

Sticks & Stones

Buffalo Bones

2006 edition –update of the 1993 edition of “A Kids’ Guide to Buffalo Bayou”

Buffalo Bayou

By Dee Hruska
for Keep Houston Beautiful

Buffalo Bayou is a fresh water stream that flows from west to east through the middle of Houston. It is Houston’s biggest waterway.

Some people say that Buffalo Bayou was named for the buffalo that once roamed the land, others say it was named for the hundreds of buffalo fish that once swam in its clear water. Some say that it was here that the buffalo began. Some people say that the buffalo tree, which we know as the magnolia, was given to the people who lived here long, long ago as a reminder of the Great White Buffalo and its message: Care for our land and waters and the air that surrounds them.

Keep Houston Beautiful Legend of the White Buffalo

Once upon a time, in the long ago days before the City of Houston came to be, a brave and proud people walked the land. They made friends with the trees that grew there and with the animals that walked there.

The people gave names to the trees — names like “sweet gum” and “dog wood.”



They gave names to the flowers — names like “paint brush” and “blue bonnet.” They called the birds “blue jay” and “mocking bird.” The water that carried their canoes and that gave drink to them and to the animals was called “bayou.”

One animal was a special friend to the people. This animal gave its meat for food. This animal gave its skin and fur for clothes to wear and homes in which to live. Every part of the animal was used by the people. This animal was called “buffalo.”

There were many, many buffalo in the land. All of them could be used for food and clothes and homes - all except one. This one was the sacred and beautiful Great White Buffalo.



The Great White Buffalo walked beside the bayou and drank its clear water. Its favorite spot to rest was beside a great green tree that grew there.

When the people saw the Great White Buffalo, they were reminded to take care of their beautiful land and its waters and the air all around to keep them always clean.

And so, the people lived happily by the bayou with the trees and the flowers and the birds - and the buffalo.

One day, something happened that would change the way of the people forever.

Some different people came to the land. They did not know the ways of the people who lived by the bayou. They did not know about the Great White Buffalo. They earned guns and before long, most of the buffalo were gone.

Once day, the White Buffalo was gone, too.

Original date: April 1, 1993

The people of the land were sad and afraid because the buffalo were gone. They were especially sad because the Great White Buffalo was gone. For many moons, they offered prayers and dances to the Great Spirit.

Then one day as the sun rose beside the bayou the people saw a wondrous thing! The great green tree that had been the favorite of the beautiful Great White Buffalo was changing. Between the leaves appeared magnificent white blossoms! Their sweet smell was everywhere!

The people were filled with joy because they felt the Great Spirit had sent the beautiful white flowers in place of the lost White Buffalo to remind them to care for the land and its waters and the air that surrounds them- to keep them always clean

The people named the tree “Buffalo tree” and the water beside which it grew- “Buffalo Bayou”.

The Great White Buffalo was never seen again. but each year, in the springtime - even now - the great Buffalo Trees beside Buffalo Bayou burst forth in beautiful white blossoms!

Today we call the Buffalo Tree magnolia. Today we call the land where the White Buffalo walked Houston!

And today, if we remember and follow the message of the Great White Buffalo, maybe just maybe- we will see him walk beside Buffalo Bayou once more.

To Parents and Teachers:

On August 30, 1836, Houston was born on the west bank of Buffalo Bayou where it meets White Oak Bayou.

Staggering 51 miles across country to meet Galveston Bay, Buffalo Bayou was used from the beginning for drinking, bathing, and transportation. Within four years, there was so much traffic upon the pristine stream that it was known as "The National Highway of the Republic". For 51 years, it was the only source of drinking water other than rain water.

In 1893, Houstonians complained that Buffalo Bayou's once-pure water was now "an immense cesspool, reeking with fifth and emitting a stench of the vilest character".

The pollution of Buffalo Bayou was perpetuated by generations of Houstonians and in 1967, an expert in virology and epidemiology reported that the bayou carried enough polluted water to infect 77 million people every hour with an array of disease from the common cold to encephalitis and meningitis!

Twenty years later, the City of Houston was fined \$500,000 by Texas' State Water Commission for the poor quality of its bayou water. The Mayor responded with the formation of a task force to address the problem and Clean Houston was called upon to form the Clean Bayou Committee.

Representatives of the Clean Houston Youth Education Committee and the Environmental Educators Exchange met with the Clean Bayou Committee to create a children's educational program about Buffalo Bayou. The result was the 1989 Clean Houston Bayou Book: A Kids' Guide to Buffalo Bayou followed by a Buffalo PAL 1990 Earth Day celebration, and other activities to increase awareness of the bayou's historical and environmental significance.

The Clean Houston Bayou Book II: Sticks & Stones & Buffalo Bones is the 1992 year of Clean Water Edition of "A Kids' Guide to Buffalo Bayou". It includes student activities, hands on nature experiences and teacher tips. In addition, this special issue includes "Buffalo Bones", a pull-out section written by students.

Publication of the 1992 Edition is made possible by the generous support of the United States Environmental Protection Agency (EPA) and a Way Trust Grant to the League of Women Voters-Houston.

The 1992 Year of Clean Water Program is sponsored by Keep America Beautiful and America's Clean Water Foundation.

How Houston Came to Be

The people remembered the message of the Great White Buffalo for many, many years. Then something happened....

On day, two men were talking.

It was April, 1836. As you read this pretend conversation, draw a line under the words they would not have used then!

"Now that Texas was won its independence, let's leave this New York real estate business and create a city in Texas!"

"Awesome idea! We can build our city by Buffalo Bayou and we can make it 'beyond all doubt, the greatest commercial emporium of Texas'."

"Cool! 'Vessels from New Orleans or New York can sail without obstacles to this place and steamboats of the largest class can run down to Galveston Island in 8 to 10 hours!'"

"Right on! And can name our city after us! Allen's Landing!"

"I've got a better idea. Let's call it Houston after General Sam Houston".

"I like it! He's the hero of Sam Jacinto and sure to be President of Texas! I'll bet if we name our city after him, he'll want to have the capital of Texas there!"

(Their plan worked! Houston was the capital of Texas from 1837 to 1839!)

"If my wife will help, we can get \$5,000 together to buy 6.642 acres of land. Hey, Charlotte! Listen up!"

"Yo! Party down, dudes! Buffalo Bayou is only 6 feet deep, at best. Besides, you two dudes could care less about horses, so how are you going to cut it in Texas? And wearing your business suits, no less! Plus, you two know zip about building a city!"

"Chill it, Charlotte! Hey, we can get Gail Borden to design our city!"

"Bodacious idea! He can use his clean grid design with all the city's blocks being square. This will set Houston apart from most other big cities in the United States!"

And so....

Birth Announcement

Born today: August 30, 1836
Houston, Texas

Where: On good dry land, on the west bank of Buffalo Bayou where it meets White Oak Bayou.

Best Features: Buffalo Bayou with water so clear that even at its deepest, hundreds of buffalo fish can be seen swimming near the bottom.

Assisted by: Charlotte Chapman Allen, The wife of Augustus

And How It Grew and Grew!

