ANNUAL REPORT 2021

Dixon Water Foundation

DIXON WATER FOUNDATION

2021 – ANNUAL REPORT

HEALTHY LAND. HEALTHY WATER. HEALTHY LIVING FOR ALL.

The Dixon Water Foundation's mission is to promote healthy watersheds through regenerative land management, to ensure that present and future generations have the water resources they need.

Through our ranches, grants, education programs, and research partnerships, we hope to help people protect the great environmental resources of our country.

This report summarizes the efforts taken by Dixon Water Foundation to achieve the goals of their mission in the year **2021**.

Report written and compiled by-
Philip Boyd, Vice President of Science and Research,
Dixon Water Foundation

Cover photo by – Sarah Vasquez

Staff and Board of Directors

Staff:

- Robert Potts – President and CEO
- Casey Wade – Vice President of Ranching Operations
- Melissa Bookhout – North Texas Education Coordinator/Secretary/Treasurer
- Philip Boyd – Vice President of Science and Research
- Rachel Vasquez – Vice President of Grants

Ranch Managers:

- Robby Tuggle – North Texas Ranch Manager
- Jake McNamara – North Texas Ranch Manager
- Lee Young – West Texas Ranch Manager

Board of Directors:

- Clinton W. Josey, Jr.
- Kathy Smyth
- Jerry Addison
- Hugh Aljoe
- Leslie C. Rauscher
- Laura Whiting
- Robert Potts
- Dr. Richard Teague

Science Advisory Board:

- Dr. Bonnie Warnock

2021 changes in Board of Directors and Staff:

Dr. Richard Teague retired from Texas A&M, removing any conflict of interest, and allowing a move from an advisory role on the DWF board to a position as a voting board member.

The Foundation hired Jake McNamara to train under Robby Tuggle and Casey Wade to take over ranch management duties in North Texas.

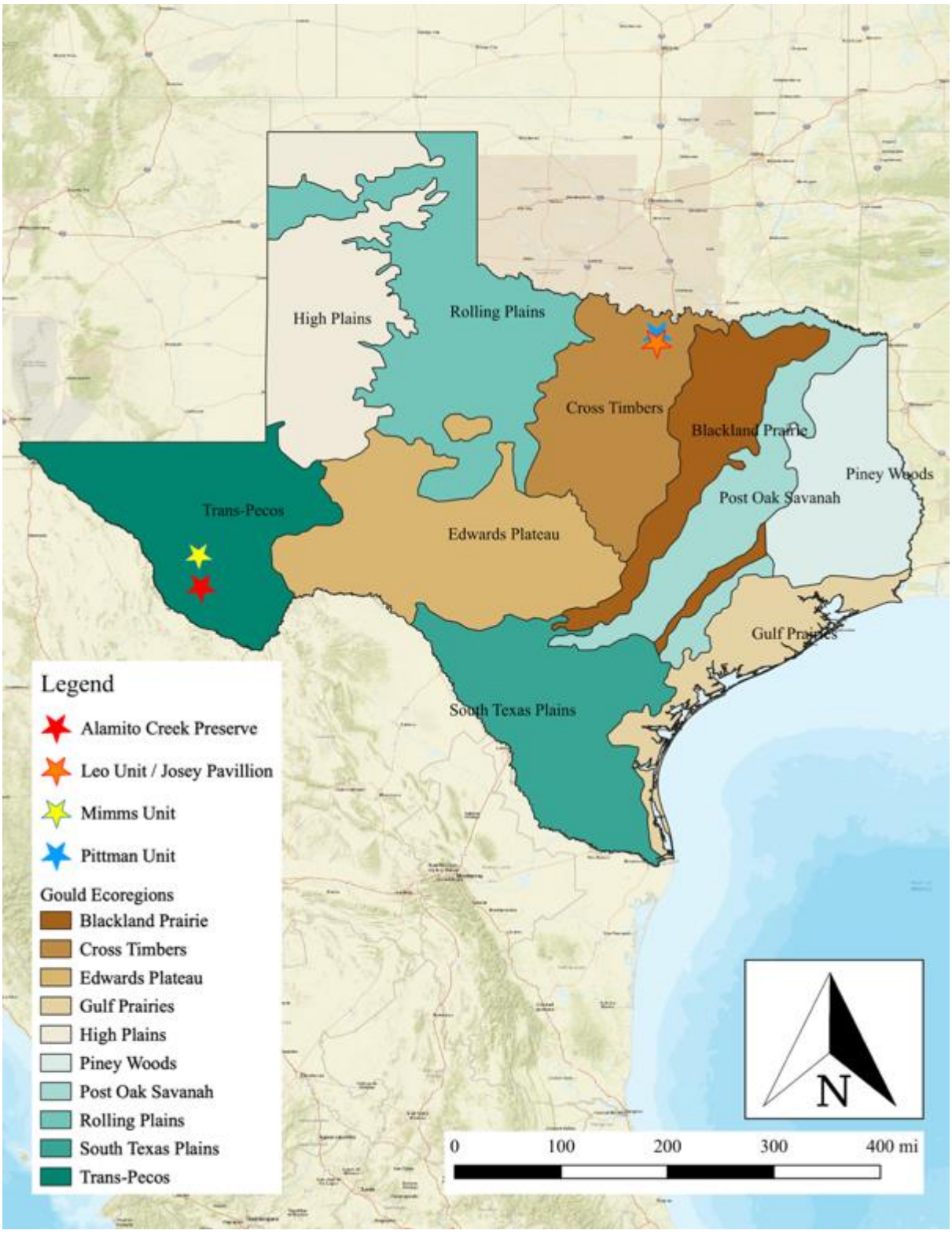


Figure 1. Dixon Water Foundation Ranch locations and Texas Ecoregions created from map in Gould, F. W. 1975, updated by Texas Parks and Wildlife Department (TPWD) GIS Lab 1/09/2004 and downloaded from the TPWD GIS Website

Letter from the President and CEO

Dear Reader,

This past year has been a good year for the Foundations' ranches and ecological restoration efforts. Favorable rainfall at both ranches in 2021 has us starting 2022 in good condition for continuing to improve watershed health on the properties we manage.

Also in 2021, the Foundation began to reestablish some of our ongoing education programs and research projects that had been put on hold during the COVID epidemic. As we start 2022, we are enjoying reconnecting with old partners and starting to work with new partners.

Over these past few years, there seems to be increasing interest in regenerative ranching as part of the solution in not only improving the water cycle, but also improving the quality of our food, sequestering carbon in the soil, and improving wildlife habitat. We, at The Dixon Water Foundation, are pleased to be a part of this growing movement of regenerative grazing. We are glad to offer our ranches as research and education locations to help everyone interested become better stewards of our land and water resources.

This report details a number of the activities the Foundation has undertaken this past year to further our mission of improving watershed health through good land management. I hope you enjoy reading about our work.

Finally, it is with great sadness that I report the passing of one of the Foundation's longstanding board members: Walt Davis. Walt spent his lifetime ranching and was a great source of inspiration, information and experience that enhanced not only the Foundation's ranches but the ranches of all who worked with him. He would never let anyone forget that ranching is fundamentally a biological enterprise that is made more resilient and productive by increasing the biological diversity of the ranch. We will carry his wisdom with us but miss him immensely.

Sincerely,

Robert J. Potts

2021 Ranching Operations

North Texas

Dixon Water Foundation owns and manages roughly 4,800 acres in Wise and Cooke Counties. The ranches are in the Cross Timbers and Prairies Ecoregion (*Figure* 1) in North-Central Texas, 22 miles north east of Decatur, Texas, and 32 miles north west of Denton, Texas. The Foundation ranches sheep and cattle in North Texas.

Figure 2. Calving season at Dixon Water Foundation's North Texas Properties, April 2021. (photo credit – Philip Boyd)

North Texas Ranching Update

Casey Wade – Vice President of Ranching Operations

2021 got off to a pretty rough start. We saw some of the worst winter weather we had seen in a long time during the middle of February. With historic low temperatures, snow and ice and rolling blackouts it was "all hands on deck". Fortunately, we made it through without losing any livestock. The biggest setback at our Leo Unit in North Texas was plumbing repairs. Because of the rolling blackouts we lost power to our electric heat lamps in our well houses and therefore had a lot of broken pipes. The only livestock that had difficulty were the West Texas cows and calves that had been moved to North Texas the previous fall. All in all we were well prepared and made it through in good fashion.

It was fortunate that my family and I had made the move from the Mimms Unit in West Tx to the Leo Unit the previous fall. I was available to help long time ranch manager Robby Tuggle with many of the added chores through the extreme winter weather. The last year (plus) of living on the Leo Unit has been very beneficial. I had been well acquainted with our North Texas operation but there is nothing like living on site to familiarize yourself with an operation. There is currently much more happening in North Texas due to growing livestock numbers and increased engagement with partners. Overall the transition to our Leo Unit has been great and I enjoy the opportunity to engage with North Texas partners more frequently. I also enjoy the opportunity to learn the Leo ranching operation as well as I have known the Mimms over the past ten years.

Once we made it through the rough winter weather we went on to have a great spring and summer growing season. It was almost a carbon copy of the previous year. Not overly abundant rain, but it always seemed to rain when we needed it. The timely rainfall along with mild summer temperatures made for an excellent and productive year.

As I mentioned previously, the livestock numbers in North Texas are higher than they have been in a long time. With 260 head of cattle and almost 300 ewes we are very close to being fully stocked according to NRCS recommendations. Now we are ready to go above and beyond that because of our increased carrying capacity due to proper management. 2021 also ended up being a good year for the sheep market. Our lambs sold very well in Hamilton and there also seems to be an increasing interest in our ewe lambs for seed stock.

Speaking of sheep, we can now graze sheep on the majority of our newly acquired land. The infrastructure development is finally nearing completion. We now have sheep proof exterior fencing which means it also keeps out our neighbor's bulls! Most of the newly developed pastures are cross fenced with electric fencing that can again be subdivided with temporary electric fencing in order to create more paddocks. This gives our manager flexibility to increase and decrease stock density as needed. We also have developed our water system so it can handle a large herd even in the hot summer months.

October brought about our first HMI workshop with Wayne Knight in leadership of that organization. It was well attended, especially by many of our friends from the Noble Research Institute. We look forward to many more to come.

2021 also brought us a new Leo Unit Ranch Manager. Jake McNamara started September 15, 2021 and has been doing a great job. He will be working with Robby Tuggle until Robby's retirement in the summer of 2022. It will be the end of an era and will be a huge transition, but it is also exciting to see a younger generation take the reins. All in all, 2021 was a good year at the Leo Unit and I have every reason to believe that 2022 will be even better.

Property Updates

The DWF North Texas properties saw continued infrastructure development to acreage purchased in 2019. An additional 310 acres was added to the Leo Unit in late 2021 when a neighboring landowner contacted DWF with intent to sell their land. This purchase allowed DWF to connect several pastures and create a dedicated bull trap separated by a county road from pastures utilized by the cow herd.

Precipitation

Precipitation at the Leo is measured with an analog gauge at the ranch office which is documented on a paper grazing chart.

In 2021, the Leo Unit recorded 33 in of precipitation.

Biological Monitoring update

Foundation staff conducted annual biological monitoring at the North Texas ranches in October 2021. The biological monitoring process employs a method developed by Holistic Management International. The process involves traveling to fixed monitoring points each year where staff throw 100 darts into the air around each point. As the darts hit the ground, staff document what type of ground cover the dart landed on: bare ground, litter, or basal plant cover. The staff member also documents the type of plant closest to the dart, based on 10 categories: Prairie complex, Johnson Grass, High Seral Forb, Mid Seral Grass, Mid Seral Forb, Introduced Grass, Sedges, Bermuda Grass, Low Seral Grass, and Low Seral Forbs.

Leo Unit- On the Leo Unit, this type of monitoring has been conducted since 1989. A primary goal of the Foundation has in place is to reduce the amount of bare ground across all Dixon ranches. Through annual monitoring, the Foundation is able to track any changes in conditions. On the Leo Unit, there are 5 fixed monitoring points. The 2021 biological monitoring efforts reported an average of 15.40% basal plant cover, 83.80% litter, and 0.80% bare ground (*Table 1*). T his is a change of 0.60% in bare ground from the 2020 monitoring effort, and a reduction of 21.40% in bare ground since 1989 (*Figure 3*).

Leo Unit Ground Cover Averages			
	Basal Plant	Litter	Bare Ground
1989	36.60%	41.20%	22.20%
2020	23.20%	76.60%	0.20%
2021	15.40%	83.80%	0.80%

Table 1. Percent cover for each cover type on the Leo Unit between 2020-2021 and 1989-2010.

