Date: _____ Inventory Completed by: _____

(attach additional pages as necessary)

CATEGORY	RANCH/ FARM INVENTORY
PRECIPITATION • Historical Frequency of Drought • Range of Annual Precipitation Amounts • Average Precipitation and Timing	
RANGE & FORAGE RESOURCES • Range/Ecological Site • Range Condition • Forage Production Potential of Each Pasture • Other Feed Supplies	

From: Managing Drought Risk on the Ranch: A Planning Guide for Great Plains Ranchers. The National Drought Mitigation Center, University of Nebraska at Lincoln, South Dakota State University and Texas A&M Kingsville, 2014. Full handbook at: https://drought.unl.edu/ranchplan/.Page **3**1 of **39**

WORKSHEET 2: INVENTORY OF RANCH/ FARM RESOURCES – SHEET 2

CATEGORY	RANCH/ FARM INVENTORY
HERD RESOURCES • Number and Class of Live-stock • AUs throughout the Year • Feed Needs (AUMs) • Current Stocking Rate	
WATER RESOURCES • Well Capacity and Ability to Pump • Flow Rate • Water Quality	
FINANCIAL RESOURCES • Cash Flow • Debt/Asset Ratio • Unit Cost of Production • Participation in Insurance Programs • Marketing Alternatives	
HUMAN AND PERSONNEL RESOURCES • Family members' interests and abilities • Hired labor resources	

From: Managing Drought Risk on the Ranch: A Planning Guide for Great Plains Ranchers. The National Drought Mitigation Center, University of Nebraska at Lincoln, South Dakota State University and Texas A&M Kingsville, 2014. Full handbook at: https://drought.unl.edu/ranchplan/.Page **3**2 of **39**

WORKSHEET 1: VISION AND STRATEGIC OBJECTIVES

Date_____ Form Completed by _____

FARM/ RANCH VISION:

STRATEGIC OBJECTIVES	GOAL	ACTUAL
NATURAL RESOURCES (Soil, Range Health, Water Resources) 1. 2. 3. 4.		
PRODUCTION 1. 2. 3. 4.		
FINANCIAL 1. 2. 3. 4.		
CUSTOMER 1. 2. 3. 4.		
LIFESTYLE, LEARNING, AND GROWTH 1. 2. 3. 4.		

Source: "Strategic and Scenario Planning in Ranching: Managing Risk in Dynamic Times" (Gates, Dunn et al 2007).

WORKSHEET 2: Co-Develop Objectives for Drought Preparation

Area/ Enterprise: _____ Date: _____ Page: _____

Objective #	Details of Each Objective

WORKSHEET 2: Co-Develop Objectives for Drought Preparation

Allotment: Sprinkle Ranch Date: 10 January 2017 Page: 1 of 1

Objective #	Details of Each Objective
1	We want to improve preparation for drought by distributing permanent reliable water for livestock throughout Son of a Gun, Preacher Tom, and Miner's Camp pastures by the year 2020.
2	We want to transition to a more flexible, but conservative herd composition by the year 2020 so that the next drought does not impact the core cow herd.
3	We want to improve our ability to flexibly move the livestock herd between pastures for times of drought and/or wildfire by the year 2025.
4	We want to improve the forage quantity and quality in the Preacher Tom and Old Homestead Pastures by the year 2025.
5	We want to improve our ability to monitor the timing and spatial distribution of precipitation throughout the allotment by the end of 2017.

WORKSHEET 4: Identify Issues with Preparation and Co-Develop Possible Solutions

Area/ Enterprise: : _____ Date: _____ Page: _____

Issues	Possible Solutions	Feasibility

WORKSHEET 4: Identify Issues with Preparation and Co-Develop Possible Solutions

Allotment: Sprinkle Ranch Date: 10 January 2017 Page: 1 of 1

Issues	Possible Solutions	Likely NEPA Analysis	Scenario Addressed
Son of a Gun Pasture – both dirt tanks have potential to dry out without backup reliable water sources	• Keep clean and re-seal on a regular basis • Extend buried pipeline from headquarters well • Install trick tanks • Drill new well	• Archaeological clearance • EA • EA or CE (Category 6) • EA	1, 3
Catch pen between Preacher Tom and Old Homestead only serves animal movement between two pastures and limits rotational flexibility	• Increase size of catch pen to allow more flexible movement among four pastures (Preacher Tom, Old Homestead, Son of a Gun, and Wydot)	• Archaeological clearance • EA or CE (Category 6) • EA	2
Preacher Tom Pasture – the three dirt tanks have potential to dry out without backup reliable water sources	• Keep clean and re-seal on a regular basis • Install trick tanks • Drill new well at corrals; extend pipeline to Old Homestead and Preacher Tom Pastures	• Archaeological clearance • EA or CE (Category 6) • EA	1, 3
Miner's Camp Pasture – both dirt tanks have potential to dry out without backup reliable water sources	• Keep clean and re-seal on a regular basis • Install trick tanks • Drill new well • Develop spring	• Archaeological clearance • EA or CE (Category 6) • EA • EA	1, 3
Cattle herd size is almost at full capacity; any decline in forage likely to result in needing to sell cows	• Change the herd composition to incorporate yearlings or stockers; therefore, more flexible • Consider more conservative stocking rate • Seek alternative forage by renting/leasing pastures	• None • None • None	1, 2, 3

