Describing an Ecosystem at *[type context here]*

The following photographs were taken *[insert the location in which photographs were taken]*. They provide two views of a *[insert the type of ecosystem represented by the photos]* ecosystem. You will be writing about components of this ecosystem.

*[Insert 1st photograph representing the ecosystem.*

***Note****: You may include more than two photographs of the ecosystem.]*

Photograph 1. *[Insert caption describing the location in which this photograph was taken.]*

*[Insert 2nd photograph representing the ecosystem.]*

Photograph 2. *[Insert caption describing the location in which this photograph was taken.]*

**Part 1**

**1st Organism:**

Name one living organism in at least one of the photographs:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe **how** one physical characteristic of this organism is adapted for its reproduction or survival in this ecosystem:

Describe this organism’s **niche** or **role** within this ecosystem:

**2nd Organism:**

Name a second living organism in at least one of the photographs:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe **how** one physical characteristic of this organism is adapted for its reproduction or survival in this ecosystem:

Describe this organism’s **niche** or **role** within this ecosystem:

**3rd Organism:**

Name a third living organism in at least one of the photographs:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe **how** one physical characteristic of this organism is adapted for its reproduction or survival in this ecosystem:

Describe this organism’s **niche** or **role** within this ecosystem:

**Part 2**

**1st Abiotic Factor:**

Name an abiotic (nonliving) factor in at least one of the photographs:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe its role or how it affects organisms within this ecosystem:

**2nd Abiotic Factor:**

Name a second abiotic (nonliving) factor in at least one of the photographs:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe its role or how it affects organisms within this ecosystem:

**Part 3**

Identify **limiting factors** that might limit the size of a population of organisms in this ecosystem. The organism **must be visible** in at least one of the photographs, but the limiting factors may or may not be visible.

**Choose only one living organism** in the photographs and **write its name** in the space below:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Now, list five limiting factors and explain how or why each factor might affect this organism’s population.

|  |  |
| --- | --- |
| 1st limiting factor: | How might this limiting factor affect this organism’s population? |
| 2nd limiting factor: | How might this limiting factor affect this organism’s population? |
| 3rd limiting factor: | How might this limiting factor affect this organism’s population? |
| 4th limiting factor: | How might this limiting factor affect this organism’s population? |
| 5th limiting factor: | How might this limiting factor affect this organism’s population? |

Scoring Plan

This assessment is not to be scored if it becomes apparent the student is familiar with fewer than three animals and/or plants shown in the photograph.

**Biotic Factors**

|  |  |
| --- | --- |
| For the **first** biotic factor, student identifies a physical characteristic and explains how it is adapted for the organism’s reproduction or survival in the ecosystem.   * The organism must be visible in the photograph, but the presence of the indicated physical characteristic can be reasonably inferred. For instance, a wading bird’s webbed feet may be hidden beneath the surface of the water. * The student’s response must explain how the physical characteristic is adapted for this organism. For instance, all birds have feet, but some birds have *partially webbed feet* that are specialized for wading. | 1 pt. |
| For the **first** biotic factor, student describes the organism’s niche or role within this ecosystem.   * For instance, “butterflies eat nectar” does not describe an ecological role, whereas “butterflies are pollinators” does.   *A valid response is not one that merely states the organism’s action on another. It must go further by indicating the effect the organism has on a population of organisms within the ecosystem or on the ecosystem as a whole. Some examples are*   * *how the organism receives energy (e.g., producer, consumer, decomposer, etc.),* * *how the organism affects other biotic factors (e.g., limits another organism’s population, acts as food source for another population, pollinator, parasite, mutualist, etc.),* * *how the organism affects abiotic factors (e.g., aerates soil, breaks down rocks, produces oxygen, shades understory, etc.).* | 1 pt. |
| For the **second** biotic factor, student identifies a physical characteristic and explains how it is adapted for the organism’s reproduction or survival in the ecosystem. | 1 pt. |
| For the **second** biotic factor, student describes the organism’s niche or role within this ecosystem. | 1 pt. |
| For the **third** biotic factor, student identifies a physical characteristic and explains how it is adapted for the organism’s reproduction or survival in the ecosystem. | 1 pt. |
| For the **third** biotic factor, student describes the organism’s niche or role within this ecosystem. | 1 pt. |

**Abiotic Factors**

|  |  |
| --- | --- |
| For the **first** abiotic factor, student describes its role or how it affects organisms in the ecosystem. For instance, the student states that the abiotic factor provides shelter, water, or camouflage.   * Abiotic factor must be visible in or reasonably inferred from photographs. | 1 pt. |
| For the **second** abiotic factor, student describes its role or how it affects organisms in the ecosystem. | 1 pt. |

Scoring Plan (continued)

**Limiting Factors**

|  |  |
| --- | --- |
| Student explains how a factor is reasonably limiting for selected organism’s population.   * If an organism is not listed nor explicitly identified within the response, no points are awarded. * If the response identifies limiting factors for more than one population, points are awarded only for limiting factors associated with one population, whichever population will result in the higher score for the student. * Limiting factors such as predation, shelter, disease, or access to food or water may or may not be visible in a photograph, but must be reasonably inferred for the present ecosystem.   *In the case of birds being limited by toxic runoff, “Birds drink water” would not receive credit because the response does not describe how the pollution limits the bird population.* | 1 pt. |
| Student explains how a **second** factor is reasonably limiting for the same population. | 1 pt. |
| Student explains how a **third** factor is reasonably limiting for the same population. | 1 pt. |
| Student explains how a **fourth** factor is reasonably limiting for the same population. | 1 pt. |
| Student explains how a **fifth** factor is reasonably limiting for the same population. | 1 pt. |