

A Banquet for Ducks

Flooded rice fields help support the majority of the nation's wintering dabbling ducks

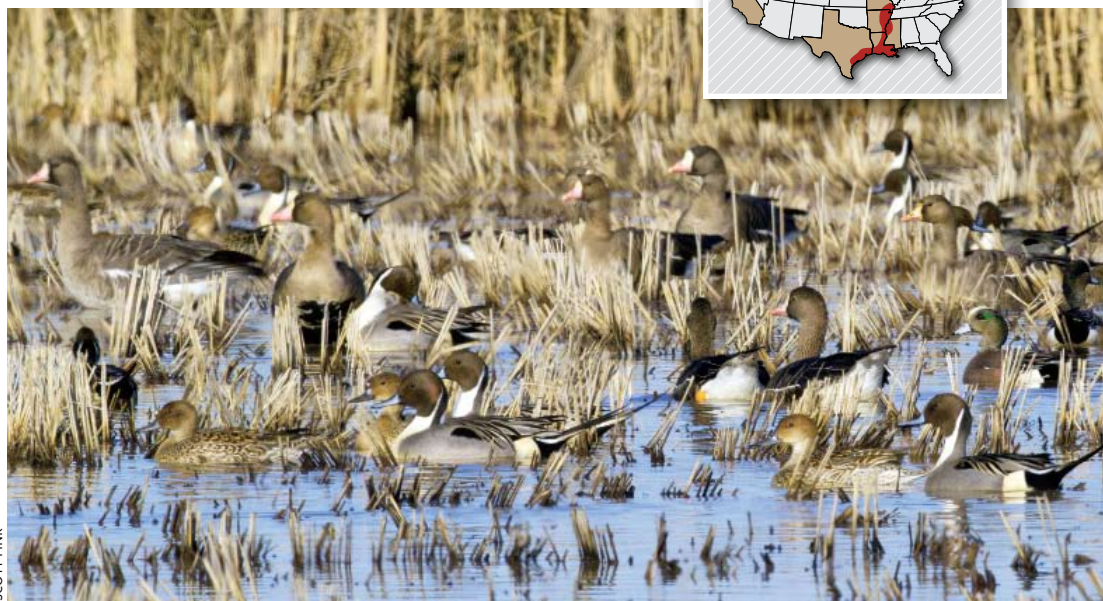
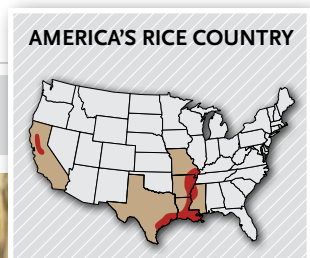
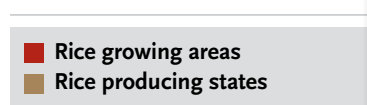
—By Mark Petrie, Michael Brasher, and John Tirpak

Three regions collectively support more than half of all wintering dabbling ducks in the United States: the Lower Mississippi Alluvial Valley (LMAV), the Gulf Coast of Louisiana and Texas, and the Central Valley of California. It's no coincidence that these areas are also our nation's primary rice-growing regions, accounting for essentially all of U.S. rice production. Hunters have long recognized the importance of rice to wintering and migrating waterfowl. Why is rice agriculture so important to dabbling duck populations?

The fundamental need of waterfowl during migration and winter is food. By providing adequate foraging habitat, waterfowl managers help ensure that duck populations are not limited by low survival outside of the breeding season and that the birds arrive on the breeding grounds in good condition. Harvested rice fields not only contain "waste" grain that is missed during harvest but also a variety of other waterfowl foods, including invertebrates and seeds from wetland plants (weeds) that often grow with rice. While dabbling ducks will feed in dry fields, they prefer to forage in fields flooded after harvest. In the Central Valley, harvested rice fields were traditionally burned to eliminate leftover straw. But laws prohibiting fall burning have caused farmers to rely on post-harvest flooding to decompose rice straw. This has resulted in a six-fold increase in the acreage of winter-flooded rice in California since the early 1990s.

The Gulf Coast is unique among America's rice-growing areas because farmers in this subtropical region can harvest two crops of rice in the same field in one growing season. The first crop is normally harvested in late July or August, after which the field is fertilized and flooded again to encourage new growth from the standing stubble. This second crop, commonly referred to as a "ratoon" crop, is typically ready for harvest in October or November. Ratoon crops generally produce lower yields than first crops, and harvesting efficiency is usually lower during the second harvest. Moreover, rice that is harvested later in the fall has less time to sprout, decompose, or be eaten by other animals before wintering waterfowl arrive. Also, it's not uncommon for some portions of ratoon crops to be left completely unharvested, providing additional food resources for waterfowl.

