Scorecard Name: FFAR - Noble Researc	h
Institute - Cross Timbers and Southern Ta	all

Created By: Guilhermo Congio

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Num	Grass Prair	e - 08/24/2022 - Gui Process Indicator	hermo Con	gio None to slight	Slight to	Moderate	Moderate to	Extreme to total
					moderate		extreme	
1	LIVE CANOPY ABUNDANCE	% of site potential	-10 to 10	Live canopy exceeds 80% of potential site production based on recent climate. Maximum photosynthesis.	60-80% of live canopy abundance potential based on recent climate. Reduce one score class if more than 40% of biomass is	40-60% of site live canopy potential based on recent climate. Reduce one score class if more than 40% of biomass is annual	20-40% of site live canopy potential based on recent climate. Reduce one score class if more than 40% of biomass is annual	Less than 20% of site live canopy potential based on recent climate. Minimal photosynthesis.
		10		5	0	-5	-10	
2	LIVING ORGANISMS	Evidence of micr	-10 to 10	Microfauna life signs are abundant and very easy to find.	Slight to moderate reduction to microfauna signs, still abundant.	Moderate reduction of microfauna signs. Some components missing.	Little abundance of microfauna signs related to site potential.	Next to no sign of microfauna. Components of the ecosystem are clearly missing.
		10		5	0	-5	-10	
3	FG 1 - WARM SEASON GRASSES	Reproductive ca Key species: Big Bluestem, Little Bluestem, Indiangrass, Switchgrass, Sideoats Grama	-10 to 10	Amount of floral stems and young plants of this group matches site and year potential.	Amount of floral stems and young plants of this group is slightly lower than site and year potential.	The group maintains a moderate amount of flower stems and young plants.	Stand reproduction is significantly reduced. Minimal amount of flower stems. Young plants unfrequent.	The group stand does not exhibit flower stems or young plants.
		10		5	0	-5	-10	
3	FG 1 - WARM SEASON GRASSES	Vigour/mortality/ Key species: Big Bluestem, Little Bluestem, Indiangrass, Switchgrass, Sideoats Grama	-10 to 10	Plants show vigour and amount of green leaves that matches the expected for the site and the year.	Plants show vigour and amount of green leaves that is slightly below the expected for the site and the year.	Moderate loss of vigour and increase of % standing dead. Few decadent or dead plants.	High frequency of plants with poor growth and high standing dead percentage. High percentage of plants with dead	Decadent or dead plants are the most common. Abundant standing dead material.
		10		5	0	-5	-10	
4	FG 2 - COOL SEASON GRASSES	Reproductive ca Key species: Texas Wintergrass, Canadian Wild Rye, Virginia Wild Rye	-10 to 10	Amount of floral stems and young plants of this group matches site and year potential.	Amount of floral stems and young plants of this group is slightly lower than site and year potential.	The group maintains a moderate amount of flower stems and young plants.	Stand reproduction is significantly reduced. Minimal amount of flower stems. Young plants unfrequent.	The group stand does not exhibit flower stems or young plants.
		10		5	0	-5	-10	
4	FG 2 - COOL SEASON GRASSES	Vigour/mortality/ Key species: Texas Wintergrass, Canadian Wild Rye, Virginia Wild Rye	-10 to 10	Plants show vigour and amount of green leaves that matches the expected for the site and the year.	Plants show vigour and amount of green leaves that is slightly below the expected for the site and the year.	Moderate loss of vigour and increase of % standing dead. Few decadent or dead plants.	High frequency of plants with poor growth and high standing dead percentage. High percentage of plants with dead	Decadent or dead plants are the most common. Abundant standing dead material.
		10		5	0	-5	-10	
5	FG 3 - FORBS/LEGUM	Reproductive ca Key species: Maximillian Sunflower, Engleman Daisy, Compass plant, Tick Clovers, Bundle Flower, American Basket Flower	-10 to 10	Amount of floral stems and young plants of this group matches site and year potential.	Amount of floral stems and young plants of this group is slightly lower than site and year potential.	The group maintains a moderate amount of flower stems and young plants.	Stand reproduction is significantly reduced. Minimal amount of flower stems. Young plants unfrequent.	The group stand does not exhibit flower stems or young plants.
1	1	10	1	5	0	-5	-10	1

