# The Natural History of an Urban Wasteland: Hornsby Bend

Kevin Michael Anderson, Ph.D. Austin Water Utility – Center for Environmental Research



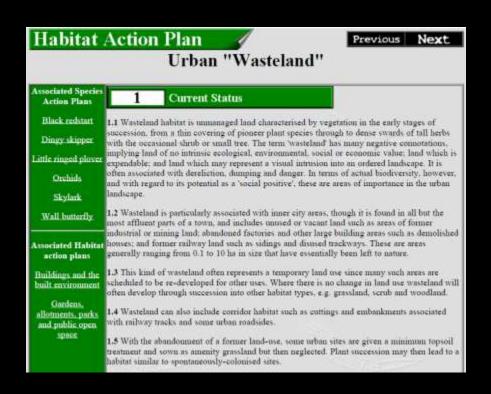


#### **Natural History**

#### Understanding whole organisms in context

Scientific - Ecological understanding shaped by cultural contexts

Literary - Cultural understanding shaped by ecological contexts





"The idea of nature contains, though often unnoticed, an extraordinary amount of human history."

#### **Sanctioned and Unsanctioned Nature**

In the United States, the foundational metaphors of Nature that we celebrate are <u>wilderness and pastoral arcadia</u>.

They are the basis from which we assess the value of nature in America.

However, we are now predominately a country of urbanites who have only occasional contact with wilderness or pastoral nature.















Our understanding of what constitutes "sanctioned" urban nature in cities is shaped by culturally dominant metaphors of nature.

These metaphors valorize urban nature that is either deliberately cultivated in parks and gardens or formally protected as remnants of native landscapes obliterated by the creation of the city in preserves, sanctuaries, and refuges.









We need to embrace the full continuum of a natural landscape that is also cultural, in which the city, the suburb, the pastoral, and the wild each has its proper place, which we permit ourselves to celebrate without needlessly denigrating the others.

William Cronon. Uncommon Ground: Rethinking the Human Place in Nature [1995]



# The Cultural Significance of Nature in the Wastelands

- •Urban wastelands offer oblique entry into contemporary struggles with the nature/culture distinction, for marginal places are access points into the American urban landscape that can illuminate our changing relationship with nature.
- •They are unique sounding boards for measuring attitudes toward nature since they provoke ambiguous responses of attraction and repulsion.
- •They are perceptual borderlands where contesting views of nature appreciation and urban land-use come together.
- Nature/Society Hybrid Places Human/Nonhuman Co-productions



What are the roots that clutch, what branches grow
Out of this stony rubbish? Son of man,
You cannot say, or guess, for you know only
A heap of broken images, where the sun beats,
And the dead tree gives no shelter, the cricket no relief,
And the dry stone no sound of water. Only
There is shadow under this red rock
(Come in under the shadow of this red rock),
And I will show you something different from either
Your shadow at morning striding behind you
Or your shadow at evening rising to meet you;
I will show you fear in a handful of dust.

- T.S. Eliot, The Wasteland







#### Wastelands - whole patches

- Vacant lots
- Dumpsites
- Industrial Wasteland
  - Brownfields
  - Greenfields
  - Quarries and Gravel Pits
- Urban Infrastructure Land
  - Power plants
  - Water treatment plants
  - Reservoirs
  - Wastewater treatment plants
     Sewage ponds
     Constructed wetlands
  - Stormwater retention structures
- Unusable Land bits and pieces
  - Slopes, gullies, corners, fragments

#### Margins – edges and ledges

- Urban waterways
- Canals, drainage channels
- Utility corridors
- Waysides
  - road waysides
  - railway verges
- Alleys paved, unpaved, grass
- Walkways and pathways
- Fencelines
- Walls and ledges
- Pillars and bridge abutments

# Perceptions of American Biologists, Ecologists, and Environmentalists

(Urban growth) replaces the native species that are lost with widespread "weedy" nonnative species. This replacement constitutes the process of biotic homogenization that threatens to reduce the biological uniqueness of local ecosystems.

Michael L. McKinney, "Urbanization, biodiversity, and conservation". Bioscience 52(10), (2002)

The discourse of American urban ecology, urban conservation biology, restoration ecology, and environmentalism is preoccupied by a retrospective longing for lost pristine nature and native habitats, and the rhetoric of warfare with invasive non-native species combines with a vision of urban landscapes as weedlands resulting in a bleak picture of urban ecosystems in America.

Warren "Perspectives on the 'alien' versus 'native' species debate: a critique of concepts, language and practice" *Progress in Human Geography* 31(4) (2007), 427–446.





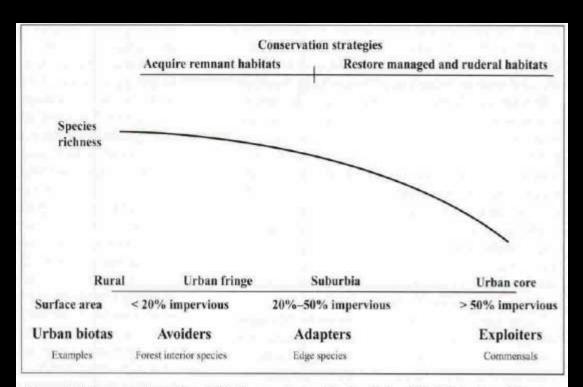


Figure 2. Urban-rural gradient. This is a very generalized and simplified depiction of changes in surface area, species richness, and composition, as compiled from a number of sources discussed in the text. Two basic conservation strategies with respect to urban sprawl are shown at the top.