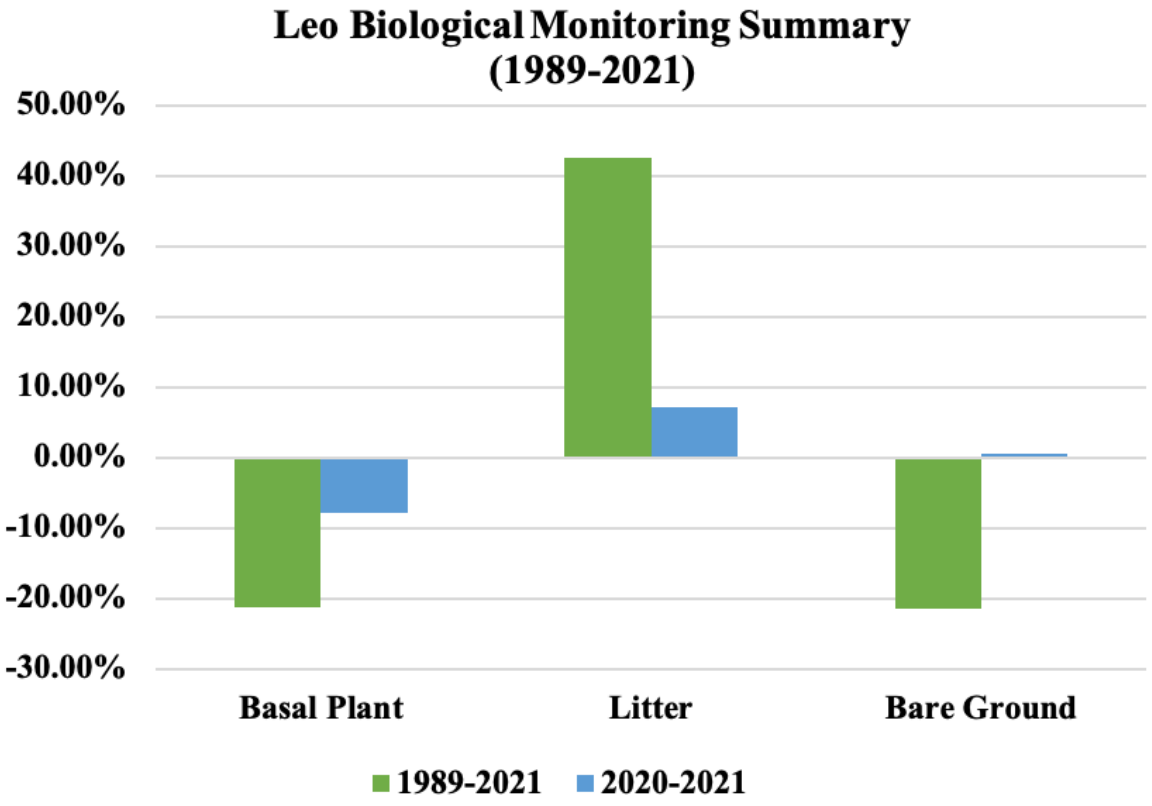


Figure 3. Percent change in ground cover types on the Leo Unit between 2089-2021 (green) and 2020-2021 (blue).

Each individual year and monitoring point may show some variation. When all monitoring point results are averaged and plotted on a chart for each year that has been surveyed, an overall trend in ground cover change can be seen (*Figure 4*). Through consistent monitoring efforts, staff has recorded a decreasing bare ground trend at the Foundation's Leo Unit.

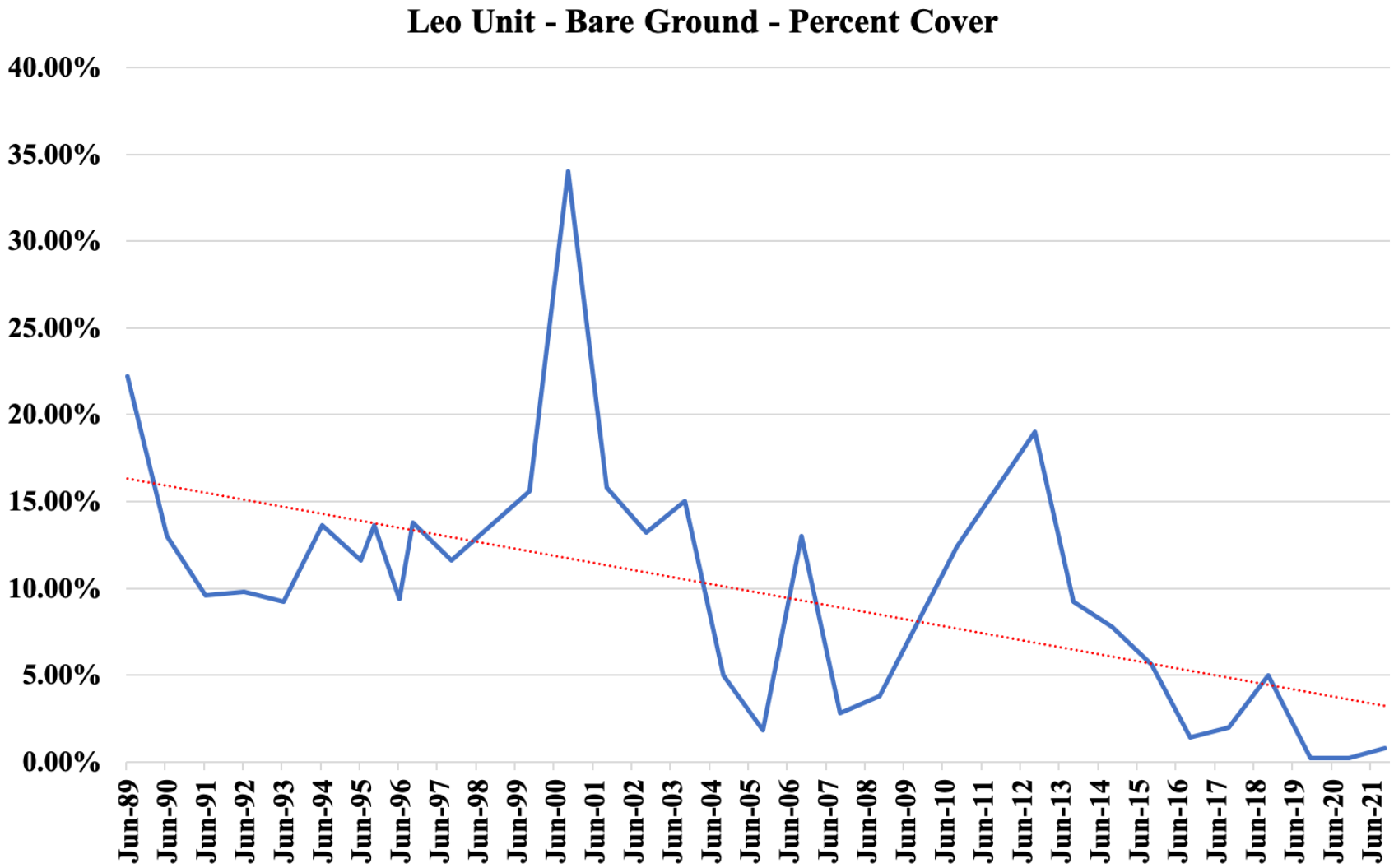


Figure 4. Leo Unit- Percent bare ground recorded 1989-2021 (blue line) and trend of change in bare ground 1989-2021 (red line).

Heard Unit- The Heard Unit is a property connected to the Leo Unit. The Heard Unit has been surveyed utilizing the same biological monitoring method as the Leo Unit since 2015, when the Foundation bought the land. The property is still undergoing infrastructure and management transitions, though infrastructure improvements, such as fencing and water, are near completion. There are 3 fixed monitoring points on the Heard Unit. One of these points was not surveyed in 2018. A slight decreasing trend in bare ground was documented from 2015-2021.(*Figure 5*).

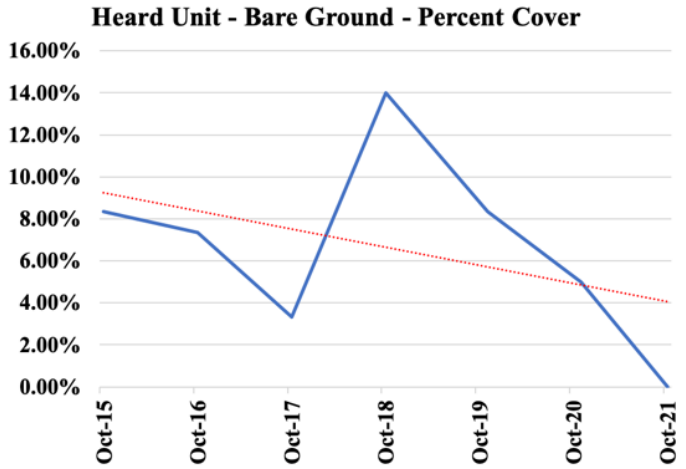


Figure 5. Heard Unit - Percent bare ground recorded 2015-2021 (blue line) and trend of change in bare ground 2015-2021 (red line)

Forman Unit- The Forman Unit is a property connected to the Leo Unit. The Forman Unit has been surveyed utilizing the same biological monitoring method used on the Leo and Heard Units since 2016. There are 3 monitoring points on the Forman and 2021 marked the 6th year of monitoring. The property is still undergoing infrastructure and management transitions, but is approaching completion. The average amount of bare ground surveyed remains minimal (0.53%) with a decreasing trend throughout the monitoring data (*Figure 6*).

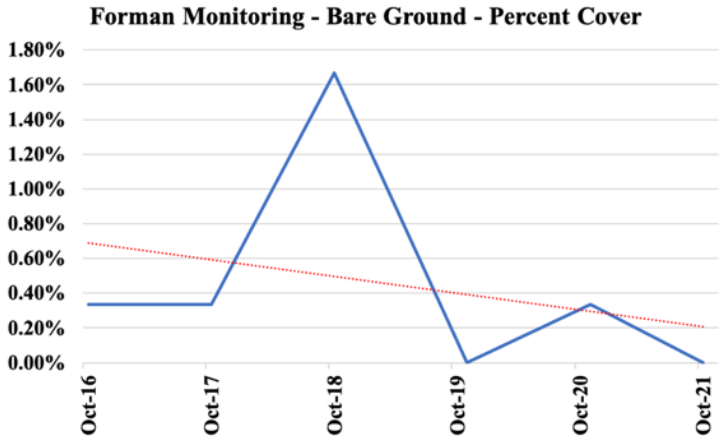


Figure 6. Forman Unit - Percent bare ground recorded 2016-2021 (blue line) and trend of change in bare ground 2016-2021 (red line)

Pittman Unit- The Pittman Unit is a property roughly 7 miles north of the Leo Unit. The Pittman Unit has been surveyed utilizing the same biological monitoring method used on the Leo Unit since 1999. There are 5 monitoring points on the Pittman Unit. The unit was not monitored in 2018 due to wet conditions. The average amount of bare ground surveyed in 2021 1.20%, a slight increase of 0.80% from 2019 and 2020. Overall, a decreasing trend in bare ground cover remains throughout the monitoring dataset (*Figure 7*).

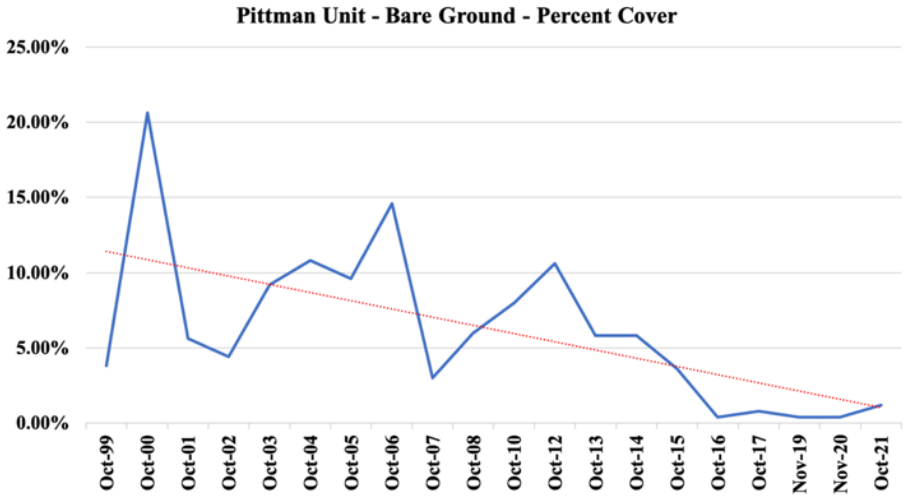


Figure 7. Pittman Unit - Percent bare ground recorded 1999-2021 (blue line) and trend of change in bare ground 1999-2021 (red line)

West Texas

Dixon Water Foundation owns and manages roughly 30,500 acres in Presidio County. The ranches are in the Trans-Pecos Ecoregion (*Figure 1*). The Foundation's ranches are located near the town of Marfa, Texas, and along Alamito Creek, roughly 30 miles south of Marfa, Texas. The Foundation grazes cattle on the Mimms Unit ranch and grazes on Alamito Creek Preserve on a seasonal basis.

Figure 8. Casey Wade and Lee Young conducting biological monitoring on the Mimms Unit, Marfa, Texas. (photo credit – Philip Boyd, November 2021)

West Texas Ranching Update

Casey Wade – Vice President of Ranching Operations

The Mimms Unit in West Texas experienced the same tough winter storm that Leo faced in February. Again, the livestock made it through just fine and the water infrastructure did much better due to the fact that it does not rely on the power grid. Lee Young, who came onboard June of 2020 as the Mimms ranch manager continues to do an excellent job. He and Jake McNamara will both be attending a Ranching For Profit course this spring in order to continue their ongoing education in regenerative land management.

