

Rice and the Environment

Rice paddies stretch as far as the eye can see, overtaking one's vision with their quiet, pristine presence. Soon enough, the paddies will sprout shoots with long, tender leaves, boasting clusters of flowers that, in time, will evolve into rice grains—the same rice grains that many people depend upon for nourishment. The rice industry is acting as a role model for how agriculture can benefit not only the human race, but bolster other species as well. Rice paddies throughout the nation do not only serve to sustain the human population, but also act as seasonal wetland habitats for geese, ducks, other waterfowl, and amphibians as well as mammals.

A member of the grass family, rice is a staple in the diets of about one third of the world's population¹, and for good reason. Aside from acting as a main source of needed carbohydrates, rice is also an environmentally friendly crop, thanks to the work of rice farmers. American rice farmers work constantly to ensure that rice will be plentiful for many years to come, and meanwhile, maintain a habitat for many waterfowl in the U.S. In the past century, experts estimate that close to 95 percent of the wetlands in California alone have been destroyed or left uninhabitable for organisms that thrive in the wetlands. Due to this sharp decrease in available habitats for wetland dwellers, waterfowl and other organisms have looked to agricultural wetlands as a means of survival and habitat. Such a dependence on rice fields shows that rice farmers have shouldered much environmental responsibility, especially in the last ten years.

In their efforts to keep the wetlands in the optimal state for rice cultivation, farmers act as helpers to the environment. In the past, farmers would simply burn the fields, but increasingly they have become more aware of their role as responsible

¹ Welcome to the California Rice Commission, <http://www.calrice.org/>.

contributors to a delicate ecosystem. Only about 15 percent of the rice straw in California is burned—a 75 percent decrease in burning by the state’s rice farmers. This dramatic decrease took place in the span of a mere decade. Rice farmers try to avoid burning rice straw whenever possible, resorting to burning only in cases of disease control. The remainder of the rice fields are flooded rather than burned each winter to break down the unused straw from the rice plants. This process provides earth-friendly habitats for countless waterfowl, and attracts the insects that serve as food for these birds. In addition, the presence of more than 3 million acres of rice plants in the U.S.² helps break down carbon dioxide and adds to the oxygen in the atmosphere that humans need in order to survive. In fact, rice plants are so significant that the rice fields in Sacramento Valley supply enough oxygen for the population of Los Angeles, California.

Birds are not the only organisms dependent on the wetlands habitat. The California Rice Industry Association reports that in addition to 113 bird species, 28 mammals and 27 amphibians visit the wetlands created by rice fields in California every year. A peaceful balance exists between the wetlands habitat of many birds, mammals, and amphibians, and the economic and dietary needs of humans. In the past, this balance did not exist. Humans disturbed the wetlands of North America in their early explorations, causing duck populations to suffer as a result of inconsistently flooded areas. Thankfully, the Mississippi Alluvial Valley (MAV) attests to rice farmers’ role in boosting duck populations; “Harvested rice fields flooded in fall and winter provide waste rice and weed seeds as food for wintering waterfowl. Mallards and other puddle ducks, in particular, make extensive use of this food resource in the MAV.”

² RiceRomp: Teachers – Science, <http://www.riceromp.com/teachers/lessonContent.cfm?pId=128>

Rice is a very environmentally efficient crop, which also makes it economical for farmers. In comparison to other crops, such as the almond, which requires 80 gallons of water to grow one serving, and the cantaloupe, which requires 40 gallons of water to grow per serving, one serving of rice needs only 25 gallons of water for cultivation. With new technology, rice farmers have reduced their water usage by 40 percent in the past thirty years to this admirable number. Agricultural technology in the past year has created new strains of rice, called short stature varieties, which save water for farmers by growing plants that yield a lot of rice with half the height of older varieties. Other formulated strains of rice are more resistant to disease and pests, allowing farmers to cut down on pesticide use, which reduces negative impact on the environment.

Wetlands are an important ecosystem on Earth because they house many different species, help in flood control, and improve water quality. The diversity found in wetlands is important to maintain because wetlands have been disappearing. Agricultural wetlands that have taken the place of natural wetlands have picked up some of the slack, so waterfowl and other organisms that depend upon the wetlands for survival have begun to recover.

Wetlands serve to reduce flood damage by intercepting rainwater from storms and lessening the damage by heavy storms on developmental areas. Bottomland hardwood forests located in Mississippi were able to hold sixty days of river discharge before widespread European settlement. That number has since been reduced to twelve days of capacity by the current wetland forests of Mississippi. This demonstrates the enhanced importance of wetlands created by rice paddies in the United States. Rice farmers are

helping to control flood damage by conserving their own kind of wetlands, which serve for agricultural purposes but also improve the ecosystem.

Furthermore, wetlands in the United States have improved water quality by removing toxic materials in water. Over the years a sense of increasing worry over the safety of natural drinking water has risen; the wetlands are helping to allay some of these fears. The wetlands act as a filter for excess nutrients, and overall, partake in functional actions that help the surrounding environment. The actions of rice farmers therefore not only provide much-needed habitats for waterfowl, but also foster a much-needed ecosystem that has been diminished by aggressive human development of land.

Works Cited

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