McKinney, Urbanization, biodiversity, and conservation. *Bioscience* 52(10), (2002), 883–890.

# **European Urban Ecology**

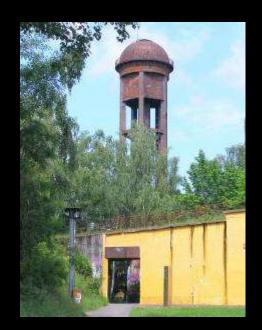
... the reference point is not an original condition of a natural landscape, but rather a condition defined based on the current site potential and the greatest possible degree of self-regulation. From this perspective, therefore, the natural capacity for *process* is the central point, not a particular, retrospectively determined and often idealized, *picture* of nature.

-Ingo Kowarik *Wild Urban Woodlands* (2005)

...although wild and rather specialist species may be missing, cities are great havens for biodiversity, in terms of both ecology and species, even in industrial areas.

-Anthony Bradshaw in Berkowitz, Understanding Urban Ecosystems: A New Frontier for Science and Education. (2003)

# Sudgelande Nature Park, Berlin







# Perceptions of European Urban Ecologists

Urban Wastelands - A cosmopolitan community of uniquely adapted ruderal organisms

The field laboratories where possibly new and well-adapted ecotypes of our native or naturalized wild plants will originate in the changed environmental conditions.

Ecosystems which have developed in urban conditions may be the prevailing ecosystems of the future.

Herbert Sukopp The soil, flora, and vegetation of Berlin's waste lands. In Nature in Cities, lan Laurie, ed. (1979)



# European Urban Ecology – "New Wilderness"

We understand these to be stands of woody plants, within the impact area of cities, whose form is characterized by trees and in which a large leeway for natural processes makes possible a convergence toward wilderness.

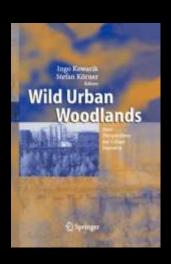
The wilderness character of these urban woodlands can vary greatly. We differentiate between two kinds of wilderness. The "old wilderness" is the traditional one; it may return slowly to woodland areas when forestry use has been abandoned...

This book would like to direct the attention of the reader to a second kind of wilderness, which we call "new wilderness."

Wild Urban Woodlands - Kowarik and Korner 2005







# Science for Environment Policy

DG Environment News Alert Service



08 November 2007

#### Benefits of Wastelands for the Protection of Urban Biodiversity

Recent research has emphasised the role urban wastelands can play in preserving biodiversity in urban areas. Large connected wasteland seems to be a significant source of floristic diversity and thus disseminates and colonises surrounding neighbourhoods. Scientists suggest that preserving wasteland in urban areas could be necessary to protect urban biodiversity.

Land use planning can have a significant impact on biodiversity. To address this concern, the European Commission issued a strategy on biodiversity in 1998 and four biodiversity action plans in 2001. In May 2006, the Commission adopted a Communication<sup>2</sup> which sets out an ambitious policy approach to halting the loss of biodiversity by 2010. In particular, it provides an EU Action Plan which proposed concrete measures and outlines the responsibilities of EU institutions and Member States, respectively. Furthermore, the European Commission also adopted a Thematic Strategy on the Urban Environment<sup>3</sup> in January 2006 aiming at improving the quality of the urban environment. However, even with this initiative, the specific link between urban wasteland and biodiversity has still received limited attention.

Recently, French researchers tried to determine the role of urban structures in the distribution of wasteland flora in urban areas. Within the framework of this study, they focused on 98 wastelands ranging from a few square meters to more than 18,000 m² over a French department in the greater Paris region. Researchers assessed three parameters quantifying the floristic importance of wastelands: the number of species, the frequency of occurrence of species and the proportion of indigenous versus naturalised species.

The main results from this study are as follows:

- Urban wastelands host a substantial proportion of the floristic diversity of cities: nearly 60% of the total species recorded over the whole department were found in the wastelands under study.
- Large wastelands and wastelands of intermediate ages contain the highest number of species, This
  is the result of the traditional evolution of floristic diversity; after some years of colonisation and
  competition among species, a relatively small number of species remain settled.
- Wastelands witnessing the presence of water within a close radius have a higher chance of containing rarer species. Adversely, acting as a biodiversity pool, urban wastelands could have a positive impact on the biodiversity of neighbouring areas according to the authors.
- Individual and collective dwellings around sites have a negative influence on the floristic significance
  of areas by reducing their overall quality: rare species are less frequent in this type of wasteland.
- Unexpectedly, the environmental characteristics of the area, such as geomorphology and exposition, were not crucial factors in the floristic importance of wastelands. Though these parameters are considered unavoidable by the authors, no evidence could be provided by the study: the fragmentation of the landscape, and the introduction and covering of alien substances in wastelands could have hindered these parameters.

