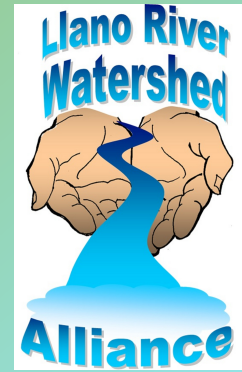


# WATERSHED WEEK IN REVIEW



## Facts about the Flood

Tuesday morning's flood down the Llano was not only a near record flood peak, it was also part of the greatest volume of water to pass down the Llano in a given period since records began in 1939.

Since waters from the Columbus Day Flood in Junction began passing through Llano, the 10-day average flow of the Llano has been 28,773 cfs. This flow rate over a 10-day period equates to 186 billion gallons of water, or 570,000 acre-feet. That is about 30% of the storage capacity of Lake Travis, or for you longtime Astros fans, this is enough to fill the Astrodome 581 times.

The next greatest volume of water down the Llano was in 2000, with 18,153 cfs over a 10-day period. During 1997, the 10-day average reached 12,986 cfs.

## Llano River Floods at Near Record Levels

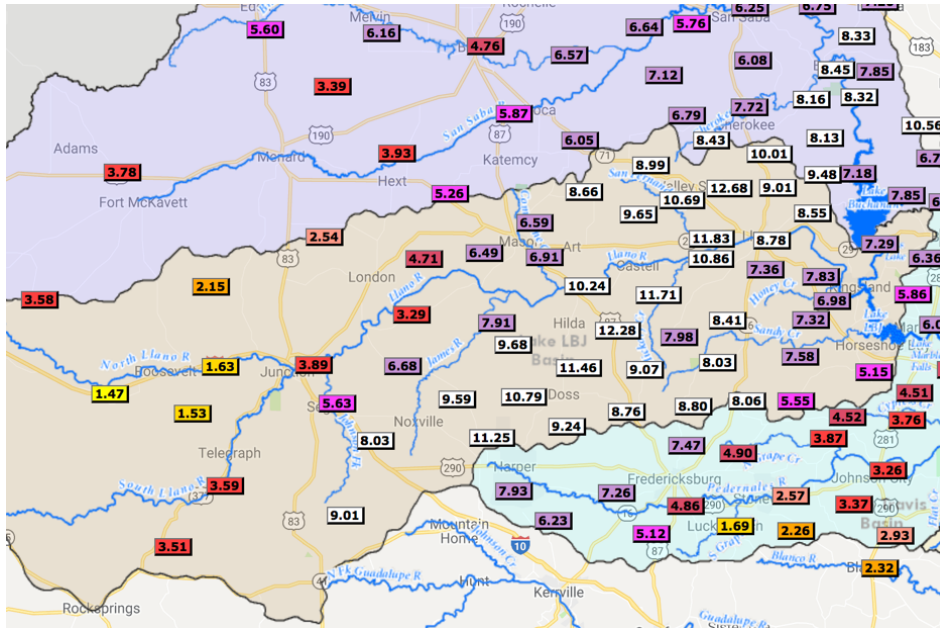
Widespread rainfall amounts of 10 inches or more again hit the Llano Watershed early this week, sending the River to near record levels Tuesday morning. At 7:20am, the USGS gage at Llano recorded flows at 40.04 feet, or 277,000 cubic feet per second, slightly below the record 41.5 foot (380,000 cfs) flood of June 14, 1935. (Note: The final discharge may be slightly revised based on field observations.)



*Tuesday's floodwaters brought extensive damage to Badu Park in Llano.*

While the 1935 flood destroyed the bridge at Llano, the current bridge built in 1936 and built 12 feet higher than its predecessor, survived. The same can not be said for the bridge over the Llano Arm of Lake LBJ. Tuesday's flood destroyed that bridge.

## Llano River Floods at Near Record Levels (continued)



Heavy rains overnight Monday (left), on top of already supersaturated grounds, turned the Llano and its tributaries into torrents of water. Johnson Fork near Segovia crested at 32 feet about 4:30am Tuesday morning at 105,000 cfs. Around the same time, the James River southwest of Mason, crested at 26 feet and 110,000 cfs, considered a 100-year flood event.

*Rainfall totals October 9 - October 16, 2018. From LCRA Hydromet. Note: Most of this rainfall fell Monday evening and Tuesday morning, October 15-16.*

followed by a second peak at 12:40pm of 32 ft (175,000 cfs). The 33 ft peak exceeded the 2000 flood peak of 32 ft and was below the 1980 flood peak of 37 ft. The record flood peak for the Mason gage is 46 ft in June of 1935, which also destroyed the bridge at this location.