WORKSHEET 5: Select and Prioritize Projects

Area/ Enterprise: : _____ Date: _____ Page: _____

Basic Details of Each Project/Action	Objectives Addressed	Expected Timeline	Potential Partners	Priority

WORKSHEET 5: Select and Prioritize Projects

Allotment: *Sprinkle Ranch* Date: *10 January 2017* Page: *1 of 1*

Basic Details of Each Project/Action	Objectives Addressed	Expected Timeline	Potential Partners	Priority
1. Clean and seal dirt tanks in Son of a Gun, Preacher Tom, Old Homestead, and Miner's Camp Pastures	*1, 3, 4, 5*	*Archaeological clearance by March 2017; permittee cleans by May/June 2017*	*NA*	*High – already authorized in current NEPA decision; critical for water*
2. Son of a Gun Pasture – extend buried pipeline from Pipeline Pasture (source Headquarters well); includes storage tanks and drinkers, and potential pumping station along one incline	*1, 3*	*EA – 18-24 months once NEPA starts; 3-6 months for implementation*	*NRCS – engineering help; Mule Deer Foundation – potential cost-share; AZGFD*	*High – will provide permanent reliable water to one pasture*
3. Old Homestead Pasture – drilling a new well near corrals; extend buried pipelines into Preacher Tom and Old Homestead Pastures with storage tanks and drinkers	*1, 3*	*EA – 24-36 months once NEPA starts; 6-12 months for implementation*	*NRCS – engineering help; Mule Deer Foundation – potential cost-share; AZGFD*	*High – will provide permanent reliable water to 2 pastures; start NEPA early*
4. Increase size of catch pens between Son of a Gun and Old Homestead Pastures to include Preacher Tom and Wydot Pastures	*3*	*EA – 18-24months once NEPA starts; 3-6 months for implementation*	*NA*	*High – will increase flexibility of rotation among pastures*
5. Add 1-2 rain gauges for precipitation monitoring to Pipeline, Wydot, Old Homestead, and Preacher Tom Pastures	*5, 3*	*1-3 months to implement*	*University of Arizona Cooperative Extension*	*High – will increase spatial measurements of precipitation throughout allotment*
6. Begin retaining yearlings instead of selling early if forage and water are plentiful; in drought years, sell yearlings and maintain core herd	*2*	*None – likely requires only authorization from District Ranger*	*NA*	*Medium – will increase flexibility of herd size*

WORKSHEET 7: Evaluate the Success of Practices in the Plan

Allotment: _____ DATE: _____

DROUGHT CHARACTERISTICS

Approximate Duration / Time Span of the Drought	**Severity of drought**

IMPACTS TO NATURAL RESOURCES	**IMPACTS TO WATER**

PROACTIVE PRACTICES IN PLACE THAT HELPED YOU COPE WITH THIS DROUGHT	**DID THEY WORK THE WAY YOU INTENDED?**	**WHICH OBJECTIVES WERE MET?**

RESPONSIVE PRACTICES YOU IMPLEMENTED THAT HELPED YOU COPE WITH THIS DROUGHT	**DID THEY WORK THE WAY YOU INTENDED?**	**WHICH OBJECTIVES WERE MET?**

WHAT COULD YOU HAVE DONE DIFFERENTLY TO IMPROVE SUCCESS OF COPING WITH THIS DROUGHT AND MEETING OBJECTIVES?	**WHAT CAN BE CHANGED TO BETTER PREPARE YOURSELVES FOR FUTURE DROUGHT?**

WORKSHEET 7: Evaluate the Success of Practices in the Plan

Allotment: Sprinkle Ranch Allotment DATE: 01 March 2018

DROUGHT CHARACTERISTICS

Approximate Duration / Time Span of the Drought	Standardized Precipitation Index (SPI)
August 2017 to January 2018 (6 months)	6-month (August-January) SPI -1.3

IMPACTS TO FORAGE	IMPACTS TO WATER
Low impact throughout allotment; about 80% of average forage	Dirt tanks about 75% full

