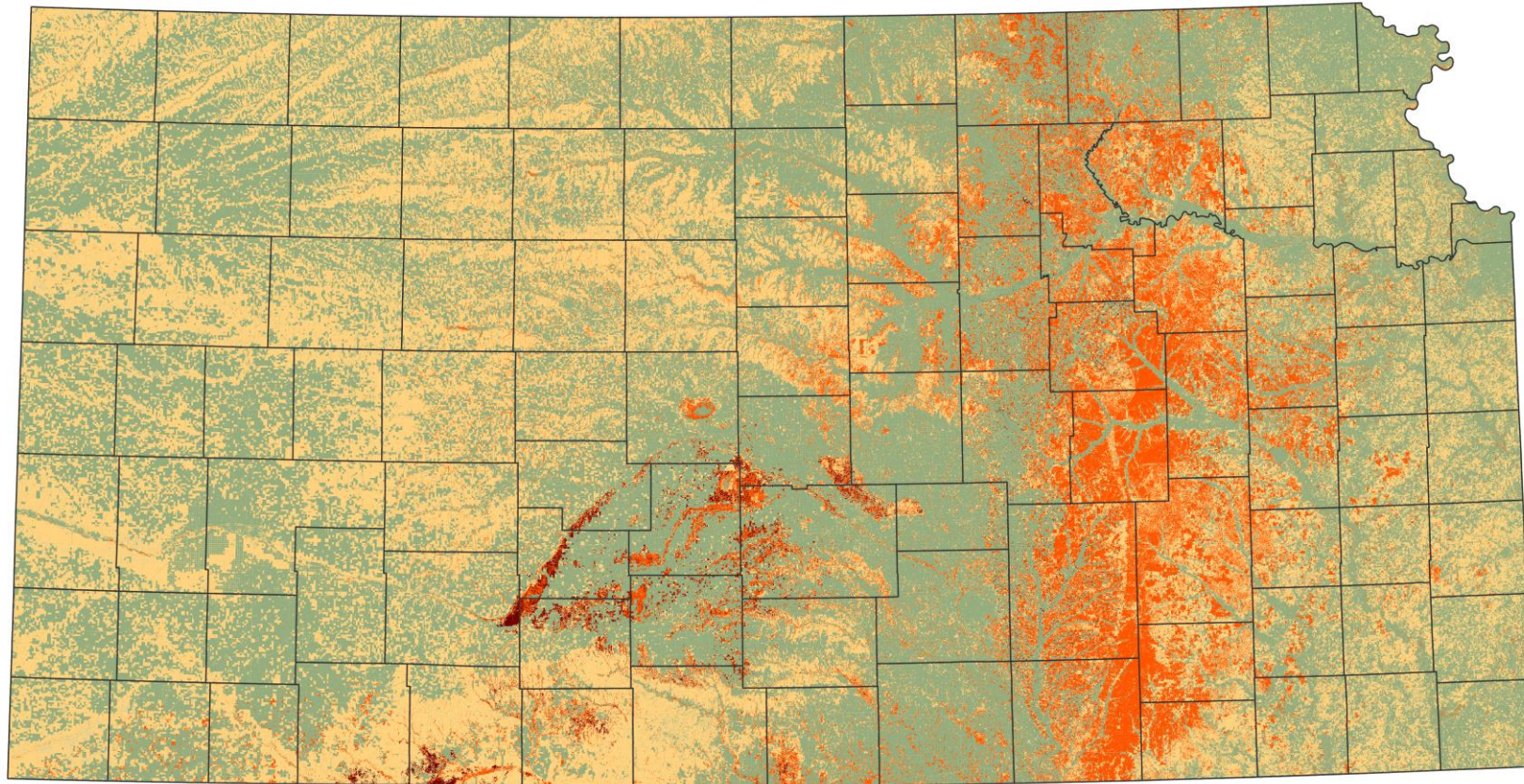


Rate of Spread

- Datasets:
 - LANDFIRE
 - WEATHER
 - Extreme, High, Moderate, Low
- Software:
 - FlamMap
 - Missoula Fire Sciences Lab
- Outputs:
 - Flame Length
 - Rate of Spread



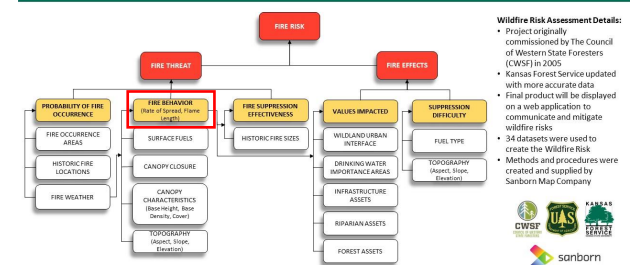
Flame Length



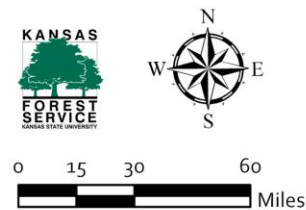
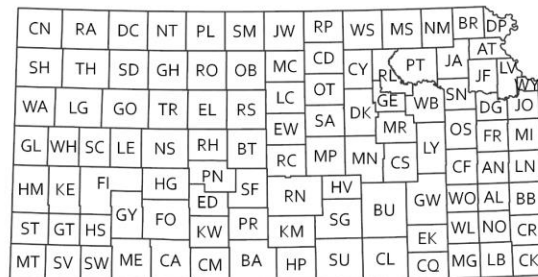
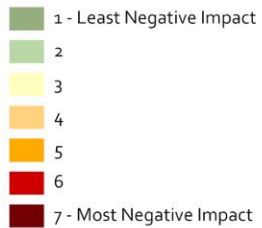
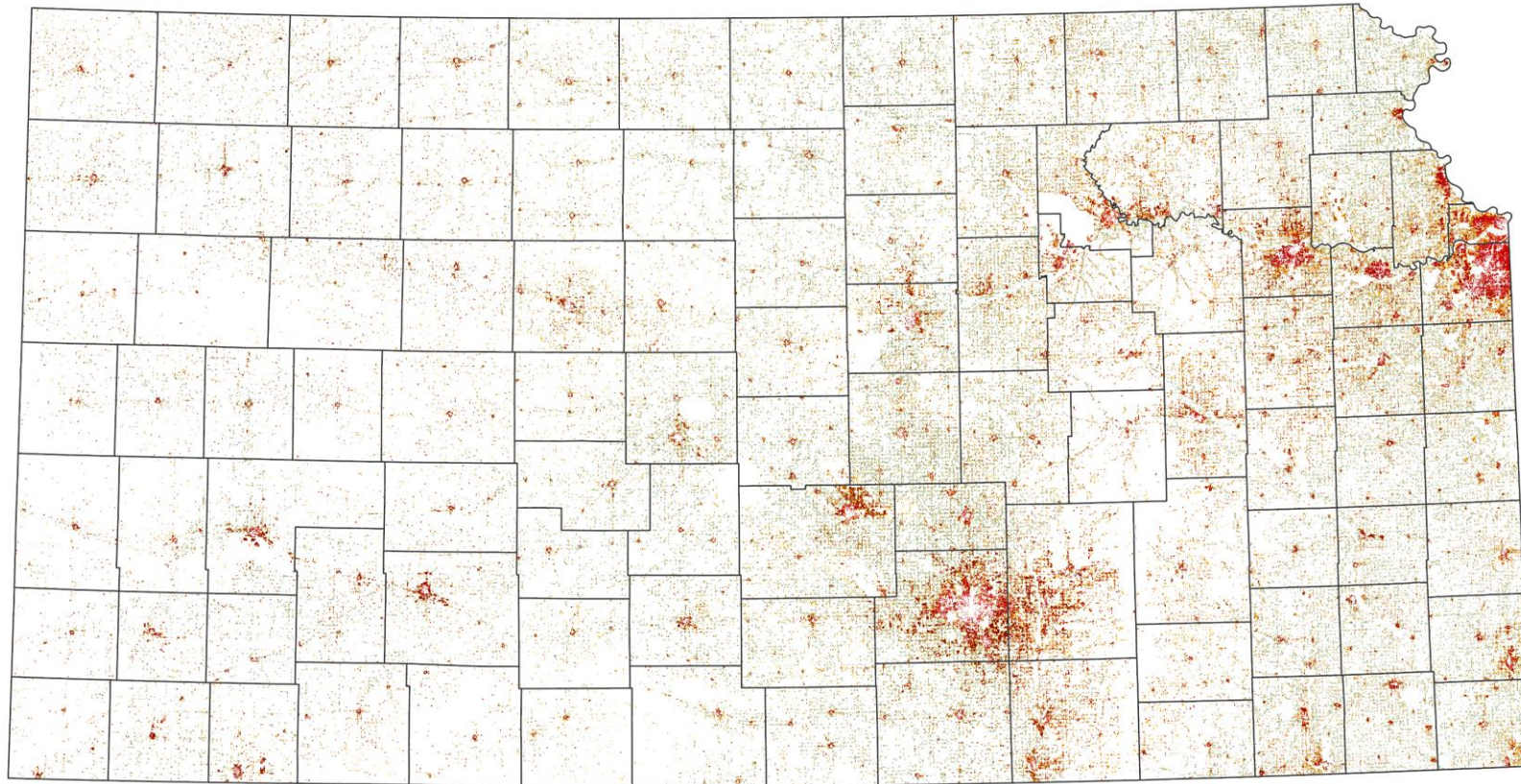
Flame Length