In 1840, there was so much traffic on Buffalo Bayou that it was called "The National Highway of the Republic". It was like a freeway made of water!

By 1860, thirteen railroads came into Houston bringing all kinds of

goods to warehouses along the bayou. Wagons brought goods from the west to be loaded on steamboats, sloops, schooners, and barges headed for Galveston, New Orleans, New York, and England.



By 1914, Buffalo Bayou had been made deeper and wider from Houston to the Gulf of Mexico. Big ships could come 50 miles inland to the Port of Houston.



It took 78 years for the Allen brothers' dream to come true but at last, Houston was a real city!

Questions and Answers...

Some of the questions in the Bayou Book have the answers given. If there is no answer given to a question, it means you can find the answer from another source. If you need help find an answer, call:

Keep Houston Beautiful
713-839-8855

Voices from the Past

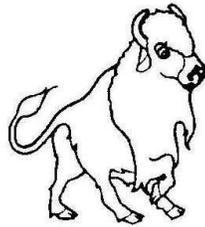
The people who came to live in Texas, and in Houston, might have said something like this at one time or another...

- “There is so much land in Texas, we could never use it up”
- “There are so many trees around Houston, we can cut down as many as we want”
- “There is plenty of water in the bayou; the waste we dump in it will just wash away.”
- “It doesn’t matter about this animal habitat; there are plenty more if this one is destroyed.”
- “So what if we kill all these buffalo and just take out their tongues? There are millions running around Texas!”
- “If I throw my trash Out the car window, it’s gone!”
- “It I throw my grass clippings and old motor oil in the ditch, they are gone as soon as it rains!”
- “These throw-away dishes and diapers are the greatest - just use ‘em once and throw them away!”
- “Houston is a big city! Everyone needs a car to drive!”

Did people forget the message of the Great White Buffalo?

Teacher Tip Respect! Respect!

Have the students refer to and read the section beginning with the paragraph, “The people who came to live in Texas and in Houston might have said something like this at one time or another...” Have different students read the statements. Lead a discussion with the class, using the statements. Ask the class in what ways do these statements express disrespect for property and the environment. Organize students into pairs or groups of three. Have the groups rewrite an assigned statement to express respect for property and the environment. The groups can then share their rewritten statements with the class.



Hi Kids!

I met many of you in the first

Bayou Book, but if we are meeting for the first time, my name is PAL. I live by Buffalo Bayou. I was named

for the first thing my mom saw when she looked at the bayou after I was born. My great, great, mega great grandfather was the Great White Buffalo who is famous in Clean Houston’s “Legend of the White Buffalo”. I love Buffalo Bayou just as he did.

Some people say that the white buffalo has magic powers and can change into a beautiful woman, or a gray fox, or a white hawk. I can’t do any of that! If I had magic powers, I would fix a big problem in an around and at the end of Buffalo Bayou-where it meets Galveston Bay.

How well do you know PAL?

___ mbrel ___ a
p ___ astic
oi ___ ca ___
sh ___ pp ___ ___ g car

t ___ re
pape ___
bo ___ e
sho ___

In these spaces, copy the letters you wrote in the boxes

And _____

Unscramble the letters to find the problem.

_____ And _____

You are right! Pollution and litter is the big problem for which my named me!

P A L !

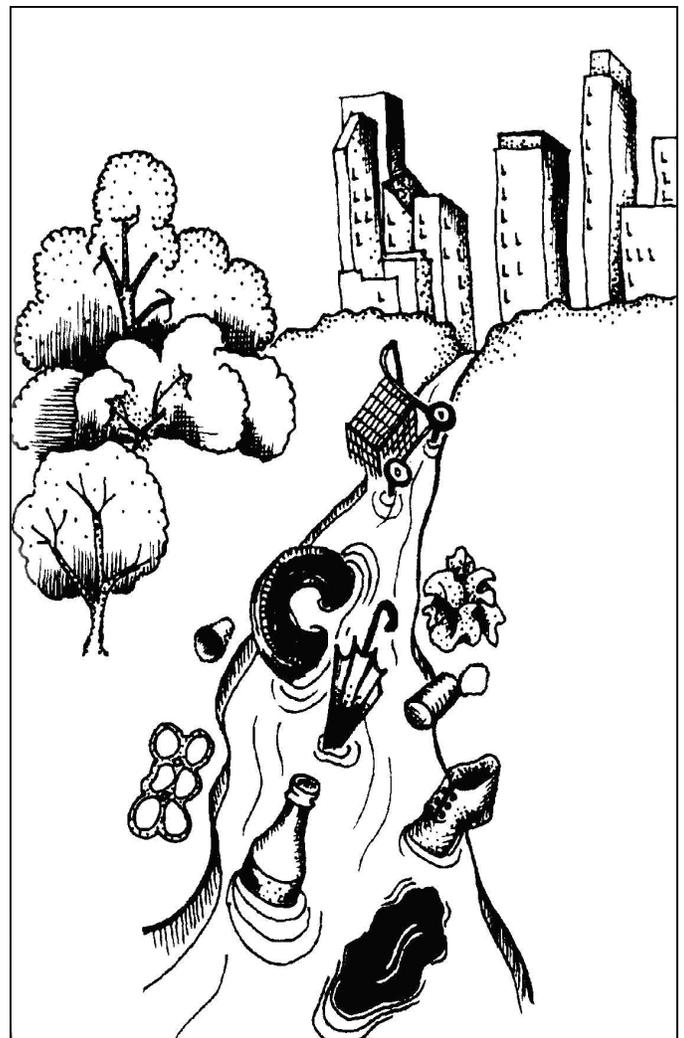
Draw a circle around the kind of pollution you think is the biggest problem in Buffalo Bayou:

- Land pollution
- Visual pollution
- Noise pollution
- Air pollution
- Water pollution

Draw a line under any other kinds of pollution found near the bayou.

Put a * by the kind of pollution you like the least. Put a + by the kind of pollution you think is most harmful to the bayou.

How did the pollution get there?



Why is there pollution in Buffalo Bayou?

There are two kinds of water pollution:

1. point source pollution
2. storm water pollution *

Point source pollution is pollution that starts right where we find it. For example, somebody comes to the bayou and clumps old motor oil into the water.

Storm water pollution is pollution that begins someplace else and ends up miles and miles away. For example, somebody dumps old motor oil into the street and it runs into the storm sewer. The rain washes it into the bayou miles away. The bayou takes it to Galveston Bay and the ocean.

*Storm water pollution is also called *nonpoint source pollution*.

True or False?

_____ poisons sprayed on the lawn nor garden can become storm water pollution.

_____ Grass clippings that fall into the street when the lawn is mowed can cause storm water pollution.

_____ Soil that washes from construction sites can become storm water pollution.

_____ Pet and other animal waste can cause storm water pollution.

Guess what! All the statements are true! Do you know why?

Think! Would it be easier to get people to stop point source pollution or storm water pollution? Why?

Buffalo Bayou is one of three rivers that flow into Galveston Bay. Can you name the other two?

*1. Trinity
2. San Jacinto*

Pollution and litter in the bayou, the bay, and the ocean can make animals and people sick. It can even kill the fish and other wildlife that live there.