Overall, the authors suggest that the maintenance of wastelands is necessary considering their role in the spreading of species and the colonisation of surrounding areas. Large and connected wastelands contribute to the preservation of biodiversity in urban areas. Therefore, this study provides new insight in the dynamics of biodiversity in urban areas that could be taken into consideration when planning urban land use.

# **Habitat Action Plan**

# Urban "Wasteland"

#### Associated Species Action Plans

Black redstart

Dingy skipper

Little ringed plover

Orchids

Skylark

Wall butterfly

#### Associated Habitat action plans

Buildings and the built environment

Gardens, allotments, parks and public open space

# 1 Current Status

- 1.1 Wasteland habitat is unmanaged land characterised by vegetation in the early stages of succession, from a thin covering of pioneer plant species through to dense swards of tall herbs with the occasional shrub or small tree. The term 'wasteland' has many negative connotations, implying land of no intrinsic ecological, environmental, social or economic value; land which is expendable; and land which may represent a visual intrusion into an ordered landscape. It is often associated with dereliction, dumping and danger. In terms of actual biodiversity, however, and with regard to its potential as a 'social positive', these are areas of importance in the urban landscape.
- 1.2 Wasteland is particularly associated with inner city areas, though it is found in all but the most affluent parts of a town, and includes unused or vacant land such as areas of former industrial or mining land; abandoned factories and other large building areas such as demolished houses; and former railway land such as sidings and disused trackways. These are areas generally ranging from 0.1 to 10 ha in size that have essentially been left to nature.
- 1.3 This kind of wasteland often represents a temporary land use since many such areas are scheduled to be re-developed for other uses. Where there is no change in land use wasteland will often develop through succession into other habitat types, e.g. grassland, scrub and woodland.
- 1.4 Wasteland can also include corridor habitat such as cuttings and embankments associated with railway tracks and some urban roadsides.
- 1.5 With the abandonment of a former land-use, some urban sites are given a minimum topsoil treatment and sown as amenity grassland but then neglected. Plant succession may then lead to a habitat similar to spontaneously-colonised sites.





# Biodiversity Action Plan for Birmingham and the Black Country

1.9 Many wasteland sites are eyesores that attract public abuse such as fly-tipping and bonfires. Nevertheless they have an intrinsic value to local and regional biodiversity and conservation, and with low levels of care many could be turned into sites of importance for local communities.

1.10 To avoid the pejorative term 'wasteland', Oliver Gilbert has proposed that such areas be termed 'urban commons'.

# **European Literary Urban Natural History**

# Finding Our Bearings in the Urban Landscape

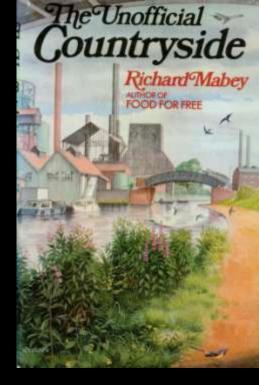
# "Unofficial Countryside"

I have called it the unofficial countryside because none of these places is in the countryside proper, nor were they ever intended to provide bed and board for wildlife...This is a scrappy definition, I know, covering everything from a planned suburban playground to the accidentally green corner of a city-centre parking lot.

Yet I think all these places do have one quality in common, and that is that, in them, the labels 'urban' and 'rural' by which we normally find our bearings in a landscape, just do not apply.

It is not the parks but the railway sidings that are thick with wild flowers

Richard Mabey, Unofficial Countryside (1973)



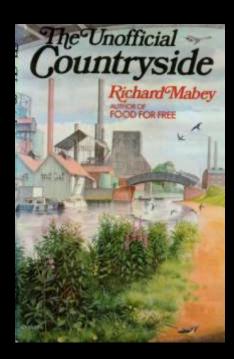


#### A Year in the Wastelands of London

# **Biological Slumming and Natural History**

"The medium is an account of a year in the unofficial countryside, based chiefly around my personal observations and experiences...the danger in this approach is being tempted into some biological slumming. The habitats I've described in this book are in no way a substitute for the official countryside. Nor are they something to be cherished in their own right, necessarily. The last thing I want to do is to excuse the dereliction, the shoddiness and the sheer wastefulness of much of our urban landscape."

"It is amazing how romantic these pockets of ragamuffin greenery can begin to seem, nestling, like Frances Burnett's Secret Garden, behind the factory walls."



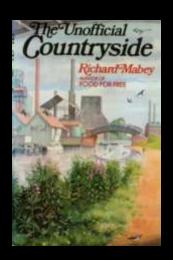


#### Nature's Fight Back –

"For it is nature's fight back which is such an inspiration, her dogged and inventive survival in the face of all that we deal out. It is a survival story, and what it can mean for us, that is the subject of this book."

"If the ability of wildlife to survive literally on our doorsteps is remarkable, its persistence in the face of this ceaseless change is amazing. It is also, I find, amazingly cheering. For it is a bleak view to see this story as nothing more than one of survival, with Nature irrevocably opposed to Man, forever just holding on. Looked at more hopefully it is a story of coexistence, of how it is possible for the natural world to live alongside man, even amongst his grimiest eyesores."