- Datasets:
 - LANDFIRE
 - WEATHER
 - Extreme, High, Moderate, Low
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 - FlamMap
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KANSAS WILDFIRE RISK ASSESSMENT PORTAL
 Providing a data backed web application to assist first responders, community leaders and landowners to better prepare for future wildfires

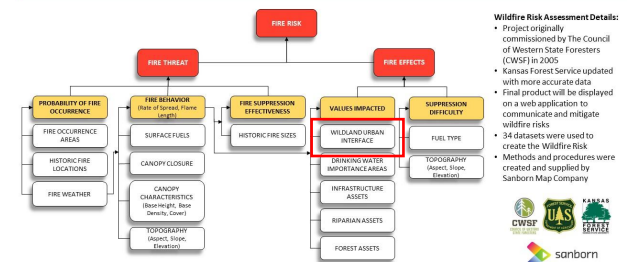


Wildland Urban Interface

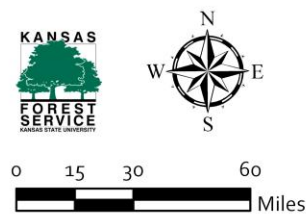
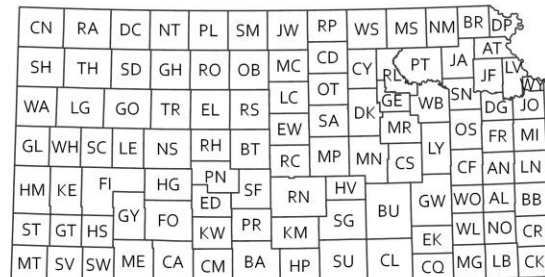
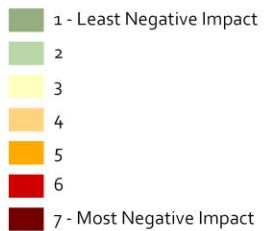
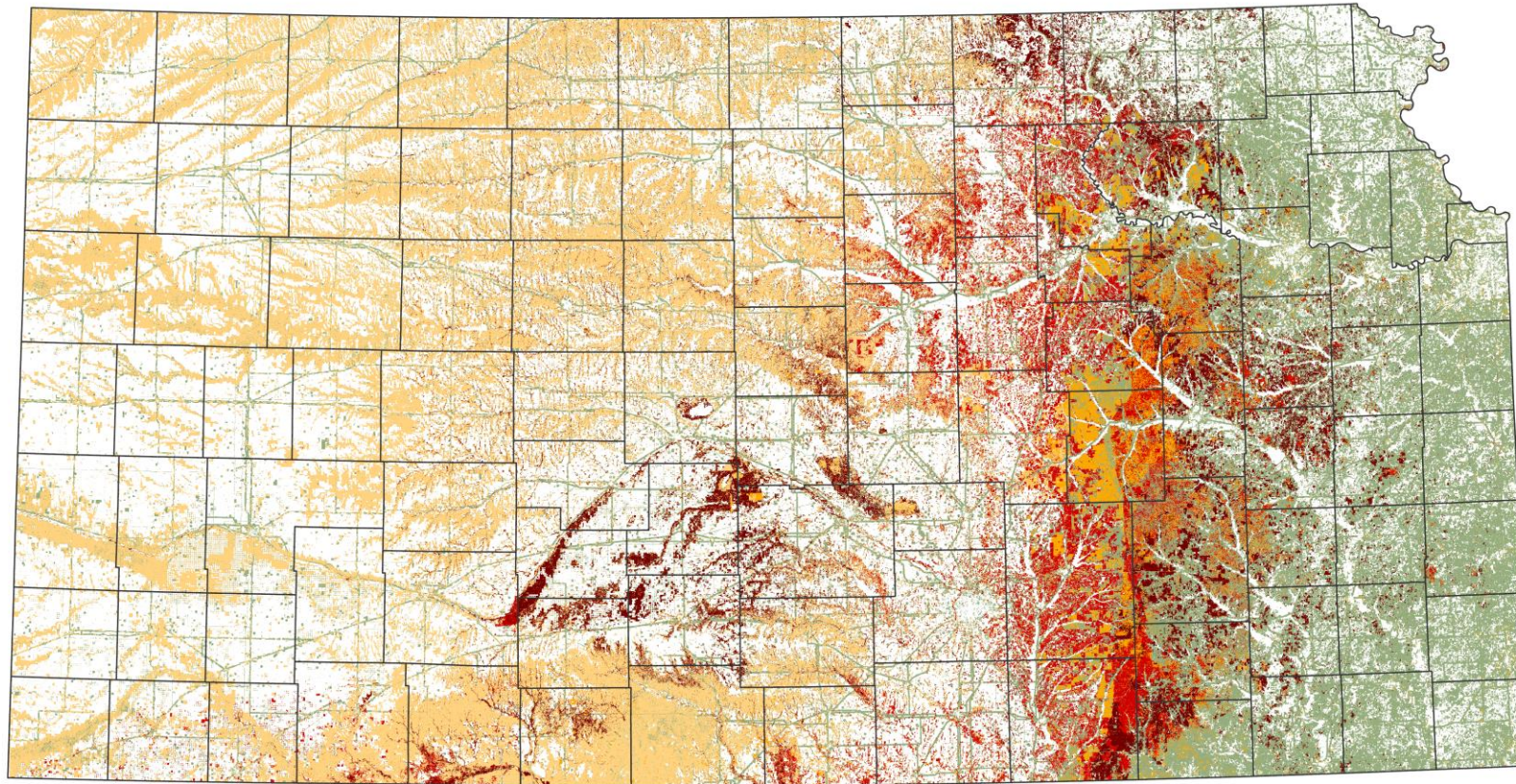