What is litter?

Keep America Beautiful tells us that litter is “human generated solid waste that is discarded in an inappropriate place like streets, playgrounds, streams, etc. — or when improperly stored waste escapes from its container.

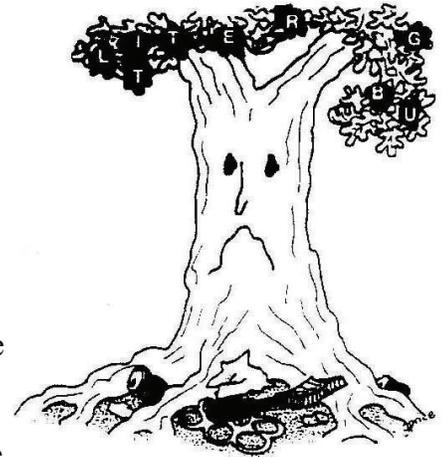
Write your definition of litter.

Why do you think there is litter in and around Buffalo Bayou?

Draw a picture of dangerous litter. Write one sentence that tells how you can help stop dangerous litter.

Don't Bug Me!

This unhappy tree is looking at evidence of a visit to the bayou by a *bug*. These *bugs* come in all sizes and usually have two legs. Look for the letters in the tree that will spell the name of the *bug*!



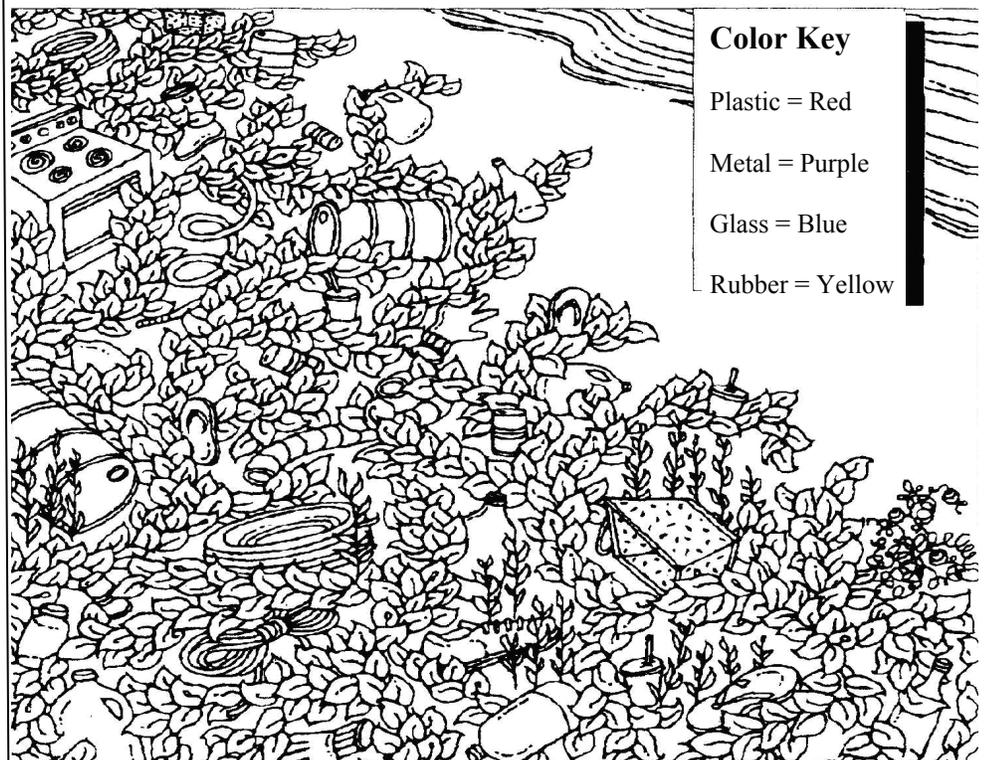
Write the name of the bug here:

This drawing was taken from the Wisconsin Department of Natural Resources' "Nature's Recyclers Activity Guide."

Be a Beach Buddy!

A Beach Buddy is a volunteer who helps clean up the litter from the beaches of Texas. This is a drawing of beach litter. Using the key, color the litter. Before you begin, guess what color you will use the most!

This drawing is part of an activity called, "The Big Sweep" taken from North Carolina's "Ripples: A Big Sweep Elementary Activity Guide."



Weird Litter, Messy Litter, More Litter

Weird Litter

What's the weirdest litter you have ever seen?

This is some of the weird litter that was found on the beaches of Texas during the 1992 Great Texas Beach Trash-Off!

- A lawn mower
- A refrigerator
- Insect repellent from Japan
- A bag of onion
- Two car doors
- A crate of chilli
- A washing machine top
- Two hazardous waste drums
- Easter decorations from Mexico.

Beach Buddies picked up this kind of plastic litter on Texas beaches in 1990!

- 28,840 plastic caps and lids
- 24,537 pieces of plastic rope
- 23,121 plastic food bags and wrappers
- 19,838 pieces of plastic foam
- 12,593 plastic straws
- 12,064 miscellaneous pieces of plastic

Why do people litter?

People litter for three reasons.

1. They do not feel that a place belongs to them.
2. They think someone else will clean up after them.
3. They litter where someone else has littered.

Where does litter come from?

Litter comes from eight sources. (You may want to look up some of these words)

1. household trash handling
2. construction/demolition sites
3. commercial refuse sources, including dumpsters
4. uncovered vehicles
5. loading docks
6. motorists
7. pedestrians
8. boating

From these sources, litter is carried in every direction by wind, water and traffic.

This information is from Keep America Beautiful.

Keep Houston Beautiful PAL Activity

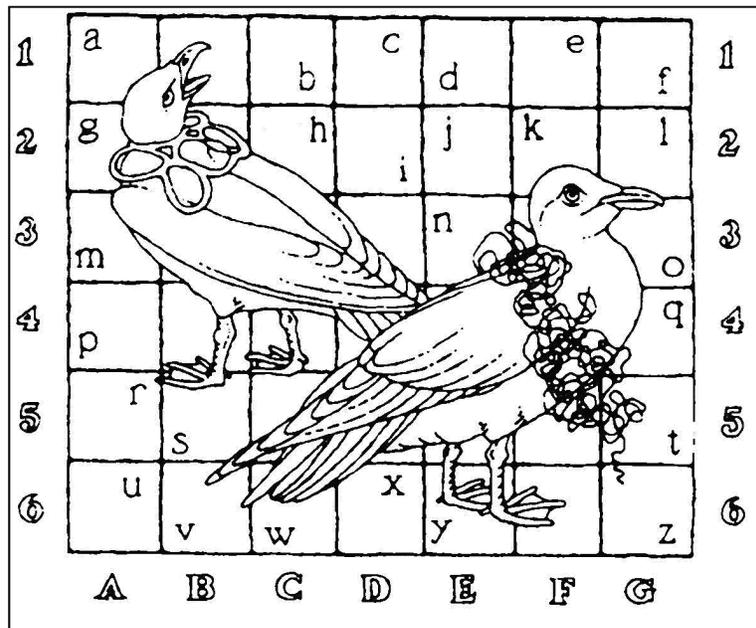
Some 33 major rivers drain into the Gulf of Mexico. Using a map, find at least three Texas rivers that flow into Galveston Bay or the Gulf of Mexico. Look for stories in The Houston Post that include the names of the rivers. Draw a red circle around the names.