The LMAV accounts for more than half of all U.S. rice acreage, with production concentrated around the famous duck-hunting areas of Arkansas' Grand Prairie, the Mississippi Delta, and the Missouri Bootheel. Rice fields in this region typically produce only a single crop each year, but fall and winter flooding of harvested fields for waterfowl is a common practice, both for the recreational benefit of individual farmers as well as extra income earned from leasing fields to duck hunters.



SCOTT FINK

Rice fields that are flooded after harvest provide vital wintering habitat for a variety of waterfowl, including pintails, white-fronted geese, and American wigeon. This agricultural practice also helps decompose rice straw, control weeds, conserve soil, and improve water quality.

How important are the food resources provided by rice agriculture to wintering waterfowl? Each year, nearly 3.4 million acres of rice are grown in the United States, with roughly 2.4 million acres in the LMAV, 530,000 acres in the Central Valley, and 425,000 acres along the Louisiana and Texas Gulf Coast. Waterfowl scientists have conducted extensive research to measure the waterfowl food resources in rice fields in each of these regions. This work has revealed that rice fields provide 35 percent and 60 percent of the food resources available to wintering dabbling ducks along the Gulf Coast and in the Central Valley, respectively. In addition,



GLOBAL FAVORITE According to the U.S.A. Rice Federation, the average American eats 25 pounds of rice each year. Rice is a dietary staple throughout much of Asia, where people typically eat rice two or three times a day.

research suggests that rice fields in the LMAV can meet 70 percent of the food needs of the region's wintering waterfowl.

The importance of rice agriculture to dabbling ducks can be calculated using fairly simple math. Long-term winter survey data suggest that 55 percent of all dabbling ducks in the United States winter in rice-growing regions, with roughly 15 percent of these birds occurring in the Central Valley, 20 percent along the Gulf Coast, and 20 percent in the LMAV. This information, coupled with our knowledge of waterfowl food availability in flooded rice fields in each of these regions, allows us to estimate the total contribution of rice agriculture to wintering dabbling ducks. By our calculations, this single agricultural crop provides approximately 30 percent of the food energy needs of all wintering dabbling ducks in the United States—a remarkable statistic.

Rice's "economic" contribution to waterfowl conservation is equally impressive. Replacing the waterfowl food resources currently provided by flooded rice fields in the Central Valley would require an investment of more than \$1.5 billion in new wetland restoration and management. Unfortunately, there is no guarantee that rice will remain a cornerstone of the waterfowl landscape in this region. In the future, increasing competition for limited water supplies in California may reduce rice production in the Central Valley and discourage winter flooding of harvested rice fields on behalf of waterfowl. This would not only reduce the food resources currently available to wintering waterfowl in rice fields, but also could decrease the availability of water for natural wetlands. More than 50 percent of the water used for wetland management in the northern half of the Central Valley is agricultural "tailwater," which is drained from rice fields prior to harvest.

Rice production has already suffered a significant decline along the Gulf Coast. During the late 1970s, approximately 1 million acres of rice were grown annually in the coastal parishes and counties of Louisiana and Texas. Since that time, planted rice has declined by nearly 60 percent, with 425,000 acres planted along the Gulf Coast in 2010. Even more alarming, planted rice in Texas has dipped to 150,000 acres twice in the past five years, with four of the all-time lowest totals occurring during the same period. Development pressure, high production costs, reduction of commodity supports, and competition for water have all contributed to the decline of rice production in Texas. The loss of rice-field habitat along the Gulf Coast is compounded by the ongoing disappearance of fragile coastal marshes. If current trends continue, the Gulf Coast region's wintering waterfowl and rich waterfowling traditions could be in jeopardy as both of these important habitats fade from the landscape.

The threat to wintering waterfowl in the LMAV is less about a decline in rice acres and more about a decline in the availability of rice in harvested fields. Interestingly, the quantity of waste rice in harvested fields has remained about the same during the past 50 years. For the most part, increases in harvesting efficiency have been offset by increases in yields. What has changed is *when* rice fields are harvested. New rice varieties, introduced during the early 1980s, are planted and harvested earlier than varieties grown in the past. Rice fields in the LMAV are typically harvested in late summer—months before waterfowl begin migrating into the region. As a result, waste rice has more time to decompose, sprout, and be eaten by other animals before the ducks show up. Recent studies in the LMAV have revealed that waste rice declines by more than 70 percent between harvest and late autumn. But there may be a solution to this problem. Researchers are now examining the feasibility of raising ratoon crops with early-growing rice varieties in the LMAV, much like along the Gulf Coast. These ratoon crops could be harvested later in the fall or left unharvested altogether to provide more food for wintering waterfowl.

There's no question that a healthy rice industry is vital to North America's waterfowl. What can we do to help support America's rice farmers and the important habitat they provide for ducks? Cook some rice—U.S. grown, of course. 🍚

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