Wildfire Risk to Communities USFS Web Application

KANSAS WILDFIRE RISK ASSESSMENT PORTAL
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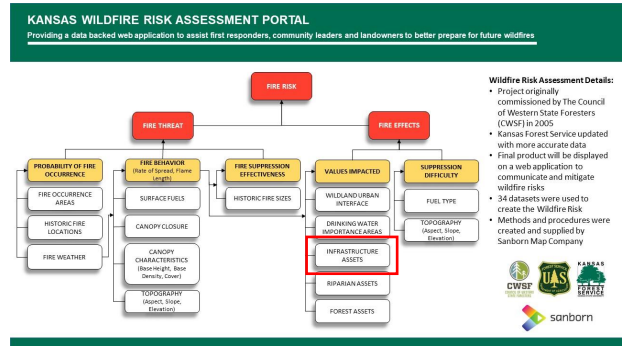


Infrastructure Assets

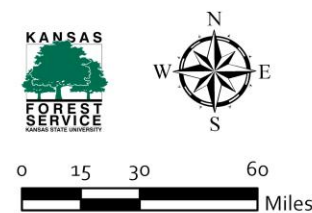
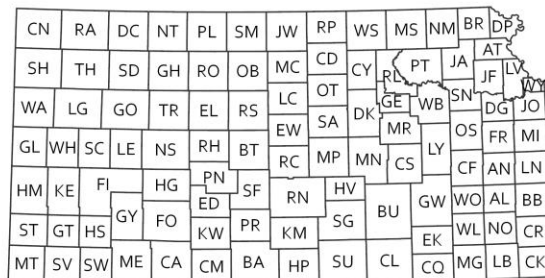
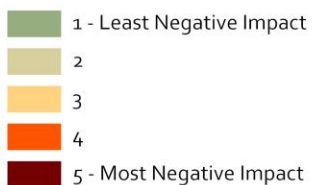
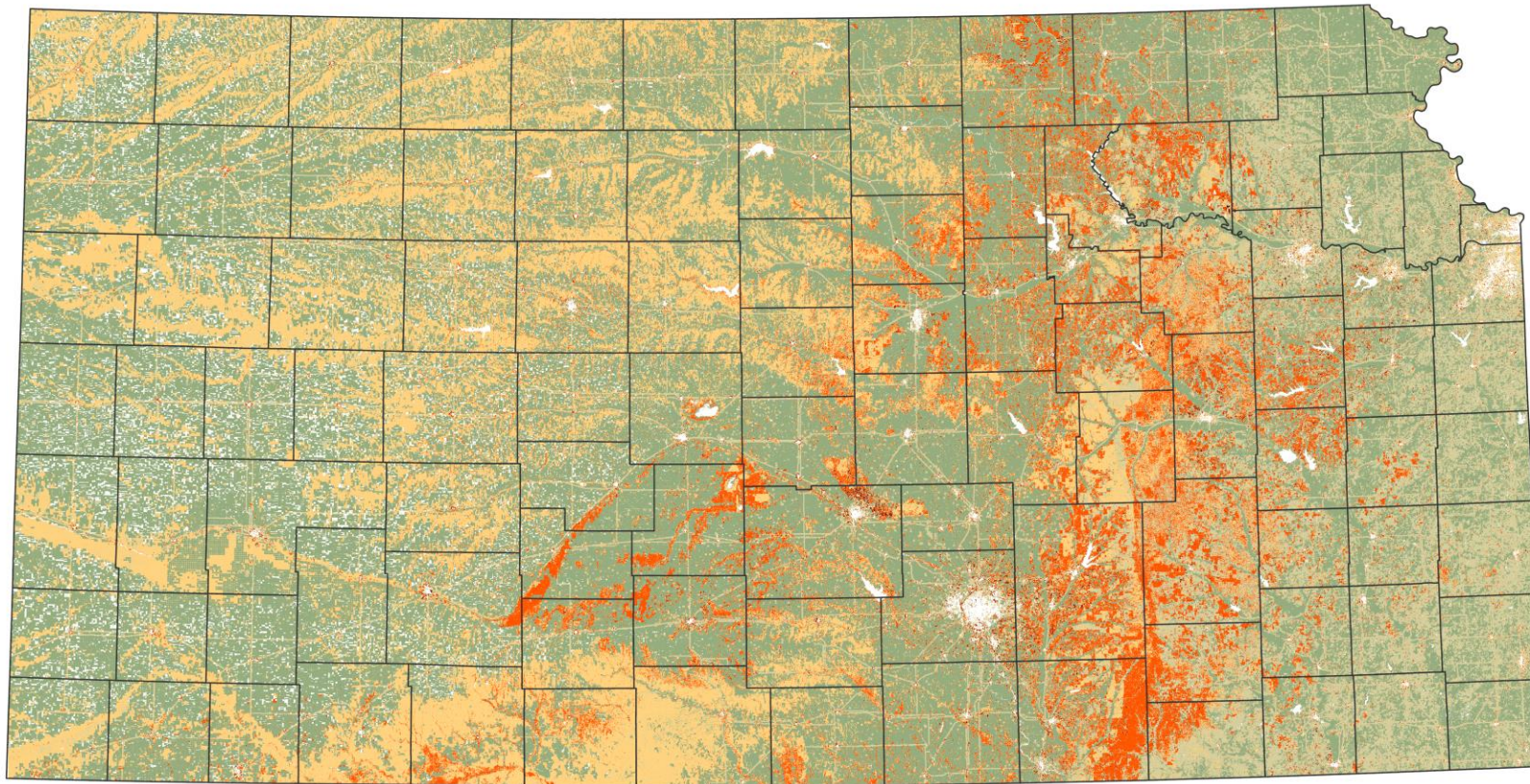


Infrastructure Datasets

- Airports
- Cellular towers
- Fences
- Hospitals
- Schools
- Oil and Pipeline
- Railroads
- Transmission lines
- Roads