The historic drought that the desert southwest had experienced in 2020 finally ended in July and August of 2021. If you will remember, we were forced to de-stock the Mimms Unit by approximately 70% in the fall of 2020 due to this historic drought. Because we had a drought plan already in place we were able to implement it in a timely manner. When the rains finally did return the Mimms still had enough ground cover to slow the runoff and increase infiltration. With almost 10 inches of precipitation for 2021 we have recovered tremendously from the drought and are making plans to increase cow numbers as quickly as possible.

The Mimms Unit still frequently hosts a wide variety of Sul Ross students. We had one spring semester intern from the Sustainable Ranch Management program as well as numerous agricultural and wildlife students.

We continue to market grass-fed steers through Grassfed Livestock Alliance. The Mimms Unit is also certified through the Audubon Society as a ranch who raises beef in a way that is friendly to wildlife and threatened bird species. This grass-fed group of steers were grazed on the Mimms as well as our Alamito Creek Preserve this past year. These steers graze the Alamito riparian corridor in the dormant season in order to improve ecosystem function and lighten our cattle numbers at the Mimms during the winter.

We are continuing to subdivide the George ranch, that adjoins the Mimms, with electric fence. The plan is to add an additional 16 paddocks that can be subdivided with temporary electric fencing. We also made improvements to the water system on the George in 2021.

I am looking forward to getting our livestock numbers built back up in West Texas as well as having more educational events such as workshops and seminars in 2021. I would also like to do some more "safe to fail" trials in West Texas (Mimms and Alamito Creek Preserve) with high stock densities. I am eager to see how we will be able to positively affect change in bare ground (Mimms) and reduce brush (Alamito) by using high stock density. There is much to look forward to. We were able to make a remarkable comeback in 2021 from a devastating drought the previous year. We'll see what 2022 has in store.

Property Updates

Marfa Plateau

With the purchase of the George Ranch in 2019, the Foundation spent 2020 working on several infrastructure updates. The Foundation continued to make updates through 2021, including new fencing to create pastures that can be subdivided, and fencing off two forks of Alamito Creek on both the George property and the Northeast portion of the Mimms Unit.

Alamito Creek Preserve

The Foundation began constructing a fence along the southeast portion of the property sold in 2019.

Precipitation

Marfa Plateau

Precipitation on the Mimms Unit is measured by 3 methods:

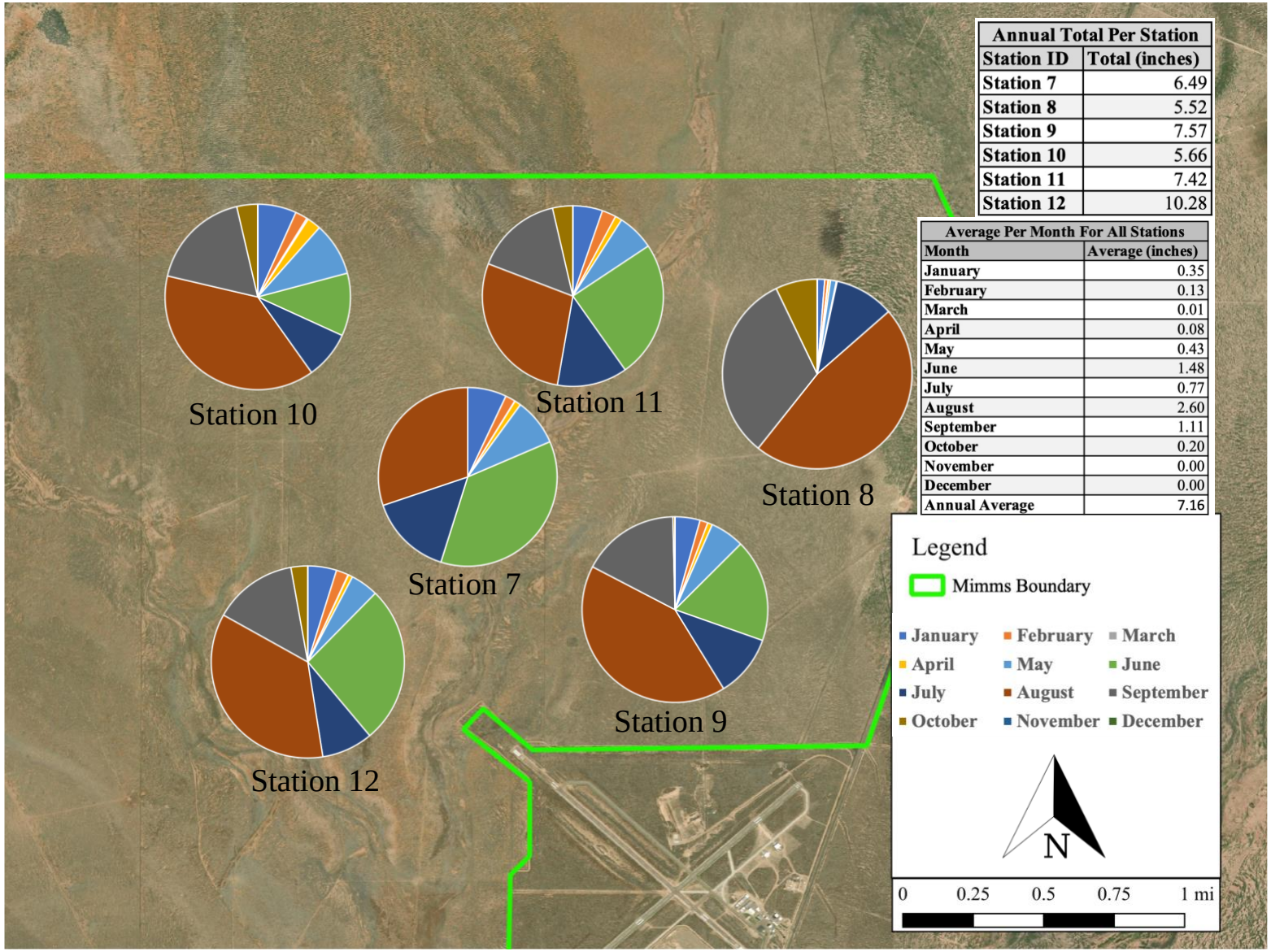
1. Weather station data from the Marfa Municipal airport was obtained through the Weather Underground website reported 9.87 in of precipitation in 2021.

2. Analog rain gauge levels were recorded by ranch managers and entered on paper charts used to track grazing details at the Mimms headquarters at the south end of the ranch. These rain gauge data reported an annual precipitation level of 5.35 in of rain for 2021. The first frost occurred November 5, 2021.

3. The UT BEG station data reported an average of 7.16 in of precipitation across all 6 weather stations for the year 2021. The months with the highest average levels of recorded precipitation were June, August, and September (*Figure 9*).

During 2019 and 2020 the south side of the ranch received more precipitation than the north side. In 2021, this trend seemed to reverse as both the airport weather station and the Northern Mimms Unit weather stations recorded more rainfall than the ranch headquarters. It must be noted that some weather stations and gauges were inaccessible for maintenance or timely readouts due to muddy road conditions. This may have affected accuracy of readings.

In West Texas, the 2011 drought is a local benchmark for poor conditions. When comparing 2011 and 2020, the 2020 conditions were worse than the 2011 precipitation totals. Fortunately, according to the Marfa Municipal Airport gauge, 2021 brought more abundant and timely rainfall. June 2021 saw over 2 in of rain to start the growing season while August brought nearly 4 in of rain, giving the grass a needed boost to get through the hot summer months. Using station data for Marfa, Texas, from the National Oceanic and Atmospheric Administration, a 40-year average of monthly precipitation was calculated and plotted against 2011, 2020, and 2021. Overall, in 2021, 11 of 12 months fell within the margins of the 40-year average (*Figure 10).*



Annual Total Per Station	
Station ID	Total (inches)
Station 7	6.49
Station 8	5.52
Station 9	7.57
Station 10	5.66
Station 11	7.42
Station 12	10.28

Average Per Month For All Stations	
Month	Average (inches)
January	0.35
February	0.13
March	0.01
April	0.08
May	0.43
June	1.48
July	0.77
August	2.60
September	1.11
October	0.20
November	0.00
December	0.00
Annual Average	7.16

Figure 9. Monthly precipitation measurements (inches) collected by 6 University of Texas Bureau of Economic Geology weather stations on the Mimms Unit ranch and averaged per month for the year 2021.

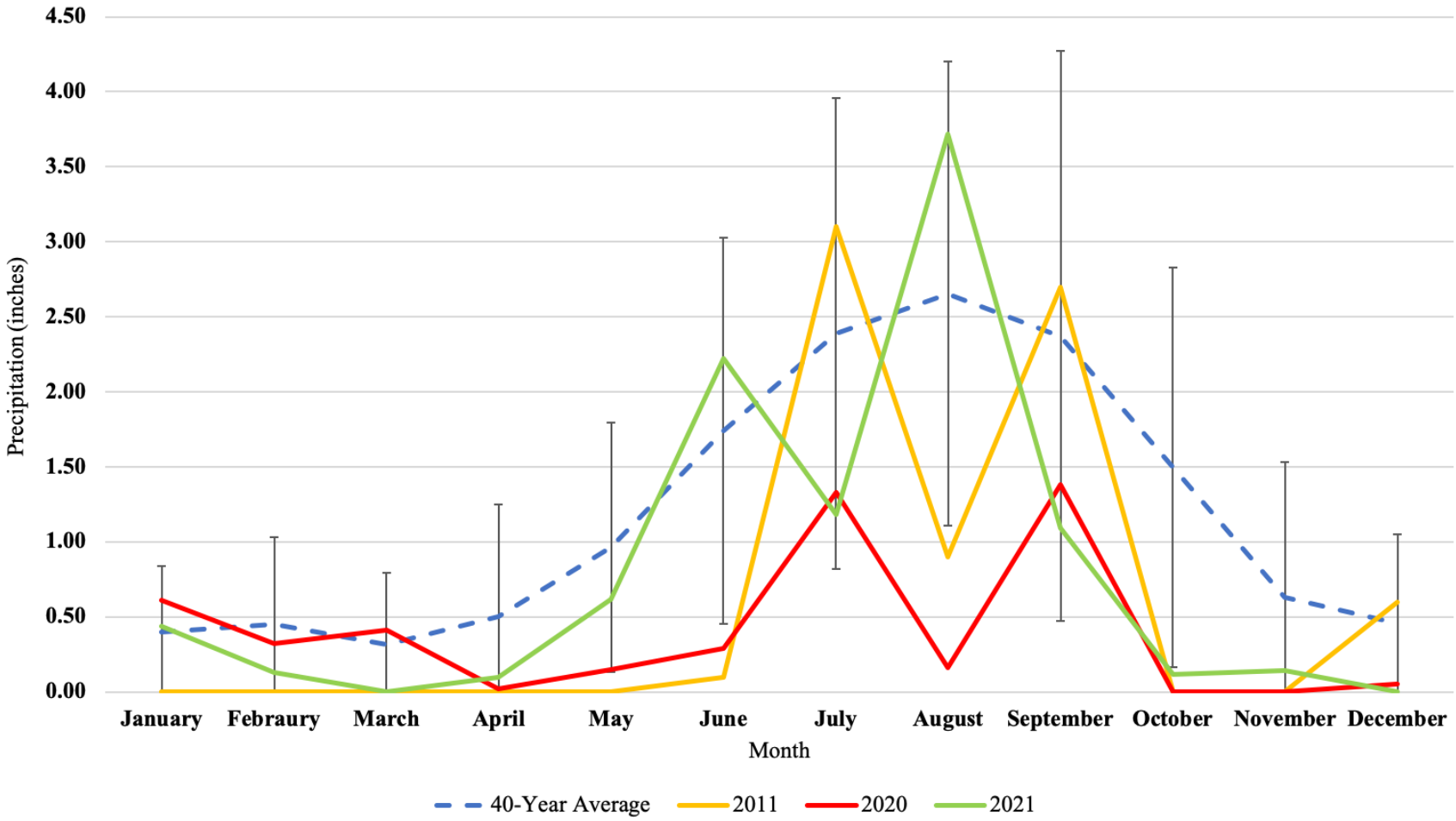


Figure 10. Precipitation data for Marfa, Texas, including a 40-year average (dotted-blue line with standard deviation error bars), 2011 (yellow), 2020 (red), and 2021 (green) totals.

Figure 11. Mimms Unit Middle Windmill Photo Point photographed in October 2020 after a poor growing season (top) and again in September 2021 (bottom) after a more productive growing season). (Photo Credit – Philip Boyd)

Alamito Creek Preserve

In April, 2021, the Foundation installed a rain and temperature logger on the Preserve. The logger features a 0.01" capacity tipping bucket that empties when full. The logger records each time the bucket empties and stores total rainfall and maximum daily temperature on a battery-powered logger that can be offloaded via a USB cable to a laptop. A logger that must be manually offloaded was necessary due to the remote location of the Preserve and the lack of cellular or Wi-Fi connectivity that some other weather stations may offer. The station is located at the Matonoso Pens, on the Northwest area of the Preserve. It may not be accurately representative of conditions across the entire property.