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Num	Grass Prair Eco. Indicators	e - 08/24/2022 - Gui Process Indicator	hermo Con Score	None to slight	Slight to moderate	Moderate	Moderate to extreme	Extreme to total
5	FG 3 - FORBS/LEGUM	Vigour/mortality/ Key species: Maximillian Sunflower, Engleman Daisy, Compass plant, Tick Clovers, Bundle Flower, American Basket Flower	-10 to 10	Plants show vigour and amount of green leaves that matches the expected for the site and the year.	Plants show vigour and amount of green leaves that is slightly below the expected for the site and the year.	Moderate loss of vigour and increase of % standing dead. Few decadent or dead plants.	High frequency of plants with poor growth and high standing dead percentage. High percentage of plants with dead	Decadent or dead plants are the most common. Abundant standing dead material.
		10		5	0	-5	-10	
6	FG 4 - DESIRABLE TREES/SHRUBS	Reproductive ca Key species: Post Oak, Blackjack Oak, Pecan, Hackberry, Plum, Dogwood	-10 to 10	Amount of floral stems and young plants of this group matches site and year potential.	Amount of floral stems and young plants of this group is slightly lower than site and year potential.	The group maintains a moderate amount of flower stems and young plants.	Stand reproduction is significantly reduced. Minimal amount of flower stems. Young plants unfrequent.	The group stand does not exhibit flower stems or young plants.
		10		5	0	-5	-10	
6	FG 4 - DESIRABLE TREES/SHRUBS	Vigour/mortality/ Key species: Post Oak, Blackjack Oak, Pecan, Hackberry, Plum, Dogwood	-10 to 10	Plants show vigour and amount of green leaves that matches the expected for the site and the year.	Plants show vigour and amount of green leaves that is slightly below the expected for the site and the year.	Moderate loss of vigour and increase of % standing dead. Few decadent or dead plants.	High frequency of plants with poor growth and high standing dead percentage. High percentage of plants with dead	Decadent or dead plants are the most common. Abundant standing dead material.
		10		5	0	-5	-10	
7	CONTEXTUALL DESIRABLE RARE SPECIES	Frequency Key species: Frequency of Eastern Gama Grass	0 to 10	Species frequency is the maximum expected for the site and the year.	Species frequency is lower than expected for the site, but still abundant.	Minimal frequency of species. Hard to find.	Species only in protected areas.	Species only in protected areas.
		10		5	0	0	0	
8	CONTEXTUALL UNDESIRABLE SPECIES	Abundance Key species: Abundance and Reproduction of Sericea, Annual Threeawn, Prickly Pear	-10 to 0	Undesirable species are absent or in low abundance.	Undesirable species are absent or in low abundance.	Undesirable species are absent or in low abundance.	Contextually undesirable species are abundant.	Contextually undesirable species very abundant, co- dominate, or dominate, the site.
		0		0	0	-5	-10	
8	CONTEXTUALL UNDESIRABLE SPECIES	Reproductive ca Key species: γ Abundance and Reproduction of Sericea, Annual Threeawn, Prickly Pear	-20 to 0	Frequency of young plants of contextually undesirable species is minimal.	Frequency of young plants of contextually undesirable species is minimal.	Frequency of young plants of contextually undesirable species is minimal.	Frequency of young plants of contextually undesirable species is high. Invasive species are increasing.	Contextually undesirable species show a high frequency of young plants, a fast transition is happening.
L		0		0	0	-10	-20	
9	LITTER ABUNDANCE		0 to 10	Amount is what is expected for the site potential and weather. >85%	Slightly more or less relative to site potential and weather. 70-84%	Litter is scarce, absent or in excess for the site. <70%	Litter is scarce, absent or in excess for the site. <70%	Litter is scarce, absent or in excess for the site. <70%
		10		5	0	0	0	