A Litter Message

Use the grid to match the Number-letter clues and fill in the blanks. The first letter is done for you. Discover an important Message about littering!

D
 1E 3G 3E SG 5G 1F 1A 1D 2C 6E 3G 6A 5A
 5G 5A 1A 5B 2C 5G 3G 5B 6C 2D 3A



This activity is taken from a North Carolina publication, "Ripples: A Big Sweep Elementary Activity Guide."

Teacher Tip Litter Control

Have the students list ways they would help their community become litter free and pollution free. List the responses on the board or chart. Have the students conduct a litter survey of their neighborhood or school grounds. Have the students organize their information into paragraphs to be shared orally with the class. This activity can be done individually or in pairs.

Extension:

With your students, organize a litter pick-up day at your school. Sort the litter into recyclables. Have the students create a litter sculpture from the non-recyclables. Take a picture of it-include the artists-and send it to Keep Houston Beautiful.

Explore the Urban Ecosystem!



Urban?

What kind of ecosystem is that? First, what is an ecosystem?

Air + Sunlight + Soil + Water + Animals + Plants = Ecosystem

An ecosystem is a group of living things and the nonliving things around them. Everything in the ecosystem depends on every other thing to stay alive.

Since urban means city, could the urban ecosystem be called the city ecosystem?

Can you name four other ecosystems found in Texas? Can you name some animals that live in each ecosystem?

Teacher Tip

Create a miniature ecosystem using empty two liter beverage bottles!

Ecocolumns can be designed with different types of habitats you would find in an ecosystem.

Instructions for constructing the ecocolumns is available from:

Bottle Biology Project
Dept. of Plant Pathology
University of Wisconsin
1630 Linden Drive
Madison, WI 53706
(608) 263-5645

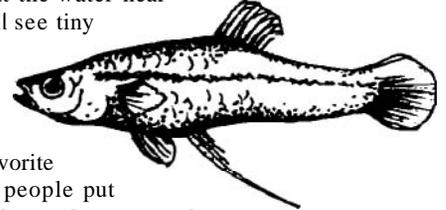
Thanks to them for permission to use the illustration of the Ecocolumn!



At Home in the Bayou

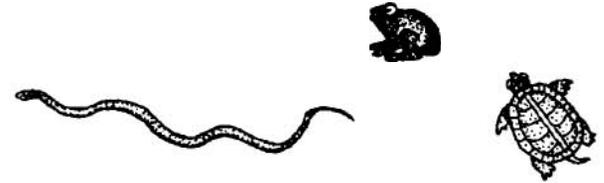
Many different animals live in Buffalo Bayou. It is hard to see them clearly because the water is so dark. Why is it so dark?

Look closely at the water near the bank. You will see tiny fish swimming together. These are gambusia, the mosquitofish!

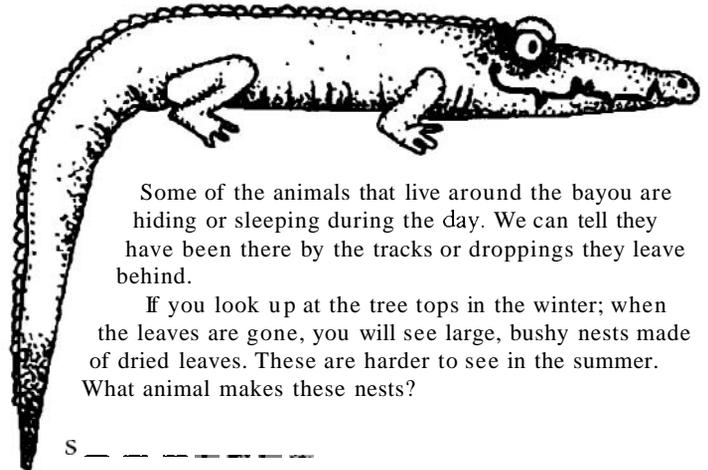


Guess their favorite food! Sometimes people put gambusia into their ponds to control mosquito larvae. Gambusia babies are born alive and fully formed just like their parents!

Sometimes you might see these:



How about this?



Some of the animals that live around the bayou are hiding or sleeping during the day. We can tell they have been there by the tracks or droppings they leave behind.

If you look up at the tree tops in the winter; when the leaves are gone, you will see large, bushy nests made of dried leaves. These are harder to see in the summer. What animal makes these nests?

S _____

Do you see a dead tree with a hole in it? A bird may have pecked out this hole for a home. What bird could that be?

w _____

Tiny animals make their homes in the tall grass where they can hide from bigger animals. Do you know a teeny-tiny animal that makes us itch? Its name rhymes with "trigger."

Animal homes are just about everywhere around the bayou – even under our feet!

Ant Lions

Under the Memorial Drive bridge is a good place to go lion hunting! We will need to be careful not to step on them because they are so tiny! The lions we are hunting are ant lions! They don't look like lions, but they are very fierce. They catch and eat anything they can.

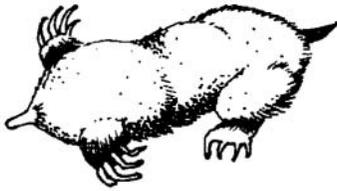
Look for small cone-shaped pits in the soft dry soil beneath the bridge. These dusty holes are ant lion homes. Look for the wandering, wiggly lines in the soil. An ant lion made this path before it decided where to make its pit trap home.

The ant lion hides just under the soil at the very bottom of its pit. When an ant or other small insect slips and slides into this trap, the ant lion will grab it for dinner! Ant lions have a nickname: doodlebugs! Do you think a doodlebug stays a doodlebug all its life? Look it up!

Mole

When you walk across the grass, does the ground feel soft in some places? Walk carefully and feel the softness. Do you see some long, skinny bumps sticking up a little bit above the grass?

These might be the hunting tunnels of a very small, furry mole. A mole is a mammal that spends most of its time "swimming" through the soil



in search of earthworms and insects to eat. As it "swims," its back pushes up the ground in low, winding ridges and its tiny pink paws heap the loose soil above ground in molehills.

Danger! Alert! Fire Ants!

Do you see little mounds of sand or soil in the grass?

If you do, stay away from them!

They may be the homes of imported fire ants!



Fire ants were brought to Texas accidentally. They have killed many of the other ants that used to live here.

If you disturb a fire ant nest, the ants will attack you at once and sting you! It will be a hard way to learn why they are called "fire" ants!

Teacher Tip Walk a Mile in My Paws!



Take the students for a walk with their journals in the afternoon or morning around the school grounds or Buffalo Bayou. Select a safe and comfortable spot and have everyone choose a place to sit. Ask the students to think of an animal that could live in this environment. Have the students close their eyes and imagine they are that animal. Ask the students to imagine what the animal eats, where it lives, how it travels, etc. Have the students open their eyes and write descriptive phrases about their animal. Some students may want to sketch their animal. Display the original phrases and illustrations.