#### **American Urban Natural History**

#### finding bearings in a disorienting landscape

This is the landscape that nobody wants. It's my cup of rejection: Driven to this unformed scraggly ignored backlot, this not-quite Prairie, not-quite thicket, not even natural corner of Texas, the hardscrabble left butt of a demoralized nation, It is my choice and my pleasure to cherish this haphazard wilderness. No, it's not even "wild" – it's a neglected product of artifice. Come, let us walk by an improvised lakeshore, be given a vision: Beaches of black dust, beautiful white ghosts, this drowned forest...

Hadean Eclogues

Poems by Frederick Turner

- Frederick Turner, first stanza "Texas Eclogue" in Hadean Eclogues (1999)



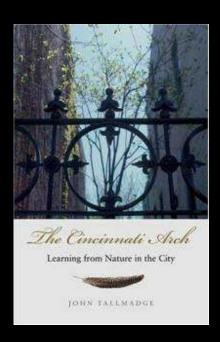


#### American Urban Natural History - Urban Nature as Chaos

Urban nature is not sublime...There's too much sterility in the form of roofs and pavement, and, oddly enough, there's also too much wildness, too many weeds and wooded borders and tangled banks, not to mention vacant lots going to brush.

Of course, "wilderness" won't do to describe such landscapes either. Despite the degree of wildness, there's too much human impact, too many alien species, too few large animals to meet the legal and cultural criteria.

The fact is that urban landscapes are just too mixed up, chaotic, and confused to fit our established notions of beauty and value in nature. ... Maybe it's not really nature at all, not a real ecosystem, just a bunch of weeds and exotics mixed up with human junk.



John Tallmadge The Cincinnati Arch: Learning from Nature in the City (2004)





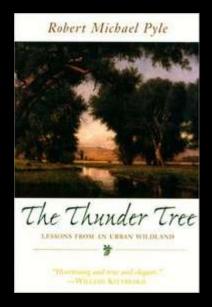
#### The Balm of the Accidental Wilds

"What do shreds and scraps of the natural scene mean, after all, in the shadow of the citified whole? What can one patch of leftover land mean to one person's life, or to the lives of all who dwell in the postindustrial wasteland?"

"More and more, we are discovering that the authentic wilderness of the mountains and deserts, though essential, is not enough to provide for a largely urban and overbloated population of humans. We need to keep some vacant lots, some big old hollow trees, some brush.

We need the Country in the City, the balm of the "accidental wild." "

Robert Michael Pyle, The Thunder Tree (1993)







# Ruinous Attractions – Social Space

Many waste places have these ruinous attractions: release from control, free play for action and fantasy, rich and varied sensations. Thus children are attracted to vacant lots, scrub woods, back alleys, and unused hillsides...those screened, marginal, uncontrolled places where people can indulge in behavior that is proscribed and yet not harmful to others — are regularly threatened by clean-ups and yet are a necessity for supple society.

- Kevin Lynch Wasting Away (1990) p. 26.





# Ruinous Attractions – The paradox of meddling

What a place it would be for children! They could dip in the ponds, rummage through the piles of old wartime haversacks, and pick flowers to their heart's content – it would make no difference to the abundance of this place.

But I doubt if they will get the chance. Such a desirable area of vacant ground, right on the edge of an expensive residential estate, will not stay as wasteland for long. It might be saved by being designated as a nature reserve (it is rich enough) and be improved into the bargain.

But I must confess that I cherish the hope that it will live out what little time is left to it unmolested by any humans, naturalists or not. They might keep the scrub back and introduce waterweeds to the ponds, but I fear they would lose the place its sense of wonder and surprise.

Mabey (1973) pp. 156-7.



What, to a curious kid, is less vacant than a vacant lot? Less wasted than waste ground?

But nature reserves and formal greenways are not enough to ensure connection. Such places, important as they are, invite a measured, restricted kind of contact.

When children come along with an embryonic interest in natural history, they need free places for pottering, netting, catching, and watching...we all need spots near home where we can wander off a trail, lift a stone, poke about, and merely wonder: places where no interpretive signs intrude their message to rob our spontaneous response...

For these purposes, nothing serves better than the hand-me-down habitats that lie somewhere between formal protection and development.

- Robert Michael Pyle, The Thunder Tree (1993)