The Preserve saw an average temperature of 87.77° F from April 2, 2021 through December 29, 2021. The high temperature was 108.32° and the lowest maximum daily temperature was 49.94° F. The Preserve had 11.62 inches of precipitation from April through December 2021 *(Figure 12*).

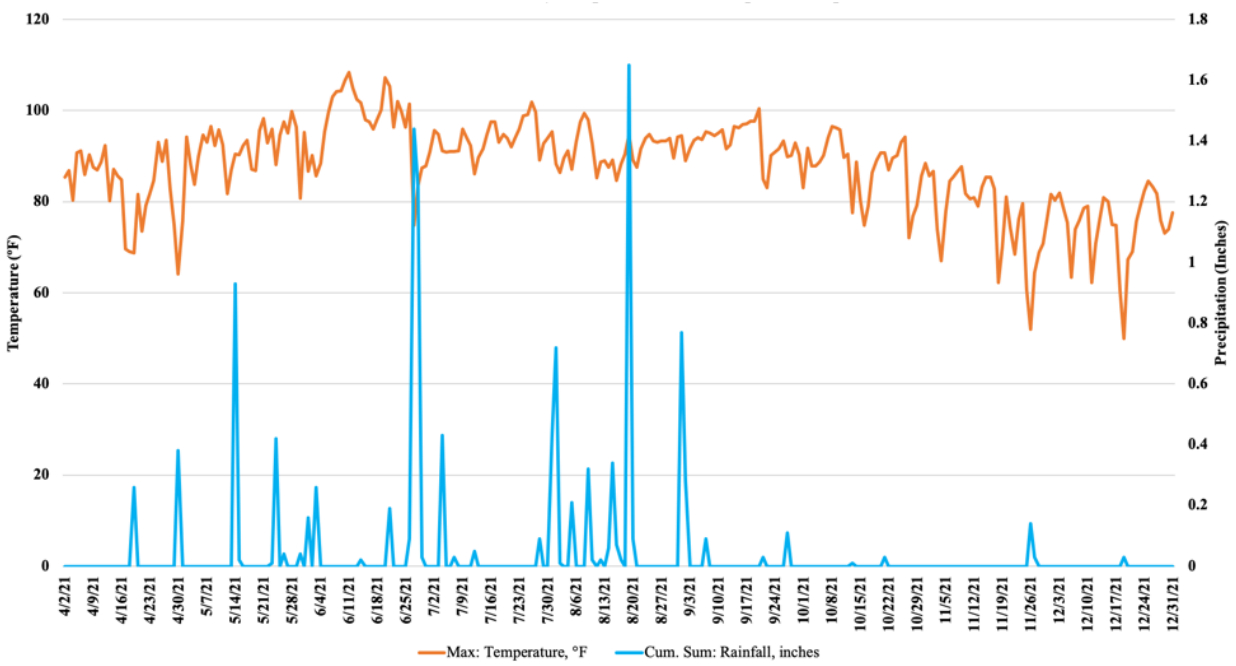


Figure 12. Alamito Creek Preserve weather station data April – December 2021. The maximum daily temperature (F) is displayed in orange (left Y-axis) and the daily precipitation amount (inches) is displayed in blue (right Y-axis).

Biological Monitoring update

Foundation staff conducted annual biological monitoring at the West Texas ranches in October 2021. Staff monitored the Mimms Unit, the George Property, and Hip-O East, which shares the Mimms Unit's western boundary and is leased by the Dixon Water Foundation and under the Foundation's grazing management. The biological monitoring process employs a method developed by Holistic Management International and is the same as the methodology

used at the Foundation's North Texas ranches. The process is the same as that detailed for the Foundation's North Texas biological monitoring with the only difference being 10 categories of plants documented as nearest to each dart. These categories are specific to the West Texas ecoregion: Prairie complex, High Seral Grass, High Seral Forb, Blue & Black Grama, Mid Seral Grass, Mid Seral Forb, Introduced Grass, Sedges, Low Seral Grass, and Low Seral Forbs.

Mimms Unit- Dixon Water Foundation purchased the Mimms Unit in 2008 and began grazing it in 2009. The Mimms Unit has been monitored since 2010. The ranch succumbed to a large fire ("The Rockhouse Fire") in April 2011, and most of the ranch burned. A shared goal across all Dixon Ranches is to utilize the grazing plan to reduce the amount of bare ground on the landscape. Another goal of the Mimms Unit is to be able to compare pastures grazed in a low stock density/continuous setting to pastures grazed in a high stock density rest/rotational setting. The Foundation has 4 monitoring points across the larger portion of the ranch which encompasses the rotational grazing pastures, and 2 monitoring points in the continuously grazed pasture. Across the entirety of the ranch, bare ground has decreased while litter and basal plant cover have increased (*Figure* 13). Data averaged for all stations in each grazing regime shows a declining trend in bare ground for each management technique (*Figure 14*, *Figure 15*). The 2021 monitoring efforts recorded that the rotationally grazed pasture showed an average of 21% less bare ground than the continuously-grazed pasture. When all pastures are averaged, the Mimms Unit is showing a reduction in bare ground (*Figure 16*).

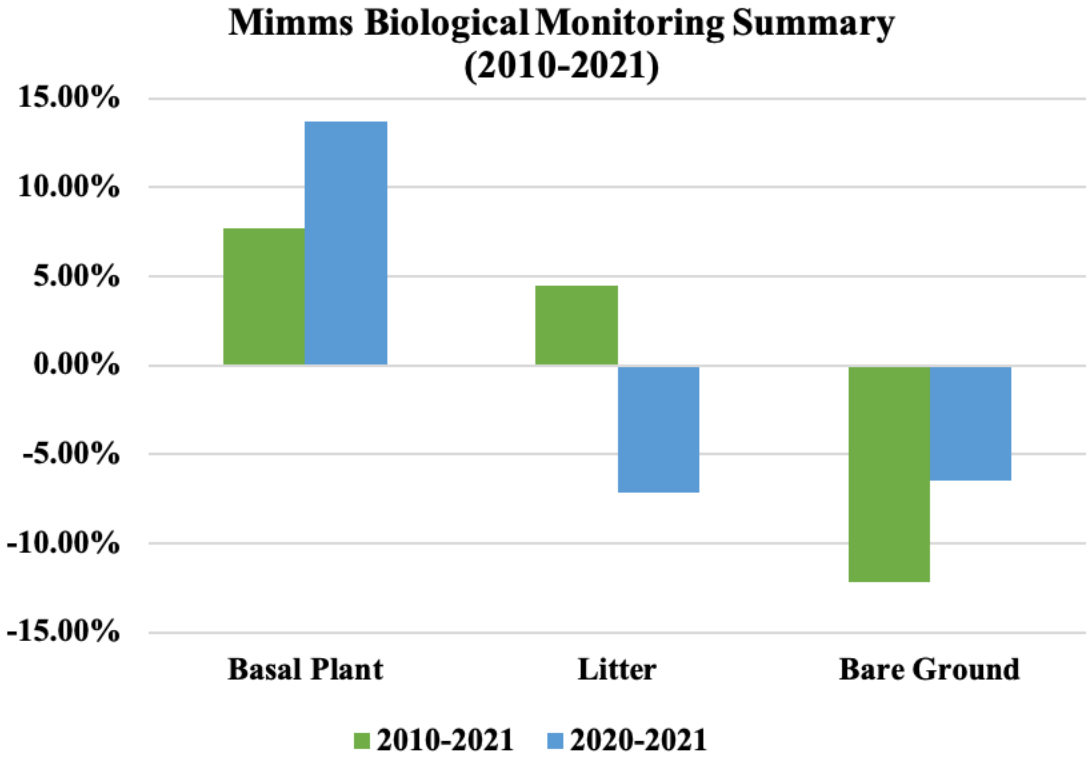


Figure 13. Percent change in ground cover types between 2010-2021 (green) and 2020-2021 (blue).

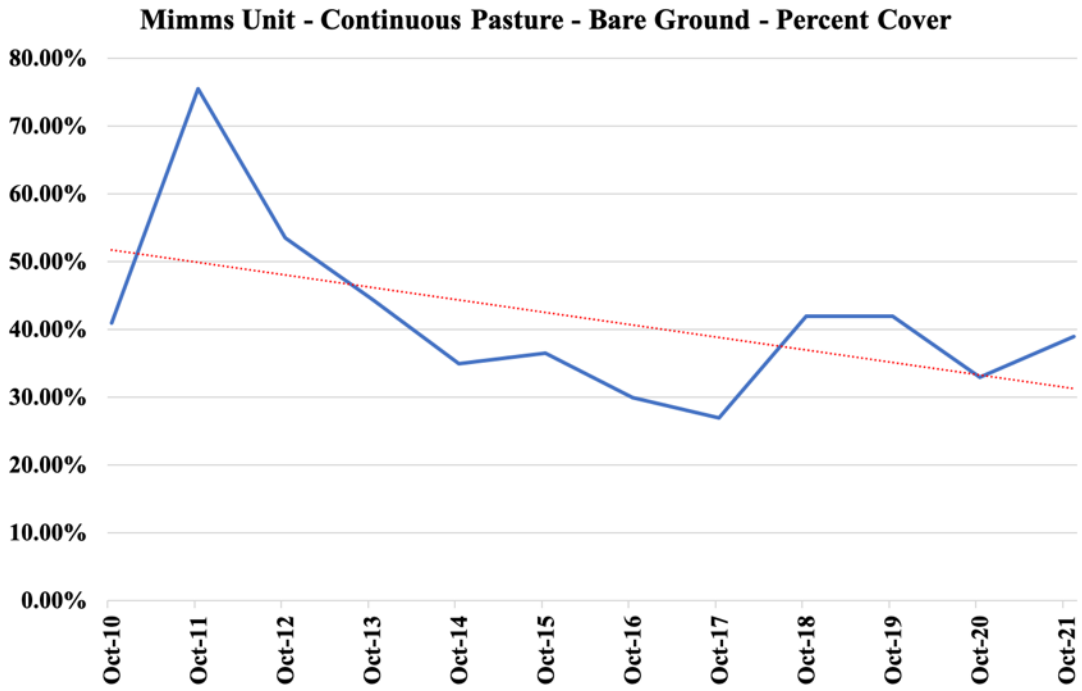


Figure 14. Mimms Unit (Low Stock Density/Continuously Grazed Pasture) - Percent bare ground 2010-2021 (blue line) and trend of change in bare ground 2010-2021 (red line)

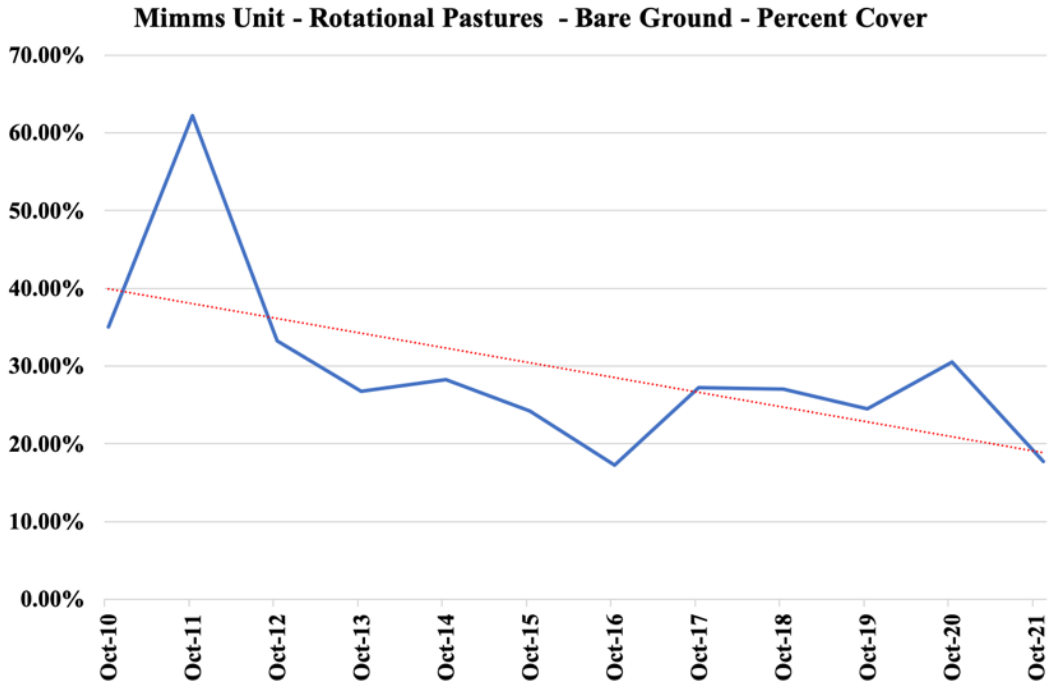


Figure 15. Mimms Unit (Rotationally Grazed Pasture) - Percent bare ground 2010-2021 (blue line) and trend of change in bare ground 2010-2021 (red line)

