TEXAS STREAM TEAM

at The Meadows Center for Water and the Environment

Dedicated to understanding and protecting the 191,000 miles of Texas waterways.

The Meadows Center
for Water and the Environment

Texas Stream Team






MISSION:

To facilitate environmental stewardship by empowering a statewide network of concerned citizen scientists, partners, and institutions in a collaborative effort to promote a healthy and safe environment though environmental education, data collection, and community action.

WHAT WE DO

- Environmental Education
- Data Collection
- Data Use
- Community Action
- Watershed Services

Texas Stream Team

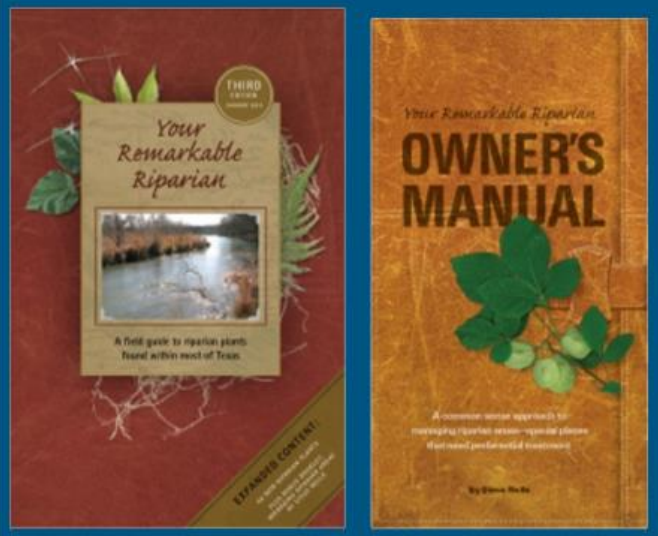
Riparian Bull's-Eye Evaluation Training Program

Guided Observation Tools for Evaluating Riparian Areas

Riparian Assessment Trainings cover an introduction to:

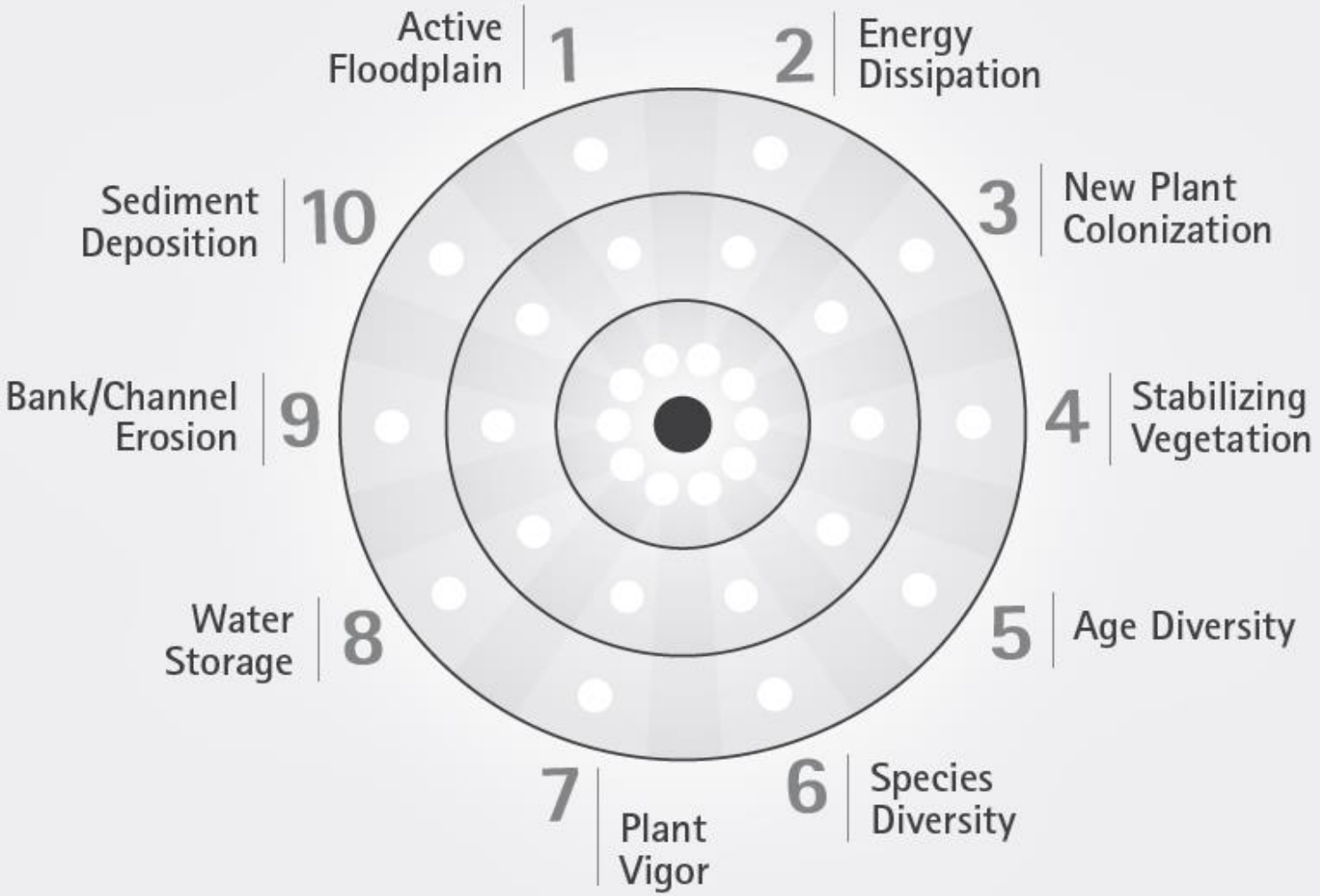
- Riparian principles
- Watershed processes
- Basic hydrology
- Erosion/deposition principles
- Riparian Vegetation
- Potential causes of degradation and possible resulting impairments