PAL Activity

Mosquitofish Dip Net Kit

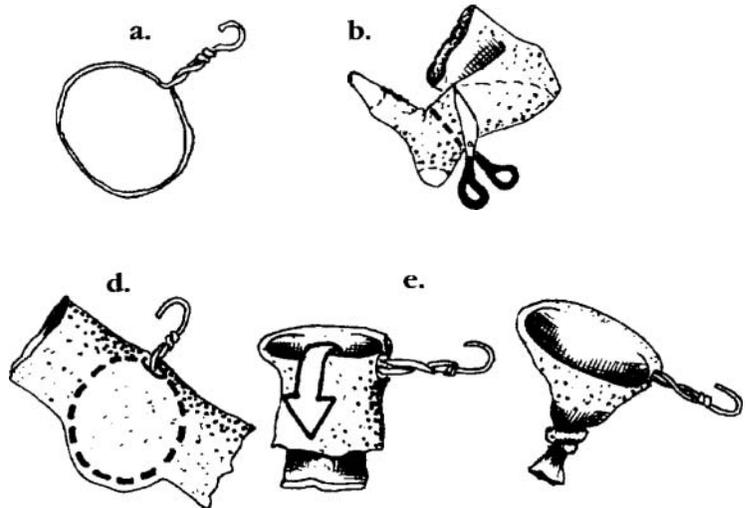
A net to scoop them up and a container to hold them will help you to see the mosquitofish up close!

You will need:

- a coat hanger
- an old pair of panty hose
- a flat pan (Reuse a white plastic microwave cake mix pan!)
- a grown-up to help!

Here's How:

- Pull and bend the coat hanger into a loop.
- Cut the top and feet off the panty hose.
- Cut a tiny hole in the middle of one of the leg pieces.
- Put the hanger inside the leg piece and put the hanger top through the tiny hole.
- Pull the top down and tie the ends together in a knot. Scoop some bayou water into the pan. Sweep the net through the water gently. Place the fish into the pan. Watch them awhile, then gently empty the water and the fish back into the bayou. Wash the pan, the net, and your hands!

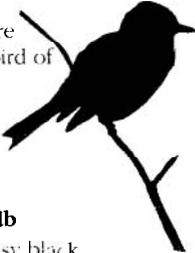


Birds

Many different kinds of birds live around the bayou. Some live there all year and some live there only during the winter or summer. Unscramble the letters to find their names.

1. What is that bright red bird with the thick, yellow beak and the little tuft on top of his head?
rdicanla

2. Look, there is the state bird of Texas! Its feathers are grey with touches of white



kocmgnrldb

3. These noisy black birds tly in groups and fill the tree tops.

kcagresl



4. Another black bird calls "caw, caw, caw."
wcor

5. This one may be watching you from high in a tree! At night, you might hear it call, "who, who."

lwo

6. Soaring high over the city and then swooping down near the tree tops

1. a large bird that might be hunting for mice. It catches them in its strong claws

kwha

7. That tall white bird wading in the water is looking for fish or frogs to spear with its long beak

grtee

8. There is a sassy bird of another color wearing a tuft on its head like the red bird

uble aij



Answers:

1. cardinal, 2. mockingbird, 3. grackles, 4. crow, 5. owl, 6. hawk, 7. egret, 8. blue jay

Plants

"Leaves of three, let me be!"



Every part of this plant can make people itch! Birds and squirrels love to snack on its berries;

rabbits like to munch its leaves where insects and small animals hide. Its hairy vines grow all over trees. Sometimes its leaves are green, sometimes they are red, yellow, or orange. In the winter, it loses its leaves but not its vine-hairs, which become red. Sometimes there are five leaves! This plant is poison ivy!



Help Preserve Wildflowers!

Remember this rhyme whenever you are tempted to pick a wildflower near the bayou - or any other place!

"Pick, if you must, one flower face if nine more blooms are left in place. Two feet square must hold that many - otherwise, look - but don't pick any!"

How big is "two feet square"?

Teacher Tip

When visiting the bayou with your students, have them look for a bright blue flower on a small plant growing close to the ground. Have the students observe the flower to find three petals: two blue ones and a tiny white one. Tell the students that Carolus Linnaeus named the plant *Commelina erecta*, commonly known as the dayflower. He named the plant for three brothers whose last name was Commelin. Two of the brothers worked very hard and the third did very little. Have the students look at the three petals and tell why they think Linnaeus named the plant for the Commelin brothers. Have the students relate their observations orally.

PAL Activity Name that tree!

These leaves and seeds belong to trees that we will see around Buffalo Bayou. Can you name them?

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

1. American Sycamore

Look for a tree with almost shiny white bark. Older trees have darker splotches on the bark. Do you see some round seed balls hanging from the branches?

2. Sweet Gum

It is named for the sticky ooze that comes when cuts are made in the trunk or branches. The tree has star-shaped leaves and hard, spiny seed balls.

3. Red Cedar

This evergreen tree is not really a cedar tree at all. It is a juniper.

4. Pecan

The State Tree of Texas! Its nuts grow in clusters of three to eleven.

5. Red Maple

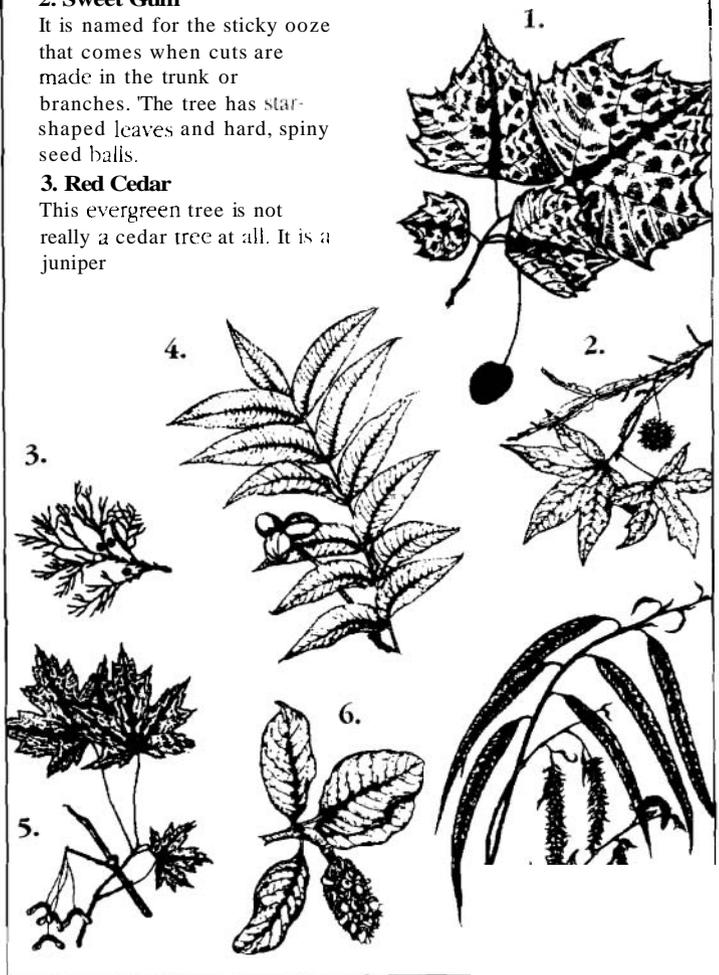
On older trees the bark on the lower trunk is dark gray and wrinkled or ridged, but higher up it is smooth light gray. The leaves turn bright red in the fall.

