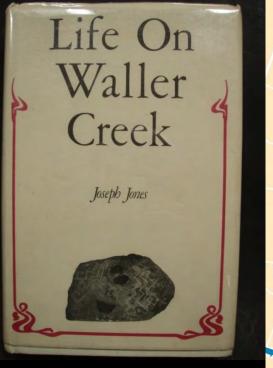




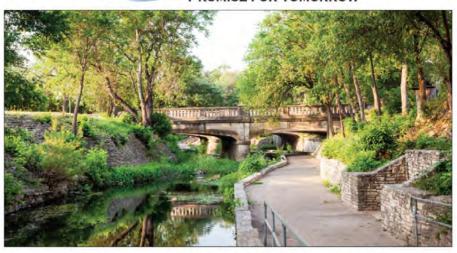
### The Urban Stream: Life on Waller Creek

Kevin M. Anderson Ph.D. Austin Water Center for Environmental Research





Austin's Waller Creek ROMISE FOR TOMORROW



PHILLIP FRY AND CAROLYN H. WRIGHT, EDITORS

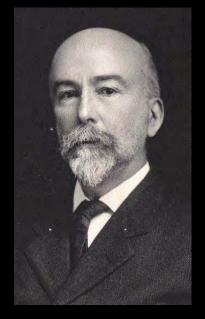
# **A Fluvial Journey**

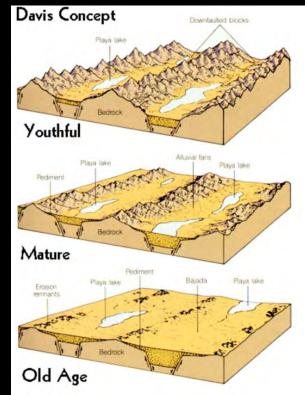
Fluvial - of, relating to, or living in a stream or river

Fluvial Geomorphology - the study of how moving water shapes a landscape over time



- The Life of a River
- William Morris Davis (1850 1934)
- The Erosion Cycle (The Geographical Cycle)
- Davis "viewed the river system as having a life of its own.
- Its youthful headwaters are steep and rugged. It rushes toward the sea, eroding bed and bank on its way.
- In its central part, it is mature, winding sedately through wide valleys adjusted to its duty of transporting water and sediment.
- Near its mouth it has reached, in its old age, a nearly level plain through which it wanders in a somewhat aimless course toward final extinction as it joins the ocean that had provided the sustaining waters through its whole life span."
- Luna Leopold "A Reverence for Rivers" 1977





# Fluvial Processes in Geomorphology

Luna B. Leopold | M. Gordon Wolman | John P. Miller

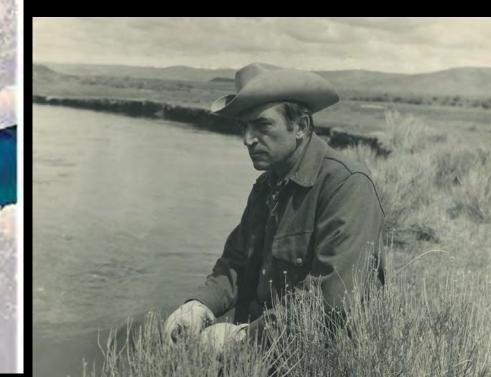
New Foreword by Dr. Ellen Wohl

## **Fluvial Geomorphology**

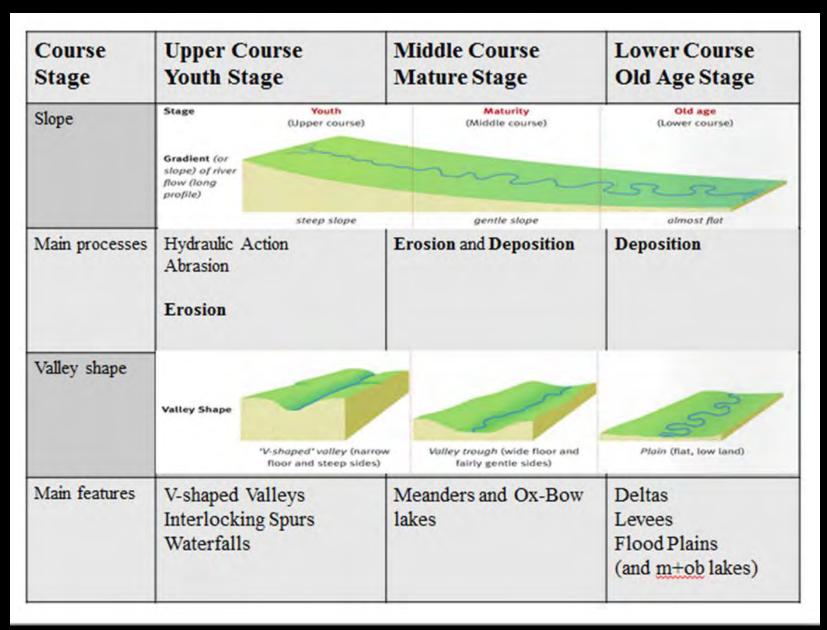
the study of how moving water shapes a landscape over time