Your Remarkable Riparian



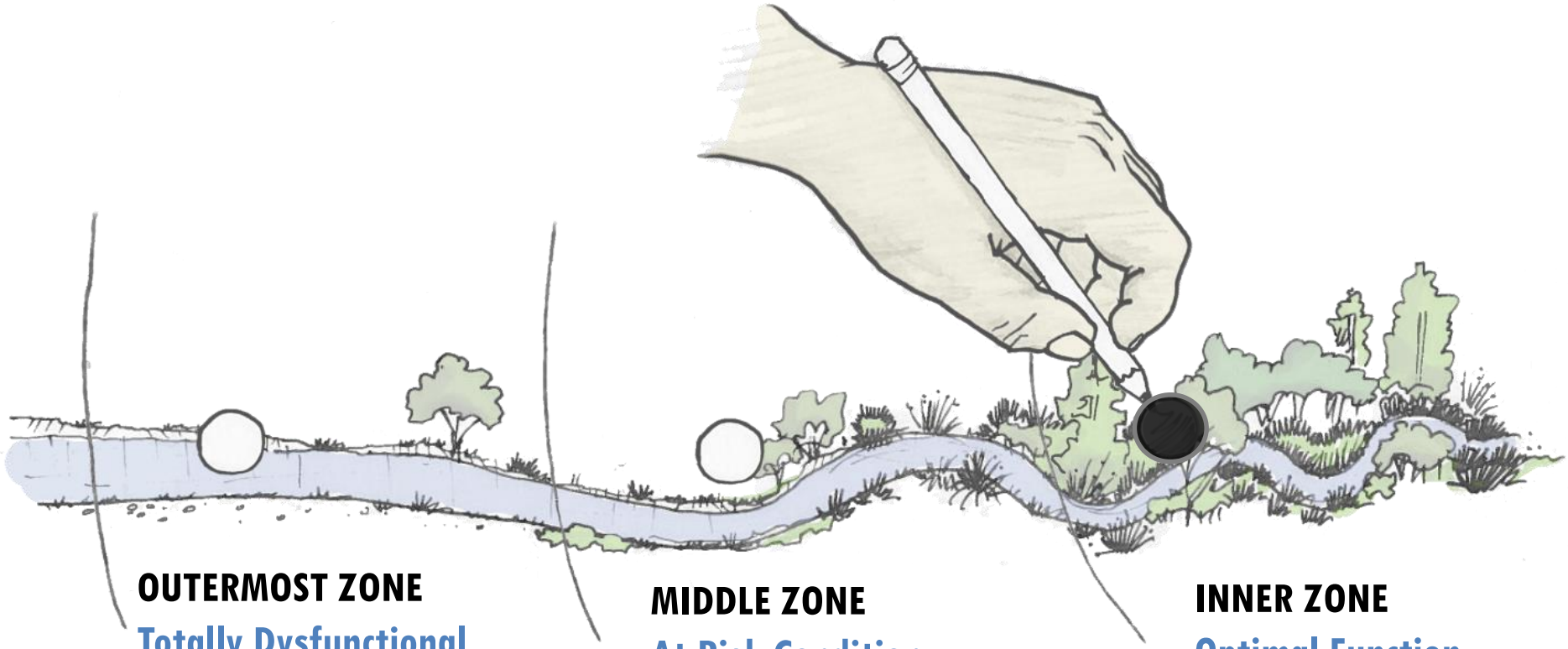
- Field Guide to riparian plants found within most of Texas
- Cultivates awareness and appreciation for riparian plants and the role they play in the production of abundant, clean water
- Used as a companion to complete and submit forms with one to four photos to report observations to Texas Stream Team