6. Magnolia Tree

This is the "Buffalo Tree". Read "The Legend of the White Buffalo" to see how the big sweet-smelling white flowers came to be. The leaves are large, dark green and shiny on one side.

7. Black Willow

Growing near the water, this tree has long, slender leaves and branches that bend down. People used to chew the bark of the tree to help their tevers and headaches.



Return of the Buffalo Trees

A very sad story...



In 1949 all the Buffalo Trees and other trees along Buffalo Bayou upstream from the Sabine Street Bridge were cut down

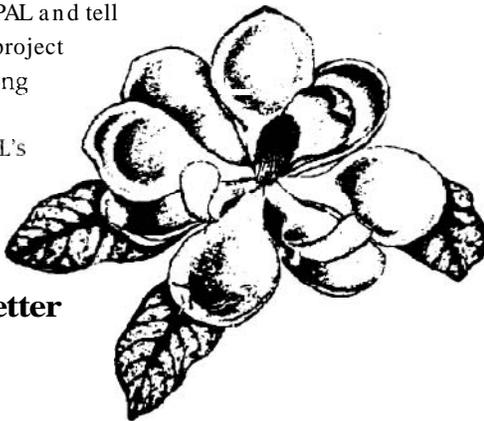
...with a happy ending!

Return of the Buffalo Trees!

"Return of the Buffalo Trees" is a magnolia tree-planting project for kids!

What to do:

1. Have a school project that will raise money to buy a Buffalo Tree. (Remember, they are also called magnolia trees!)
2. Decide where you will plant your Buffalo Tree.
3. Find out all you can about Buffalo Trees.
4. Buy your tree.
5. Have a 'Return of the Buffalo Trees Planting Ceremony.'
6. Write to Buffalo PAL and tell about your school project and your tree planting ceremony (See page 15 for PAL's address.)



"Beautiful cities make better citizens."

Will C Hogg

Teacher Tip

In the 1940s, Buffalo Bayou and many other bayous were stripped of trees and plants in an effort to increase storm sewer runoff and to help prevent serious flooding. Most of the native magnolia, cedar, river birch, and southern red oak trees were gone. In their place grew weeds and grass. Dead trees choked the bayou. The bayou was muddy, stagnant and filled with litter. Eventually, the Buffalo Bayou Preservation Association was formed and concerned citizens began working to restore the environment.

Have the students read the section: "A very sad story...". Ask the students why they think the trees were cut down, and what happened as a result.

During a field trip to Buffalo Bayou, the students can write their own cause and effect situations about Buffalo Bayou's environment based on their observations. Have the students bring in current event articles from newspapers and magazines about pollution.

Have the students share their current events orally with the class or in small discussion groups, describing the causes of pollution and its harmful effects on the environment. Display the articles on a bulletin board.

The Houston Post's Newspaper In Education Program

who?

All Educators

What?

- Classroom subscriptions at reduced rates
- Free curriculum materials
- Teacher workshops
- Special educational supplements
- Tours of The Houston Post

When?

At your convenience

Where?

Newspaper delivery to your school

why?

The newspaper is

- Motivational
- Flexible
- Adaptable
- Economical
- Convenient
- Up-to-date

NIE
Keep Houston Beautiful
(713) 839-8855



PAL Activity Look who's takin' tracks!

Taking home animal tracks is easy!

First, make a "Takin' Tracks Kit" and take it to the bayou with you.

You will need:

- coffee can with lid
- water
- plaster of paris
- stick or plastic spoon
- plastic bag that closes tightly



Fill the coffee can with plaster. Empty the plaster into the plastic bag; put the stick or spoon in, too. Close the bag. Fill the can half-full of water. Leave the water in the can and put the lid on it. Put the can of water and the bag of plaster into your PAL Pack.

Find a good, clear animal track on the ground. (A few days after it has rained is a good time to look.) Take the can of water and the plaster out of your PAL Pack. Open the can and the bag. Pour the plaster into the water. Keep pouring until a dry little hill sticks up out of the water. Stir until it looks like melted ice cream. Stand the stick or spoon in the center. If it doesn't fall over, the plaster is ready to pour. Slowly pour it into the track. Keep pouring until the plaster runs over the top. Wait about 15 minutes. When the plaster feels cool and hard, dig under it carefully with a stick. Carefully turn it over in your hand. (Rinse off the excess mud when you get home.) Carefully place the track-print in the empty plastic bag then put it into your PAL Pack. Take the empty can, lid, and stirring stick or spoon home with you.

A hike is a walk with a purpose!

Bayou Hiker Dressed for Success

Wears or takes:

- Hat or cap
- Snack necklace
- PAL Pack
- PAL Pad and Pencil
- PAL Canteen
- Long pants for sitting on grass
- Socks
- Closed-toe shoes
- Insect repellent on body



- Magnifying glass
- 25¢ for phone call
- Handkerchief or bandana

Snack Necklace

Use a string and a big-eyed needle to make a necklace from raisins, Cheerios, pieces of dried fruit, peanuts in the shell, whatever. Tie around your neck.

PAL Pad and Pencil

Cut a piece of cardboard a little larger than the paper you will be writing on. Tape or staple the paper to the cardboard. Punch a hole in the edge of the cardboard. Tie a string around a pencil or pen.

Put the string through the hole and tie in a knot.

PAL Canteen

Wrap newspaper around an empty plastic bottle. Use enough to make the bottle fit snugly inside a PAL Pack. Fill the bottle with water. Put the lid on. (You might want to put the canteen in the freezer overnight before your hike.)

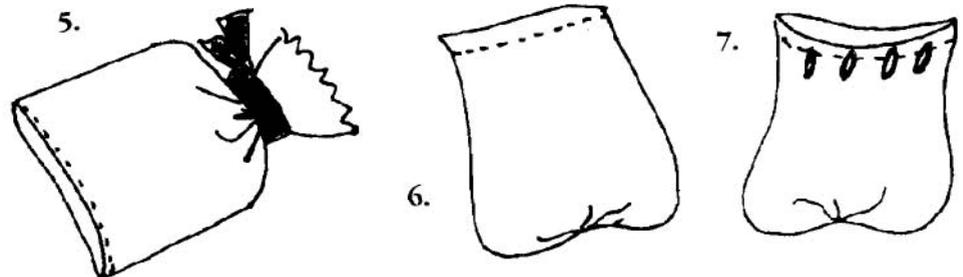
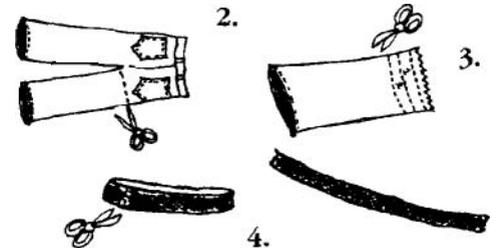
GORP

If you are not into necklaces, mix up some "good old raisins and peanuts" plus some M&Ms. Put in a plastic bag and carry in your PAL Pack.