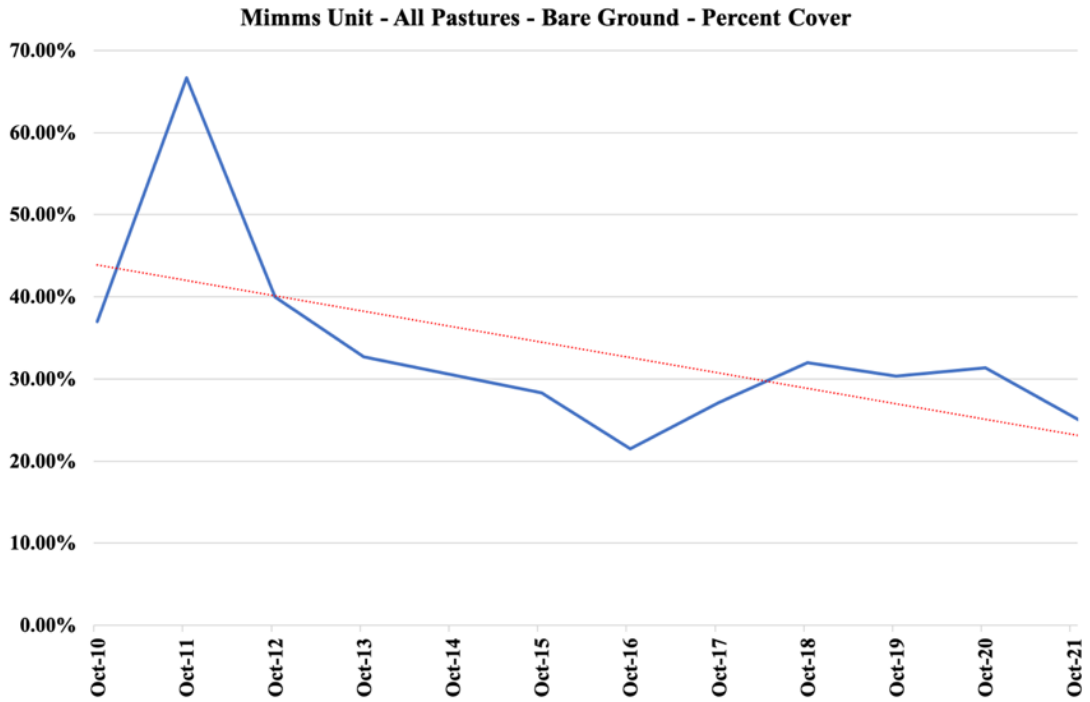


Figure 16. Mimms Unit (Average across all pastures) - Percent bare ground 2010-2021 (blue line) and trend of change in bare ground 2010-2021 (red line)

During monitoring efforts, DWF staff also take notes on visual observations of the pastures. In 2021, it was noted that the 2 monitoring points within the continuous pasture exhibited less diversity and more stagnation in patches of bare ground. Meanwhile, rotationally grazed pastures visually exhibited an increase in diversity with low successional forbs and grasses closing in bare ground patches.

George Property – Three biological monitoring points were evaluated on the George property within the Mimms Unit in 2020. In 2019, only 2 points had been monitored in the first year of the property under DWF ownership. In 2021, DWF staff reverted to monitoring only the 2 points utilized within the inaugural effort. By reducing the number of monitoring points, staff were able to monitor the entirety of the Mimms Unit, George Property, and neighboring Hip-O within one full day of work. Monitoring methods need to be useful in the data that they collect, but also useful from a time and energy investment. When monitoring had been set up on the George, there were 4 photo monitoring points installed, labeled G1, G2, G3, and G4. Two of these points, G1 and G3, had been incorporated into the biological monitoring program. This led to some confusion during a period of staff transition. Going forward, there will be 2 points in the biological monitoring. The point labeled G1 will be the first monitoring point and the point labeled G3 will be the second monitoring point.

Visual assessment of the George monitoring points suggested that there is good diversity and ground cover, with some patches of bare ground. Low areas of the property were flooded and retained water for extended periods, resulting in dense vegetation.

George Property Biological Monitoring Summary			
Point 1 (G1)	Basal Plant	Litter	Bare Ground
2019	38.00%	23.00%	39.00%
2020	32.00%	37.00%	31.00%
2021	26.00%	38.00%	36.00%

Point 2 (G3)	Basal Plant	Litter	Bare Ground
2019	47.00%	38.00%	15.00%
2020	37.00%	54.00%	9.00%
2021	38.00%	61.00%	1.00%

Table 2. Percent of each cover type for monitoring point G2 on the George Property for the initial monitoring effort, 2020.

Hip-O East- The Hip-O East is directly west of the Mimms Unit. The ranch is 8,000 acres and is leased by the Dixon Water Foundation. It is primarily grazed during the summer months and serves as grounds for calving season for the Foundation's West Texas herd. Calving season begins August 1 to allow calves to be born after the typical Trans-Pecos monsoon (July-September) season has begun, allowing for the summer precipitation to increase the nutritional production of the grasslands. The Foundation did not graze the Hip-O East in 2021.

Staff conduct biological monitoring at 2 fixed points on the Hip-O East property. The methodology is the same as that which is conducted on the Mimms Unit. Biological Monitoring of the Hip-O East began in 2015. On average, there has been a slight increasing trend in bare ground across the 2 monitoring points over the 6-year period, though 2021 monitoring efforts recorded less bare ground than the 2020 efforts. (*Figure 17*).

Visual assessment of the Hip-O monitoring points recorded good ground cover and diversity, though targeted conditions may not be able to be reached due to lack of ability to graze this leased property with the same management that may be applied to DWF properties. Annual grasses were observed filling in bare patches within some of the banded vegetation on slopes.

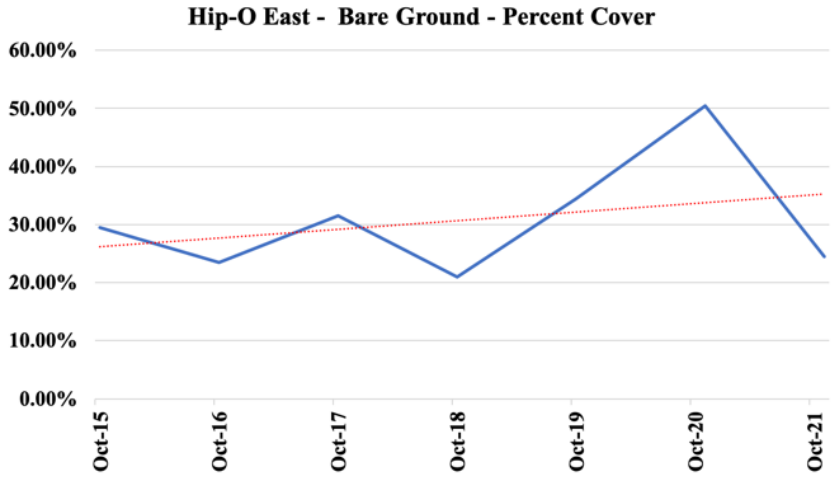


Figure 17. Hip-O East - Percent bare ground 2015-2021 (blue line) and trend of change in bare ground 2015-2021 (red line)

Additional Monitoring Efforts

Mimms Wetness Index: In 2021, Natural Resource Conservation Service (NRCS) employees from the Marfa Soil Survey office provided DWF with a spatial analysis file depicting wetness index on the Mimms Unit. This file is created from high-resolution (1 meter) digital image created from LiDAR (Light Detection and Ranging) imagery, captured by the United States Geological Survey (USGS) for West Texas in 2019. This imagery, which is essentially a digital scan of the landscape, can be used for complex analysis. Wetness Index is a type of watershed analysis which evaluates each pixel within the digital image for area around that pixel which would contribute watershed to that pixel, and for slope to determine how much water would shed from that pixel to adjacent pixels. When this analysis is completed and the resulting file is symbolized to show areas that do not retain water (dark red) and areas that retain water (light blue), a visual representation of the way water flows across the land is created. This analysis was then cropped to the Mimms Unit boundary so that waterflow could be represented across the ranch (*Figure 18*).

George Gully Bank Erosion Monitoring: Alamito Creek starts on the northern end of the Mimms Unit, on the George Ranch. There are several small channels that work their way down-slope, eventually joining into a single channel that passes through two historic dirt tanks. Just below the tanks is a large earthen dam which a ranch road passes over. Below the dam the channel has deepened and features steep cut banks. As water sheds off surrounding land and into these deep channels, several arroyos, or steep-sided gullies, have formed. One of these arroyos is located next to George Ranch biological monitoring point 2 (photo point G3). This monitoring point sits atop soil categorized as Marfa soil, which is a high-quality soil for native mixed prairie grasses.

To monitor the rate of erosion of the cut banks along these arroyos, the Foundation set up bank erosion monitoring point east of biological monitoring point 2 in 2020. The bank erosion monitoring point is comprised of 8 rebar stakes. There were 4 stakes on the north side of the arroyo that are spaced 20 feet apart from one another, moving east to west. Directly south of each stake at 70 feet (840 inches) are 4 more rebar stakes along the southern edge of the arroyo. To monitor any bank erosion, a 100-foot tape measure is stretched south to north from the southern stakes. The distance along these transects from the rebar stakes to any bank edge is documented in a spreadsheet. Annual measurements are be taken to document any changes in the size of the gully and rate of bank erosion. Several rebar stakes were lost in the flood events as banks toppled.

While 2020 was a dry year, spring and summer of 2021 saw more precipitation fall on the Mimms Unit and rains upstream shed from the Davis Mountains and caused several flood events through the Alamito Creek and contributing channels. Subsequent monitoring of the George Gully Bank Erosion station saw significant losses of soil as these flows made their way to the Alamito Creek channel at active knickpoints along the banks.

Monitoring efforts showed that roughly 111 linear feet of soil was lost along the erosion transects between 2020 and 2021 (*Table 3*). A large rainfall event in the Davis Mountains, upstream from the Mimms Unit and the Alamito Creek headwaters, made its way down to the

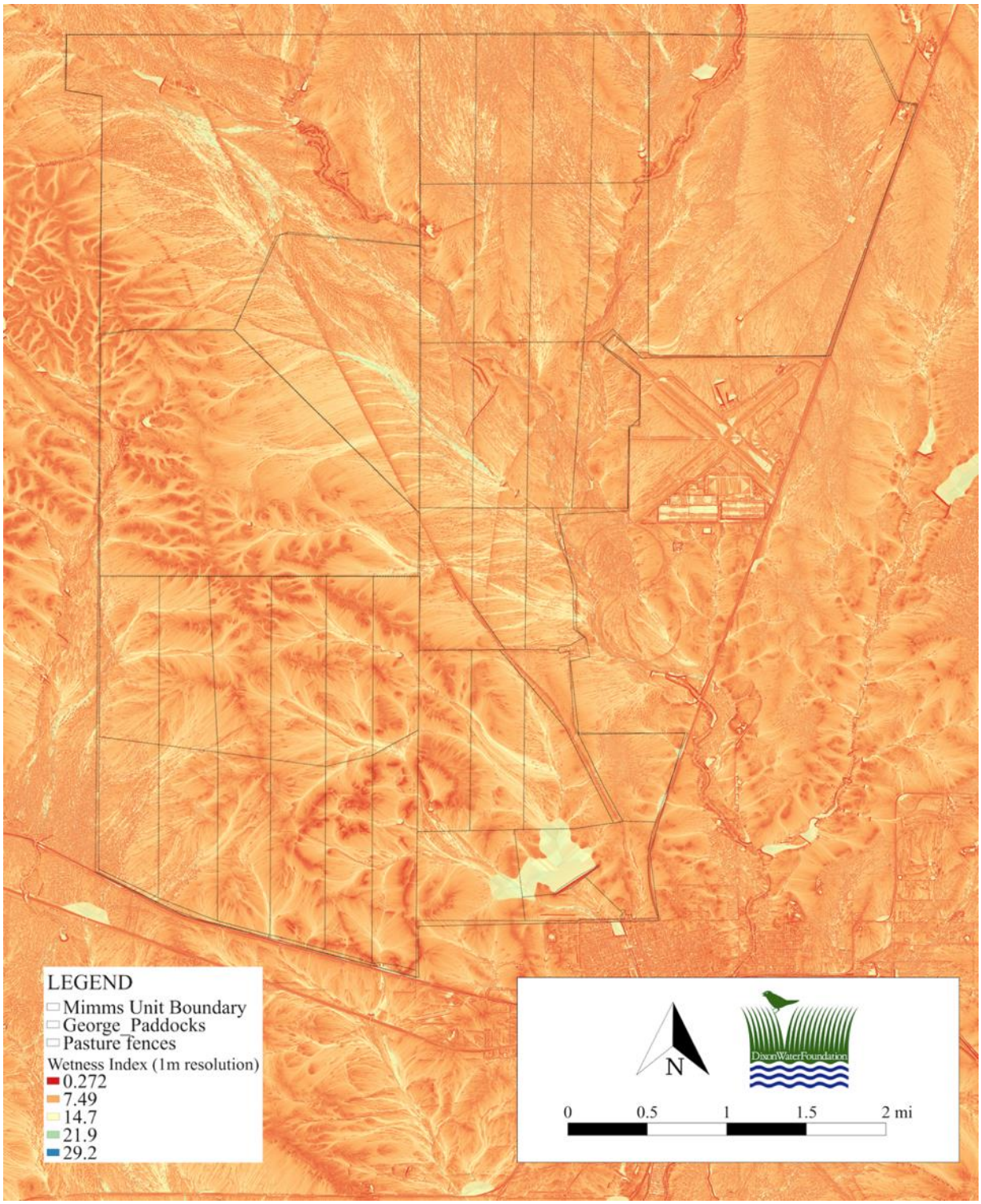


Figure 18. Wetness Index map of entire Mimms Unit based on 2019 USGS LiDAR imagery. This file was created by analyzing contributing area and slope analysis of each pixel by Dr. Lynn Loomis (USDA, NRCS Soil Survey, retired) and then symbolized to show areas that shed water (dark red) and areas that collect water (yellow to blue).