Combined Value Impacts

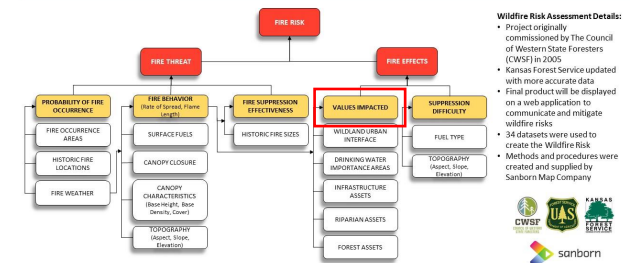


Combined Value Impacts Datasets

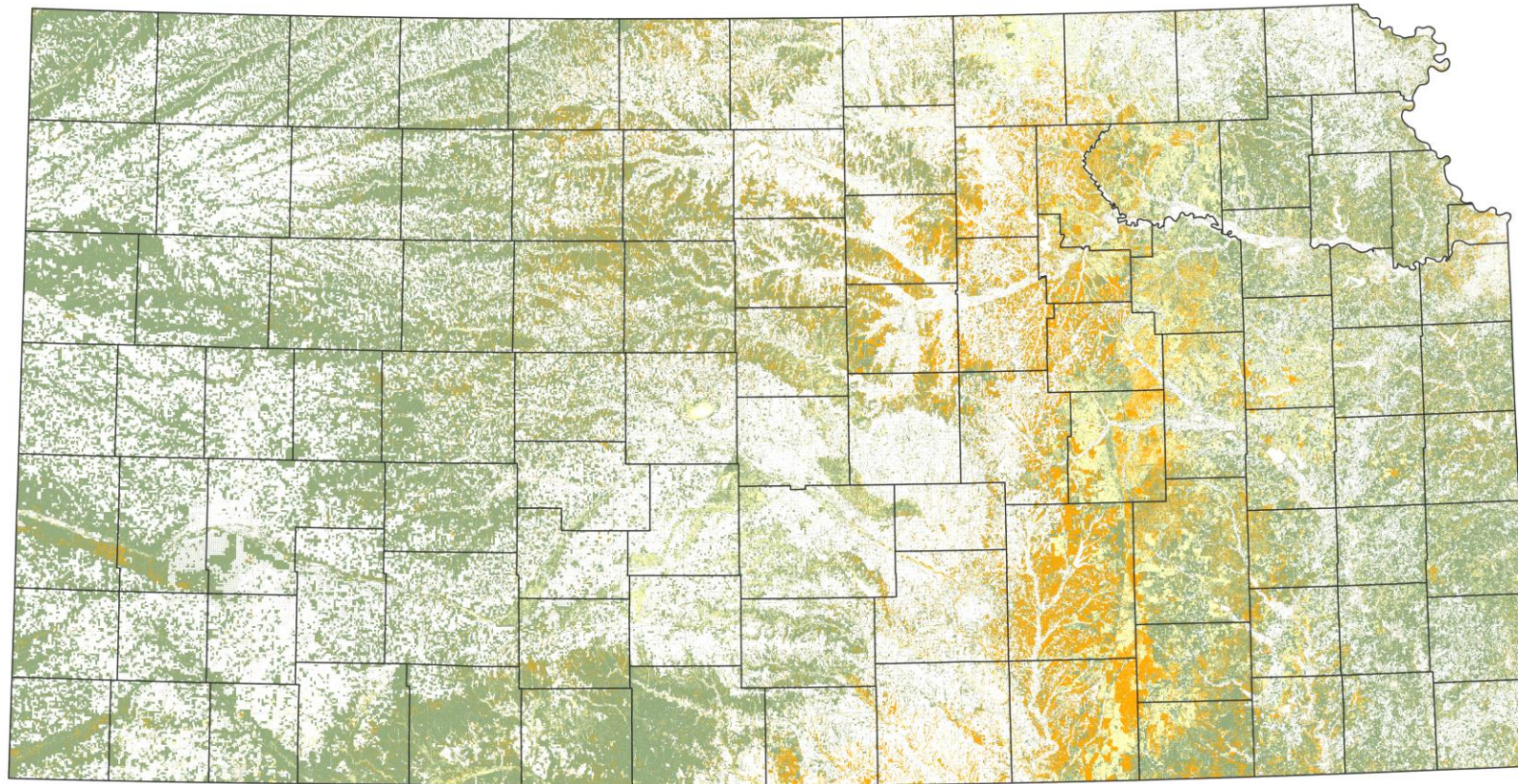
- **Wildland Urban Interface**
- **Drinking Water Importance Areas**
- **Infrastructure Assets**
- **Riparian Assets**
- **Forest Assets**

KANSAS WILDFIRE RISK ASSESSMENT PORTAL

Providing a data backed web application to assist first responders, community leaders and landowners to better prepare for future wildfires



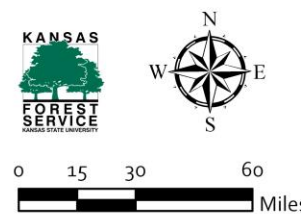
Suppression Difficulty



(Rate Slope)

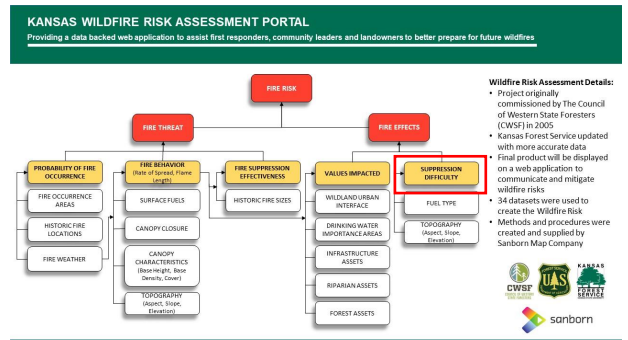


CN	RA	DC	NT	PL	SM	JW	RP	WS	MS	NM	BR	DP
SH	TH	SD	GH	RO	OB	MC	CD	CY	PT	JA	AT	TX
WA	LG	GO	TR	EL	RS	LC	OT	RI	GE	WB	SN	DG
GL	WH	SC	LE	NS	RH	BT	RC	MP	MN	CS	LY	FR
HM	KE	FI	HG	PN	SF	RN	HV	BU	GW	WO	AL	LN
ST	GT	HS	GY	FO	PR	KM	SG	BU	GW	WO	AL	BB
MT	SV	SW	ME	CA	CM	BA	HP	SU	CL	CQ	MG	LB
												CK