PAL Activity Make a PAL Pack!

Great for carrying your lunch or "Takin' Tracks Kit" or whatever...

1. Find an old pair of blue jeans. Big ones make a bigger pack.
2. Cut off the legs.
3. From one leg, cut 2 strips of fabric about 1 1/2 inches wide.
4. Cut each strip of fabric once so it will unfold to become a long strip.
5. Tie one of the strips around the cut edge of the other leg.



6. Turn the leg inside out. Now the leg is a bag!
7. Cut holes around the top of the bag.
8. Put the other long strip of fabric through the holes. Pull the strip so the bag will close. Tie the ends together loosely. Now you have a PAL Pack!



Tie your PAL Pack to your belt when you have it filled. For a shoulder pack or a fanny pack, use more fabric strips to make a longer handle.

Recycling: Nature Does It and We Can, Too!

Everything in nature makes waste. Leaves fall from trees, feathers fall from birds; snakes leave their outgrown skins behind and dead



animals leave their bones. Natural waste that is left in the place it fell - or where wind or water took it - is called



natural litter. Natural litter - nature's waste - recycles itself. Nature is the greatest recycler of all time! Nature needs these things to recycle its waste:

- oxygen
- moisture
- microbes
- bacteria



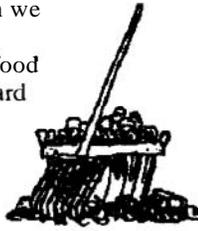
Composting = Helping Nature Recycle Our Waste!

Composting is like a magic wand to change plain dirt into super soil! Composting saves space in landfills and it helps prevent stormwater pollution.

Compost is what we get when we help nature recycle our food waste and yard waste.

Here's how:

Instead of throwing it away, mix food waste and yard waste with soil, water and fertilizer. Add earthworms, if you have them, and let oxygen, moisture, microbes and bacteria "cook" it until it's done. (Compost loves worms and fungi because they help break down or decompose the waste.) Give it lots of time!



PAL Activity

Draw a line under the compost makers:

- grass clippings
- egg shells
- coffee grounds
- coffee filters
- hair
- feathers
- seaweed
- animal waste
- flowers
- sawdust
- paper egg cartons
- leaves
- finely shredded newspaper
- orange peels
- potato peels
- onion skins
- fish heads
- wood ashes
- earthworms



Answer: If you drew a line under every item, you are right!

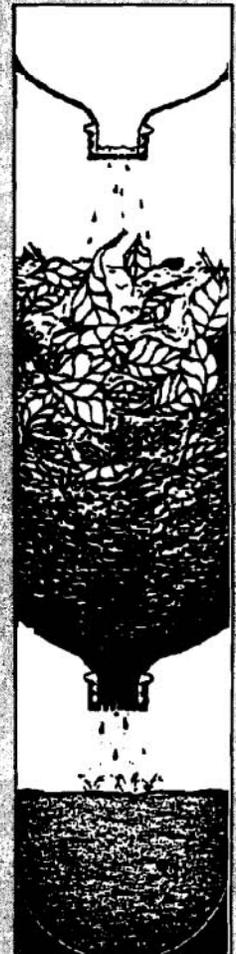
Teacher Tip

Make a Compost Column from empty two liter beverage bottles! Explore the process of decomposition with your students and witness nature's world of recycling.

Instructions are available from:

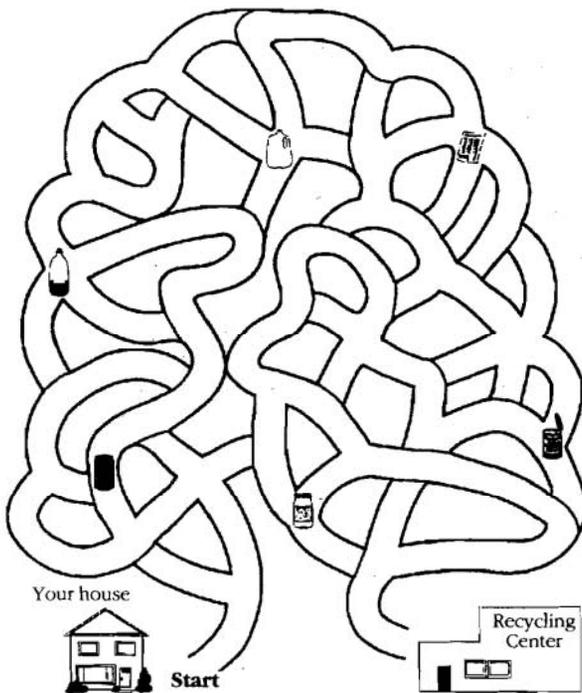
Bottle Biology Project
Dept. of Plant Pathology
University of Wisconsin
1630 Linden Drive
Madison, WI 53706
(608) 263-5645

Thanks to them for permission to use the illustration of the Compost Column!



PAL Activity

With a pencil or pen, follow the path from your house to the recycling center. Collect all set recyclables along the way. Do not cross any lines! (The Recycling Maze is from the K-3 Supplement to the Recycling Study Guide - Wisconsin Dept of Natural Resources)



PAL Note

Why are coffee filters, paper egg cartons and finely shredded newspaper called **compost-makers**? Think about it!

For more about making a school or home compost pile, contact Clean Houston, 621-7020.



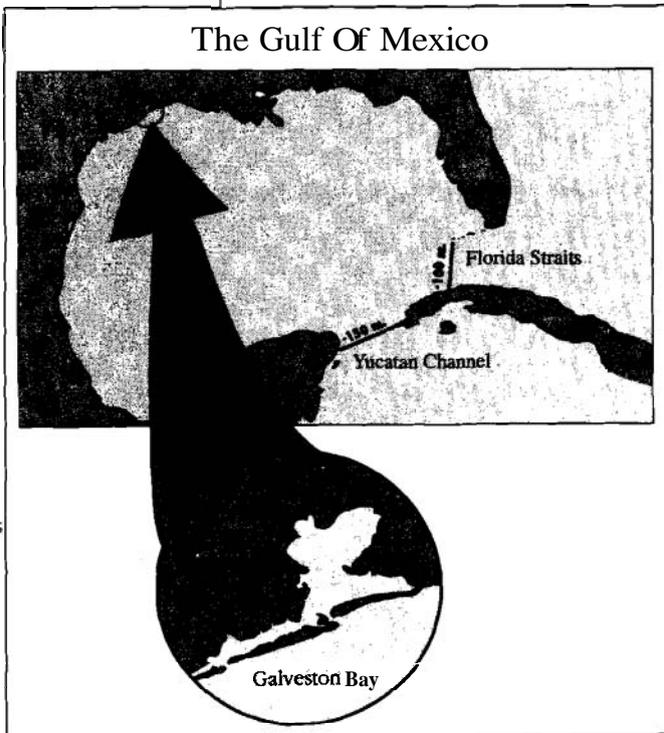
Clean Houston Recycling Hot Line:
RE-USE-IT
(738-7348)

The Year of the Gulf of Mexico

To increase awareness of the environmental and social importance of the Gulf of Mexico, 1992-93 was designated "The Year of the Gulf of Mexico" by President Bush, the United States Congress, and the United States Environmental Protection Agency.