June 19, 2020				
STATION MARKER	**1N**	**2N**	**3N**	**4N**
	840	**840**	**840**	**840**
Measurements Between Banks (inches)	686.75	617.5	695.5	813.75
		348	337	88.5
				84
		306	185	74
				57
	362	161	80.5	29
STATION MARKER	**0**	**0**	**0**	**0**
	1S	**2S**	**3S**	**4S**
Total Distance Between Banks Per Trasect (Inches)	324.75	414.5	463	763.25
Total Distance Between Banks All Transects (Inches)	1965.5			

July 17, 2021				
STATION MARKER	**1N**	**2N**	**3N**	**4N**
	840	**840**	**840**	**840**
Measurements Between Banks (inches)	682	745	764	826
		732	352	
		714	313	
	203			
	177.5			
	25	-2	-188	-194
STATION MARKER	**0**	**0**	**0**	**0**
	1S	**2S**	**3S**	**4S**
Total Distance Between Banks Per Trasect (Inches)	631.5	729	913	1020
Total Distance Between Banks All Transects (Inches)	3293.5			

Difference (inches) 2020 to 2021	1328

Difference (feet) 2020 to 2021	110.67

Table 3. Distances from rebar monitoring stations to gully banks at George erosion monitoring site, June 2020 and July 2021. Measurements were taken along 4 South (at 0 in.) to North (at 840 in.) cross-sections, documenting distances from between stations and bank edges in inches. A large flood event in June 2021 destroyed some of the monitoring stations as banks collapsed, resulting in banks by southern stations receding beyond the original markers.

Marfa Plateau. In addition to soil loss on the Mimms Unit, flood waters through low crossings in the town of Marfa resulted in the death of one citizen.

Discussions and workshops, such as the 2019 Stream Functions Pyramid Workshop sponsored by DWF and the Rio Grande Joint Venture, have been taking place in West Texas and have explored stream restoration techniques. Some of the techniques covered in these workshops have already begun to be applied at DWF's Alamito Creek Preserve. Foundation staff will continue to evaluate degraded sites and will consider ways to mitigate erosion on the Mimms Unit.

The watershed that contributes to the George Gully can be identified within the Mimms Wetness Index image (*Figure 19*). This highly eroded portion of the ranch may have been caused by several flows which create a confluence of concentrating flows at the most eroded points of the Alamito Creek headwaters.

By plotting the distances between banks along the 4 North to South monitoring transects, we can plot the collapsed areas around this arroyo and display an estimate of what the gully may look like from a birds-eye view. By shading in the collapsed areas (in black) and comparing measurements from 2020 and 2021, the difference in overall size and shape of the gully after erosive flood events can be illustrated (*Figures 20, 21*). The erosion was further captured by using photos points (*Figures 22, 23*).

In late June, 2021, an extensive hike was conducted along the stretch of Alamito Creek around and below the erosion monitoring site. There was still flowing water in the lower creek bed and litter deposited along the upper stretches of the adjacent grasslands, matching areas of flow symbolized in the Wetness Index analysis file. This suggests that the Wetness Index file may be an informative tool when evaluating potential flood and erosion mitigation projects that can be implemented on the Mimms Unit.

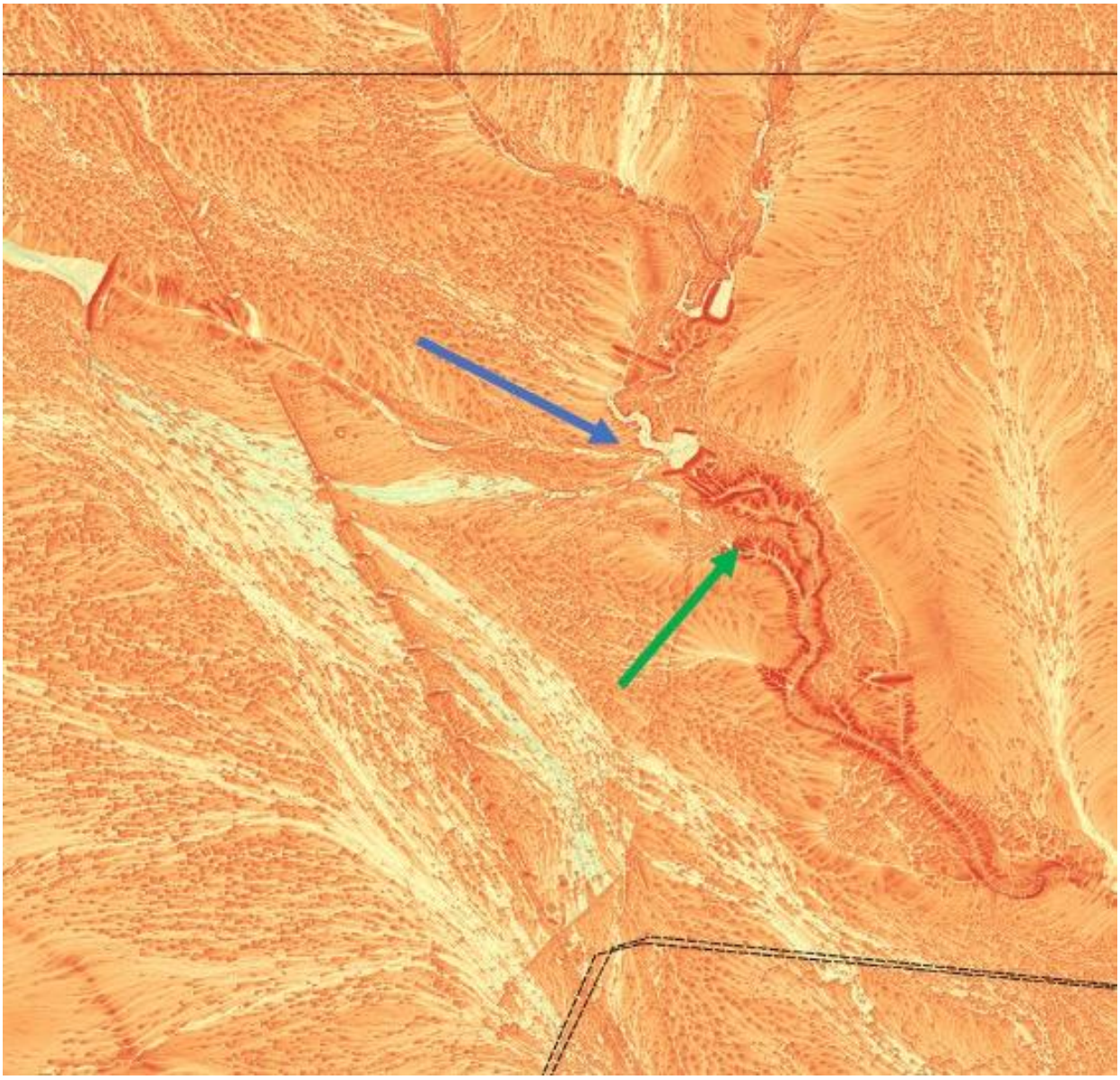


Figure 19. Wetness Index map of entire Mimms Unit cropped to feature area around eroded gully on George Property. This image is symbolized to show areas that shed water (dark red) and areas that collect water (yellow to blue) The green arrow shows the gully and blue arrow shows the confluence of several concentrated flows (symbolized in yellow and light blue in Wetness Index file) just above the highly-eroded site.

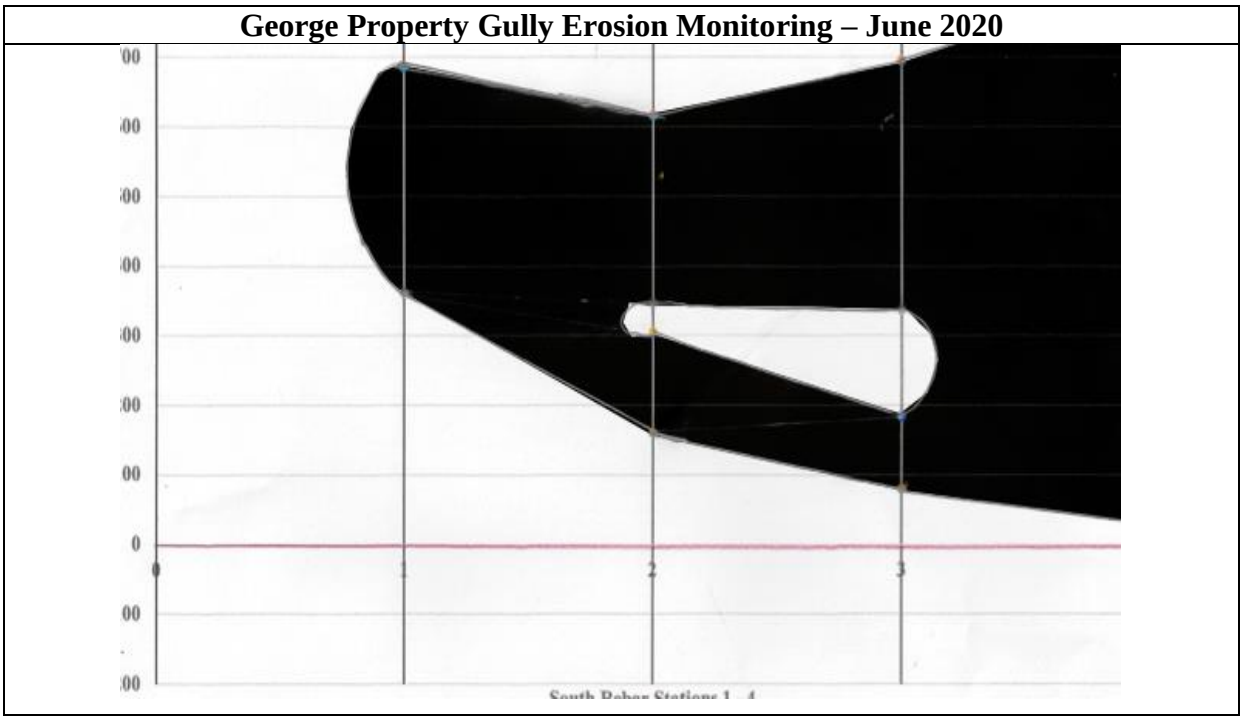


Figure 20. Estimation of George Gully shape, bird's eye view, June 2020 based on erosion station measurements. ***The white spaces represent the upper level grasslands, while the black spaces represent collapsed areas.***

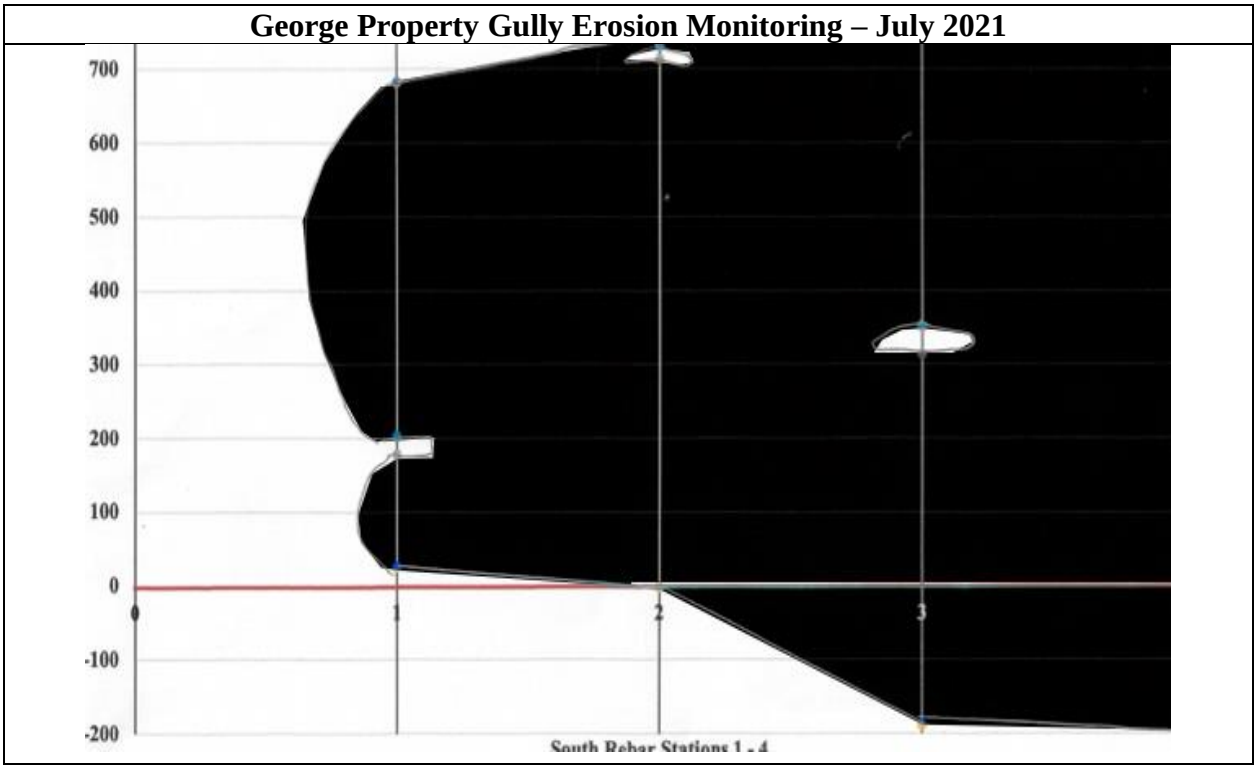


Figure 21. Estimation of George Gully shape, bird's eye view, July 2021 based on erosion station measurements. The white spaces represent the upper level grasslands, while the black spaces represent collapsed areas.