Flowing water always wants to carry a sediment load

# Sinuosity is inversely proportional to slope

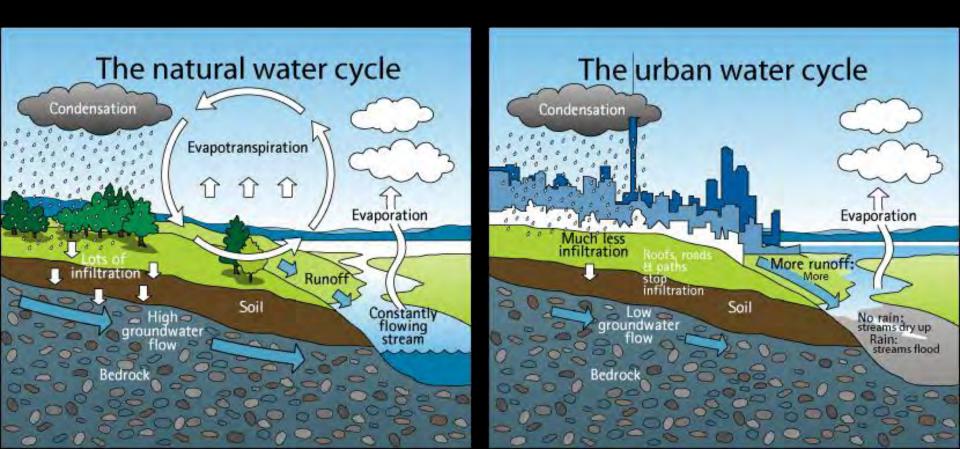


### The Life of an Urban Creek? Upper Course, Middle Course, Lower Course



### The Physical Geography of an Urban Stream

### Natural Hydrology vs. Urban Hydrology

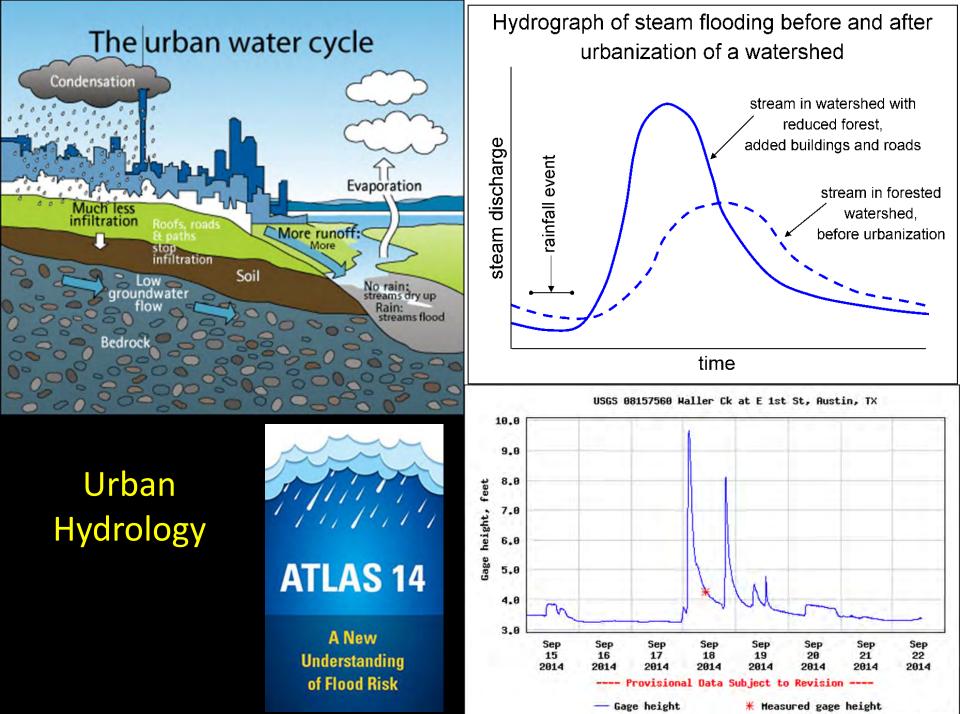


# Human Disruption and Urban Creeks











Channel with Incision Due to Increased Runoff Urban stream syndrome:

- High storm flows.
- Incised channels.
- Drier riparian zones with lower water tables.

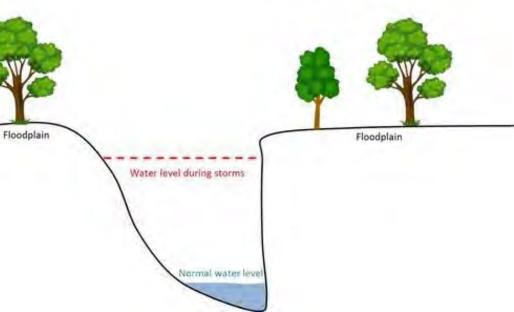
#### •Channel Erosion •Nonfunctional Floodplain •Dry Riparian Soils



### **Urban Fluvial Geomorphology**



**Urban Stream Channel** 

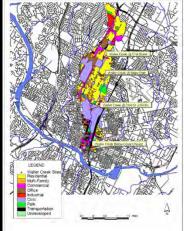


# The Urbanization of Waller Creek Physical Geography Cultural Geography

waterloo greenway









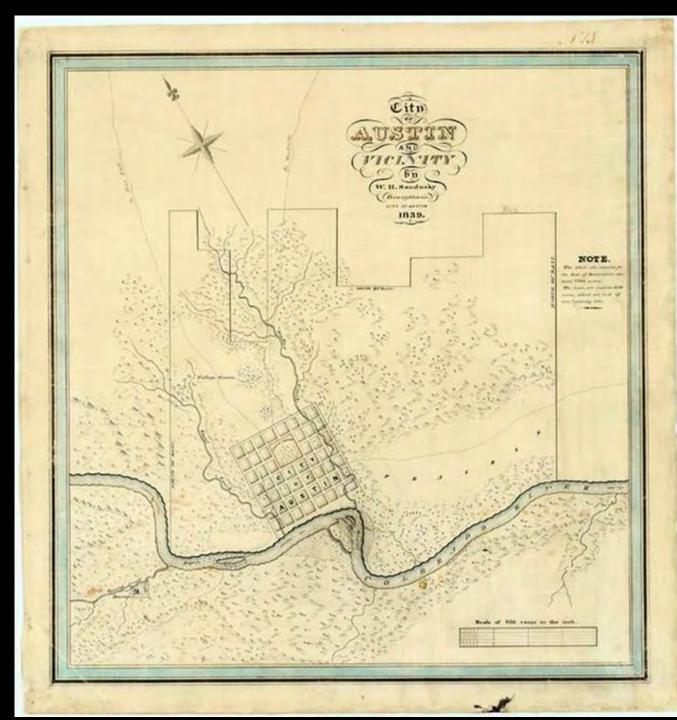




### Urbanizing Waller Creek

Transforming the Hydrological Landscape

Austin 1839





#### JUDGE EDWIN WALLER

BORN IN VIRGINIA, NOVEMBER 4, 1800 - DIED IN WALLER COUNTY, TEXAS, JANUARY 3, 1881

HIS WIFE JULIET M. DE SHIELDS WALLER BORN IN 1801 - DIED MAY 13, 1867

Erected by the State of Texas 1936

1115



### 



#### 1915 Flood

PICA 14517, Austin History Center, Austin Public Library

#### Flood Sweeps Down Waller and Shoal Creeks With Heavy Loss of Life and a Big Property Damage

Life and property were taken unmerifully as the toll of the waters that swept down Waller creek and through the streets of that vicinity on the east side last night.

The list of those who were drowned, according to all knowledge gained last night, includes:

Mrs. C. S. Ezell, 701 East Seventh street; Elbert Edwin Ezelle, nine years old, 701 East Seventh street; Martha Virginia Izzelle, five years old, 701 East Seventh street; Harvey King, twenty years old, employee of William P. Carmichael Company at Austin Dam, 701 East Seventh street; Helen King, sister of Harvey King, 701 East Seventh street; Mr. and Mrs. King, parents of Harvey King, 701 East Seventh street; Minnie Clanton, negress, to rear 416 East avenue; Negro man and woman in house on Waller creek bank between Tenth and Eleventh streets; three negro children named. Chambers, four, ten and twelve years old, the two older being boys. Bodies were recovered at Nineteenth and Trinity streets.

It was impossible to estimate the damage to property. Reports were that the bridge across Waller creek at Nineteenth street was swept away. The concrete balustrade on the bridge across Waller street between Sabine street and East avenue was swept away by houses that were hurled downstream by the raging waters of the creek. The H. & T. C. bride at Fourth street was swept away for the most part and was entirely wrecked. From along the banks of Waller creek small houses were caught in the rising, boiling waters and carried down stream to pile up

From along the banks of Waller creek small houses were caught in the rising, boiling waters and carried down stream to pile up against the bridge on East Sixth street between Sabine street and East avenue. The stables of the city just above the bridge on East Sixth street were washed away and wagons were carried as far as Sixth street where they were piled and jammed in a pile of wreckage. Houses below Sixth street were washed away. It was impossible to learn just how many because of the complete darkness of the city as the result of wire confusion and the abscence consequently of any electrical lights.

Six houses occupied by negroes and located on Sabine street were gathered into the maw of the hungry waters and swept down stream. Nearly every house on the bank of Waller creek was either flooded or moved by the waters.

A big pile of wreckage now marks the site of East Sixth street where the combination store and house of I. Joseph stood. Lying on the north side of the East Sixth street bridge across Waller street is a towering pile of timbers, what is left of the residences along along the Waller creek banks near the Sixth street bridge.

Business houses on East Sixth street in the near vicinity of the Waller creek bridge were flooded with water. The waters unseated houses scattered throughout the East avenue district and to the north of East Sixth street in the vicinity of the Waller creek, and topled them over to be carried down the breast of the stream.

The approach to the Congress avenue bridge on the south side was washed away completely and connections with South Austin were broken. The L & G. N. nilroad bridge embankment south of the river was washed away and the tracks have slipped down, all out of line and useless for service.

A pitiful, heartsickening pandemonium reigned on the east side all along the vicinity of Waller creek, particularly just to the north and south of the Sixth street bridge.

### The Urbanization of Waller Creek Cultural Geography

In 1938, Lyndon Baines Johnson visited the creek and "decried 'the shanties' and 'hot beds of crime.""

