

DROSSCAPES

RIPARIAN SURFACES AND EDGES



DROSSCAPE

Drosscape as a term and idea was first presented by Alan Berger in his book entitled Drosscape: Wasting Land in Urban America, written in 2006. Drosscape is a term used to define waste landscapes or spaces that are wasted within our urban environment. This projects seeks, as a subset of a larger list of identified dross typologies, to analyze riparian surfaces and buffers as a type of drosscape within the city of Knoxville,TN. Among this type of dross, other types of dross being explored as class are: vacant and abandoned properties, auto transportation, rights of way, buffers and periphery, building surfaces, and exhausted dross.

RIPARIAN BUFFER

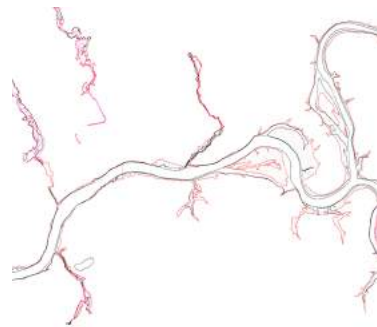
A riparian buffer is a vegetated area next to water resources that protect water resources from non-point sources of pollution and provide bank stabilization and aquatic wildlife habitat. The formal definition of riparian buffer is diverse and depends on the group or individual defining the term.

DEFINING KNOXVILLE'S RIPARIAN EDGE



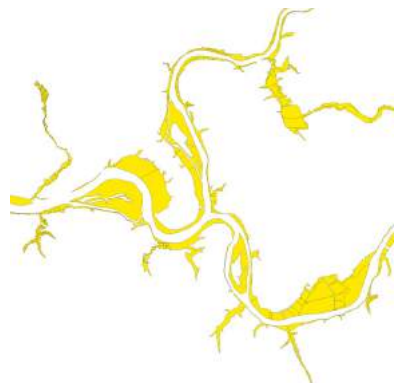
Property and Land use Data

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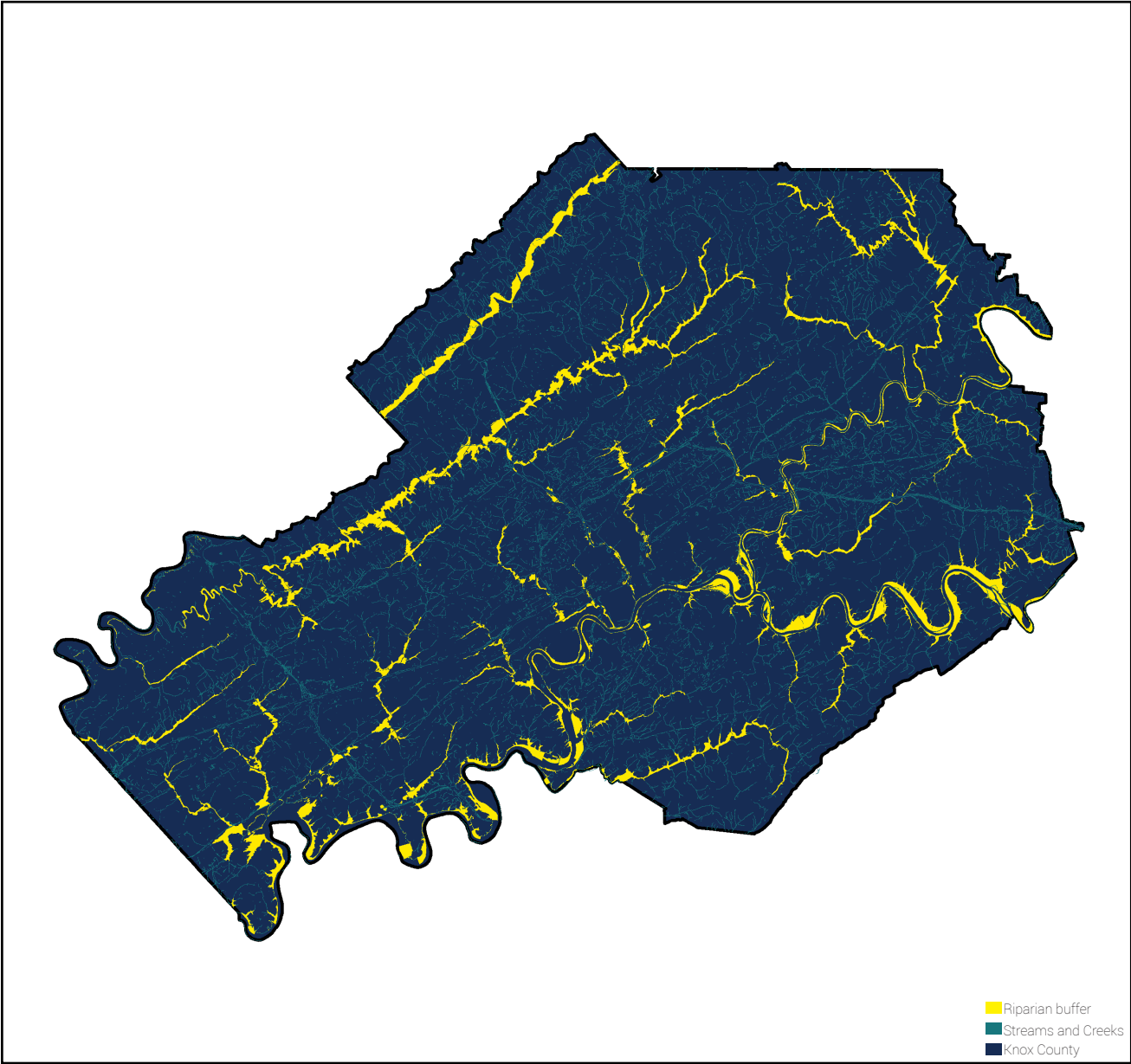


