Morphology and Sedimentology of Panther Creek, Montgomery County Preserve

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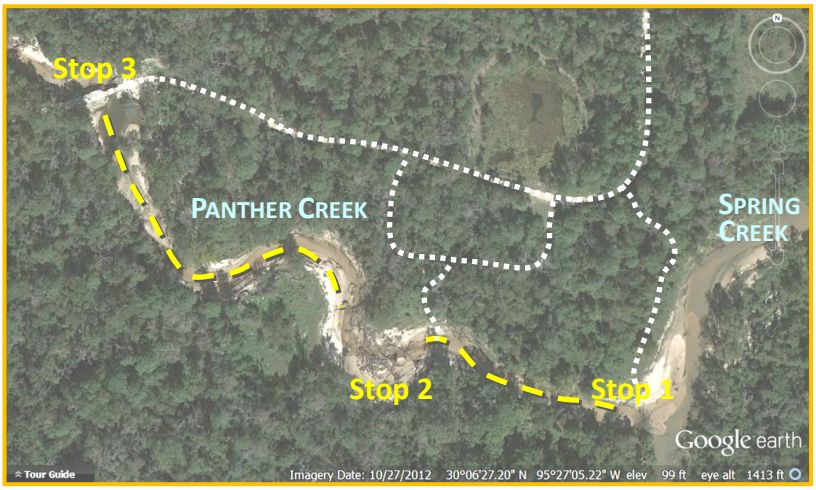
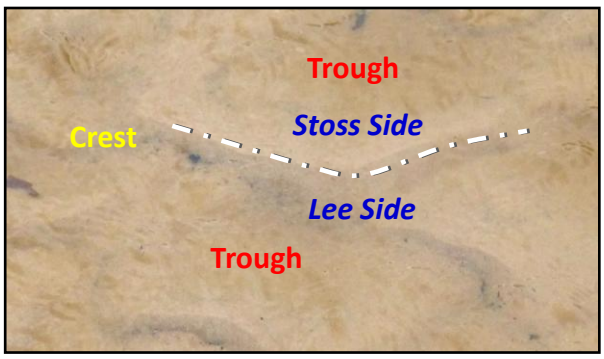
Panther Creek comes out of Lake Woodlands five miles to the north. The water that flows into the stream is the less muddy, cleaner upper part of the water column in the lake that comes over the dam spillway. This leads to the water flowing through Panther Creek to be clearer enabling us to see through the water and investigate features on the bed of the stream. ====



Stop 1 – Confluence of Panther Creek and Spring Creek

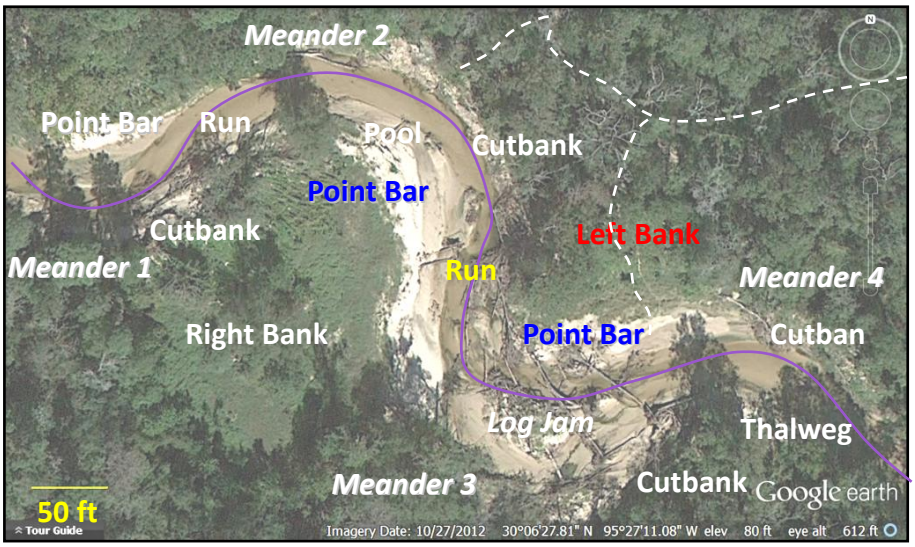
Here you can see the clearer, less sediment laden, lower density water from Panther Creek mixes with the muddier, more sediment laden, higher density water of Spring Creek and small swirling patterns (**eddies**) are formed on the surface of the water where these different density waters meet. As the smaller Panther Creek flows in the larger Spring Creek, a **delta bar** can typically be found as sediment in the faster flowing Panther Creek falls out of the water column when it encounters the slower moving waters of Spring Creek.

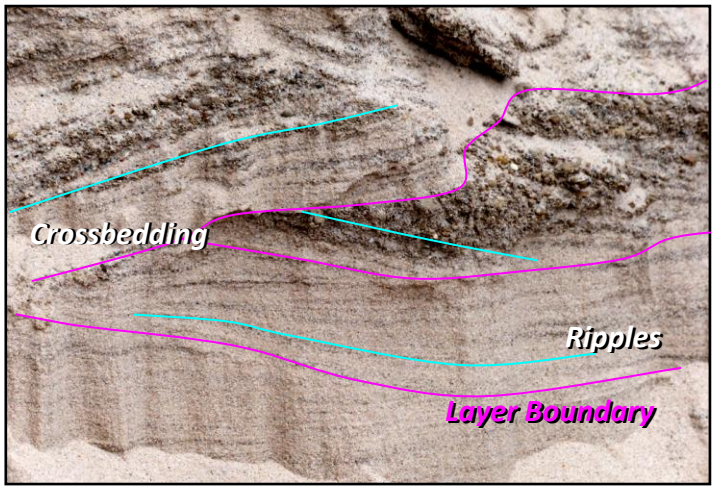


In the shallow portions of Panther Creek **ripples** are forming and migrating along the bottom of the creek. If you get in the creek and watch a single ripple for a minute or two, you can see sand grains bouncing along moving up the stoss (upcurrent) side of the ripple and then deposit on the lee (down current) side of the ripple. The whole ripple will move down the stream in this fashion.

Stop 2 – Meander Bends along Panther Creek

Panther Creek has a number of **meanders** (curves) along its length. At this stop, observations can be made of the many morphological features of a meandering stream including cutbanks, point bars, pools, runs and riffles. The sharp bend in the creek at Meander 3 typically has a log jam.





Scraping at a bank can reveal the range of grain size that the creek can move as well as various sedimentary structures including layering, ripples and crossbedding. Compare the range of grain sizes that you can see to what is being transported by the current. Under normal current conditions, the velocity of the water is capable of moving grain sizes from mud and silt to medium grained sand. The grains coarser than medium grained sand in the stream were moved under current conditions with higher velocities when the discharge of the creek was greater due to increased rainfall.

Stop 3 – Bridge over Panther Creek

The previous stops have looked at the morphology of a stream under natural conditions. At Stop 3 a bridge has been built across the creek and has modified the natural process. Take a look around and see how the stream has changed because of the bridge from what we have observed at the previous two stops.

1. How has the stream interacted with the man-made structure of the bridge?
2. What parts of stream morphology can you identify here?
3. The bridge was completely rebuilt in 2014 because it was becoming unstable. What happened to it to have to be replaced?
4. What will happen to the new bridge in the future?