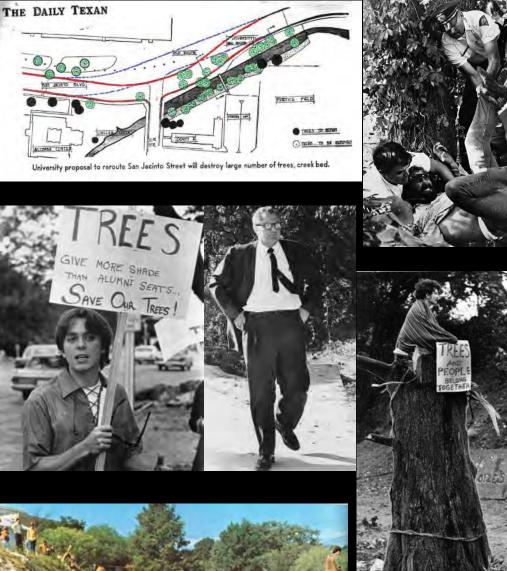


C03659, Austin History Center, Austin Public Library

The Battle of Waller Creek 1969

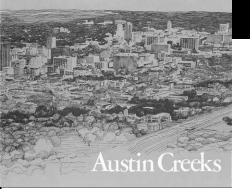
Protesting the destruction of trees and mutilation of the creek bed along San Jacinto Boulevard and 21<sup>st</sup>

UT board of regents decided to bulldoze several hundred feet of Waller Creek to expand Memorial Stadium. Student protesters chained themselves to trees; the chancellor of the board of regents, Frank Erwin, complete with hard hat and bullhorn, personally oversaw their arrests.





### **Improving Waller Creek 1976**



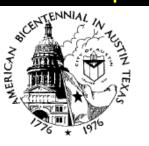
Ninth Street to Town Lake, developmen the Glenn Oakes Greenbelt on Boggy C: with trails and picnic tables, extension Stacy Park's trail to Town Lake on Bl Creek, and beginning the redevelopmen Waller Creek from Tenth Street to Te Lake.

#### WALLER CREEK

The Waller Creek project required the hi of consultants to prepare a plan, and in summer of 1975 several architect firms were selected. The resulting plan volved considerations of traffic flow, nomic stimulations, zoning patterns, fle ing problems, biking trails and fair wea hiking trails, existing trees and green ar residential possibilities and historic con erations, among other concerns. A citiz committee, proposed by the Bicenten interests and selected by PARD, wor with the consultants in the early stage the plan. More money was requested in December 1975 bond election, not only a ing \$1.5 million to Waller Creek's deve ment over the next several years, but cluding nearly \$8 million for creek rel parkland acquisition and development.

Concurrent with the planning of the lo ten blocks of Waller was the developin of Symphony Square and Waterloo Park on the adjacent five blocks, an area which had Concurrent with the planning of the lo the adjacent five blocks, an area which had been in the planning stages for several years. Symphony Square embodies all three project areas of the Bicentennial in its restoration of four historic buildings on the creek, accessible by trail north toward the University and south toward downtown, and providing the central city with cultural opportunities previously unavailable in that area.

The University of Texas, encouraged by the student body as well as the city's Bicentennial plans on Waller, began planning for its portion of the creek. The Student Union, the



WALLER CREEK

## WALLER CREEK:

Waller Creek is rapidly moving toward fulfillment of its potential. The middle portion, 15th Street to 10th Street, has been virtually completed as an urban park with Waterloo Park and Symphony Square. The upper portion of Waller Creek, that flows through the University of Texas, is being planned as a linear park and trail. The lower portion, from 10th Street to the Colorado River, is being planned in great detail as a



IKE AND BIKET MAIOR TREES PARK PROPOSED SYSTEM

MANOR ET.

### **Improving Waller Creek 1998**

### WALLER CREEK CHARRETTE REPORT 1998





# Waller Creek Greenway Action Plan

#### Austin, Texas

### **Action Plan Report**

### November 2000

Prepared Ior: The Waller Creek Greenway Partnership

#### Prenared by:



#### Waller Creek Greenway Partnership

### Waller Creek Characteristics

For the purposes of this Greenway study, there are three distinct characters or zones within the Waller Creek Greenway study area.

#### Zone 1: Lower

Town Lake to 5<sup>th</sup> street. This area consists of a fragmented natural landscape that has poor access to the lower water level. Bank erosion is prevalent due to high peak flow and poor maintenance.

#### Zone 2: Middle

Fifth street to 10<sup>th</sup> street. This area has a canyon effect where buildings like the Sheraton Hotel dominate the landscape. Access to the waters of Waller Creek are improved, however much of the stream channel is comprised of human structures.

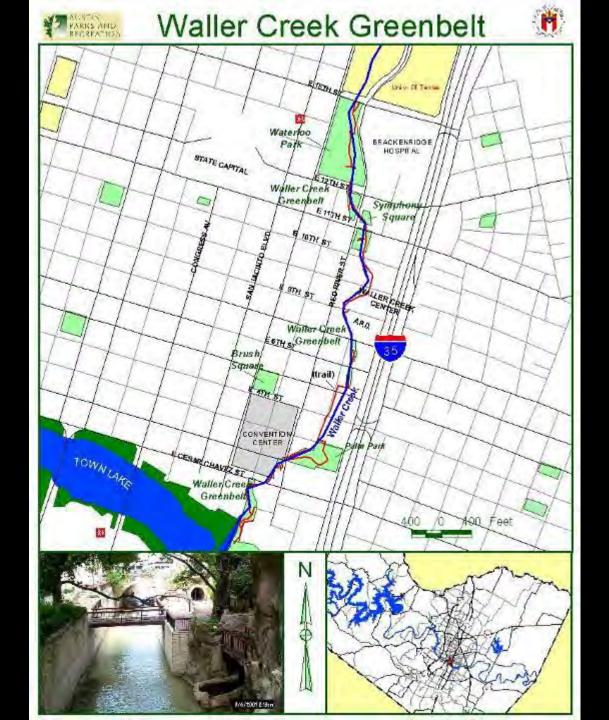
#### Zone 3: Upper

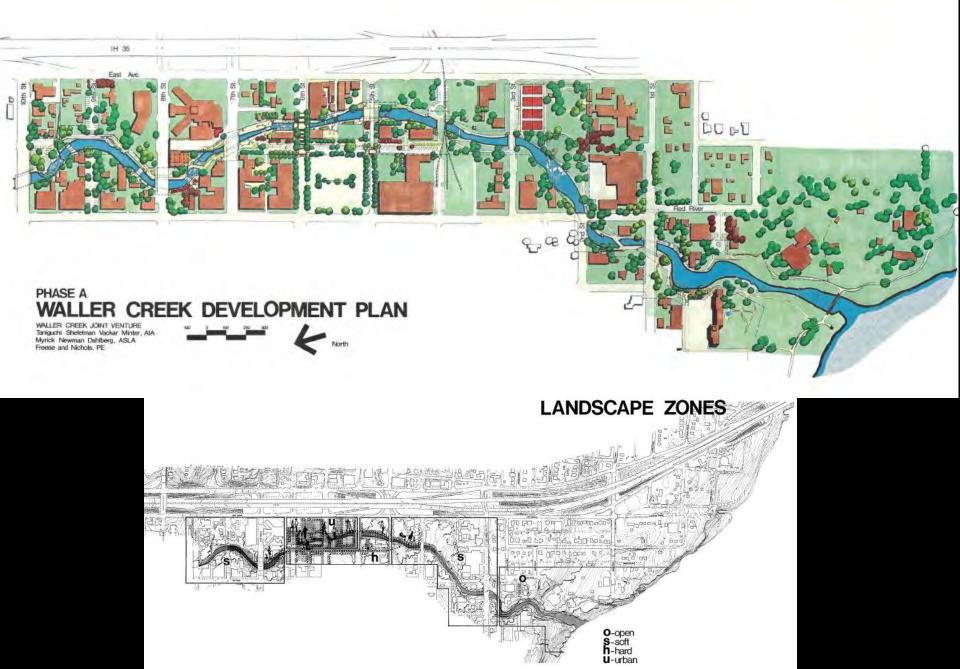
\*

Tenth street to Waterloo Park. This area blends the natural with the urban conditions that reflect the first two segments. Some of the best examples of good stream architecture are located in this zone (wall treatments, paving, tree wells and spatial qualities of the corridor).