Suppression Difficulty LANDFIRE Datasets

- Surface Fuels
- Slope

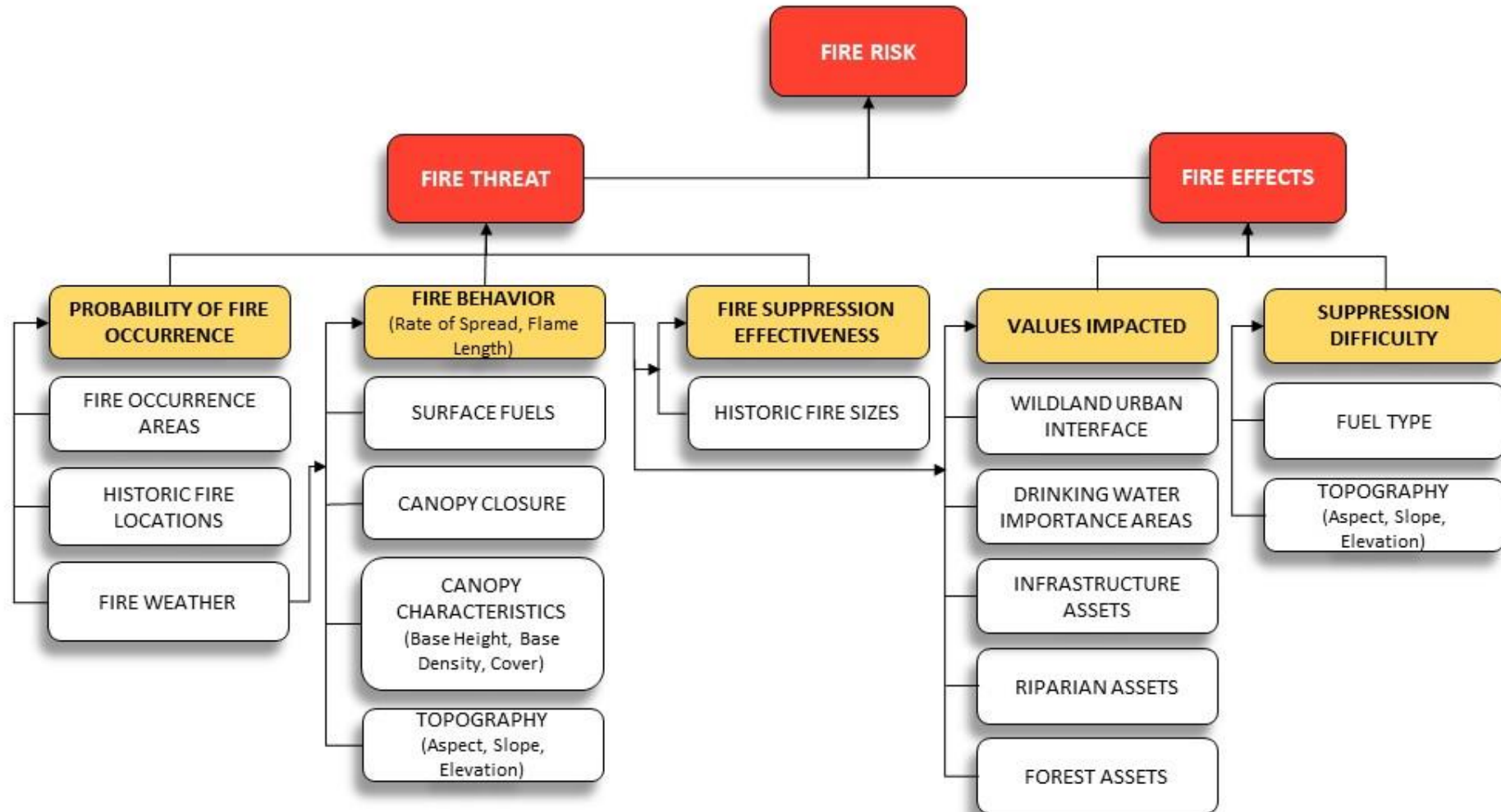




How are the data layers used?

KANSAS WILDFIRE RISK ASSESSMENT PORTAL

Providing a data backed web application to assist first responders, community leaders and landowners to better prepare for future wildfires

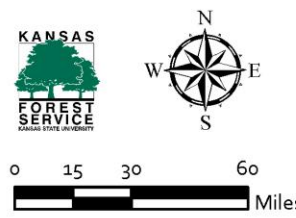
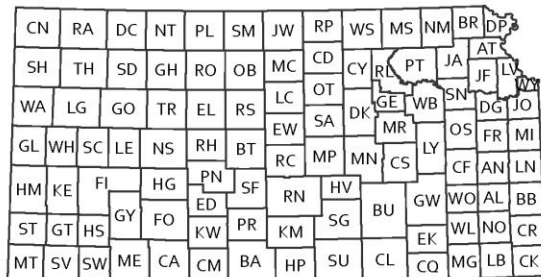
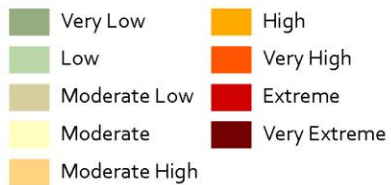
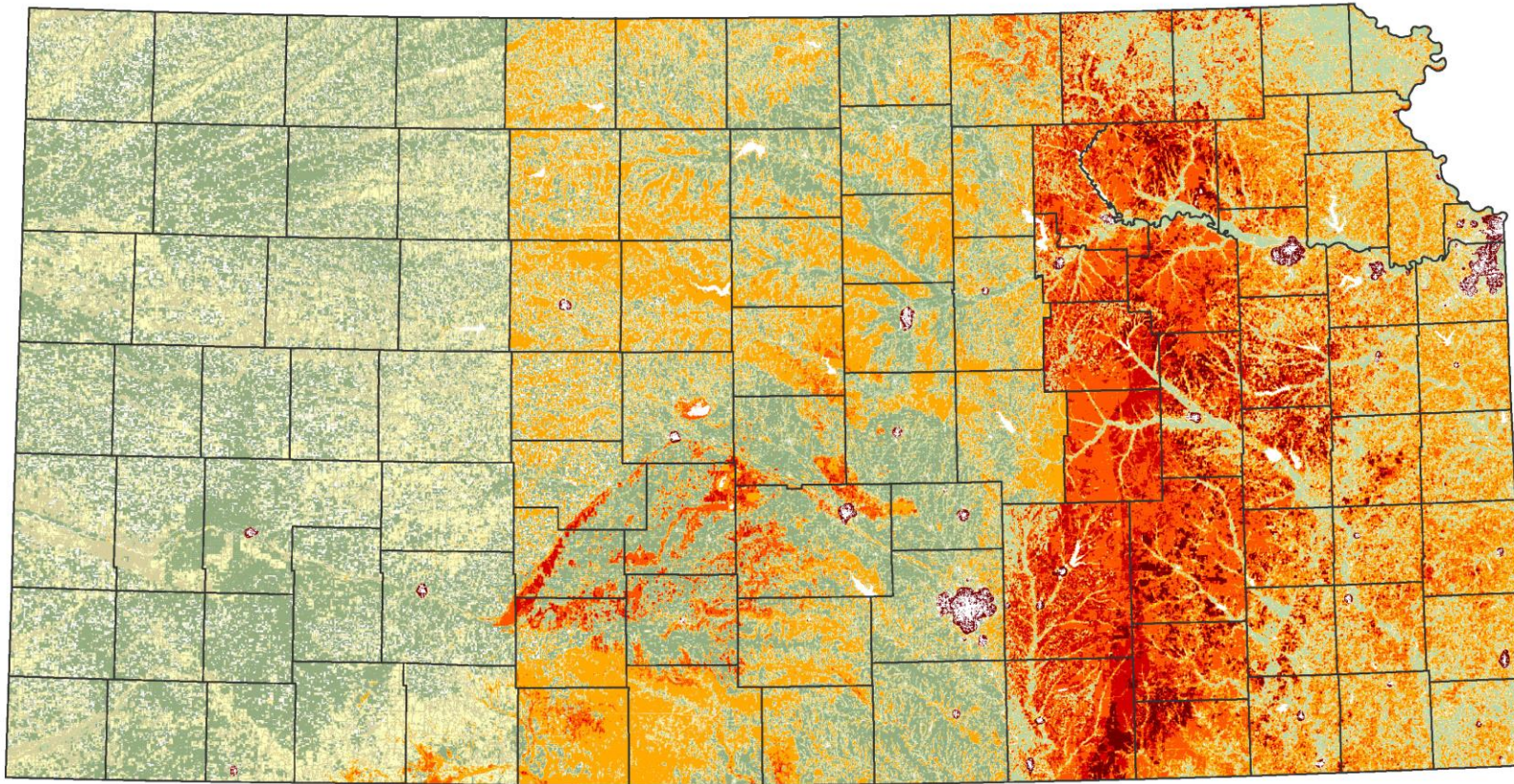


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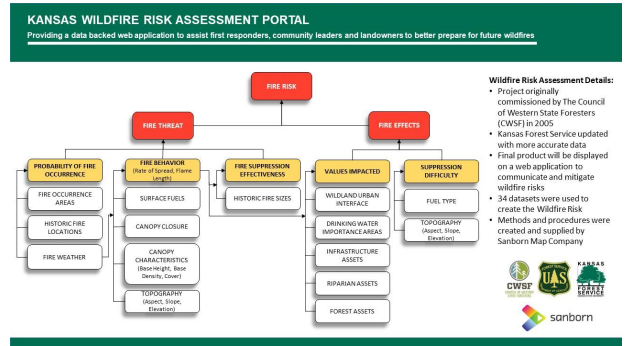
Wildfire Threat Index