Floodplain

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Riparian Zone



21% OF KNOX COUNTY LAND IS RIPARIAN BUFFER

EDGE CONDITION

MATERIAL • CHANNELIZED _ RIP-RAP _ BARE

PHYSIOGRAPHY • BLUFFS _ LOW LAND _ ISLANDS

BLUFF



ISLAND



LOW LAND



BARE,EROSION



CHANNELIZED



RIP-RAP

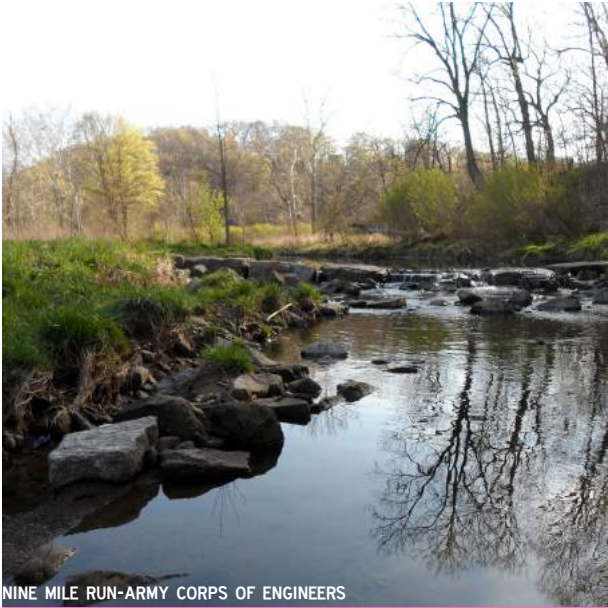


CAUSES + PURPOSES

As water flows through river and creek basins, it alters and defines both the land and materiality in a natural condition. Materiality and physiography both serve as a lens through which dross or wasted along the riparian edge can be classified. Rip-rap rock,eroded riparian zones with bare to minimal vegetation, channelized creeks, high bluffs, low territories, and islands can all be types of dross along the water's edge. Rip-rap was and is used as an erosion control measure along the Tennessee River and concrete channelization of the urban creeks served to reduce flash flooding and obstacles to development in urban areas. Erosion is a result of flooding, hydrologic cycles, and deforestation of the riparian buffer zone. Rip-rap, channelized streams, and bare eroded soil can all be a result of development and urbanization. High bluffs, low territories, and islands are all products of the physiography and landscape of East Tennessee. Bluffs, although mostly inhabitable were used during times of conflict as a monitoring and safety ground. Due to the steep topography, risk of flooding in low lands, and inaccessibility of islands on the river, these three forms of edge physiography are prone to dross.

LOCATIONS

The edge condition exists as a boundary between land and water. For this study, the edge was defined by the FEMA floodplain data. Every portion of land falling within the floodplain boundary is considered riparian edge.