Riparian Bull's-Eye Evaluation Tool



Ten riparian indicators to guide your eye in assessing riparian landscapes for their function and identifying activities that may be hindering the natural riparian recovery process

The Bull's-Eye Zones



OUTERMOST ZONE
Totally Dysfunctional
Riparian Condition

MIDDLE ZONE
At-Risk Condition,
Riparian Danger Zone

INNER ZONE
Optimal Function

Evaluating Riparian Health using the bull's eye method and ten indicators

RIPARIAN INDICATORS	OUTER ZONE Poor, Dysfunctional Condition	MID ZONE At-Risk Condition	BULL'S-EYE High Functional Condition
1. Active Floodplain *Does floodwater have access to a floodplain?* Look for recently deposited debris or silt from recent floods.	**Limited or no apparent floodplain** where floodwater can spread out and slow down.	**Floodplain too far above channel** to be very effective.	**Floodplain clearly defined,** allowing for floodwater to overflow channel, spread out, and slow down.
2. Energy Dissipation *Is there enough "stuff" in channels, on banks and in the floodplain to dissipate flood energy?*	**Not many energy dissipating features** in the channel, on the banks, or in the floodplain.	**Only some** energy dissipating features present.	**Abundance** of energy dissipaters present in the channel, on the banks, and in the floodplain.
3. New Plant Colonization *Are new plants successfully colonizing on fresh sediment?*	**Not much colonization;** sediment deposits and point bars are bare.	**Only some** new plant colonization are on fresh sediment.	**Abundance** of new plants colonizing on fresh sediment.
4. Stabilizing Vegetation *Are banks covered with strong stabilizing plants—those with a stability rating (SR) of 6 or greater?*	**Not much** of bank is covered with stabilizing vegetation and tree roots.	**Some gaps present** and/ or some vegetation lacks sufficient stability rating.	**Banks covered** with stabilizing vegetation.
5. Age Diversity *Are young, middle-aged and mature riparian plants present?*	**Few to no** young and middle-age trees, shrubs, riparian grasses or sedges.	**Only a few** young and/ or middle-age riparian plants present.	In addition to older riparian plants, **young and middle-aged plants are abundant.**

6. Species Diversity *Are several key, native riparian plant species present?*	**No or low diversity:** Only 1–2 native species of riparian trees, shrubs, and/or only 1–2 grasses and sedges.	**Modest diversity:** 3–4 species of native riparian trees, shrubs, and/or 3–4 grasses and sedges.	**More than** 5 different species of native riparian trees, shrubs, and/or more than 5 species of grasses and sedges.
7. Plant Vigor *Are riparian plants vigorous and healthy?* Consult your Field Guide for information about a particular plant's palatability for grazing and browsing.	**Unhealthy riparian plants.** Woody plants show signs of heavy or chronic browsing; a severe browse line can be noted. Riparian grasses and sedges compromised by grazing, mowing, or trampling.	**Low vigor:** Woody plants show signs of heavy browsing or hedging; a browse line may be present. Grasses and sedges show signs of heavy use, grazing, mowing, or trampling, only in places.	**Healthy, vigorous riparian plants.** Woody plants show little or no sign of heavy browsing or hedging. Grasses and sedges show little or no sign of heavy grazing, mowing, trampling, or other impairments.
8. Water Storage *Are the banks and floodplain storing water?* Use your Field Guide to identify key Wetland Obligate and Facultative Wetland plants.	**No OBL or FACW** species are present, indicating a lack of water being stored in the riparian area.	**Only a few** OBL and FACW plant species present—and only along the stream's edge.	**Several** wetland plant species present—at water's edge and out on the floodplain too.
9. Bank/Channel Erosion *Are bank and channel erosion balanced with deposition on point bars?*	**Continuous, active and extreme bank erosion** with no apparent balancing by point bar deposition. Channel may appear either too wide or too deep.	**Widespread bank erosion,** beyond meander bends and not balanced by point bar deposition. Channel looks out of balance.	**Light and balanced bank erosion** on meander bends being compensated by deposition on point bars downstream. Channel appears to be of size and depth to manage sediment.
10. Sediment Deposition *Is sediment being deposited in a balanced way—on point bars downstream from eroded banks?*	**Clearly excessive** amounts of sediment, often in middle of the channel.	**Some excessive sediment deposition,** some mid-channel bars, but otherwise sediment is where it should be, on point-bars.	**Normal and balanced** sediment deposition.