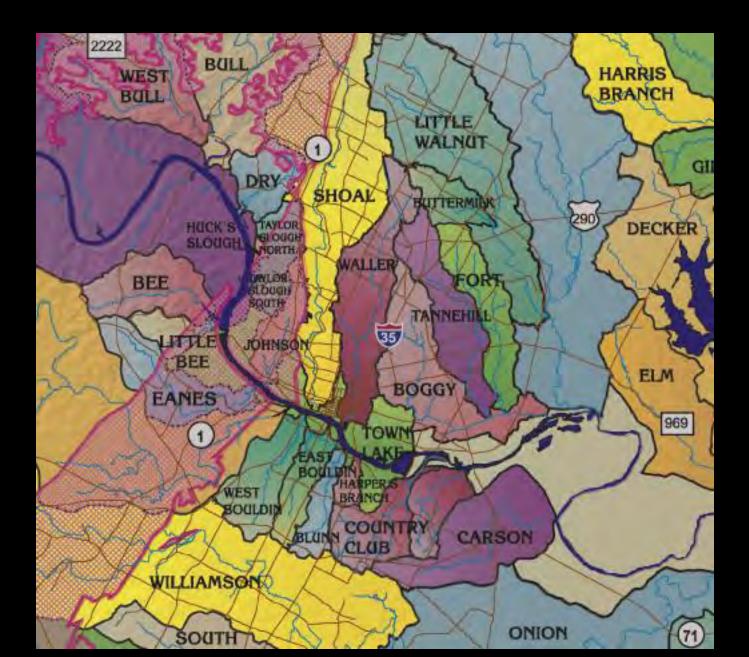


Figure 12: For the purpose of the Greenway study, the consultant has divided Waller Creek into three distinct zones. Zone 1: Lower Creek; Zone 2: Middle Creek; and Zone 3: Upper Creek.





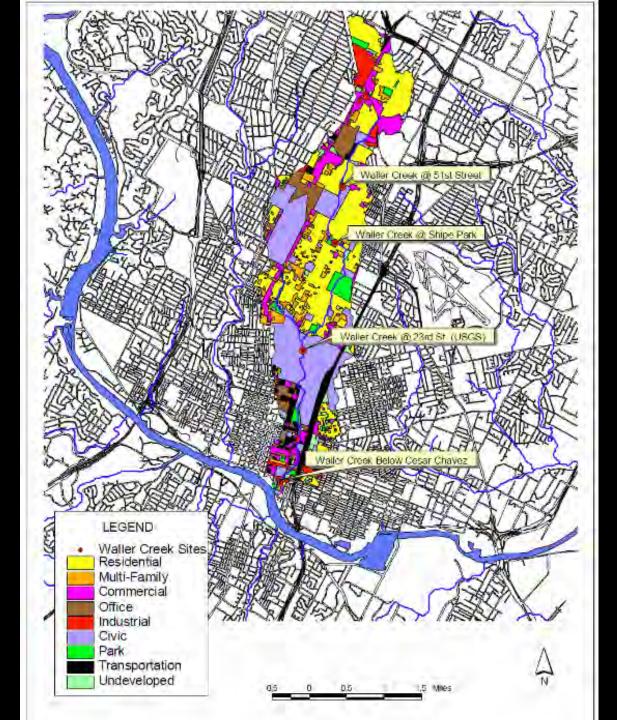
### The 21<sup>st</sup> Century – The Hydrological Cyborg Creek



Highly Urbanized Watershed

Waller Creek is a 3662 acre watershed located within the urban core of Austin

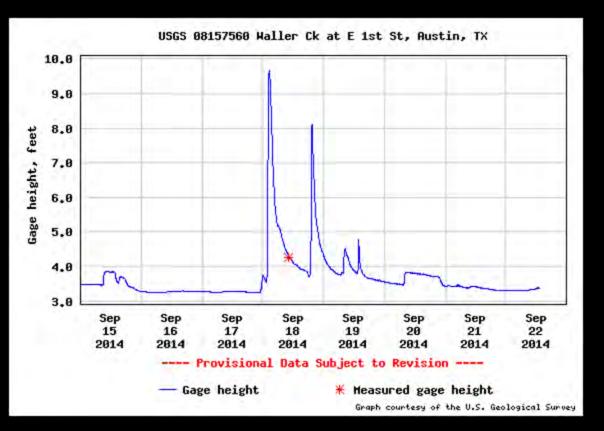




#### **Highly Studied Hydrology**

Two flow gauging stations, set up by the US Geological Survey (USGS), are located 08156910 Waller Creek at Koenig Lane, Austin, TX