Figure 22. Facing east towards George Ranch monitoring point G3 (marked by white post in foreground) as it looked in 2020 with arroyo/gully in background. (photo credit – Philip Boyd)

Figure 23. Facing east towards George Ranch monitoring point G3 (marked by white post in foreground) as it looked in 2021, with arroyo/gully in background, after significant soil loss in June 2021 floods. (photo credit – Philip Boyd)

Figure 24. Erosion monitoring site showing evidence of bank collapse and soil loss soon after June 2021 floods (photo credit – Philip Boyd)

Figure 25. Just upstream from George erosion monitoring site, this photo shows water spilling around and over earth dam at knickpoints as floodwater works its way to the Alamito Creek bed below..

Alamito Creek Preserve Monitoring

Trail Camera Monitoring

The Foundation continues to use trail cameras to monitor wildlife and flood activity at the Preserve. The Preserve experienced several flood events in 2021. The cameras also help alert Foundation staff to the presence of feral hogs or trespass livestock (*Figure*26).

Figure 26. As Alamito Creek floods, fences are often washed away and open the Preserve to trespass livestock (top). Feral hogs are also frequent visitors on the Preserve (bottom).

The Preserve hosts at least 2 zone-tail hawk nests and the cameras first documented the hawks in March 21, 2021, with the last photograph being taken in August 18, 2021 (*Figure 27*). Zone-tail hawks are a species of conservation concern in Texas, carrying a threatened status with Texas Parks and Wildlife Department. The trail camera observations are not exact markers, but provide some information into the hawk's annual migration cycle as they utilize the Preserve's riparian habitat for roughly 5 months out of the year.

Figure 27. The first trail camera photos of Alamito Creek Preserve zone-tailed hawks March 21, 2021 (top) and the final trail camera photo of the year August 18, 2021 (bottom).

Figure 28. Several flood events took place in the creek channel at Alamito Creek Preserve in 2021. Many of these floods featured high-volumes of water inundating the channel for several hours and occasionally submerging the trail camera, which stands at about 7 feet above the creek bottom. This flood event in August 2021 filled the creek with rushing water for nearly 12 hours.

Groundwater Monitoring

Steel pipes driven into the bedrock in the Alamito Creek channel were marked (29°54'44.49"N, 104° 0'25.30"W) in summer 2020 (*Figure 27*). One pipe is topped with a cap which can be removed so that a measuring stick can be dropped into the pipe. A measuring stick can reach 49" into the ground before hitting a solid surface. The tape can be extracted and observed to identify how far the water surface is from the top of the well cap. In 2020 DWF set a goal to quarterly monitor of the water level in these wells, however, the increase of flood deposited gravel and sediment in the creek channel, destroying or burying the wells, making access difficult. The continued monitoring of these wells may be in question due to the conditions in which they are located. There were 2 monitoring efforts in 2021 (*Table 4*).

Figure 29. Wells in the Alamito Creek channel at the Alamito Creek Preserve. The wells are labeled in the image while facing downstream (Photo credit – Philip Boyd, June 2020)

Alamito Creek Preserve - Well Monitoring			
	Pipe Depth (inches)	**Depth of Water (inches)**	**Pipe ID**
2/12/21	24.5	3.5	1
2/12/21	25.25	2.5	2
2/12/21	48.5	17.5	3
6/4/21	25.375	4.25	3

Table 4. 2021 Measurements of depth to groundwater surface from top of well cap in Alamito Creek Channel.

2021 Research Efforts

North Texas

Soil Health, Pasture Health, Ranch Profitability

Grassroots Carbon/bCarbon

Carbon Storage, Leo and Pittman Units- The North Texas DWF ranches are participating in a pilot project to provide payments to ranchers who are actively sequestering carbon in their soil. These payments are provided by corporations that are looking to offset their own carbon emissions. In accordance with a protocol and certification process developed by the Bcarbon working group, Grassroots Carbon visited the Leo and Pittman Units in 2021 to collect soils samples and establish baseline carbon measurements. These measurements and management practices were then factored into modeled projections of future carbon drawdown potential for the properties. Grassroots Carbon then provides a payment and estimated future payments based on this potential, the cost of sample collection and analysis, and the market value of carbon.

Texas AgriLife Extension .

Pasture Cropping, Leo and Pittman Units- This project looks to combine pasture cropping with Adaptive Multi-Paddock grazing practices to determine if these practices could potentially increase ecosystem health and resilience, improve farm productivity and net income by improving ecosystem services and reducing farming input costs, while preventing degradation of soil and watershed function.

Evaluations will be conducted through of field experiments, measurements taken through drone photography, ecosystem modeling, and economic analyses. The projected has an estimated timeline of January 2021 – December 2024.

Surface Water Quality and Biodiversity

University of North Texas

Leo Unit – The University of North Texas (UNT) was given a grant in 2019 to begin looking into how land management impacts vegetation, hydrology, and soil properties and how those may affect water quality and biodiversity in surface water. The 2019 grant funded the first phase of this research, involving surface water surveys, on-site water quality monitoring, and habitat and biodiversity surveys focused on the Leo Unit to establish baseline conditions and inventory.

In 2020, the lab was awarded a grant for Phase 2 of this project. Phase 2 looks at how ecosystem processes may impact conditions in communities surveyed in Phase 1, with a goal of evaluating how land management practices play a role in these processes. This project has a timeline of

September 2020 – August 2022. Some updates from the UNT lab in charge of this project follow: Due to COVID, there was some personnel turnover that stalled operations, but the project was able to get back on track.

Sampling has been conducted and included quantification of aquatic habitat and water quality, collection of water samples for nutrient analyses, collection of aquatic macroinvertebrates and fishes, and aerial photographs of the sites by drone. Currently, all water samples have been analyzed for nutrient concentrations and any samples that were over or under detection limits were reanalyzed at least one additional time. All fishes have been identified and enumerated (mostly done in the field and released at the point of capture). Approximately 300 invertebrate samples were taken for on-going lab processing.

In addition to the regular monitoring, researchers conducted seasonal sampling for stable isotope analyses. This component aims to track carbon and energy flows between terrestrial and aquatic components of the food web, and thus sampling seeks to robustly represent the aquatic and terrestrial food webs in terms of the diversity present.

In addition to the principal investigator, 14 UNT graduate and undergraduate students participated in field and/or lab work. Of those 14 students, 9 are from groups underrepresented or underserved in STEM fields.

Pollinator Biodiversity

University of North Texas

Leo and Pittman Units – In the Spring of 2021, University of North Texas faculty member Dr. Elinor Lichtenberg and her lab established a project investigating impacts of grazing practices on pollinators and the resources they require at 9 sites on the Leo and Pittman Units. The team included master's student Shannon Collins, technicians Michelle Vohs and Laura Taylor, PhD student Rob Whyle, and UNT undergraduates Chris Graffam, Alyssa Kinman, Pablo Lopez, Marie Muniz, and Brand Richter. Shannon's work focuses on soil habitat for ground-nesting bees. As a team, the lab is also studying how floral and shelter resources impact diverse pollinators including bees, beetles, butterflies, and flies. The team conducts bee, flower, milkweed, and ground cover surveys at each site during the spring, summer, and fall bloom periods. Shannon is also measuring soil physical properties, and vegetation biomass, at each site. These surveys, as well as specimen identification and soil lab analyses, will continue in 2022.

Dr. Licthenberg has applied for funding opportunities to extend the work on this project at the DWF ranches. Dixon staff have had additional conversations with Dr. Licthenberg to explore how pollinator education can be incorporated in outreach efforts at the North Texas ranches, through signage, specimen samples, and talks at workshops.

West Texas

Range Inventory

Sul Ross State University

Mimms Unit- Dr. Robert Kinucan brought the range inventory class to the Mimms Unit to conduct vegetation surveys in fall 2021. These surveys were part of an annual inventory that takes place across 35 points that include all of the grazing regimes on the ranch.

Figure 30. Students from Sul Ross State University stretch a measuring tape to mark a transect for ranch inventory monitoring, Mimms Unit, fall 2021 (Photo by SRSU)

Grassland Bird Research

Bird Conservancy of the Rockies

Mimms Unit Surveys – Due to the pandemic, Bird Conservancy of the Rockies canceled their December 2020 – March 2021 winter survey season.

Surveys commenced in winter of 2021. Field teams visited the Mimms in December 2021 to train for the winter season and then conduct surveys on the Mimms. The George Property portion of the Mimms Unit was purchased in 2019 and had yet to be surveyed. Bird Conservancy of the Rockies stratified the property in September 2021 for inclusion in their on-going Chihuahuan Desert sampling efforts and implemented the first surveys of this property in December 2021.

Mimms Unit Motus Station – Dixon Water Foundation has been an active participant in on-going efforts to monitor and conserve grassland bird habitat within the Central Great Plains. Many grassland bird species breed in the Northern Great Plains before migrating south to utilize grasslands within the Chihuahuan Desert in the winter. Survey efforts, mentioned above, are part of research intended to better understand the life cycles and needs of these species in order to strengthen conservation efforts. The Mimms Unit is considered good quality and well-managed habitat for these species within the larger priority grassland conservation area.

Motus is an international network that tracks migratory wildlife species using radio telemetry. Motus technology involves installing a series of antennae within travel corridors to detect radio transmitters that are attached to wildlife. This technology allows researchers to tag wildlife and track their movements across large distances throughout their annual cycle.

In December 2021, Bird Conservancy of the Rockies visited the Mimms Unit to install the first Motus station in the Chihuahuan Desert. The placement of the station, on a hillside slope overlooking much of the ranch (*Figures 31, 32*), gives researchers an opportunity to detect migrating birds that may pass within roughly 10 – 12 miles of the station.

The Motus station was installed on an out-of-service utility pole that had been on the Mimms Unit and unused for the duration of the Foundation's ownership of the property. Technicians brought a mobile installation lab and rented a lift to install the devices on this repurposed this pole. The station is solar powered, grounded, and equipped with a regulation system to reduce the impact of lightning strikes.

Researchers control the level of privacy attached to their data, though all detections are uploaded to a centralized database. The entire network of Motus stations can be viewed on a map hosted on the Motus website (motus.org).

Figure 31. Bird Conservancy of the Rockies technicians prepping an out-of-service utility pole to be repurposed as a Motus tracking station on the Mimms Unit, December, 2021 (photo credit – Philip Boyd)

Figure 32. Bird Conservancy of the Rockies field technicians viewing the completed Motus tracking station, December, 2021 (photo credit – Philip Boyd)

Sul Ross State University - Borderlands Research Institute

Mimms Unit- Alejandro Chávez Treviño and Emily Card conducted bird surveys in February 2021 as part of an on-going project to look at grassland bird response to brush removal. The Mimms Unit is surveyed as a reference grassland habitat where population estimates are compared to treated plots on other ranches in the area.

Chavez- Treviño successfully defended his thesis in 2021. The research suggested that 1 year from shrub treatment, with chemical spray, that shrub dependent bird counts decreased and that bird communities may have started to shift. Long-term impacts of the restoration efforts are yet to be determined as the results of treatment can take several years to be seen. Student Emily Card is resuming this research through 2021 and 2022.

Grassland Mammal Research

Sul Ross State University – Borderlands Research Institute

Pronghorn, Mimms Unit- Jacob Locke successfully defended his thesis and graduated from Sul Ross State University in 2020. The research for his thesis focused on pronghorn habitat carrying capacity. He conducted vegetation surveys, some of which occur on the Mimms, throughout several seasons. He sampled for nutritional value in available forbs, which are the primary component in pronghorn diet.

