

The Monahans Sandhills: Life cycle of a seep

by Malcolm McElvaney

The shifting sand of the Monahans Sandhills goes through wet and dry periods with more or less vegetation present at any one time or another. Rain fall is a key factor in this cycle and even in dry times historically water was accessible. It is not my goal to cover historic usage or what expedition traveled through the area also known as “the white sand hills”; however, I wish to add to the rich history of the place in some minor way as I have had the privilege to document a set period between a wetter period to a dryer condition. I didn't set out with this in mind but rather from that first visit in early 2007 to now felt completely relaxed and compelled to visit any weekend I could becoming more immersed and aware of the sand dunes. The countless weekends I spent walking the dunes also opened up a new world through photography as a driving reason to continue exploring. Because of the photography I was able to capture the sights and sounds and make contact with like minded individuals to start putting everything in context.

“Everything” includes a vast collection of subjects and experiences that has been building up from multiple daylight trips to a few sunset to sunrise walks done on full moon nights. The shifting sands encompasses stretches of open sand, shinoak forest, a few cotton wood trees, and low areas with vegetation or seeps. Life has an amazing way of adapting and utilizing the resources available for survival. It is the seeps I want to cover in this first of many essays about the Monahans Sandhills as I have experienced them. It is the mental image I have in my minds eye that I hope to recreate because my journey of discovery is linked to this place as it taught me to appreciate nature, observe my surroundings, be patient, and leave the world I came from behind so I could be immersed in the one I was entering.

The Seeps

No matter how you wish to define them they are special and valued by the wildlife as seen from many tracks and paths going to them and often following one set of tracks from one seep will lead to another seep or wet area. I have seen these tracks and paths at the many seeps I sought out and have come across in the act of merely walking to a place of interest and the wonder of seeing the green against the sandy background never grew old. In the earlier years of my exploring from the 2007 to 2009 range an added bonus made the trips even more spectacular as open pools of clear water could be found. The water has become less obvious but its presence at the seeps is still the key reason the vegetation thrives and animals travel to them to access water easier. One seep in particular was documented the most because it was a short walk and often would be in my path as I journeyed to the North-Northwestward direction so you will see many pictures from it as it represents a more complete cycle.



Taken on October 24th of 2008 and it would take a thousand words to describe it properly but this is the reason I always went back to the sand dunes. By my definition a seep like this is the mixing of sand being carved out and contoured by the wind exposing the sand and seeds mixed within to a rising water table and creating the opportunity for life to explode on to the sandy scene. It didn't look like this immediately but is going through a life cycle that will end, becoming another interesting scene to be found in the dunes by another traveler like me. Even as that happens other seeps are going to be created as conditions allow for them to exist.



Water can openly pool on the surface because the water table rises above the sand or a clay lenses has trapped and delayed water from absorbing in. I never have quite understood the process completely but you can see the layers in this pictures courtesy of what is called an animal well. This is the lowest point of the original open pool of water at the north end and as the pool was shrinking stayed the wettest. Wildlife would dig down to a level where water would seep back in to get a drink, as the water levels continued to drop the well got deeper. Once the lenses is punctured like this does it ever repair itself or does it mean the seep is forever altered? This is the disadvantage of witnessing only one half of the cycle as the water levels drop. I can see the denser clay layer but how was it formed in the first place and when?

Each seep is unique in its own way but can fall under three types of categories. Some are temporary pools that exist briefly with bulrush often growing in them to only dry up leaving the bulrush behind still growing in the wet sand. Others will keep water longer to become “permanent” and allow an ecosystem to grow around the pool as cattail and other aquatic invertebrates with longer life cycles take advantage of this fact. Cattail in and of themselves will grow fast and soon take over of the pool but that is part of the life cycle as well. Even if the water has not stood open long enough to be considered “permanent” the ecosystem that was establish will have accessed the water and survive and likely was part of the reason for the drop in the water levels in the first place.

WH01

Why WH01? I had traveled by it hidden in the rolling dunes often until my path crossed it on October 27th of 2007 and I started to explore it and document it. Some how in the process of going through my pictures it was the first water hole I indexed and so the monicker WH01 was chosen.

Somewhere in the middle of its life cycle it offered shade and a scenic view of openly pooled water with a complex composition that required hours at a time to truly explore. The dune face had vegetation growing on it in the form of seep willows in a race to stay above the sand blowing over the crest while the seep itself formed three distinct zones going South to North. On the south end near the main vegetation and tree lines an old yet still quite viable black willow is in its last stages, short and with multiple trunks some dead and other still alive was likely one of the first trees to germinate and the edge of a larger pool of water in the seeps younger days.

The main portion of the seep is in the lower back part of the larger shallow depression as it meets the dune face. On its south end a narrow channel runs along the dune face to the open pool of water waist deep at its low point and encircled by bulrush that continues on down that narrow channel. Black willows have grown along the edges of the newly defined pool as it shrank, these are probably runners off that original tree established. In the area higher than the open water under the trees is grass that forms a pasture. Elevations of the sand in the middle zone is higher and resemble the open sands and the bushes you find except along the dune face where the lower area of the channel continues to travel along to the north. No water is present but some black willow runners have established themselves with a narrow gap between them to provide the perfect place to lay back and relax. On the north end lies a more typical open pool of water of moderate depth in a circular shape surrounded by more black willows and bushes. Like the southern end they are likely runners but emanate from another larger black willow that grows perfectly straight on the edge and could have sprouted from a seed when the pool stretched across the entire area and that was the edge of it.