08157560 Waller Creek at E 1st St, Austin, TX

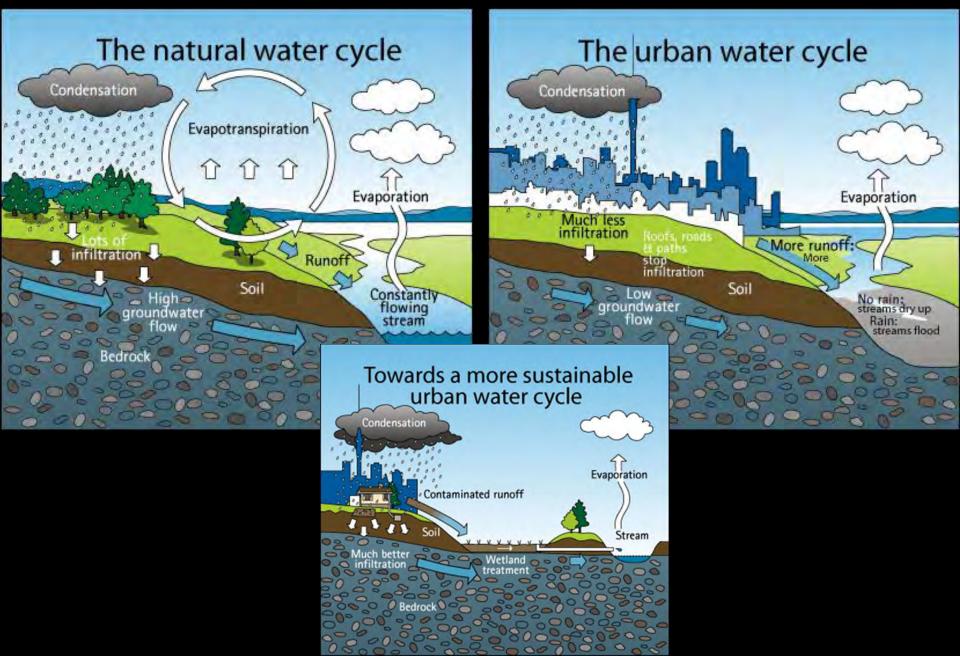




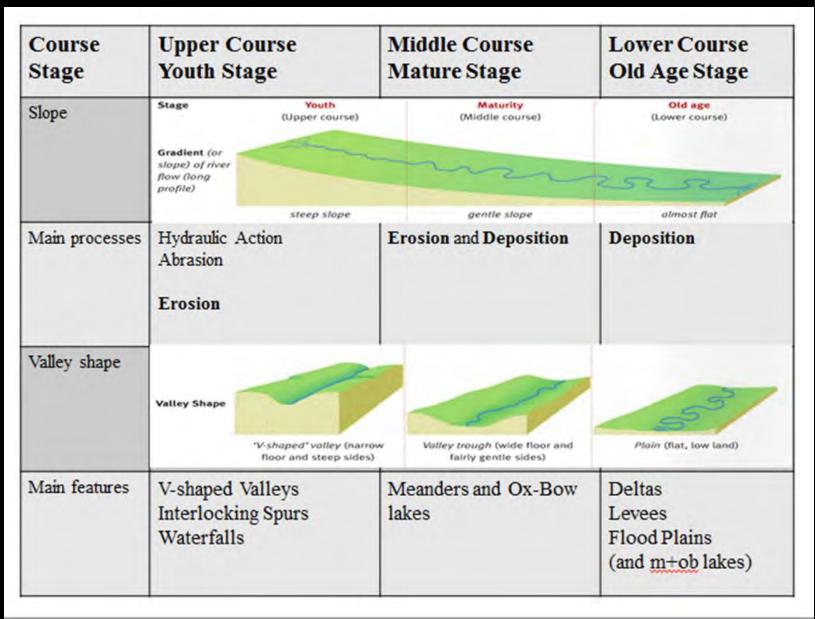
### Hemphill Park Flooding 1998



### Natural Hydrology vs. Urban Hydrology



### The Life of an Urban Creek Upper Course, Middle Course, Lower Course

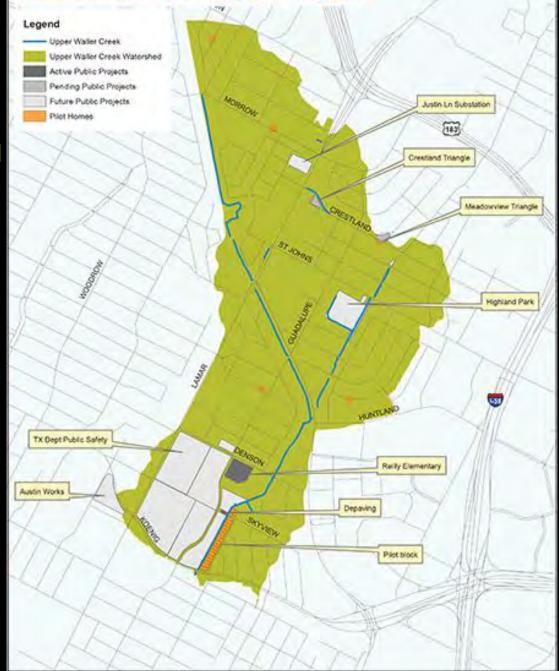


### **Upper Course – Headwaters**

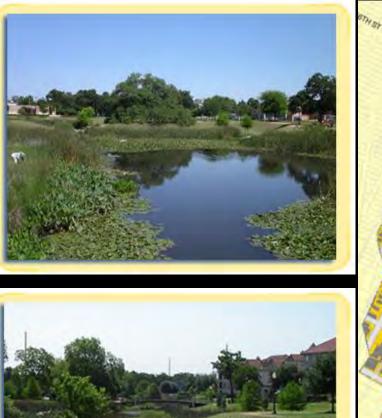
### The Rain Catcher Pilot Program

- a comprehensive effort to integrate and leverage the City's existing Green Stormwater Infrastructure (GSI) programs and resources.
- This small urban area is 2.8 square kilometers (1.08 square miles) with 46% impervious cover and limited options for traditional stormwater controls.
- Demonstration project sites within this area include Reilly Elementary School, West Skyview Road, several right of ways, and private homes.
- RAIN
  CATCHER
  PILOT
  PROGRAM

#### **Rain Catcher Pilot Program Projects**



- **Central Park Wet Pond**
- Constructed: 1998
- Location: Behind Central Market and the apartments at 38th Street and Lamar Avenue
- Pond Watershed: 173 acres
- Impervious Cover / Drainage Area: 54%
- Pollutant Removal: 50,000 lbs Total Suspended Solids (TSS) removed annually





### Middle Course – University of Texas





The University continues to grow and surround Waller Creek





FINAL BUILD-OUT Future Medical District Program

PHASE 2 Future Medical District Program



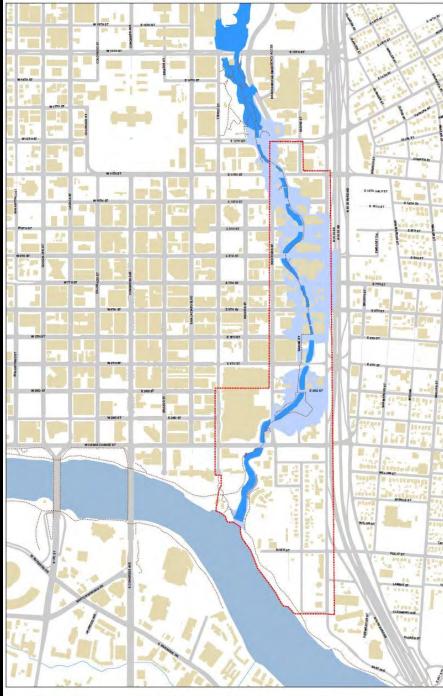






### Lower Course - 15<sup>th</sup> Street to Mouth





#### Lower Waller Creek

Legend 100-Year Floodplain - Post Project 100-Year Floodplain - Existing trails

### Lower Waller Creek – The Dump

"We trust you need no reminding that Lower Waller Creek, from Waterloo Park to Town Lake, is a dump. Or, to pinch a couple of the mayor's favorite phrases, "a running sore" and "an ugly hole in the ground."

This is a point that seems conceded by "citizen" and "developer" alike, though their visions of what Waller Creek should look like may vary."

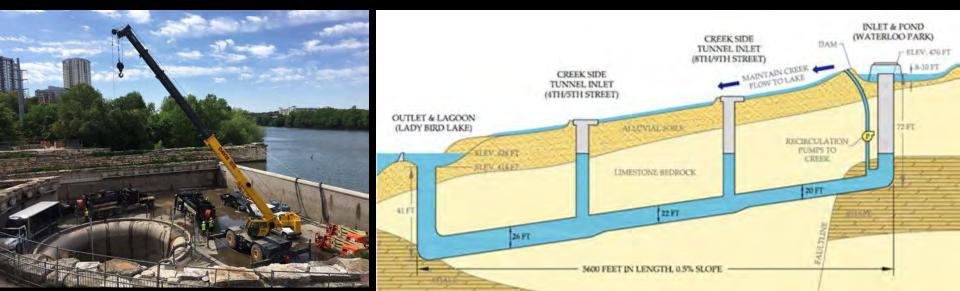
Mike Clark-Madison Austin Chronicle 2002







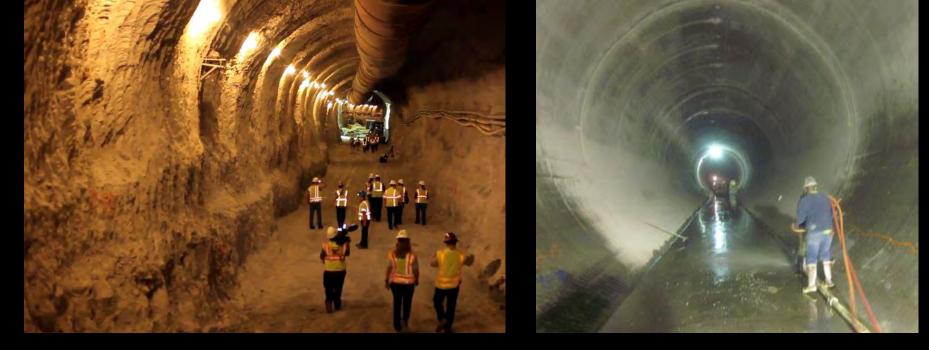
### The Cyborg Creek and Socioecological Nature