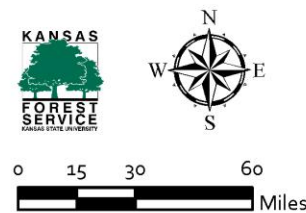
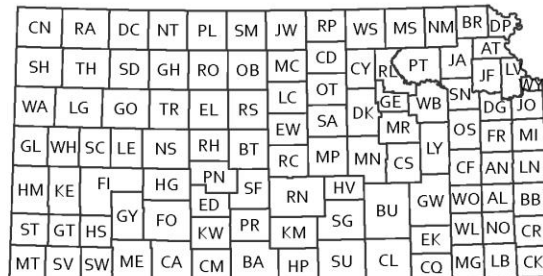
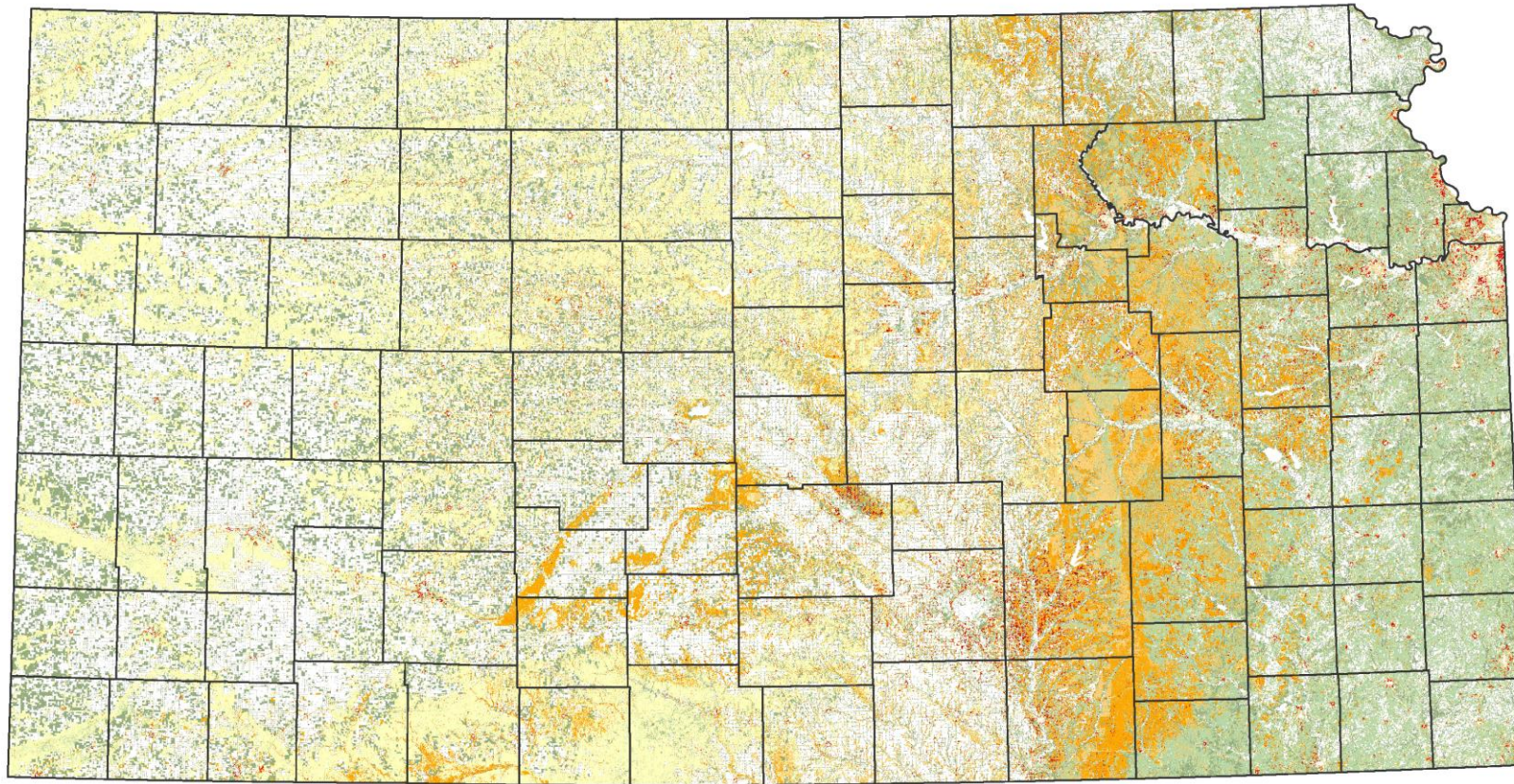
Wildfire Threat Index

What are the chances that a wildfire will happen?

- Fire Occurrences
 - Weather Impact Zones
 - East – 38,725
 - Central -19,794
 - West – 4,502
- Fire Behavior
- Fire Suppression Effectiveness