# Wastewater Sludge Treatment Facility

Hornsby Bend BMP ◆ 2210 FM 973 ◆ Austin TX 78725



# Austin Water Utility Hornsby Bend Biosolids Management Plant











**Austin Water Utility** 

Hornsby Bend Biosolids Management Plant

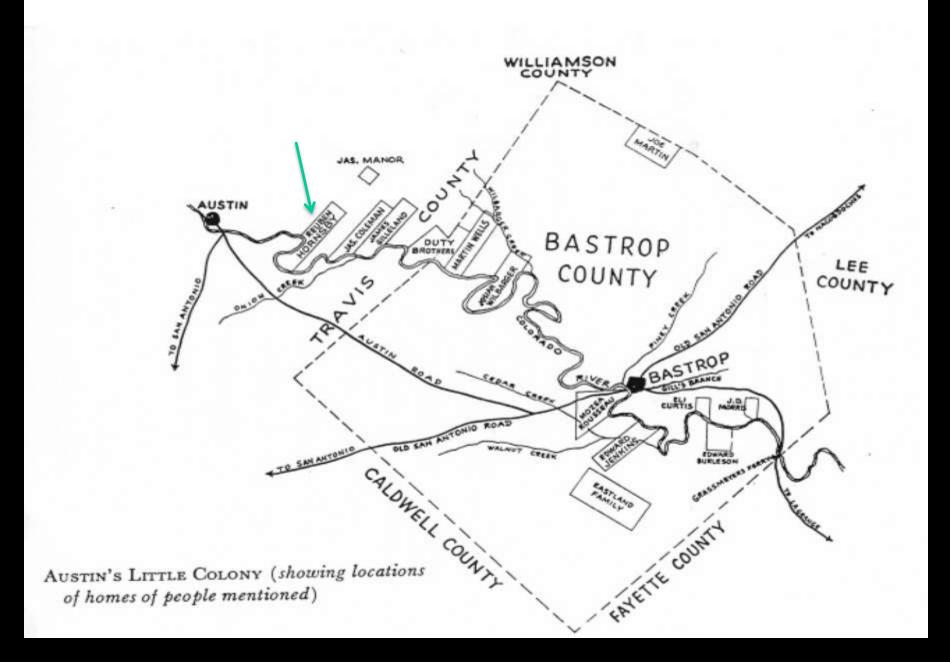
1200 acres

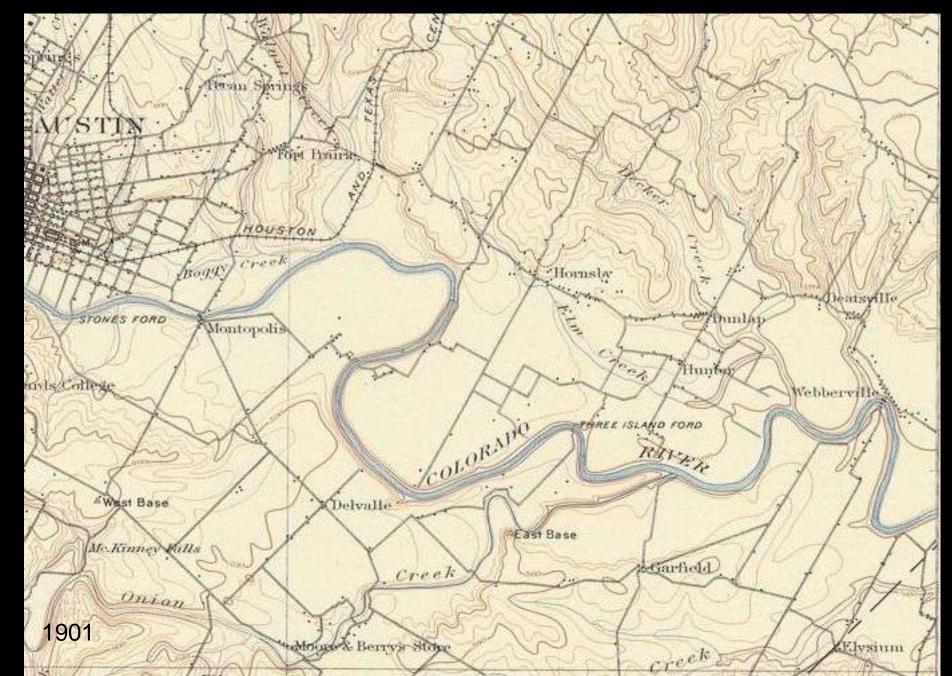
3.5 miles of River

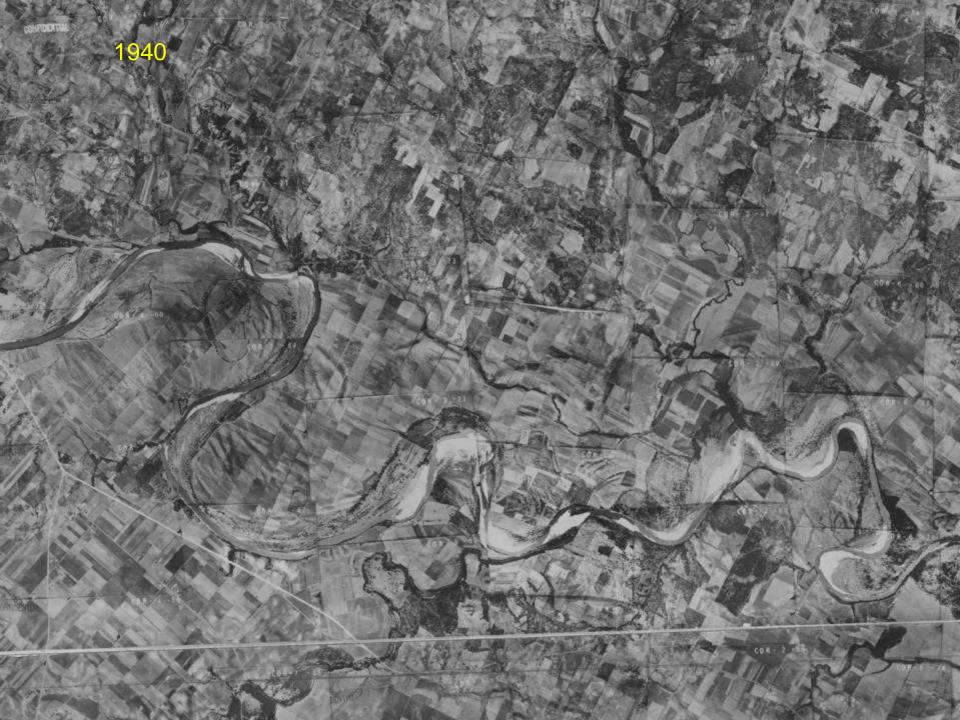






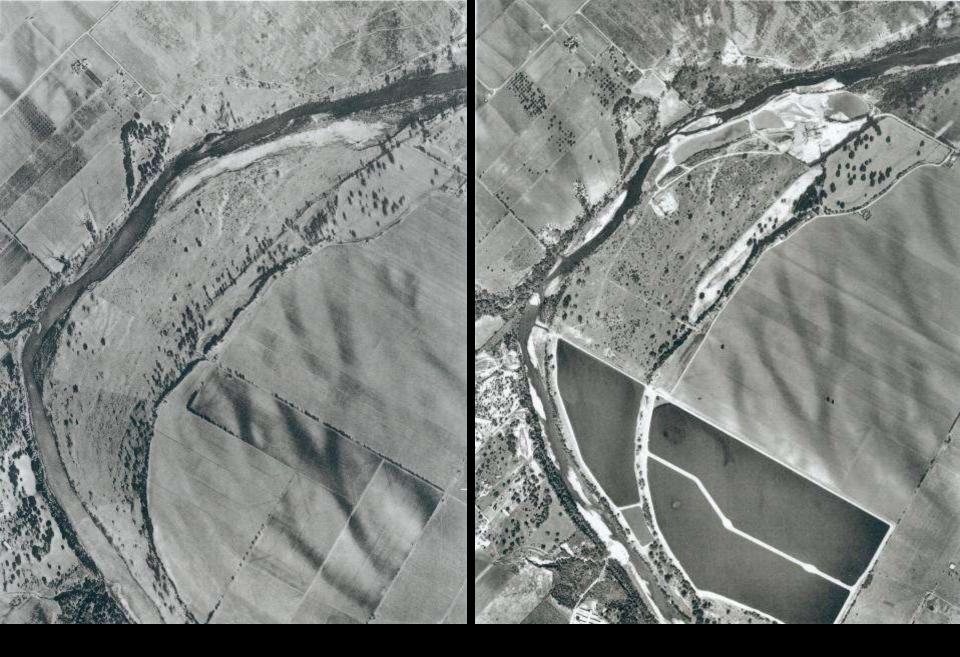








3402 Montopolis Bridge, Colorado River, south of Austin

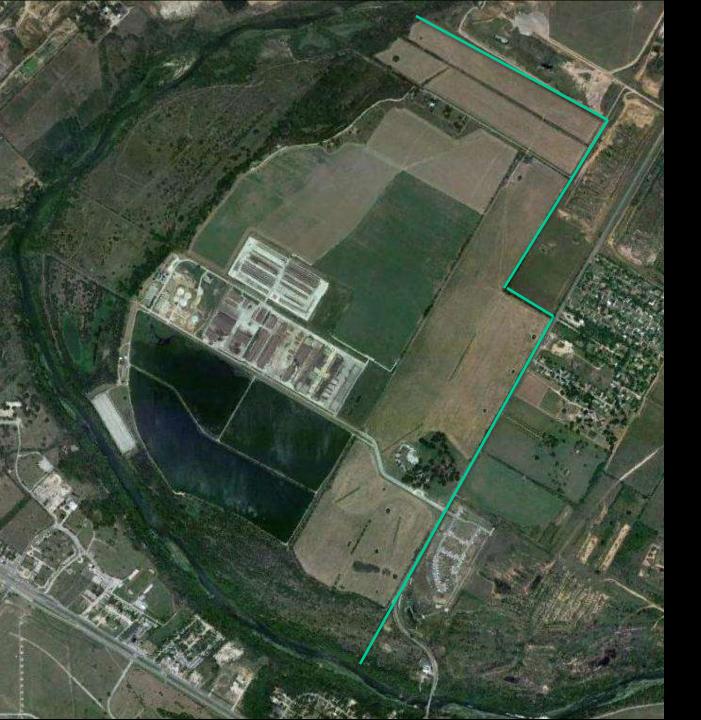




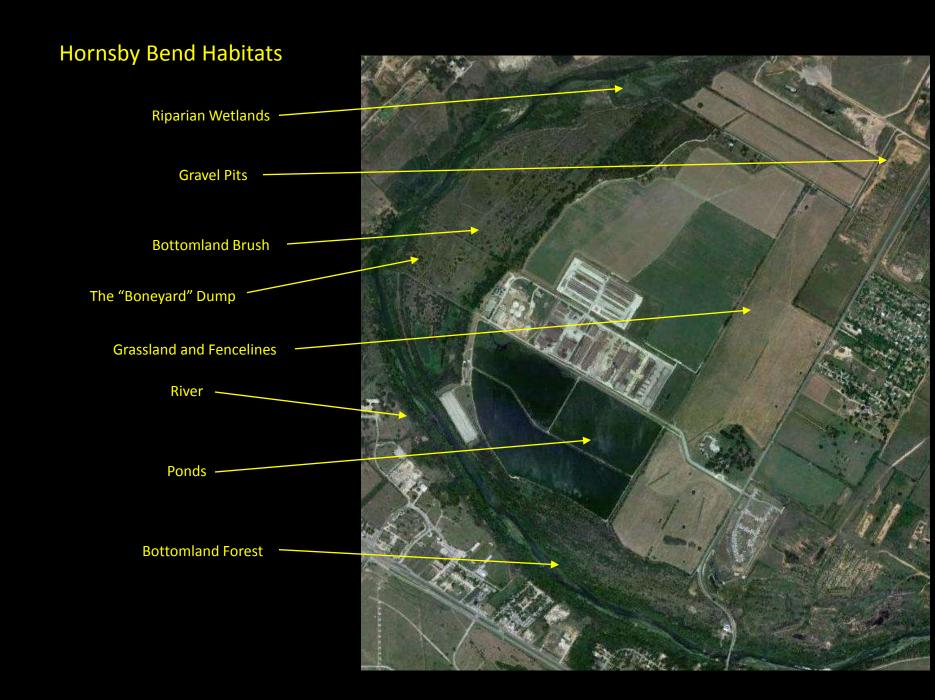








Austin Water Utility
Hornsby Bend
1200 acres
3.5 miles of River



# Habitats at Hornsby Bend

















# The "Boneyard" Dump

- •Discarded equipment and pipes
- •Skunks, snakes













## **Derelict Barns and Buildings**

- •Shelter bobcats, snakes, raccoons, skunks, and more
- •Nesting Owls, wrens, mockingbirds











Gravel Pits [Platt Lane]











# The Ponds









# 50 YEARS OF BIRDING



Hornsby Bend 19592009 The first birders found the "Platt" ponds at Hornsby Bend in 1959.

George Frank "Pancho" Oatman, a young birder from Austin who was visiting relatives in Del Valle for the Thanksgiving Holiday, noticed ducks flying across the Colorado River.

Guessing that there must be ponds nearby, Pancho explored the area and became the first birdwatcher to discover the sewage facilities at Hornsby Bend.

On his initial visit, he spotted waterfowl in large numbers—unusual for the Austin area—including four female common goldeneyes and a single Bonaparte's gull—both firsts for Travis County.