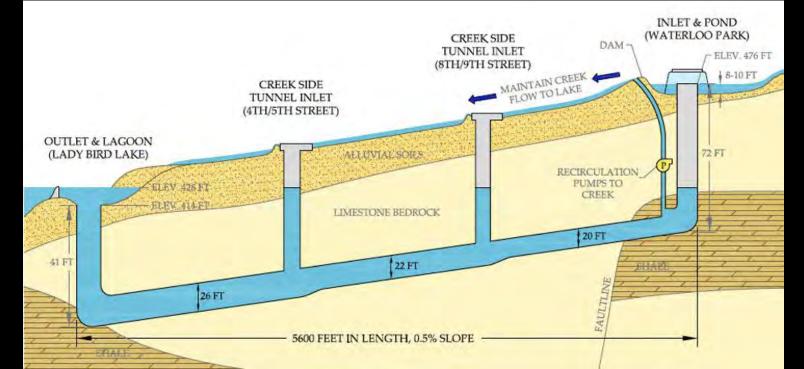


# **TUNNEL STRUCTURE**

- Waller Creek drainage area is 6 square miles
- Tunnel would be 5,400 feet long, 22 feet in diameter, 70 feet below Sabine Street
- Water will flow through the tunnel at 16 feet per second
- Water will be pumped, via the tunnel, from Town Lake keeping 3-4 feet of constant, permanent and pure water flowing through the creek at all times



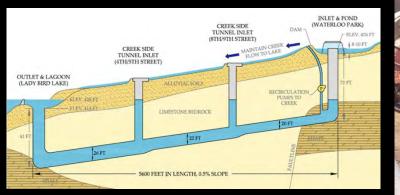














Waller Creek Conservancy









Waller Creek Conservancy

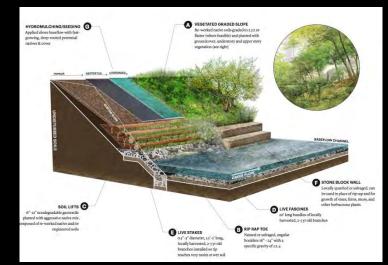




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ALL PASTA POU

# "Natural Character with Stream Stability"







# **Natural Character?**

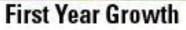
"A "Grow Zone" is an effort to halt mowing along streams and allow the growth of more dense, diverse riparian vegetation. This improves water quality, lessens erosion, increases wildlife habitat, and provides other ecosystem services. It is our hope that Austinites will embrace these changes and appreciate the benefits of natural stream corridors."





Mowed





5 to 10 Years

Grow

Zone

(No Mowing!)

Riparian Zones with tall grasses and plants :

Shade streams and lower temperatures Zona ribereña delicada

Improve water quality and quantity Stabilize streambanks from erosion

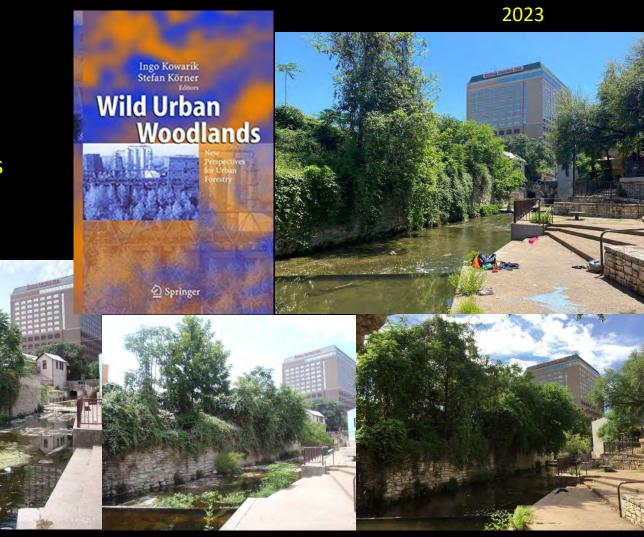
Provide wildlife habitat and food

Unauthorized Grow Zone – Waller Creek 7<sup>th</sup> Steet Bridge

The Wild Urban Woodlands of Waller Creek

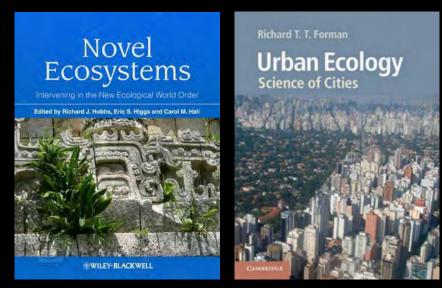
### Socioecological Nature

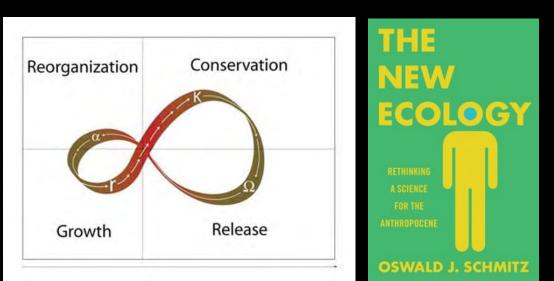
Dynamic Self Organizing Tolerant of Disturbance New Combination of Species



## New Ecology and Novel Ecosystems

- Assemblages of species in a given area that have not previously occurred.
- Novel ecosystems are not under human management, but they are mostly the result of direct or indirect human activities.
- They lack natural analogs (historical naturalness)
- The Adaptive Cycle
- Resilience and Ecology
- Socioecological Nature





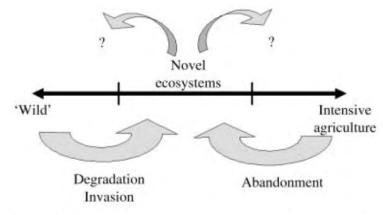
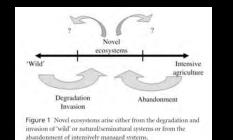


Figure 1 Novel ecosystems arise either from the degradation and invasion of 'wild' or natural/seminatural systems or from the abandonment of intensively managed systems.

### Resilience

...the ability to absorb disturbances, to be changed and then to reorganize and still have the same identity (retain the same basic structure and ways of functioning).

A resilient ecosystem can withstand shocks and rebuild itself when necessary.



Foundations of Ecological Resilience Lance H. Gunderson Grate R. Allent and C. E. Hadling

2007

2005









2009

2012

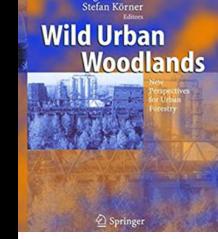


### **Process not Picture**

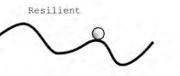
## The Wild Urban Woodlands of Waller Creek Prospective Naturalness and Prospective Ecology

"<u>the reference point</u> is not an original condition of a natural landscape, but rather a condition defined based on the current site potential and the greatest possible degree of self-regulation.

From this perspective, therefore, the natural capacity for **process** is the central point, <u>not</u> a particular, retrospectively determined and often idealized, *picture* of nature."