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Num	Grass Prair Eco. Indicators	e - 08/24/2022 - Gui Process Indicator	Score	none to slight	Slight to moderate	Moderate	Moderate to extreme	Extreme to total
10	LITTER INCORPORATIC	N	0 to 10	Litter is mixing well with soil, resulting in a faster mineral cycle.	Litter mixed well with soil in parts, and is non attached in others. Mineral cycle not so fast.	Some soil - litter mix. Litter amount may be excessive or scarce. Slower mineral cycle.	Litter is not mixing with soil. Amount may be excessive or scarce. Slow mineral cycle.	Litter is not mixing with soil. Amount may be excessive or scarce. Slow mineral cycle.
		10		5	0	0	0	
11	DUNG DECOMPOSITIC	DN	0 to 10	Dung decomposes fast, most dung pellets age is less than one year. High insect activity.	Dung decomposes slightly slower, but old dung pellets are relatively few. Moderate insect activity.	Some decomposition, but most of dung pellets are older than 2 years. Few insects.	Very slow decomposition, dung pellets older than 2 years. Few to negligible insect activity.	Very slow decomposition, dung pellets older than 2 years. Few to negligible insect activity.
		10		5	0	0	0	
12	BARE SOIL		-20 to 20	Amount and size of bare areas match what is expected for the site. <5%	Slightly to moderately higher than expected for the site. Bare areas are small and rarely connected. 5-15%	Moderately higher than expected for the site. Bare areas are of moderate size and sporadically connected. 15-25%	Moderately to much higher than expected for the site. Bare areas are large and occasionally connected. 25-35%	Much higher than expected for the site. Bare areas are large and usually interconnected. >35%
		20		10	0	-10	-20	
13	CAPPING		-10 to 0	Soil surface is loose or with a light capping that breaks easily with the finger.	Soil surface is loose or with a light capping that breaks easily with the finger.	Soil surface is loose or with a light capping that breaks easily with the finger.	Obvious capping, that breaks making pressure with the finger.	Heavy Capping, requires metal object to break. Mature capping.
		0		0	0	-5	-10	
14	WIND EROSION	Active blowout/d	-20 to 0	Matches what is expected for site.	Unfrequent or rare.	Occasionally present.	Common.	Extensive.
		0		0	0	-10	-20	
14	WIND EROSION	Active pedestals	-20 to 0	Amount of pedestals and terracettes match what is expected for the site. In no case erosion processes are	Active pedestalling or terracettes formation is rare. Some evidence of past pedestal formation, specially in water flow	Slight active pedestalling; most pedestals are in flow paths and interspaces and/or on exposed slopes. Occassional	Moderate active pedestalling. Terracettes common. Some rocks and plants are pedestalled with occassional	Abundant active pedestalling and numerous terracettes. Many rocks and plants are pedestalled, exposed plant roots
		0	ļ	0	0	-10	-20	Ender
14	WIND EROSION	Litter movement	-20 to 0	Matches that expected for the site with a fairly uniform distribution of litter.	Slightly more litter movement than expected, with only small size classes of litter being displaced.	Moderate movement of smaller size classes in scattered concentrations around	Moderate to extreme; loosely concentrated near obstructions. Moderate to small classes of litter have been	Extreme; concentrated around obstructions. Most size classes of litter have been displaced.
		0		0	0	-10	-20	

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Num	Eco. Indicators	e - 08/24/2022 - Gui Process Indicator	Score	None to slight	Slight to moderate	Moderate	Moderate to extreme	Extreme to total
15	WATER EROSION	Active rills	-20 to 0	Current or past formation of rills as expected for the site.	No recent formation of rills; old rills have blunted or muted features.	Active rill formation is slight at infrequent intervals; mostly in exposed areas.	Rill formation is moderately active and well defined throughout most of the site.	Rill formation is severe and well defined throughout most of the site.
		0		0	0	-10	-20	
15	WATER EROSION	Active water flows	-20 to 0	Matches what is expected for the site: minimal evidence of past or current soil deposition or erosion.	Number and length of water flow patterns match what is expected for the site; flow patterns are stable and short.	Number and length of water flow patterns nearly match what is expected for the site; erosion is minor with some	Water flow patterns more numerous and extensive than expected; occasionally connected.	Water flow patterns extensive and numerous; unstable with active erosion; usually connected.
		0		0	0	-10	-20	
15	WATER EROSION	Active gullies	-20 to 0	Match what is expected for the site. Drainages are represented as natural stable channels; vegetation common	Uncommon; vegetation is stabilizing the bed and slopes; no signs of active headcuts; nickpoints or bed	Moderate in number with indications of active erosion; vegetation is intermittent on slopes and/or bed. Occassional	Moderate in number to common with indications of active erosion; vegetation is intermittent on slopes and/or bed.	Common with indications of active erosion and downcutting; vegetation is infrequent on slopes and/or bed.
		0		0	0	-10	-20	