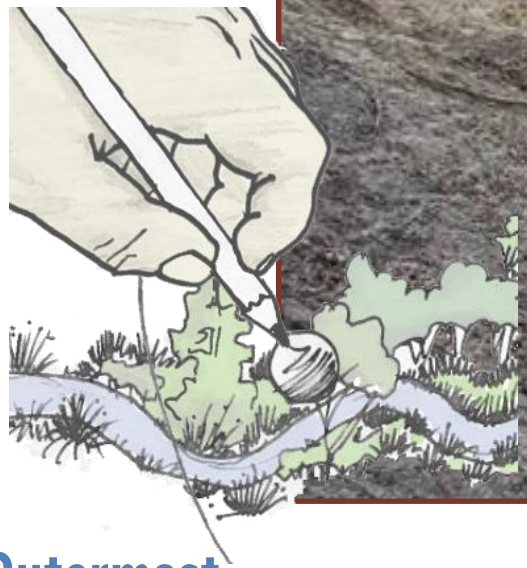
Active Floodplain

Does floodwater have access to a floodplain?

Inner Zone

Good Floodplain Access

Active Floodplain



Outermost Zone

Floodplain is not very Accessible

Energy Dissipation

Is there enough "stuff" in channels, on banks, and in the Floodplain to dissipate flood energy?

Good energy dissipation

Energy Dissipation

Photos courtesy of Steve Nelle and Kenneth May

Middle Zone

Not much energy dissipation

New Plant Colonization

Are trapped sediment being successfully colonized by new plants?

No new plant colonization here

New Plant Colonization

Are trapped sediment being successfully colonized by new plants?

Plants colonizing fresh sediments

Stabilizing Vegetation

Are banks covered with strong stabilizing plants?

Good stabilizing cover

Stabilizing Vegetation?

Poor stabilizing cover

Stabilizing Vegetation?

Poor stabilizing cover

Age Diversity

Are young, middle-aged and mature riparian plants present?

Photos courtesy of Steve Nelle and Kenneth Mayhan

Species Diversity

Are several key, native riparian plant species present?