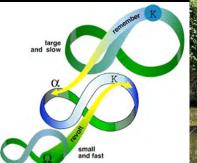


Ingo Kowarik







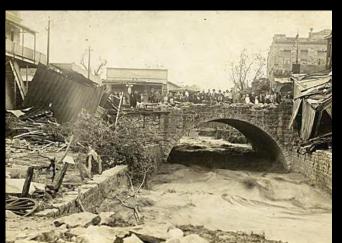




# Cultural/Human Geography Knowing and Inhabiting Waller Creek



Waller Creek Conservancy





waterloo greenway

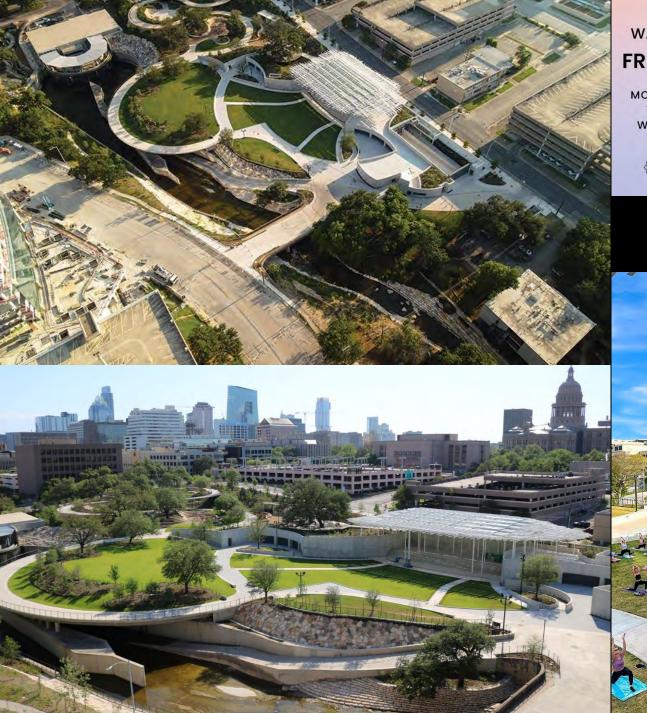












### WATERLOO GREENWAY FREE DAY OF YOGA

MONDAY, SEPTEMBER 4TH 12PM -12:45PM FLOW WITH MICHELLE & KIANA

WY VINYASA PRACTICE

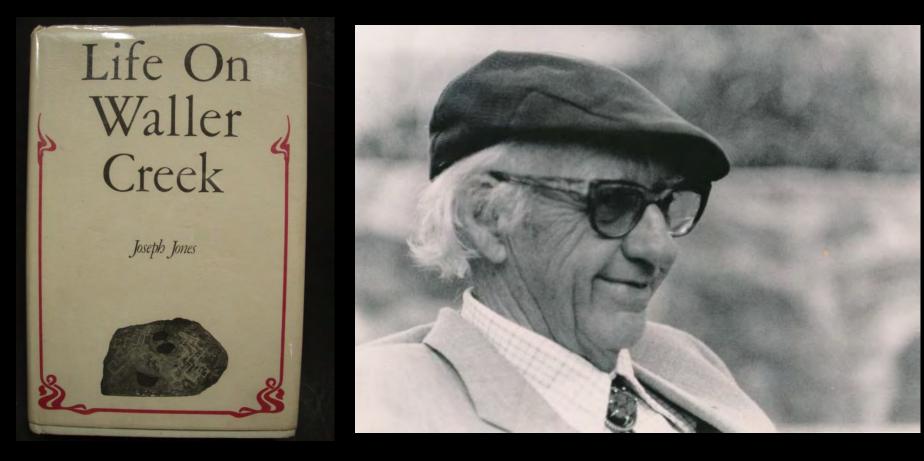




The Meaning of an Urban Stream

### Life on Waller Creek and Dr. Joseph Jones

### A Cultural Geography of Waller Creek



Austin's Waller Creek PROMISE FOR TOMORROW



PHILLIP FRY AND CAROLYN H.WRIGHT, EDITORS

### AN INVENTORY: JOSEPH JONES AND LIFE ON WALLER CREEK

#### by Kevin M. Anderson

There's an old codger down on Waller Creek, rearranging rocks. What in the world is he trying to do? -Joseph Jones, 1982

The old codger stood midstream in Waller Creek on a hot August morning, a muddy plastic bucket packed with an assortment of tools on a rock at his side. His dark blue cap and rubber boots were also marked by creek mud. He was too focused on his work to notice me settle in the shade beneath the bridge. He was building a small dam of stones to redirect the meager current of the creek into a pool of water on a limestone ledge. This diversion would create a small waterfall once the pool filled. As I watched him so absorbed in his creek-work, I recognized a kindred spirit, another creek meddler given to rearranging rocks and flows, and I silently admired the fun he was having. The old codger voiced his approval as the water pooled and spilled over the limestone, and he smiled, first at the splashing water and then at me. It would be over ten years later that I read his book and realized I had met Professor Joseph Jones on that hot August day at Waller Creek. By then, Joe was dead, and I was left to get to know him through his daughters and his other extraordinary work, Life on Waller Creek: A Palaver about History as Pure and Applied Education.

Forty years and more I have packed my lunch to Waller Creek. Only since retirement, though, have I felt I had time to spend undertaking small improvements along its rugged banks: ephemeral gestures to be sure, but good for body and spirit alike —an hour or so, three or four days a week, before lunch. Instead of going up the wall I go down to the Creek.

In this unassuming way, Joe begins his account of the

life history of Waller Creek and his own long engage-

ment with the creek. Professor Jones began teaching at the University of Texas in 1935, and each day he would walk

down to the creek from his office in the English Depart-

ment to eat his lunch and to put the stress of university life

in perspective. Like Thoreau, whose writing Joe studied

and loved, he kept a journal of his creek musings and ob-

servations. Waller Creek was Joe's Walden Pond, a place known intimately over a lifetime, and, like Thoreau, he

argued for the value of preserving wildness, finding it even

of the urban detritus found in the creek. He clearly loves

the creek as a site for nature encounter and for reflection,

but he deliberately undermines the seriousness of the con-

ventions of nature literature by including humans and our

environmental impacts as more than just something to be

lamented. The degrading artifacts of humankind that so

But, unlike Saint Henry and subsequent nature writers, Joe writes with a rare openness to the ruinous attractions

in a long settled place.

-Joseph Jones



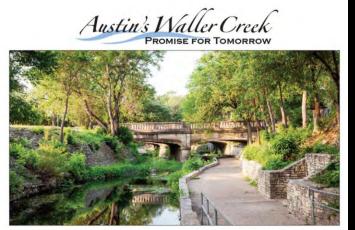
Kevin M. Anderson

(Left) Jones particularly loved this section of Waller Creek that flows under the 23nd Street bridge on the UT campus.

### "There's an old codger down on Waller Creek, rearranging rocks. What in the world is he trying to do?" (Jones, Preface Life on Waller Creek)

"The old codger stood midstream in Waller Creek on a hot August morning, a muddy plastic bucket packed with an assortment of tools on a rock at his side. His dark blue cap and rubber boots were also marked by creek mud. He was too focused on his work to notice me settle in the shade beneath the bridge. He was building a small dam of stones to redirect the meager current of the creek into a pool of water on a limestone ledge. This diversion would create a small waterfall once the pool filled.

As I watched him so absorbed in his creek-work, I recognized a kindred spirit, another creek meddler given to rearranging rocks and flows, and I silently admired the fun he was having. " (Anderson, "An Inventory" in *Austin's Waller Creek*)



PHILLIP FRY AND CAROLYN H. WRIGHT, EDITORS



Joseph Jay Jones 1908-1999

- Born in Nebraska, attended the University of Nebraska and graduated in 1930. Stanford University MA in 1931 and his PhD in 1934.
- Jones came to UT in 1935 and taught in the English Department for 40 years.
- Specialist in American Transcendentalism and the literature written in English outside England and America - Australia, New Zealand, the Union of South Africa, Canada, and other countries in which literature in English was prominent.
- Appeared in Richard Linklater's film Slacker 1990



### Life on Waller Creek:

### A Palaver about History as Pure and Applied Education (1982)

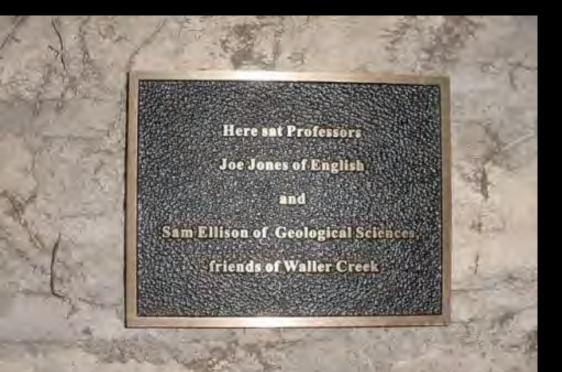
"Henry Thoreau found that "incessant labor with the hands, which engrosses the attention also, [was] the best method to remove palaver out of one's style," but for me – to judge from my title page – hand labor may have conspired to put the palaver *in*."