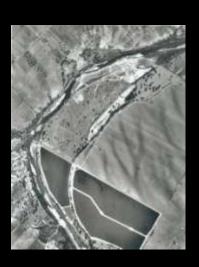
He excitedly phoned other birders with his news. Local experts Edgar Kincaid and Fred Webster joined Pancho at the ponds the next day with John and Rose Ann Rowlett.

The rare birds were still there. Oatman and the Rowletts visited the facility again on 27 November and discovered two additional Travis County firsts—a dunlin and two lapland longspurs.

Rob Fergus, The Birds of Hornsby Bend, Master's Thesis, University of Texas, 1999







### John and Rose Anne Rowlett

George Frank Oatman, Jr.'s sensational discovery *for birders* of the Platt sewage ponds on November 26, 1959 not only constituted the single most exciting Travis County event in the lives of all Austin birders who had a pulse, but it quickly led to the accumulation of considerable inland avian data that had not previously existed.

Frank, Rose Ann, and I (as well as many others) have notes that document its source of pleasure and importance during the 60s, and much of the data was incorporated into the maps and text of *The Bird Life of Texas* (1974).

That data has been augmented greatly by further data collected over the past 40 years, generated by frequent observation and more systematic data collection efforts such as the valuable monthly surveys now being conducted at Hornsby's Bend, much of it documented periodically in the ornithological literature.

There's just nothing like it! Indeed, such is the case here in Charlottesville—there is, alas, nothing like it—and those like myself who have tasted its riches are left to waste away.

