**Unit 3: Ecosystems**

“Lessons at a Glance”

**LESSON ONE**

**Title:** Who is the King Rail?

**Topic:** Ecosystem vs. Habitat

**Theme:** All species within an ecosystem are connected and the actions of one can affect the survival of others.

**Student Outcomes**:

* Understand the differences between ecosystems and habitats
* Know the life history of the King Rail and its habitat requirements
* Be able to create a descriptive drawing of a King Rail

**Missouri Science Standards:** 6-8.LS2.A.2. *Construct and explanation that predicts the patterns of interactions among and between the biotic and abiotic factors in a given ecosystem.*

6-8.LS2.C.1. *Construct an argument supported by empirical evidence that explains how changes to physical or biological components of an ecosystem affect populations.*

**Components:** Two video lessons, King Rail Research Activity, Draw a King Rail Activity, and a student assessment.

**LESSON TWO**

**Title:** Why does the King Rail live there?

**Topic:** Habitat Requirements

**Theme:** All species, including the King Rail, need to have their habitat requirements met to be able to thrive in their environment.

**Student Outcomes**:

* Understand the difference between biomes, ecosystems, and habitats
* Know the components of a quality habitat for a particular species
* Be able to map out the idea habitat for a specific species (the King Rail)

**Missouri Science Standards:** 6-8.LS2.A.2. *Construct and explanation that predicts the patterns of interactions among and between the biotic and abiotic factors in a given ecosystem.*

6-8. ETS1.A.1. *Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.*

**Components:** Infographic, Now That’s a Quality Habitat Activity, and a student assessment.

**LESSON THREE**

**Title:** How can we help the King Rail?

**Topic:** Habitat Management

**Theme:** Scientists, land managers, individuals and communities can use science ideas to conserve birds and their habitats.

**Student Outcomes**:

* Understand how many different stakeholders can be involved in conservation and habitat management
* Know the definition of community-science and how students can get involved
* Be able to create a plan for how to improve an existing habitat for a particular species (the King Rail)

**Missouri Science Standards:** 6-8.LS2.C.2. *Evaluate benefits and limitations of differing design solutions for maintaining an ecosystem.*

6-8.ESS3.C.2. *Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*

6-8. ETS1.A.1. *Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.*

**Components:** Two video lessons, Let’s Improve the Habitat Activity, and a student assessment.

**LESSON FOUR**

**Title:** Who is Conservation?

**Topic:** The Human – Environment Relationship

**Themes:** From how we grow our food to our consumer decisions, the actions humans take impact our environment. The human-environment relationship – It’s complicated.

**Student Outcomes**:

* Understand how bird habitat and coffee plantations are related
* Know the difference between shade-grown and sun-grown coffee and how they relate to wildlife habitat
* Be able to convey their new knowledge of bird-friendly coffee by creating a brochure

**Missouri Science Standards:** 6-8.LS2.C.1. *Construct an argument supported by empirical evidence that explains how changes to physical or biological components of an ecosystem affect populations.*

6-8.LS2.C.2. *Evaluate benefits and limitations of differing design solutions for maintaining an ecosystem.*

6-8.ESS3.C.2. *Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*

**Components:** Three video lessons, Connecting Coffee in Your Neighborhood to Bird Conservation Activity, and a student assessment.

**LESSON FIVE**

**Title:** YOU are Conservation

**Topic:** Student Research and Conservation Action

**Theme(s):** Anyone can be a conservationist, including students. Our new knowledge can positively contribute to the outside world and improve life for all.

**Student Outcomes**:

* Understand that collecting information is an important part of conservation at any level
* Know how to research a species of the students’ choosing
* Be able to create a plan of action for themselves and their classmates

**Missouri Science Standards:** 6-8.LS2.C.2. *Evaluate benefits and limitations of differing design solutions for maintaining an ecosystem.*

6-8.ESS3.C.2. *Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*

6-8. ETS1.A.1. *Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.*

**Components:** Pick a Species and Learn All You Can Activity, Make a Story Activity, Call to Action Activity, and concluding questions.