Palaver n. idle chatter



"Forty years and more I have packed my lunch to Waller Creek. Only since retirement, though, have I felt I had time to spend undertaking small improvements along its rugged banks: ephemeral gestures to be sure, but good for body and spirit alike – an hour or so, three or four days a week, before lunch.

Instead of going up the wall I go down to the Creek."

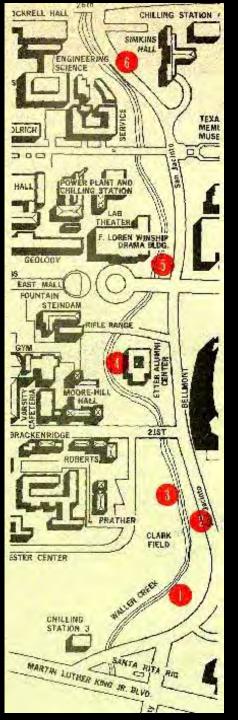




### **Constructive Meddling**

"I don't wear a ten-gallon hat, but I do lug along in a five-gallon green plastic bucket the rest of my tools: machete, (or corn knife, as I knew it in corn country), light sledgehammer, pruning shears, homemade hand pick (patterned after the Polynesian digging stick, which was made from forking tree-branches), and – occasionally – pruning saw and bobbed-off broom-rake."

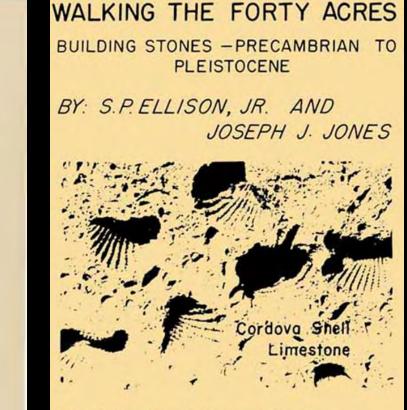




### Waller Creek Wilderness Trails and Adjuncts

By: S.P. Ellison, Jr., Joseph Jones, and Keith Young

Prepared for Members of the University of Texas at Austin Retired Faculty-Staff Association May 10, 1983



The University of Texas at Austin Retired Faculty-Staff Association

### WALKING THE FORTY ACRES

Waller Creek Wilderness Trails and Adjuncts



BY SF BLEON JE. JOSEPH JONES, and KETTH YOUNG

### "Inventory" – A Phenomenology of an Urban Creek

the casual, the accidental, the wayward

"If what has been tagged "Inventory" – appearing sporadically at numerous places throughout the rest of this book – strikes the reader as contemporary intrusion into the concerns of the past, so be it.

The past intrudes on us; why shouldn't we exercise our right of reciprocity?

But I hope it may suggest more than intrusion, a feeling of continuity outside either past or present, strictly viewed...

In italic passages, then, the casual, the accidental, the wayward all have a little more scope than straight narrative will stoop to tolerate."





### "the casual, the accidental, the wayward"

"The heavy-handed harvesters have been through the Creek bed again, leaving a havoc of twigs and chips and broken weeds and – well, that skinned look, which nature will soon heal over...

an orange plastic football, souvenir size, one of the kind seen on the tops of car aerials...

The most intriguing object I dug up with my short-handled shovel was a molded redplastic ring about 4 ½ inches in diameter and a bit less than an inch thick. It is continuous but not solid..."



## "Cretaceous Limestone Gutter" (Humanized Landscape) Humans as part of Nature – "part of the continuum"

"I would hope also that the reader, if he should tire of being reminded overmuch of *what an efficient trash-receiver (up to a point) the Creek has become in our day*, will exercise the reader's privilege of imagining what counterparts to an inventory of the 1970s-80s were almost certainly to be found in Waller Creek pretty steadily after 1839 and indeed even before.

But let him first accept himself as part of the continuum and become his own shortterm archeologist: such fugitive creek-things as I will be cataloguing here, when carried and buried, might be thought of as archeology going somewhere to happen."



### Traction, Mystical Rapture, and Grackles

"A yellow candy-wrapper...Plastic bottle for duplicator ink... Half a cement block...

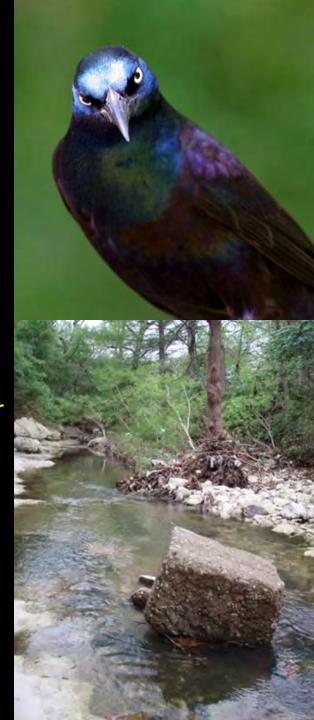
I don't know whether or not...anyone has yet experienced a genuine illumination or mystical rapture at Waller Creek. I haven't, myself, but I still would like to suppose that at a predestined place beside the easy-flowing water...there could come a moment that would go-for-broke: when the luminescence of the darting sunfish would be instantaneously intensified a thousand powers...

...and from masses of radiant leaves the grackles, no longer wheezing out half-whistles, would carol hymns of glory to God in seraphic harmonies...the many would coalesce and cohere and rejoice as one.

Maybe they do already and we can't perceive it; but then even if we could, who would believe us?...

A largish sheet-metal cylinder, very rusty...

Cypress needles help traction, too, on a slippery bank."



### Joseph Jones – the "Cretaceous Limestone Gutter" and Process

"The Creek is an ever-visible manifestation of continuity, of life; the amount and nature of what it carries along, in addition to its variable current of water, keeps changing; the bed is hardly the same from one day (or even hour) to the next, though the variations are normally undramatic.

Besides being part of the landscape, as one of the most active agents of landscapemaking, it is the sum total of many processes, and intricately integrated process in itself.

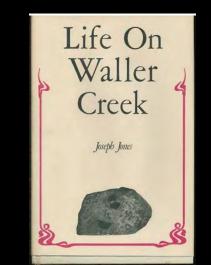
The fact that it has been interfered with by man, and continues to be interfered with, must be accepted as part of such *total process*, whatever opinion may be held as to the merits of the interferences, including certain sandbars, eddies, and transitory whirlpools in the writer's mind, commingled with less perishable small events in nature."



- "The Creek, if we will only let it, will keep reminding us of all this at the same time it offers us other gifts...
- Nature has not disappeared; only our nostalgic concept of it has. It is still available to us for daily satisfaction (not just on the frantic and frustrating vacation journey)...
- Nor do I mean just fragmentary, fugitive, residual pockets, though in far too many cities that is what nature has been allowed to become: I mean nature at its daily business, the force that will keep itself going with no better than half a chance, and that has marvelous restorative, regenerative powers, with or without man as its observer."









### Waller Creek - The Perennial Weed

"Waller Creek is that kind of a natural organism, very pertinacious, luckily almost impossible to kill – a perennial weed, so to speak."

Joseph Jones, *Life on Waller Creek* 