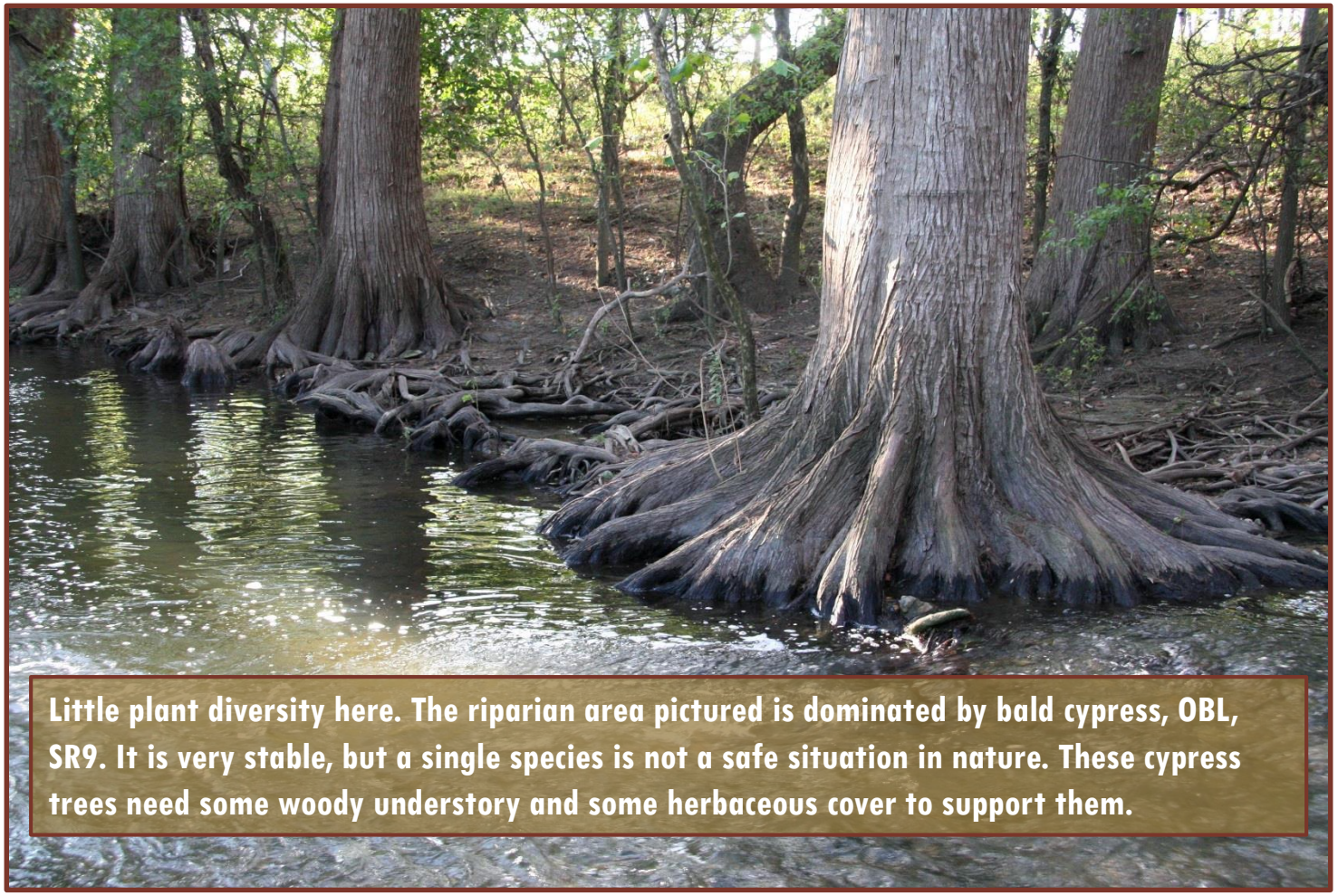
Good Species Diversity

Species Diversity

Are several key, native riparian plant species present?

Good Species Diversity

Species Diversity



Little plant diversity here. The riparian area pictured is dominated by bald cypress, OBL, SR9. It is very stable, but a single species is not a safe situation in nature. These cypress trees need some woody understory and some herbaceous cover to support them.

Poor Species Diversity

Plant Vigor

Are riparian plants vigorous and healthy?

Good Plant Vigor

Plant Vigor

Poor Plant Vigor

Plant Vigor

Bushy bluestem (left) and Buttonbush (above), both palatable browse plants, are showing signs of extreme overgrazing and/ or long-term browsing.

