

Station 3

- A1. Describe how to take a secchi reading (tube or disk) and describe one (1) factor that could cause a low secchi reading.

2 points

ANSWER: To take a secchi tube reading collect undisturbed site water and slowly release water from the tube until you can just make out the black and white shape at the bottom of the tube. To take a secchi disk reading lower and raise the disk in the water until you can just barely make out the black and white pattern on the disk. Record the depth of the water to the disk. Factors that cause a low secchi: high turbidity, suspended solids.

- A2. Name two (2) cover types/habitats for fish and aquatic invertebrates in this pond at this time.

2 points

ANSWER: Leaves and other organic matter, undercut banks, overhanging limbs, limbs in water, woody debris, vegetation in water

- A3. At what time of day would the lowest dissolved oxygen levels be expected in this pond and why?

2 points

ANSWER: Early morning (pre-dawn or right at sunrise), when respiration overnight has depleted oxygen and photosynthesis has not started replenishing the dissolved oxygen.

- A4. Look across the Bayou. The banks are sloughing (eroding) into the Bayou. Name one (1) Best Management Practice (BMP) that might prevent this from happening? Can this bank erosion be a source of water pollution?

2 points

ANSWER: Stop mowing the vegetation and plant native grasses, wetland plants, brush and trees that have deep root systems that can help hold the soil in place.

Yes, it is a source of sediment pollution. The most common water pollutant in the U.S.

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| 8 points total |
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Station 3

CI 1. What is meant by “integrated pest management”? Describe two (2) techniques for pest management that do not involve the use of chemical pesticides.

3 points

ANSWER- Integrated pest management is a strategy used to manage insect pests in the landscape by using economically and environmentally sustainable practices. The goal of IPM is *not* to eliminate insect pests but rather to strengthen and stabilize the landscape (ecosystem) so that conditions are more favorable for desired plants than they are for pests.

Crop rotation to disrupt pest breeding cycles, cover crops to form a barrier against swarming, trap crops to entice pests away from commercial crop, mechanical removal, physical barriers, encouraging natural predators

CI 2. Describe two (2) negative effects of “easy-fix” chemicals that control pest and unwanted plants.

2 points

ANSWER: Resistance, pollution of soils and water, health issues for animals including humans and bees

CI 3. Describe one (1) way in which crop rotations benefit both the soil and the grower.

1 point

ANSWER: the soil benefits through the diversity of soil microbes, fungi and insects that are nurtured by different host plants. The diversity does not allow one organism, or one type of organism to overpopulate. The grower benefits by the basic tenet of sustainable agriculture where biological diversity and soil organic matter are drivers of productive farming systems. Soil high in organic matter leads to a healthy, biologically active soil that will have fewer crop fertility, pest, and disease problems.

CI 4. Describe one (1) challenge facing a good crop rotation system and a farm’s profitability.

1 point

ANSWER: The challenge of developing a good crop rotation system is to grow the type and quantity of crops needed to ensure the farm’s profitability while continually building soil quality for long-term productivity.

CI 5. What is meant by “no till” farming? Give two (2) advantages of using this method.

3 points

ANSWER: No till is a way of growing crops or pasture from year to year without disturbing the soil through tillage. No-till is an agricultural technique which increases the amount of water that infiltrates into the soil and increases organic matter retention and cycling of nutrients in the soil.

Advantages: Decreased fuel, labor, and equipment cost, improved soil structure and soil biology, reduced soil compaction, increased residue on surface after harvesting reduces soil erosion.

10 points total

Station 3

F1. What is the common name of the tree labeled F1? What is the total height of this tree and the dbh?

3 points **ANSWER: Bald cypress (*Taxodium distichum*); Height = 45'; dbh = 15.7"**

F2. What type of site would one usually expect to find this species (labeled F1) in? What, if any, commercial uses are there for the wood of this tree?

2 points **ANSWER: Bald cypress is usually found in low lying wet sites, along streams and river, swamps and sloughs. Although it grows very well in wet sites, even standing water, it will grow in drier, upland sites. The wood of Bald cypress has many uses such as interior paneling, siding, structural lumber and beams. Because of its natural resistance to decay and termites, it has many outdoor applications such as post, poles, and cooling towers.**

F3. Using the pin flag labeled Plot A, determine the number of trees that are within that plot. Using the provided 10 –factor prism, what is the basal area of that plot?

2 points **ANSWER: Three trees are within this plot which would give you a basal area of 30 sq. ft.**

F4. Identify the tree labeled F5 by common name. What does the presence of this species indicate about a site?

2 points **ANSWER: Black Willow (*Salix nigra*). It indicates a wet site.**

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| 9 total points |
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Station 3

S1. The erosion across the bayou at this location (see photo) is an example of what type of erosion?



1 point

ANSWER: Stream bank erosion

S2. The erosion described in the previous question and photo is caused by the inability of the stream to _____ floodwater energy.

1 point

ANSWER: Dissipate (accept decrease or synonym)

S3. The channelization of this stream has reduced the ability of this stream to _____ the flood plain.

1 point

ANSWER: Access (or synonym)

S4. Which of the following are steps involved in the process of erosion? Circle your ANSWER.

A) Transport B) Deposition C) Detachment

1 point

D) All of the above E) Both B and C

S5. As soil is eroded by wind and water, soil water storage _____ and crop yields are _____.

2 points

ANSWER: Decreases, Reduced

S6. Soil erosion is one example of soil degradation. Give two (2) other examples of how soil can be degraded.

2 points

ANSWER: Salination, Compaction, Nutrient loss

8 total points

Station 3

W1. Look at the photo on the table labeled “W1”. These birds nest in large groups here at the Duck Pond every year. Using the provided field guide, ANSWER the following questions:

4 points

- a. Give the common name. **ANSWER: Little Blue Heron**
- b. What color are the juveniles of this species? **ANSWER: White**
- c. The group nesting behavior of wading birds is commonly referred to as what type of nesting? **ANSWER: Colonial nesting**
- d. What is one (1) advantage that this type of nesting provides herons and other wading birds?

ANSWER: Safety from predators, Reduced predation and foraging benefits and increased survival rates.

W2. There are many deer living on campus. Use the photographs labeled “W2” to identify the species. Then ANSWER the following questions:

5 points

- a. Give the common name of this species
ANSWER: White tailed deer
- b. These deer are ruminants, meaning they have: (circle ANSWER)
Four-compartment stomachs Split hooves
Usually have twins Eyes shine at night
- c. Fawns are weaned at about _____ of age. (circle ANSWER)
4 months 8 months 10 months 12 months
- d. Typically, the most severe nutritional stress period for deer in Texas is: (circle ANSWER)
Early Spring **Mid – Late Summer** December – February July
- e. Give one (1) instance when deer might be considered pests?

ANSWER: When there are too many for a habitat to support, especially when close to an urban or suburban environment. Overpopulation leads to overgrazing and increased contact with humans, destruction of gardens and traffic accidents.

W3. Name the critically endangered anuran species that was once present in, but has been extirpated from Harris, Liberty, and Fort Bend Counties.

1 point

ANSWER: Houston Toad (*Bufo houstonensis*)

10 total points