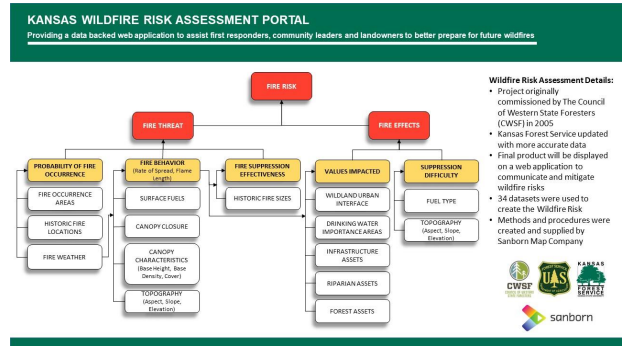
Wildfire Effects Index



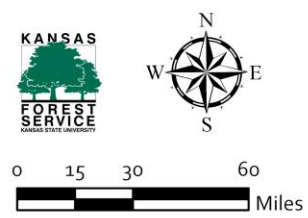
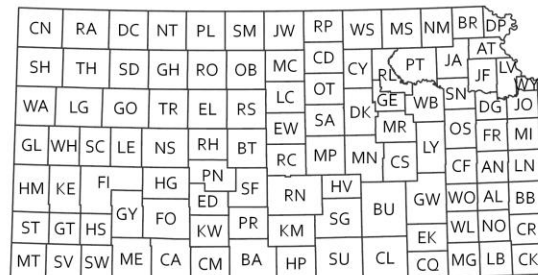
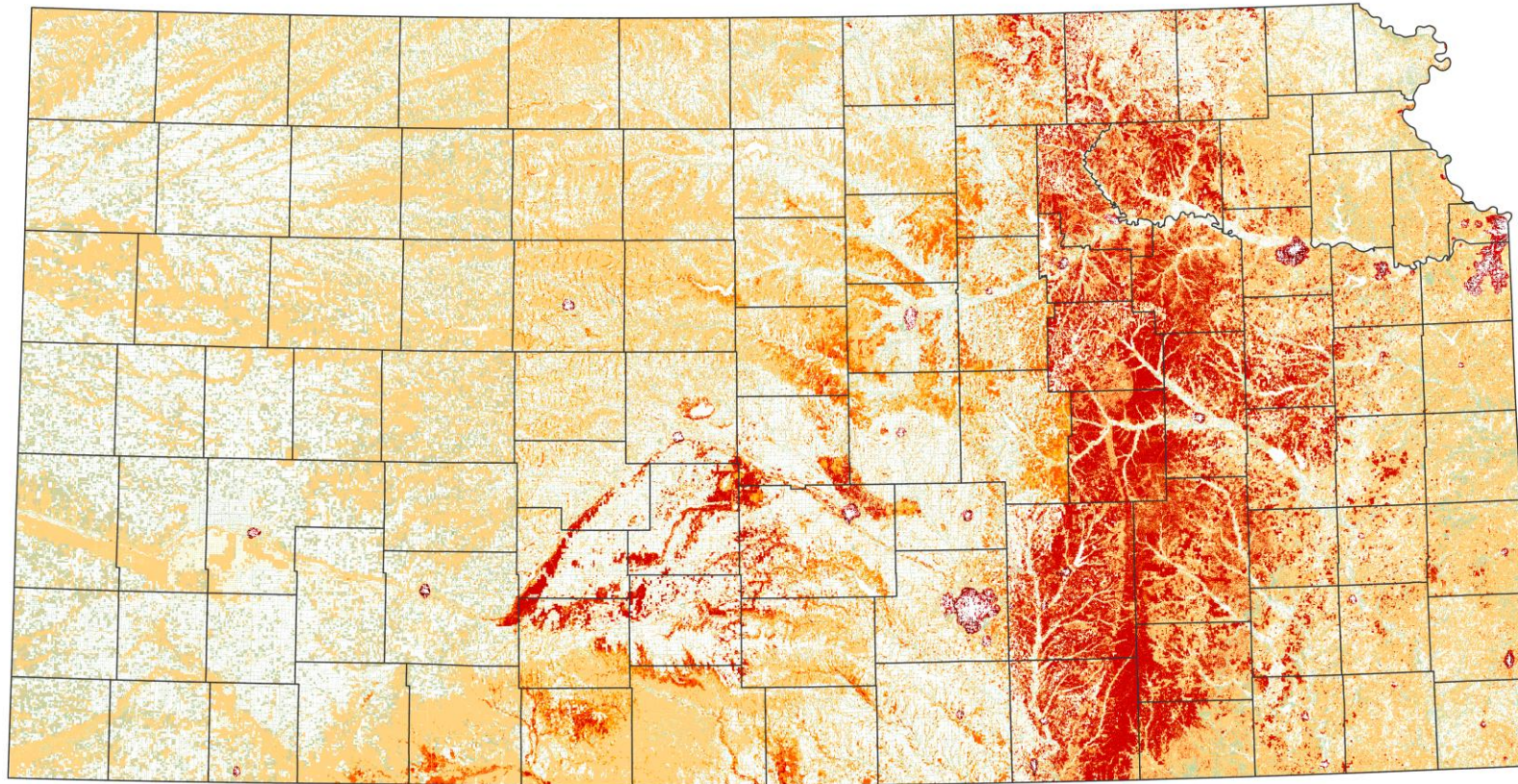
Wildfire Effects Index

What will be impacted if there is a wildfire?

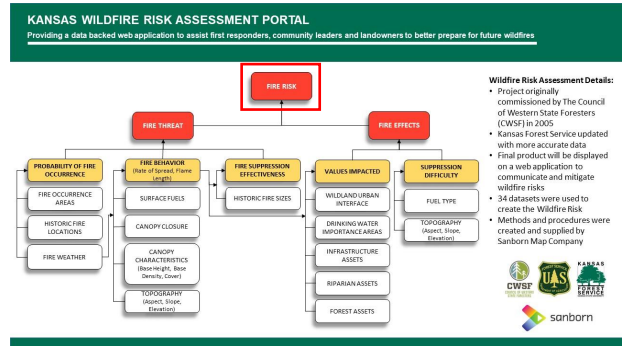
- Values Impacted
 - **Wildland Urban Interface**
 - **Infrastructure Assets**
 - **Drinking Water Importance Areas**
 - **Riparian Assets**
 - **Forest Assets**
- **Suppression Difficulty**



Wildfire Risk Index



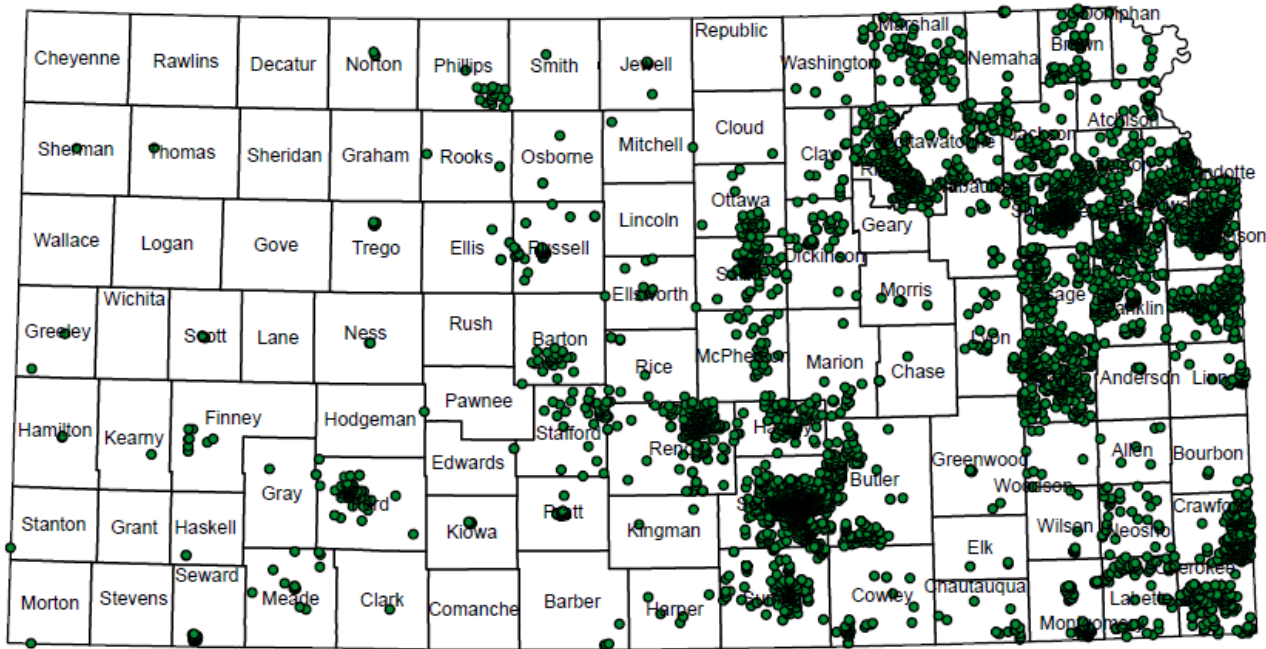
The Final Output!!



What are the
differences
between West
Wide
Assessment and
KS WRAP?