Rainfall above the Mason gage near the US 87 bridge resulted in an initial peak at 5:25am of 33 ft (182,000 cfs),



*Llano River near Mason at US 87 Bridge. Left: low flow, undated. Right October 16, 2018  
Source : Facebook Page, The Fish Camp*



## Cleaning Up After the Flood

***“A healthy functional river system depends on periodic floods of all sizes to maintain and perpetuate itself. Flooding is not something bad that happens to a river; it is a necessary part of the river.”***

***- Steve Nelle***



Ironically, one of the benefits of the flood was the addition of thousands of logs and downed trees to the banks and floodplain. Logs such as this will form new stronger bank as new soil material is deposited behind the log.

*Paradoxically, the loss of thousands of cypress and other trees can actually help the recovery and future stability of the river. For decades, river scientists have known that large logs and downed trees play an essential role in river stability. The woods helps dissipate energy and slow the water. The logs function as large strong retaining walls to help build and support new banks. As the wood is eventually buried by future floods, it reinforces the banks and floodplain, similar to rebar in a*

*foundation.*

...From **‘The Blanco River - The Healing Has Begun’**

by Steve Nelle...[read more](#)



*From “Don’t Give Up on Your Trees”  
by Texas Master Naturalist*

1. **THE GOOD NEWS: THE BEST THING YOU CAN DO FOR YOUR TREES AND RIVER BANK IS TO LEAVE THEM ALONE.** Remove only those items that are a safety hazard. Some trees may recover in the right conditions. You’ll save a lot of time and money while helping the recovery of vegetation and the river.
2. **MINIMIZE THE USE OF HEAVY EQUIPMENT AROUND TREES AND ESPECIALLY ALONG YOUR RIVER BANK.** The weight of equipment will compact saturated soil and tree roots beneath the surface, making it more difficult for the trees and the river bank to recover. Trees have a huge root area, extending 2-3 times the length of branches or canopy. If you must use heavy equipment around trees, protect the area with 6-8” of mulch, topped with plywood if possible.
3. **LEAVE DAMAGED TREES AND WOODY DEBRIS IN PLACE ALONG THE RIVER BANK** unless they pose a safety or structural threat. For now, do not burn debris, saw it up, or remove it. The wood helps to stabilize banks and slow water, and new plants will establish themselves in the debris piles. Even damaged trees will help hold the soil in place. This is nature’s way to hasten recovery.

## Healthy Creeks and Riparian Areas Workshop

NOVEMBER 3  
SUNRISE BEACH

Llano River Watershed Alliance in partnership with Hill Country Alliance and Plateau Land & Wildlife Management are hosting this event from 8:30am-2:00pm at the Sunrise Beach Village Civic Center - 124 Sunrise Drive.

Retired Natural Resource Conservation Service (NRCS) employees **Steve Nelle** and **Kenneth Mayben** and **David Riley** of Plateau Land & Wildlife Management will discuss the hydrology and sediment principles and interactions, vegetation, and stewardship and best practices associated with healthy creeks and riparian areas in the Hill Country.

[more details](#)

## Healthy Creeks and Riparian Areas Workshop

8:30 am – 2:00 pm, Saturday, November 3rd, 2018

*Sunrise Beach Village Civic Center  
 124 Sunrise Drive, Sunrise Beach Village, TX 78643*

8:30 am	Welcome & Introductions	Daniel Oppenheimer, Hill Country Alliance
8:45 am	Introduction to Riparian Function	Steve Nelle, NRCS retired
9:30 am	Hydrology and Sediment: Principles and Interactions	Kenneth Mayben, NRCS retired
11:15 am	Riparian Vegetation	Steve Nelle, NRCS retired
12:00 pm	Light Lunch Provided	
12:30	Riparian Stewardship & Best Practices	David Riley, Plateau Land & Wildlife Management
1:00	Sandy Creek Case-Study: Tying it all Together	Steve Nelle and Kenneth Mayben
1:30	Wrap-Up Discussion and Dismiss	

\*\*\*\$10 registration includes lunch. Space is limited. To register, go to:  
<http://www.hillcountryalliance.org/event/sandy-creek-healthy-creeks-and-riparian-areas-workshop/>

