

Throughout history people drained, ditched and destroyed the wetlands, unaware of their incredible importance to the environment. Recently there have been several efforts to reestablish the wetlands, but none have been quite as effective as the U.S. Rice Industry. Rice fields are flooded for approximately five months a year, making them temporal wetlands with an enormous environmental impact. The U.S. Rice Industry, therefore, plays a crucial role in maintaining the wetland habitat in the United States. Wetlands, which can be defined as an area where land and water meet, are important for numerous reasons, including their effect on wildlife, water and soil.

The importance of wetlands stems from the fact that they act as natural sponges. They absorb water and cause it to move more slowly through the system, which prevents flooding and shoreline erosion. Furthermore, wetlands are also useful in filtering out pollution, particularly phosphorous and nitrogen, and they are extremely important in the production of oxygen in temperate habitats. In fact, they produce as much oxygen per area as a tropical rainforest. In addition to all this, they provide a habitat for numerous species of wildlife and constitute a major food source for humans and animals.

With the steady decrease in the number of natural wetlands, rice farms have become a critical part of the annual migration of millions of waterfowl, including ducks, geese and swans. Rice growers, cooperating with conservation groups and government agencies, are starting to make their farms useful as a source of sanctuary and supplemental food for these migratory birds. For example, Ducks Unlimited helps provide funds to support the winter flooding of rice fields through the *Valley/Bay CARE initiative*. In 1992, this organization began with 50 rice growers agreeing to flood their 7,000 acres during the winter. The association has now grown to 200 growers flooding

nearly 140,000 acres of rice. This system of winter flooding has proved beneficial to both the farmers and the birds. The birds arrive just after harvest and assist the farmers by consuming weeds, stubble worms and insects and then they fly north for the summer allowing the farmer to replant his field. The farmers also benefit from the droppings the flocks leave behind, which serve as a natural fertilizer. In return, the waterbirds are provided with a habitat complete with 300 pounds of rice per acre left over after harvest in addition to the 250 pounds per acre of natural foods. Every year the rice fields serve as a winter habitat for millions of birds, which would otherwise have nowhere to go. In fact, 46 species of waterbird have been recorded in the rice fields in the Central Valley of California because they have proved to be such an effective substitute to the decreasing natural wetlands.

Because farmers use fertilizers, many people believe that rice farms, which use nitrogen, potassium and phosphates, must play a role in polluting our water, but the truth is just the opposite. It has been proven that in many cases the water flowing out of a flooded rice field is actually cleaner than it was when it first flowed into the field. The rice farm wetlands dissipate the nutrients from the fertilizers and decompose agricultural pesticides, thereby helping to purify and decontaminate the water. Furthermore, the rice fields help to conserve soil and improve the water quality by reducing the amount of sediment flowing into the nearby waterways. The U.S. Fish and Wildlife Services, as well as the Wildlife Foundation have even found that rice paddies have a positive affect on the fish populations in nearby streams because the water they release is actually cleaner than what was taken out.

Another environmental problem that has been raised concerns the amount of water used by rice paddies, but as it turns out, this is relatively low. In fact, rice is one of the most water-efficient sources of nutrition. The amount of water used to produce a single serving of rice is roughly 2% (25 gallons) of the amount required for a serving of beef (1,231). United States rice farmers make an enormous effort to conserve water in their fields. They level their fields precisely and carefully place levees to ensure a uniform depth of two to three inches of water across the entire field. They have also begun using recirculating irrigation systems and automatic shut-off valves. These techniques have allowed farmers to conserve up to an estimated two thirds of the water used just thirty years ago.

In today's society the amount of land available for farming has become a major source of concern. With the loss of topsoil through erosion, the amount of land suitable for growing most food crops has steadily decreased. The cultivation of rice has proved beneficial in this respect because rice farmers use soils that are not suitable for the farming of other crops. Rice fields are typically made of heavy clay soils that hold the water on the top. This is a very good thing for growing rice but would cause most other crops to rot. The fields also help to prevent erosion in a couple of different ways. First of all the soil is covered in water, which prevents the wind from blowing away the topsoil. Furthermore, the fields are surrounded by levees to stop the runoff and thereby prevent erosion.

The wetlands are a critical part of our environment, but unfortunately we have not always recognized this important fact. Many of our wetlands had been drained or destroyed. In California alone, 95% of the historic wetlands have been lost. This loss,

however, is being counteracted, in part, by the rice industry in the United States. The rice farms are providing food and a habitat for millions of waterbirds who migrate south to areas in Arkansas, California, Louisiana, Mississippi, Missouri and Texas. The farms also serve as water filters, purifying the water and positively affecting the surrounding rivers and lakes, including the fish that live in them. They also help treat the problem resulting from erosion and the loss of land suitable for farming most crops. In fact, the Rice Industry simply has an overall positive effect on the environment.

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