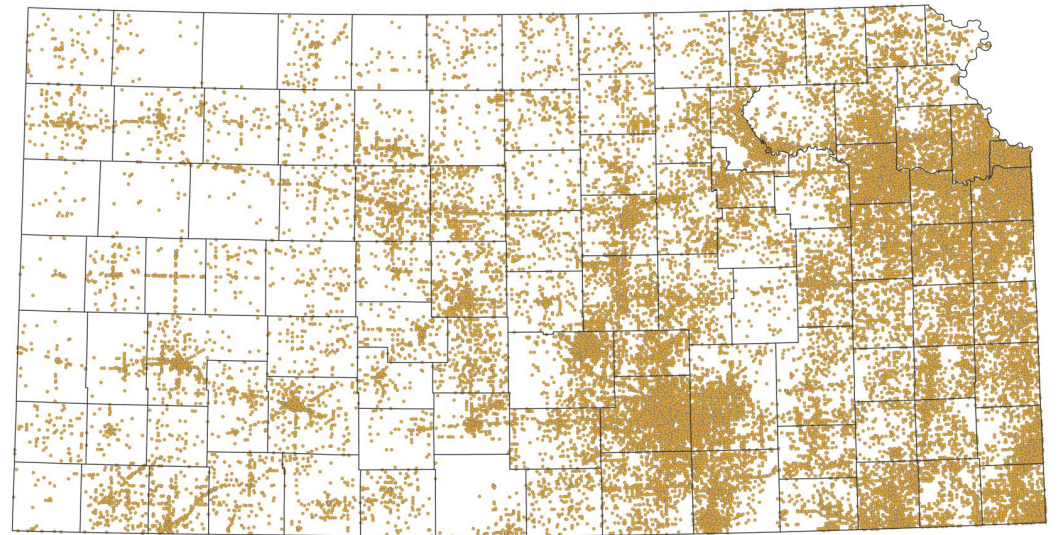


1999-2008



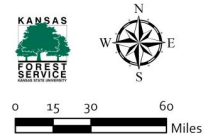
2010-2019

Wildfire Occurrences



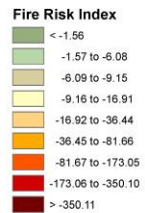
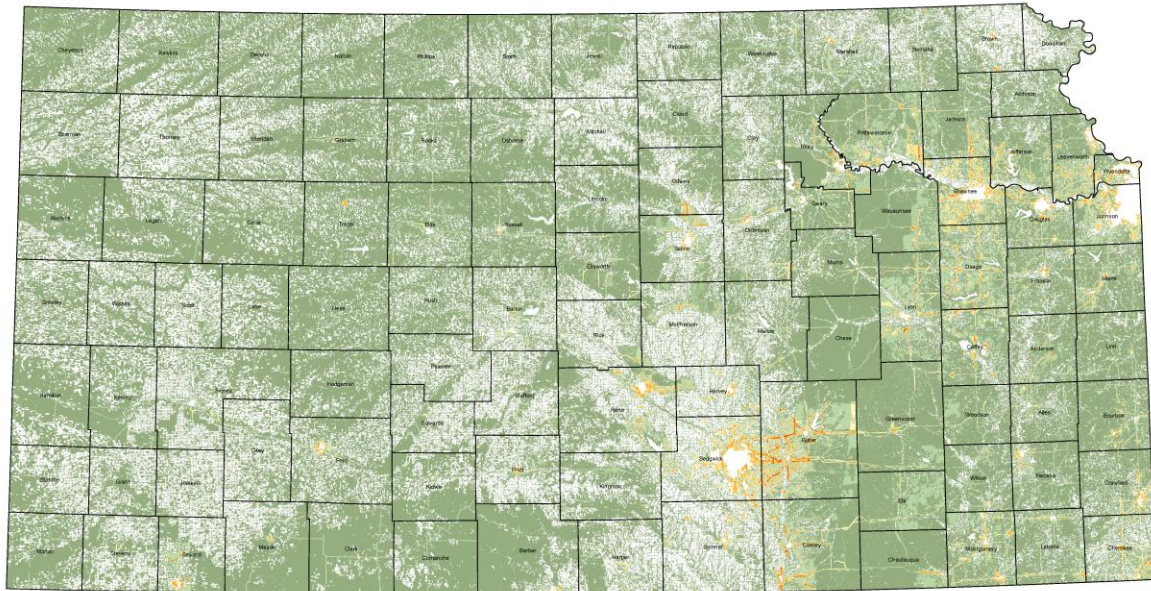
Location Specific Ignition

CN	RA	DC	NT	PL	SM	JW	RP	WS	MS	NM	BR	DF		
SH	TH	SD	GH	RO	OB	MC	OT	PT	JA	AT	JF	LV		
WA	LG	GO	TR	EL	RS	LC	SA	DK	GE	TW	SH	DG	JO	
GL	WH	SC	LE	NS	RH	BT	RC	MP	MN	CS	LY	CF	AN	LN
HM	KE	FI	HG	PN	SF	HV	RN	HV	BU	GW	WO	AL	BB	
ST	GT	HS	GY	FO	KW	PR	KM	SG	BU	GW	WO	AL	BB	
MT	SV	SW	ME	CA	CM	BA	HP	SU	CL	CO	MG	LB	CK	



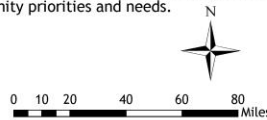
West Wide Risk Assessment

Fire Risk Index



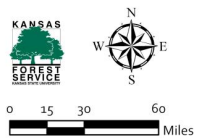
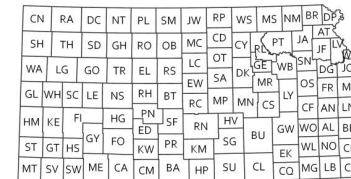
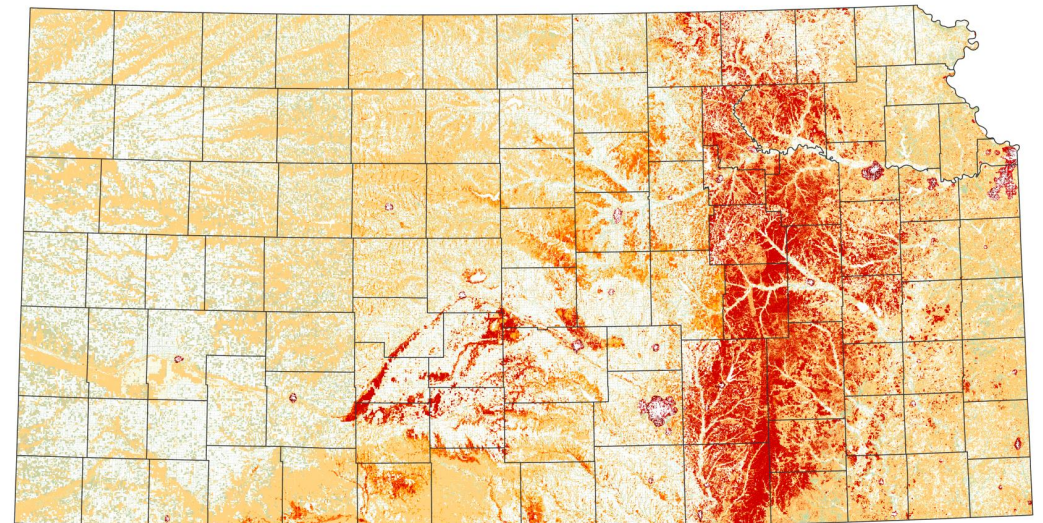
The Fire Risk Index provides a measure of wildfire risk. The FRI can be used to identify where mitigation options may be of value; allow agencies to work together and better define priorities; develop a refined analysis of a complex landscape and fire situations using GIS; and increase communication with local residents to address community priorities and needs.

The FRI is calculated as the FTI times the FEI. It combines the probability of an acre burning with the expected effects if a fire occurs. This reflects the possibility of suffering loss.



KS Wildfire Risk Assessment Portal

Wildfire Risk Index



What is the future
of KS WRAP?



Update	Plan to update fire occurrence data every five years <ul style="list-style-type: none">• Currently 2010 - 2019• Next update will be 2015 – 2024
Review	Give us time to review datasets and update as needed
Get	Get feedback from people using the Portal <ul style="list-style-type: none">• Additional datasets



Contact Us!

Learn more about the Kansas Forest Service at kansasforests.org