So I miss, especially every fall, the Platt Wasteland, which is, so far as I can determine, "the original wasteland" where the appreciation of waste for birding became apparent, and I remain grateful for Frank's salutary discovery.

As someone who has had his eyes opened by (and, I'm afraid, open under) wastewater of Austin, wasteland birding was never a waste of time.





#### Victor Emanuel

In 1993, he was the recipient of the Roger Tory Peterson Excellence in Birding Award, given by the Houston Audubon Society in recognition of a lifetime of dedication to careful observation, education, and addition to the body of avian knowledge.

In 2004, he received the Roger Tory Peterson Award from the American Birding Association, and the Arthur A. Allen Award from the Cornell Laboratory of Ornithology.

Victor is a member of the board of the Cornell Laboratory of Ornithology, and the American Bird Conservancy.



Victor Emanuel with David Sibley at the Hornsby Bend ponds with reporters for promotion of the Sibley Field Guide to Birds







**Greg Lasley** 









Wildlife photographer **Greg Lasley**, who lives in Austin, Texas, is well-known to the national birding community. A retired police officer and part-time nature tour leader, Lasley was secretary of the Texas Bird Records Committee of the Texas Ornithological Society for many years and also wrote the Texas regional section in what is now the American Birding Association journal *North American Birds*. His photographs have been published in over one hundred magazines, journals, and books.