Interestingly enough beyond the pool and successful line of runners is a narrow section of dead willows of similar size as the sand curves up that could have been established but the water dropped to soon for them to survive. Also the paths the animals use to access the water are easily seen. This scene was what I found on that first day as I took in the new find, but it was not until September the 4th of 2011 that I could start to “figure” out the early stages of the seep and even then I could be completely wrong. But the tree lines of willows that feature low main bases and multiple trunks as if as they were growing animals coming to the waters edge ate on them or trampled them causing the damage for multiple trunks to grow is a clue I considered along with a quick survey to measure the circumferences of the trees and grouping of them on September 4th of 2011.

Documenting this seep over time and different seasons wasn't a task but part of visiting the place to explore and relax with specific missions in mind or just being there to be there, like all the the seeps I managed to get to multiple times. The combined perspective that was gained allowed me to see patterns and a more complete picture. For example the water levels in the south pool I first found lasted to about 05-16-2008 and didn't shrink down to a small pool until 07-11-2008; however, the water levels did rise by 10-24-2008 and stay at decent level again until 02-14-2009. It was my visit in 5-30-2009 that it had finally disappeared and stayed that way until this day. The north pool also finally dried up around the same date. But it is the north pool that became the animal well that continues to be dug out and still reach drinkable water even as of my last visit on 11-06-2011. The south end must have dried out more because as of 11-21-2009 the mounds of pocket gophers showed up in the grassy area around the trees.



09-05-2008 *The side tree at the seep.*



10-27-2007 water levels at the south pool



10-27-2007 water levels at the south pool



05-16-2008 water levels at the south pool



10-24-2008 water levels at the south pool



07-18-2009 water levels at the south pool



10-24-2008 water levels at the north pool



05-30-2009 water levels at the north pool



11-06-2011 the animal well at the north end

Factors that effect the seeps

Just like their creation by wind, rain, and plant seeds that blow in before or after the water levels rise these same forces continue to work on the seep, along with animal usage and time itself. I can't exactly say I have witnessed time since that is a slow process other than how the seasons change but having seen many of the seeps and knowing the weather that occurred prior to a visit the sand dunes have shown me a few of the changes that are possible.

Water helped to create the seeps and its levels are effected by so many factors. These pools are static and unless more rain feeds them will become stagnant and shrink if for no other reason than the wind and evaporation. Plants and trees will also send down roots below the water table and use the available water, for example, the old black willow at WH01 probably created dry land around it and shrank the pool as it grew. Plants both in the water and around it will pull out moisture as well, while the plants growing in the water will eventually die and add matter to decay promoting algae and bacteria lowering available oxygen in the water. The balance of decaying matter and oxygen levels will alter the ponds ecology and what finds it a viable habitat as it becomes more stagnant. Animals may not mind at all since water is water and hard find.

The wind is another agent of change even as it shaped the seep initially it will continue to reshape the seep. For example at WH01 there is a steep dune face with sand built up almost as high as it is on the back side, the sand has been slowly blowing over and filling in the channel. At another seep I found shallow pools of water on my first visit, but on the next visit a month later sand had started to blow in and fill in the pool to create wet mud. Now that same seep has no open pools but the bulrush still grows where the water once was. It was positioned in a shallower depression and therefore more susceptible to be filled in. If the wind gets strong enough, say 50mph, it can uproot plants at a seep creating a mat of plants like I saw at a seep on a February 14th of 2009. Vegetation grew back but the plants that grew back was different altering the seeps appearance.

Animals alter the seeps as well but one animal in particular comes to mind the most, feral hogs. They reproduce fast and are very destructive as they search for food rooting up the vegetation and wallowing in the water. Often I will come up to a seep or wet area only to scare some off as they run away to another place. Of course it could be said my presence exploring the seeps and wading into the pools alters them too, even if I try to leave a minimum of damage behind. Then you have the pocket gophers, pack rats and all the animals that use the the ecosystem. Animal wells are another example of altering a seep as the need for water forces various animals to excavate and reach water.

Next installment

The sand dunes have taught me many things and became a place I could always go to to relax and explore and never tire of. I miss the days of going to the sand dunes every weekend and just getting lost as I would seek a new place to explore, but I still go as often as I can even if it takes me two hours to go one mile because I have to take pictures along the way. The seeps are only one part of the shifting sands but it is within the seeps I will continue to focus as the next essay will cover the pond ecology and life I have witnessed in them. Until then I will leave you with a few more pictures of water in the sand dunes.



09-02-2007 *A wet area*



05-16-2008 Another wet area



11-22-2008 A very temporary pool



01-31-2009 At a seep I visit often, water iced over.