The Gulf of Mexico, with a total area of about 600,000 square miles is almost completely surrounded by the United States, Mexico and Cuba. It is enclosed on three sides by five states that border it - Alabama, Florida, Louisiana, Mississippi, and Texas. There are only two openings that keep the land from being a solid ring around the Gulf - the Straits of Florida between Florida and Cuba, and the Yucatan Channel between Mexico and Cuba.

Because of this landlocked nature, trash dumped into the Gulf tends to stay in the Gulf and usually finds its way to Gulf beaches. In addition, some 33 major rivers drain the contaminants from the cities, industries, and agricultural regions into the Gulf.



"Million Points of Blight": A Storm Drain Stenciling Project

Many people do not know that the storm drains in their neighborhoods are direct links to the bayous, Galveston Bay, and the Gulf of Mexico.

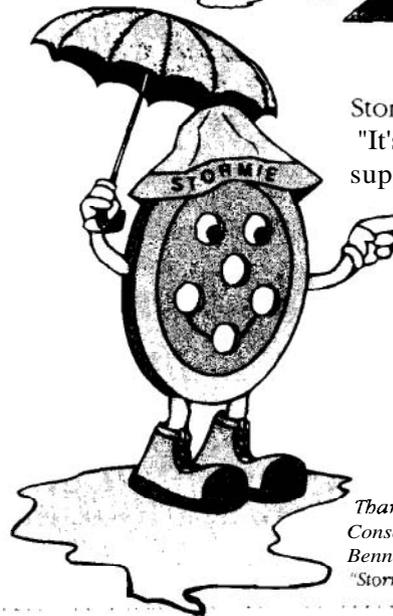
If storm drains had a sign on them that said, "Don't Dump! Drains to Waterway!", it would help people learn that the storm drains are not garbage cans and that they are connected to our waterways. People could use stencils and paint the message on the storm drains! If enough people helped, a million storm drains could be stenciled!

The goal of "Million Points of Blight" is to teach people about the direct connection between storm drains and waterways, and to get people involved in helping the environment by stenciling one million storm drains around the country.

For information on how to participate in storm drain stenciling anywhere in Harris County, contact: Galveston Bay Foundation
713-332-3381

For information on the "Million Points of Blight" campaign, contact:

Susan Macleod/Lauri Malperin
Center for Marine Conservation
306-A Buckroe Avenue
Hampton, VA 23664
804-851-6734



Stormie says:
"It's up to you to gather support for the storm drain stenciling project in your community!"

Thanks to the Center for Marine Conservation and artist, Steve Bennett, for permission to use "Stormie"!

Houston Beautiful Earth Quilts

Gardens To Blanket The Earth

Once upon a time...

...a woman from New York City moved to a North Carolina farm community. The mountain women there taught her how to make quilts. During the winter, when they weren't working in the fields, the women stayed indoors and created beautiful quilts - all kinds of quilts! Quilts to wrap babies, to warm beds, to spread on the ground for sitting - to pass down from one generation to the next. As they worked, the quilters shared a sense of purpose and a feeling of togetherness.

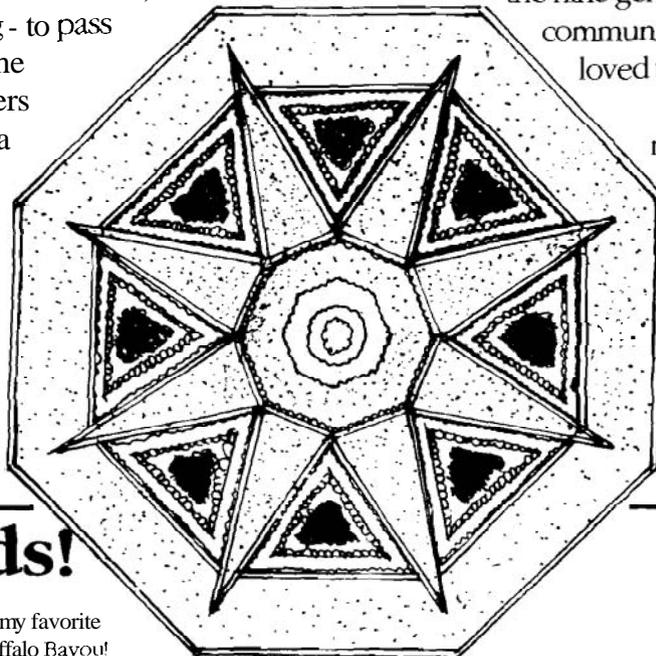
The woman was Norma Bradley and she began working on a lap quilt just as a big problem arose about replacing the farm community with a high level nuclear waste dump. She wished that the quilt she was

making could cover the land and help people remember to care for each other. She said, "I want to make a quilt that will foster the nurturing side of mankind."

So, she made her first Earth Quilt. But instead of cloth scraps and thread, she made it from soil, living plants, mulch, and wood. It was a beautiful garden dedicated to the nine generations of people in the farm community who had worked the soil and loved the land.

Since then she has made many more Earth Quilts. People help her and, as they work, they begin to feel the same sense of purpose and togetherness that quilters everywhere have always shared.

Houston's first Earth Quilt is the Clayton Homes Houston Beautiful Earth Quilt.



So long, Kids!



I hope I see you in my favorite habitat - along Buffalo Bayou! This book is just the beginning of lots more to learn about keeping our city and its waterways clean and beautiful.

Your teacher will have more to share with you.

There are many people in Houston who care very much about its environment. They work hard to help others remember the message of the Great White Buffalo. You can help, too!

What to do:

1. Don't litter
2. Remind others not to litter
3. Reduce reuse, recycle as much as you can
4. Don't put anything down the storm sewers except rain water!
5. Help your folks and other grown-ups to remember:
 - a. all of the above!
 - b. to prevent erosion by planning carefully so less water will run off yards, driveways, and parking places.

- c. to be careful with chemicals that are in pesticides, and other stuff used on yards, driveways, and sidewalks.
- d. the message of the Great White Buffalo.
6. Join the Buffalo PAL Patrol!

You Can Become A Buffalo PAL!

Send to: Clean Houston • Buffalo PAL • 2700 Post Oak Blvd., Suite 1728 • Houston, TX 77056

I want to be a member of the Buffalo PAL Patrol!

My name: _____

My home address: _____

My zip code: _____

My age: _____ My grade: _____

My school: _____

Teacher Tip:

Earth Quilts require maintenance and renewed plantings as the seasons and years pass. Earth Quilters are entrusted with the care and preservation of Earth Quilts passed along by a previous generation.

Earth Quilts 101

I want to learn more about Houston Beautiful Earth Quilts! Please send me **Earth Quilts 101**. I have enclosed a large, self-addressed stamped envelope.

Name: _____

Address: _____

Zip: _____

School: _____

Mail to:
Earth Quilts 101
Clean Houston
2700 Post Oak Blvd., Suite 1728
Houston, TX 77056