## John Ingram

John Ingram's recent work in digital photography combines his interest in nature and science.

John holds university degrees in Chemistry, Geophysics, and Aeronautical and Engineering Sciences.

He has worked as a professor of mathematical sciences at Rice University, and corporate vice president and chief technical officer of Schlumberger Limited. Most recently, he has served on the external advisory boards of the School of Earth and Planetary Sciences at California Institute of Technology, the School of Computer Sciences at Carnegie Mellon University, and the Center for Research in Parallel Computation at Rice University.



















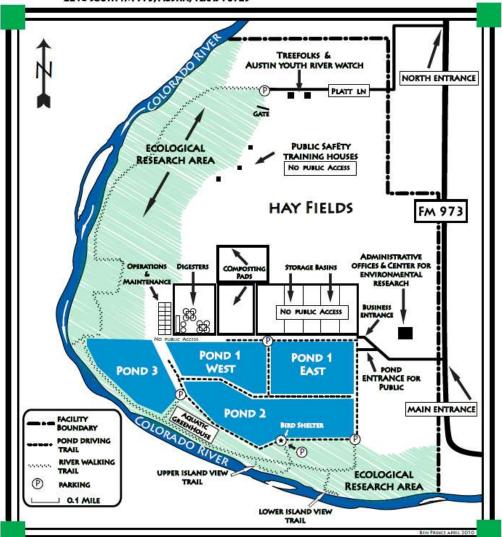
### HORNSBY BEND

#### BIOSOLIDS MANAGEMENT PLANT





FACILITY OPEN TO THE PUBLIC SUNRISE TO SUNSET EVERY DAY OF THE WEEK 2210 SOUTH FM 973, AUSTIN, TEXAS 78725





For more information contact the AWU-CER 512-972-1960

Hornsby Bend is open
7 Days a week
Dawn to Dusk

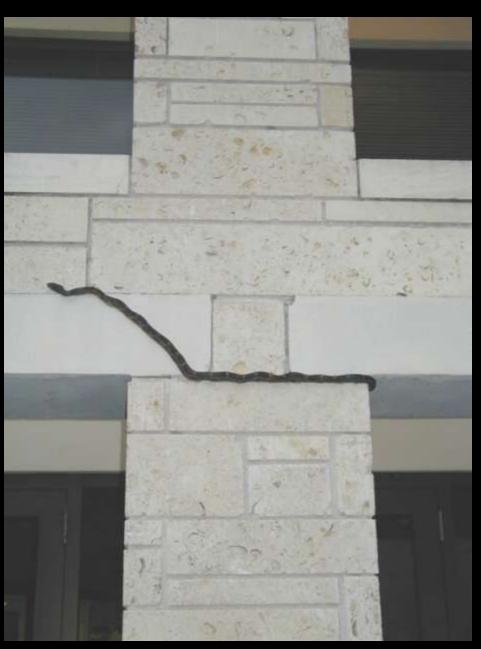












Beautiful flower in your garden
But the most beautiful by far
Is the one growing wild in the garbage dump
Even here, even here, we are

14 SONGS PAUL WESTERBERG

14 SONGS

PAU

WESTERBERG

Song by Paul Westerberg, "Even Here We Are" (14 Songs, 1993)





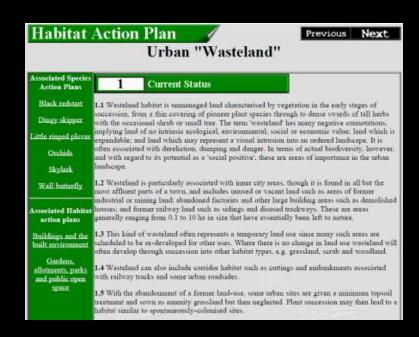


## **Natural History**

Understanding whole organisms in context

Scientific - Ecological understanding shaped by cultural contexts

Literary - Cultural understanding shaped by ecological contexts





"The idea of nature contains, though often unnoticed, an extraordinary amount of human history."

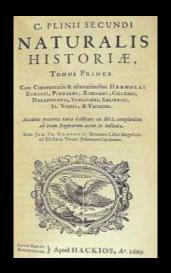


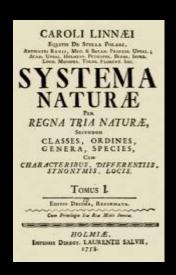
## Austin **Center for Environmental** Research at Hornsby Bend

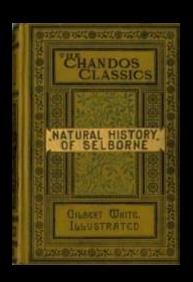
**AWU-CER Lunchtime Lectures** February – December 2012

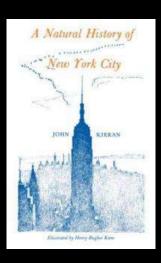
2012 - A Year of Natural History: Origins, Practices, and Examples

December 4 at Dougherty Arts Center - Natural and Unnatural History: the Path Forward December 18 at City Hall - Natural and Unnatural History: the Path Forward









**JAJATER**