Portions of Locke's work looked at the differences between pronghorn nutritional content among the various grazing management areas on the Mimms Unit. Sampling was conducted in September, after the usual monsoon and growing season in the Marfa grasslands. This period was selected with the expectation that the largest forb biomass would be present at this time. Pronghorn diet is primarily comprised of forbs. Among the three grazing areas: rotationally grazed, continuously grazed, and grazing exclusion, rotationally grazed pastures produced the highest nutritional forb content in wet years while areas that excluded grazing produced the highest nutritional content in dry years. This portion of his thesis was also written as a manuscript that was submitted for publication in a scientific journal and is awaiting review at this time of this report.

New graduate student Leanna "Lilly" Morin arrived in 2020 continue researching pronghorn nutrition on the Mimms Unit across all grazing regimes. Morin's work continued through 2021. Morin's research examines pronghorn are selecting for across the nutritional content available on the ranch. Her work builds on Locke's work by sampling in January and May to expand the understanding of forb availability through seasons outside of the summer growing season.

Prairie dogs, Mimms Unit Cattle, The Nature Conservancy's Marfa Grasslands Preserve- Graduate researcher Cullom Simpson successfully defended his thesis in March 2021. His work looked at cattle use of areas with established black-tailed prairie dog colonies. Black-tailed prairie dogs have seen a reduction in their historic range in the within the Trans-Pecos, Texas. This study sought to examine cattle grazing behaviors in grassland areas also inhabited by prairie

dogs by attaching GPS collars to cattle and tracking their locations and movements. Dixon Water Foundation lent cattle to the study.

Simpson's research found that plant species composition was similar both inside and outside of the prairie dog colonies, though crude protein was higher among vegetation sampled within the colony. Location data showed that cattle grazed prairie dog colonies during the growing season, perhaps taking advantage of this higher nutritional availability promoted by prairie dog foraging activity.

Erosion Control/Low Tech Process-Based Restoration

Rio Grande Joint Venture

Alamito Creek Preserve- In April 2021, students from the Steamboat Mountain School in Steamboat Springs, Colorado, were visiting the Big Bend region of Texas and looking for a service project to work on during their visit. The Rio Grande Joint Venture (RGJV) had been working with DWF staff to evaluate sites at the Alamito Creek Preserve for implementation of Low-Tech Process-Based Restoration techniques within eroded sites along the creek. The Steamboat Mountain School group agreed to visit the Preserve and work for 2 days to install structures in degraded tributaries to catch sediment and slow the flow of water to rebuild degraded sites.

The students work with RGJV and DWF staff to transport exposed rocks, turned up when fences were installed, to incised tributaries. Within the tributaries, rocks were piled to create "leaky rock dams", "gully plugs", or "one rock dams". These dams are designed to serve as barriers that allow water to pass through while functionally slowing the water and allowing larger grained sediment to drop out upstream from the structure. While water is being filtered through the dams, it is also slowing the velocity of the water and reducing its erosive force, while increasing soil moisture on the upstream portion of the structure.

The group installed 12 rock structures in floodplains adjacent to Alamito Creek and 8 log jams on a side channel of Alamito Creek.

Within 4 months of installation, the structures already exhibited soil lift on the upstream side. Additionally, vegetation was growing on the upstream side of many of the structures. A rebar stake was driven with a height of 20 inches above the sediment surface on 2 structures in May 2021. This will allow some means of measuring sediment lift accomplished on the upstream side of these structures. Visual inspect of these sites shows promise for restoration potential, though eroded areas are extensive along certain stretches of the Alamito Creek floodplain. This degradation may be due to historical grazing practices or farming practices that were compounded by drought and depression in earlier decades. Monitoring efforts will continue, though accessibility, availability of materials, and areas of maximum restoration potential should be considered for future efforts.

The logjams had washed away within 1 month of initial installation. The Foundation and RGJV are exploring the installation of brush weirs within the Alamito Creek channel. This technique

involves driving wooden posts into the creek bed and then weaving brushy material between the posts. These structures are intended to work similarly to leaky rock dams in that they slow the flow of water, help spread water out, and keep creek systems hydrated for longer periods of time. Within the conservation community, riparian zones in the Southwest are areas of concern. Historically, vegetation was removed, and these systems were compromised once the hydrology shifted. These zones provide habitat for wildlife, can support planned cattle grazing operations, and serve as recharge zones for groundwater as precipitation events make their way downstream. The Foundation will continue to explore, evaluate, and experiment with potential restoration techniques that utilize materials that can be processed by these systems while also increasing functionality.

Figure 33. Texas Parks and Wildlife Department biologists and local land managers stand downstream from a leaky rock dam, installed in an eroded tributary channel April 2021, and view vegetation growing in caught sediment on the upstream side of the structure between April and August 2021.

A Wetness Index file was created for Alamito Creek Preserve, like the one created for the Mimms Unit, in 2021. This high-resolution spatial analysis of hydrology may be a helpful model to add to the evaluation of restoration projects in the future as it can help pinpoint how water is moving through the creek channel and surrounding contributing areas *(Figure 34).*

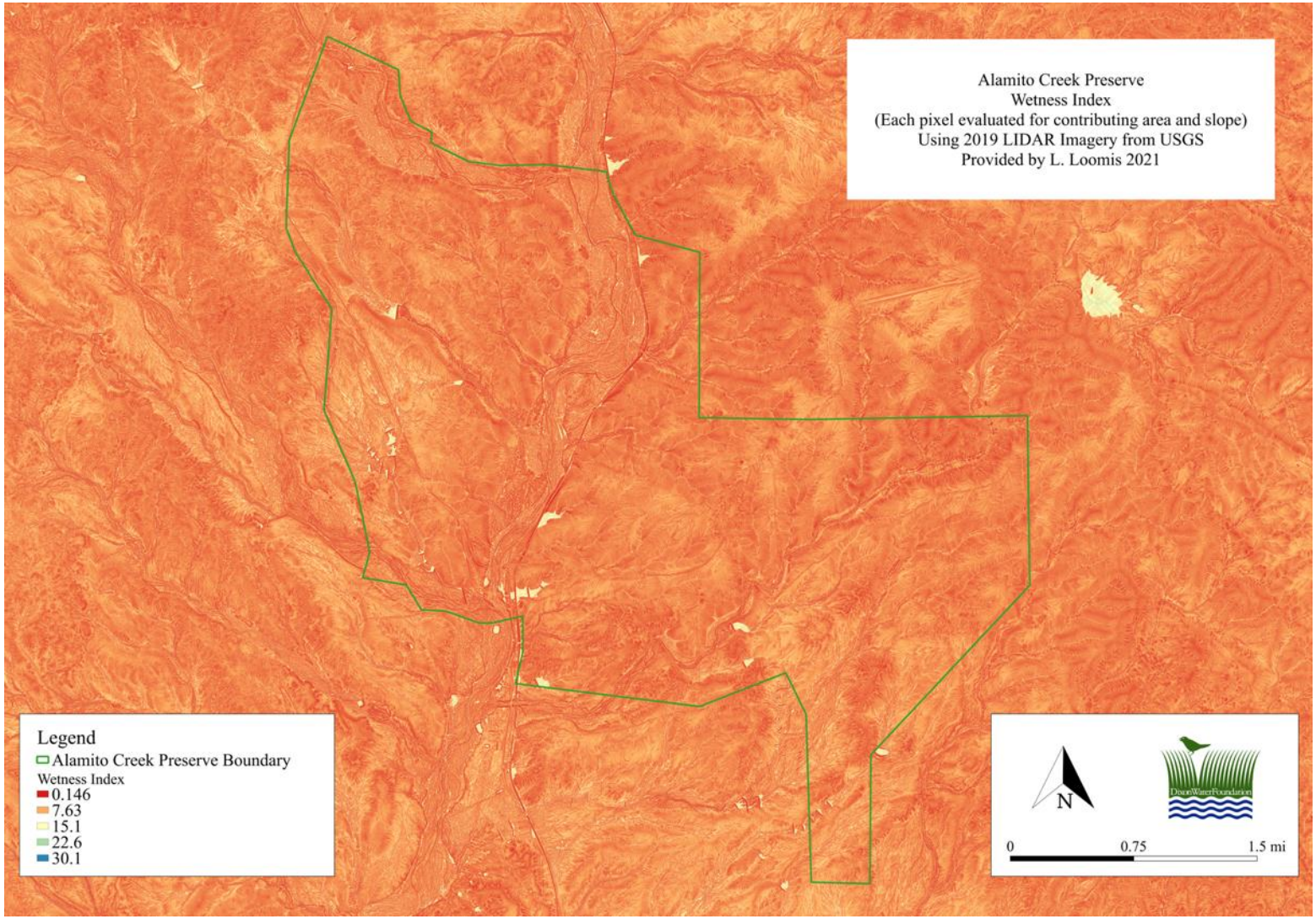


Figure 34. Wetness Index map of entire Alamito Creek Preserve based on 2019 USGS LiDAR imagery. This file was created by analyzing contributing area and slope analysis of each pixel by Dr. Lynn Loomis (USDA, NRCS Soil Survey, retired) and then symbolized to show areas that shed water (dark red) and areas that collect water (yellow to blue).

Groundwater

Presidio County Underground Water Conservation District (PCUWCD)

Alamito Creek Preserve – The Foundation funded research that will explore connectivity of groundwater sources in southern Presidio County, Texas. The research was funded in 2020 and sampling were collected in early 2021. The project sampled and analyzed water from artesian wells in the communities near to DWF's Alamito Creek Preserve. The project also included samples from springs and wells from neighboring ranches. Two wells and 3 creek bed seep/springs were included in the sampling efforts.

The PCUWCD hired the Straub Corporation to conduct the sampling and analysis. The Straub Corporation used a peristaltic pump through sample tubing installed into hand-driven drive rods designed for groundwater sampling to access springs within the creek bed at the Preserve. To sample wells, a static level was first collected, then well pumps were activated and purged to remove stagnant water before samples were collected.

Geochemical analysis suggested that the 2 wells sampled on the Dixon property, as well as the springs or seeps within the creek bed, were most likely drawing from similar groundwater sources, while wells on neighboring properties were considered deep wells that drew from other sources. The Dixon wells were shallow wells. These wells and Dixon springs are most likely associated with recharge from precipitation falling on the upper reaches of Alamito Creek and its drainages. The deeper wells sampled in the area around Alamito Creek Preserve seem to also be associated with precipitation recharge, but from a deeper zone, indicating that this precipitation fell at a cooler time in the past. The Straub Corporation made a disclaimer that these results are inconclusive and are based on a relatively small sample size. This research is only meant to advance the scientific understanding of the groundwater in the region.

Figure 35. Straub Corporation sampling wells in Alamito Creek channel that were left over from USFWS project in 2014, which are mentioned earlier in the Groundwater Monitoriong portion of this report. (Carolyn McCartney, February 2021)

Outreach Efforts

North Texas

Leo and Pittman Units, Josey Pavilion- Our North Texas ranches hosted over 161 people from 6 event field visits, meetings, and workshops including Holistic Management International's Advance Grazing workshop, October 2021 and 2 events with the Native Prairies Association of Texas.

West Texas

Mimms Unit - Our Mimms Unit ranches hosted over 81 visitors through 14 events, field visits, workshops, research visits, and meetings.

Alamito Creek Preserve – The Preserve hosted over 78 visitors through 9 events, field visits, restoration workshops, birding visits, and meetings.

State-wide

In July 2021, Casey Wade and Philip Boyd presented talks online about DWF grazing, research, and restoration activities as part of Texas Parks and Wildlife Department's Texas Water Specialist Series, focusing on "Desert Waters". There were an estimated 150 attendees viewing the talks and participating in a question-and-answer section at the conclusion of the presentations.

All Dixon Ranches

In the summer of 2019, the Foundation launched its first Instagram account. In 2021 there were 29 posts made to the account, covering various topics that included: grazing operations, research on Foundation ranches, grants, workshops, and wildlife, in order to stimulate engagement with the Foundation's activities and management. The account has 531 followers, an increase of 184 since the 2020 report, and most posts are shared to the Foundation's Facebook account as well.

2021 Grants

In 2021, Dixon Water Foundation awarded $ 295,000 in grants to 10 organizations. Recipients of 2021 Dixon Water Foundation grants were:

Funders of Regenerative Agriculture
Headwaters at Incarnate Word
Hill Country Alliance
Holistic Management International
Kids on the Land
Native Prairie Association of Texas
Ogallala Commons
People and Carnivores
Texas Agricultural Land Trust
Texas Water Trade

2021 Sponsorships

In 2021, Dixon Water Foundation awarded $6,884.59 in event sponsorships to 7 organizations. Recipients of 2021 Dixon Water Foundation event sponsorships were:

Big Bend Ranch Rodeo
Holistic Management International
Marfa Chamber of Commerce
Native Prairie Association of Texas
Oklahoma Grazing Lands Coalition
Prairie Seekers
Texas Land Trust Council