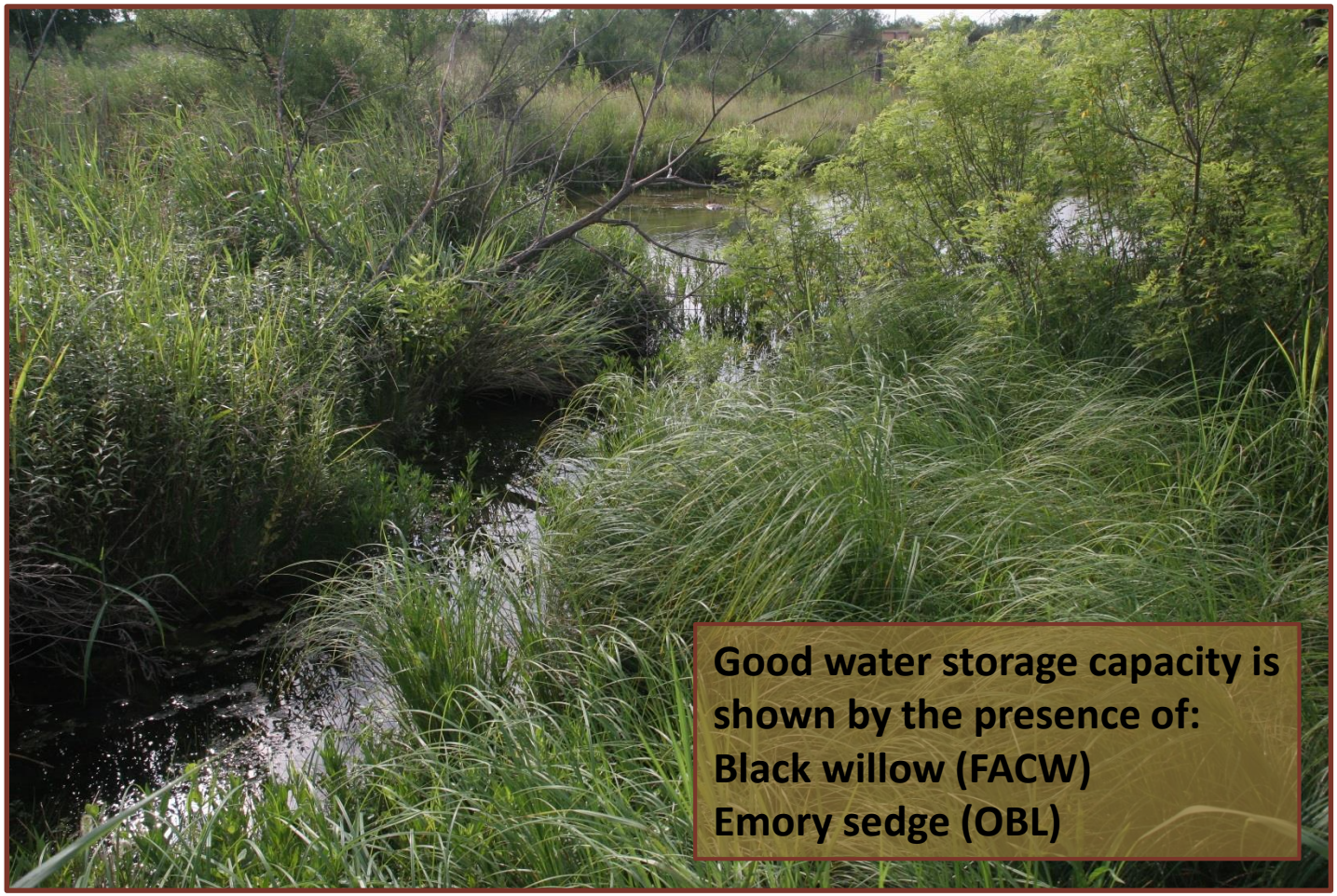
Poor Plant Vigor

Plant Vigor

Poor Plant Vigor

Water Storage

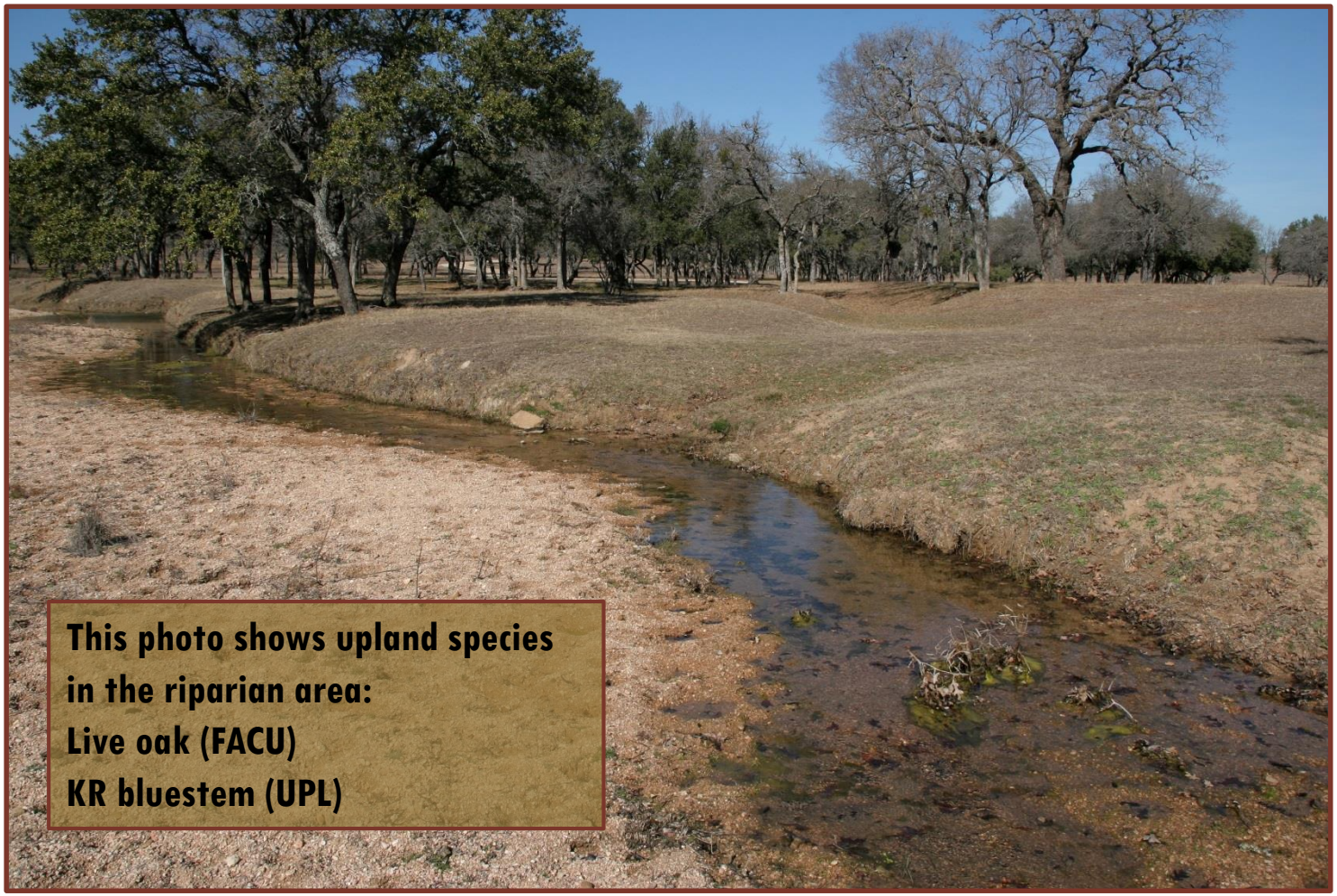
Are the banks and floodplain storing water?



Good Water Storage

Water Storage

Are the banks and floodplain storing water?



No Water Storage

Bank and Channel Erosion

Are bank and channel erosion balanced with deposition on point bars?

Balanced

Bank and Channel Erosion

Out of Balance

Sediment Deposition

Is sediment being deposited in a balanced way?

Sediment Deposition **Balanced**

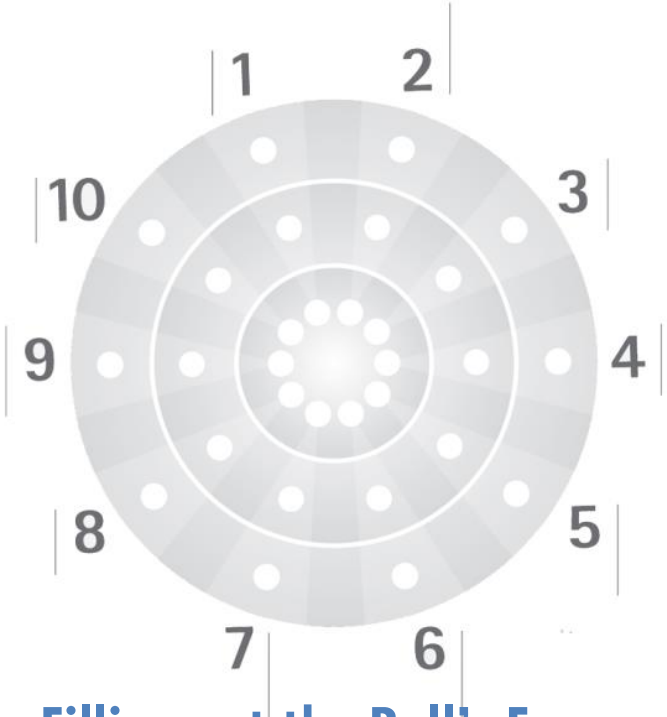
Sediment Deposition

Sediment **Out of Balance**

Putting it ALL Together

Observation is a Powerful Tool

Riparian site along South Llano River in Kimble County



Filling out the Bull's Eye

Active Floodplain – floodplain clearly defined and accessible

1

2

Energy Dissipation – abundant energy dissipation in floodplain

Sediment Deposition – sediment appears normal and balanced

10

3

New Plant Colonization – abundant colonization of fresh sediment

Bank/Channel Erosion – no excessive bank erosion is visible

9

4

Stabilizing Vegetation – some gaps in coverage of stabilizing plant communities

Water Storage – OBL and FACW species are abundant near the water's edge, but not further back