PROACTIVE PRACTICES IN PLACE THAT HELPED YOU COPE WITH THIS DROUGHT	DID THEY WORK THE WAY YOU INTENDED?	WHICH OBJECTIVES WERE MET?
1. Conservative stocking rate 2. Cleaned and resealed dirt tanks in Son of a Gun, Preacher Tom, Old Homestead, and Miners Camp pastures 3. Installed rain gauges in all pastures to monitor	1. Yes, plenty of forage for herd 2. Yes, tanks held water 3. Yes	1. #2 2. #1, 3 3. #5

RESPONSIVE PRACTICES YOU IMPLEMENTED THAT HELPED YOU COPE WITH THIS DROUGHT	DID THEY WORK THE WAY YOU INTENDED?	WHICH OBJECTIVES WERE MET?
1. Sell some yearlings by December 2017	1. Yes, was able to keep core cow herd and rotate as planned	1. #1, 2, 3

WHAT COULD YOU HAVE DONE DIFFERENTLY TO IMPROVE SUCCESS OF COPING WITH THIS DROUGHT AND MEETING OBJECTIVES?	WHAT CAN BE CHANGED TO BETTER PREPARE YOURSELVES FOR FUTURE DROUGHT?
We feel successful in how we coped with this drought.	1. Designate a reserve pasture for additional forage in case next drought has greater impact on forage 2. Install more trick tanks for reliable water

WORKSHEET 3: Co-Develop Drought Scenarios

Area/ Enterprise: : _____ Date: _____ Page: _____

Scenario # _____

What if… _____

…What will we do? What flexibility do we have? What could we have done ahead of time to prepare?

Scenario # _____

What if… _____

…What will we do? What flexibility do we have? What could we have done ahead of time to prepare?

Scenario # _____

What if… _____

…What will we do? What flexibility do we have? What could we have done ahead of time to prepare?

WORKSHEET 3: Co-Develop Drought Scenarios

Allotment: Sprinkle Ranch Date: 10 January 2017 Page: 1 of 1

Scenario # 1

What if…
- Winter drought with only 50% average precip. (SPI -1) from Dec-March
- All dirt tanks are dry or mostly dry by March in Son of a Gun, Preacher Tom, Old Homestead, and Miner's Camp Pastures
- Forage is relatively unaffected where warm-season grasses dominate

…What will we do? What flexibility do we have? What could we have done ahead of time to prepare?

Scenario # 2

What if…
- Summer season drought
- By Aug. 31, southwestern pastures only approaching SPI -1 (Jun-Aug)
- Forage production in those pastures is 60% of average growth
- Those pastures are next on the rotation schedule
- Plentiful rain in September seems unlikely

…What will we do? What flexibility do we have? What could we have done ahead of time to prepare?

Scenario # 3

What if…
- Dry winter season results in most dirt tanks dry or less than full capacity
- By June, conditions still dry
- Mid-July, a couple large storms occur only in OH, SG, and MC pastures
- By end of August, not much more rain received throughout allotment
- 12-month SPI for allotment is approaching a low value of -2
- Forage production throughout most pastures is between 30-80% of average

…What will we do? What flexibility do we have? What could we have done ahead of time to prepare?

WORKSHEET 1: Inventory and Condition of Improvements and Pastures
Livestock specific

PASTURE: _____ ALLOTMENT: _____ Page: _____

Updated: _____ Allowable/Expected Grazing Use: _____

Types and Condition of Forage:

Policy Constraints / Use Restrictions:

Best Season of Use: Spring _____ Summer _____ Fall _____

WATERS

Name	Condition	Issues	Maintenance Needs

PASTURE

Location	Condition	Issues	Maintenance Needs

OTHER

Location	Condition	Issues	Maintenance Needs

WORKSHEET 1: Inventory and Condition of Improvements and Pastures
Livestock specific

PASTURE: Son of a Gun Pasture ALLOTMENT: Sprinkle Ranch Page: 1

Updated: January 2017 Allowable/Expected Grazing Use: 572 AUM

Types and Condition of Forage:

Summer perennials (grama, 3-awn) - good

Policy Constraints / Use Restrictions:

No use Feb 01-June 01 spotted owl nesting season
Cultural Resources site in northwest corner of pasture

Best Season of Use: Spring ____ Summer X Fall X

WATER SOURCES

Name	Condition	Issues	Maintenance Needs
West dirt tank	Fair	Low storage capacity	Clean & re-seal; fix spillway
East dirt tank	Excellent	None – cleaned 2016	

PASTURE FENCES / CORRALS

Location	Condition	Issues	Maintenance Needs
Shared with Preacher Tom	Good	Cut through at 3 places	Repair gaps
Shared with Pipeline Pasture	Excellent	None	
Shared with Wydot Pasture	Excellent	None	