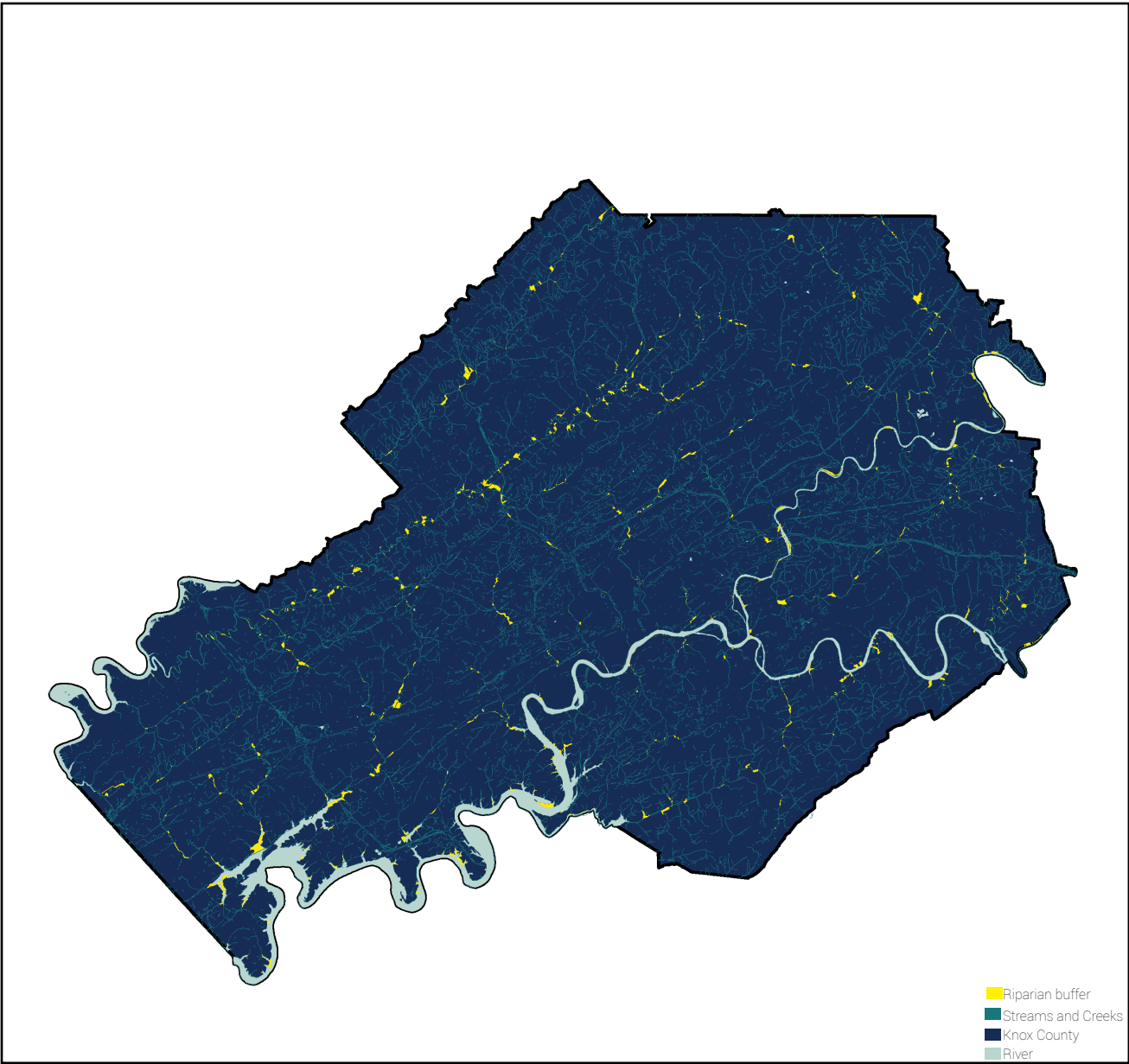


PRECEDENTS

Two precedent projects that show, in an exceptional way, how riparian zones can be designed to perform in a natural and environmentally productive way are George Descombe's Aire River Project (Geneva), and the Army Corps of Engineer and Nine Mile Run Watershed Association's project (Pittsburgh USA). Both projects aim to restore natural stream behavior through re-establishment of prior norms in the landscape in innovate ways. They imagine, for example, returning a channelized stream to its "natural" state.