8

5

Age Diversity – abundant reproduction of woody plants and/or grasses and sedges

Plant Vigor – herbaceous plant vigor appears healthy and vigorous

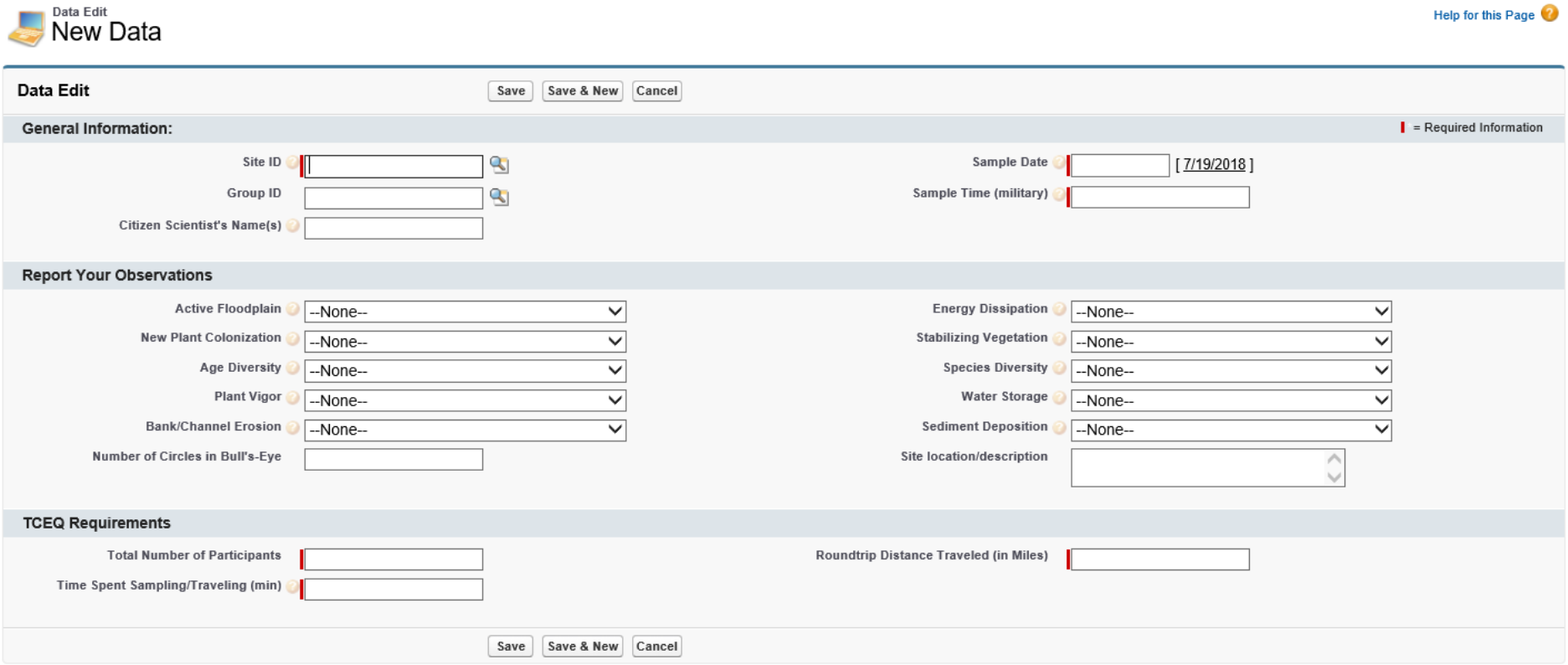
7

6

Species Diversity – modest diversity of woody plants and modest diversity of grasses and sedges

Submit Data

Texas Stream Team Waterways Dataviewer



https://txstreamteam.force.com/

Request a Riparian Evaluation Training Event

Leakey Springs – June 21, 2018

Oso Creek – October 26, 2017

Resaca De La Palma State Park – July 11, 2018


Thank you!
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