OTHER

Location	Condition	Issues	Maintenance Needs
Four catch pens	Good	No major issues	

WORKSHEET 6 (Page 1 of 2) **Managing the NEPA Process Together and Setting Shared, Realistic Expectations**

Livestock/ Public Lands Management Specific

Allotment: | **Date:**

People Involved:

Which project/practice are you proposing for a NEPA analysis? List all if grouping multiple practices into the same NEPA analysis:

Expected NEPA Analysis Required (EA, CE category):

Reasons Why:

Major Steps to Take Through the NEPA Process

Action	Person Responsible	Communication Responsibilities	Likely Amount of Time to Complete Step

WORKSHEET 6
Managing the NEPA Process Together and Setting Shared, Realistic Expectations

Allotment: Sprinkle Ranch **Date:** 20 February 2017

People Involved: Permittee and Rangeland Specialist from Example Ranger District;
Potential partners: NRCS (EQIP application); Mule Deer Foundation; AZ Game and Fish Dept.

Which project/practice are you proposing for a NEPA analysis? List all if grouping multiple practices into the same NEPA analysis:

Extend buried pipeline from Pipeline Pasture (source Headquarters well) into the Son of a Gun Pasture; install 4 storage tanks and 4 drinkers; 1 pumping station required
Will provide reliable drinking water for livestock and wildlife year-round in 1 additional pastures that does not have permanent water now.

Expected NEPA Analysis Required (EA, CE category): Environmental Assessment

Reasons Why: Pipeline will be buried; known cultural artifacts site in same pasture, but not in pipeline route

Major Steps to Take Through the NEPA Process

Action	Person Responsible	Communication Responsibilities	Likely Amount of Time to Complete Step
Project Design, scoping, notice and public comments	Range Specialist and permittee; NRCS consult	Range Specialist with Permittee; Permittee with NRCS	3-6 months
Analysis and specialist review; respond to comments	Range Specialist will coordinate with IDT specialists	Range Specialist to permittee when step is complete	6-10 months
Draft Decision Notice and Finding of No Significant Impact	District Ranger or Range Specialist will develop	District Ranger or Range Specialist with collaborate with permittee on decision	3 months
Objection Period	Rangeland Specialist; permittee	Both rangeland specialist and permittee	2 months
Resolve objections; make decision	District Ranger; Rangeland specialist	Range Specialist will communicate decision to permittee	1 month
			Total Expected: 15-22 months

South-Central Kansas

AVERAGE ANNUAL RAINFALL- 21 inches/year.
CRITICAL DATES- April 1, June 15, August 15, & Nov 1

This example includes critical dates, trigger points (percent of average precipitation), and man-agement decisions. A document like this might be the result of your work on farm/ranch vision/objectives, inventory, monitoring, setting dates and triggers, and evaluating strategies that fit your operation.

April 1

- End of the winter dormant season and the beginning of the growing season for warm season grasses
- < 4" of moisture during the winter dormant season (killing frost or Nov 1 till April 1) No prescribed burns should be conducted.
- Plan to increase the length of rest periods earlier than usual.

June 15

- About half of the forage is produced by June 15
- 75%(15.75") of the annual average rainfall is received between Nov 1 & June 15
- If the rainfall is <80% (12.60") of the 75% (15.75") then the stocking rate should be decreased 30% by weight. (Finish culling herd C)
- If the rainfall is < 60%(6.30") of the 75%(15.75") then the stocking rate should be decreased 40-50% by weight (Cull herd B deep)
- The 3 weeks following June 15th is very critical. By July 15 the destocking should be completed.
- Rest periods should be as long as possible by June 1 if any indicator of a drought is present.
- Graze periods should be as long as possible to allow the other paddocks to rest for as long as possible.

August 15

- About 90% of the annual forage has been produced. Warm season grasses are preparing for next year growing season. Rest between now & frost will benefit next year's grass production.
- Length of grazing season-Based on the rainfall in July & August
- If rainfall is <70% (1.50") of the average 5" during July & August end herd C grazing by Sept 1(Cull Deep)

November 1

- End of the growing season and the beginning of the winter drought(drought season)
- < 80%(16.80") of the 21" average annual precipitation would indicate the beginning of a drought for the next growing season unless the winter is exceptionally wet

From: Managing Drought Risk on the Ranch: A Planning Guide for Great Plains Ranchers. The National Drought Mitigation Center, University of Nebraska at Lincoln, South Dakota State University and Texas A&M Kingsville, 2014. Full handbook at: https://drought.unl.edu/ranchplan/.Page **30** of **39**