LAND USE

UNUSED RIPARIAN LAND



10% OF RIPARIAN BUFFER
IS CLASSIFIED AS UNUSED LAND

CONSTRUCTION



FEDERAL



RESIDENTIAL



INDUSTRIAL



CAUSES + PURPOSES

Along the riparian corridor there are many uses of the landscape, and a majority of the land is currently in some form of productive use. However, there are parcels of land within the buffer that are classified as unused. A majority of these sites are a result of complex societal patterns and shifts in addition to land use policy, strategy, and allocation by the city and county governments. After further analysis, unused land was observed most predominantly in the form of construction sites along the river; vacant, abandoned, or otherwise undeveloped residential or commercial land; abandoned or unused industrial parcels; and unused federal land (such as islands owned by the Tennessee Valley Authority). Currently there are no purposes for this land and it is largely, unproductive and wasted space at the rivers edge.

LOCATIONS

Locations of unused and/or vacant lots within the riparian buffer in Knox County are shown in the map above. The sites appear to be dispersed throughout the city and county.



PRECEDENTS

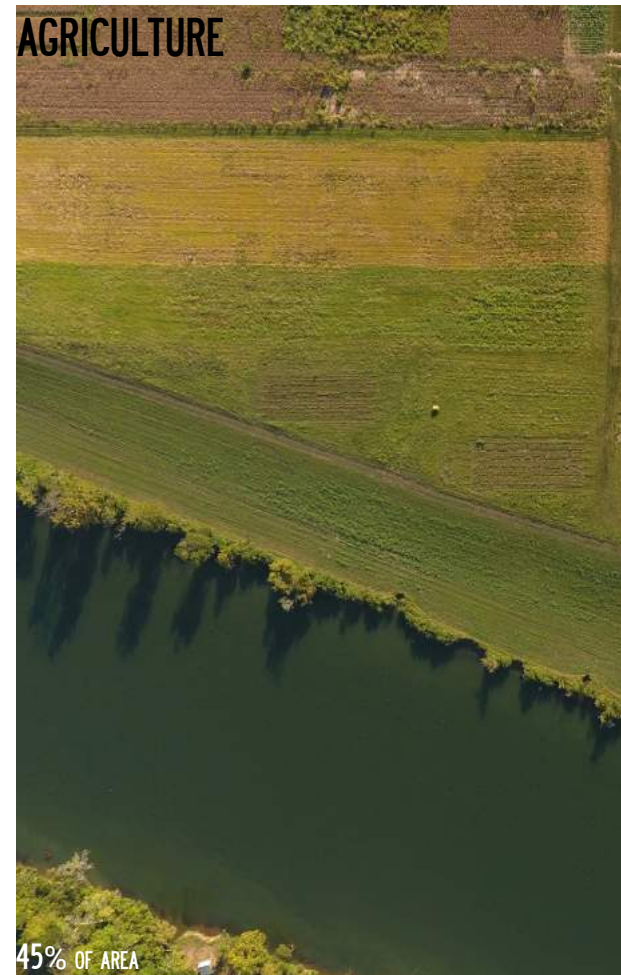
Renaissance Park in Chattanooga, TN by Hargreaves Associates and Living Breakwaters by SCAPE studio both show how unused land at the edge of a water body can be used to heal environmental and social problems while tackling complex twenty-first century issues such as brownfields and climate change/sea level rise. Both precedents are an exemplary case study about how to engage water edge and dross in a meaningful and highly performative way.

NORMATIVE CONDITION

FORESTED BUFFER

AGRICULTURE _URBAN _INDUSTRY _RESIDENTIAL

AGRICULTURE



URBAN



FORESTED BUFFER



INDUSTRY



RESIDENTIAL



NATURAL STATE OF THE RIPARIAN BUFFER

It is a staggering statistic, only 2% of the country's riparian zone still has vegetation. Vegetation along rivers and creeks is so important because it filters out pollutants in runoff, shades the stream and river to provide habitat for aquatic and terrestrial species, and stabilizes the land to prevent erosion, land-loss, and sedimentation. Water quality depends on vegetated buffers. The pristine, or completely untouched landscape within the riparian buffer zone is naturally vegetated. In the early 1800s, a wave of population growth and industry defined a new normal within the riparian zone. Lands were stripped of trees and vegetation to make way for industrial plants, agriculture, residential areas and urban areas. Today we still see a mixture of these normative conditions along the river bank in a mostly productive state. However, with the loss of the natural buffer zone, dross is more easily created when a man-made use no longer takes place within this zone (Ex: unused lands).

NATURAL, FORESTED RIPARIAN BUFFERS



Source: National Wild and Scenic River System