African roots, Carolina gold
AFRICAN ROOTS, CAROLINA GOLD
The African contribution to the immensely lucrative
South Carolina rice industry.

CAROLINA GOLD’S TRAIL
Researchers are using molecular tools to study Carolina Gold’s genetics.

FORMER RICE FIELDS, DISAPPEARING
A rare habitat could soon fade away along the Cooper River.

REDISCOVERING CAROLINA RICE
There is a growing interest in reviving heirloom rice varieties such as Carolina Gold.

EBBS AND FLOWS
- Beach Sweep/River Sweep Annual Litter Cleanup
- 9th International Conference on Shellfish Restoration

ON THE COVER: Inside a former rice mill at Middleton Place on the Ashley River, a pestle rests in a mortar. These tools were used to pound rice to remove the husks. PHOTO/WADE SPEES

LINE DRAWING COURTESY OF MIDDLETON PLACE

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In the early 1960s, when Emory S. Campbell was a young man, he moved from his family home on Hilton Head Island to Boston and suffered a bout of culinary shock. “It took me a long time,” he says, “to adjust to the fact that there was something other than rice that people could eat for dinner.”

Hilton Head’s population was tiny during Campbell’s youth, with only 1,125 residents in 1950. Connected to the mainland by ferry, the island was isolated, and the Campbell family—like other African Americans on the island—embraced traditional folkways. And that included eating rice at every evening meal.

The Campbells would simmer meats, vegetables, beans, or field peas in a stew, which was poured over rice. In winter, they’d add oysters to the mix; in the summer, shrimp or garden greens. “You’d have fish or vegetables prepared in such a way that you put it over rice,” says Campbell. “Collard greens, cabbage, lima beans—all those are cooked in a soup or gravy that you’d put over the rice.” For breakfast the family usually ate grits, but on special occasions the children might be lucky enough to eat rice, a “real treat.”

After a few years in Boston, Campbell returned to South Carolina as executive director of the Penn Center on St. Helena Island. Since his retirement in 2003, Campbell has continued as an educator and consultant, describing the culture of his fellow Gullah/Geechee people, descendants of African slaves who labored on antebellum rice plantations. Along the coast of the Carolinas, they are known as Gullah, but in Georgia and northern Florida they are called Geechee.

The Gullah people have struggled to sustain their folkways in a time of rapid coastal development. While pressures of the modern world have diluted their creole language and culture, a blend of African and European influences, the Gullah attachment to rice remains strong.

Scholars in recent years have gained insights into the African contribution to Carolina rice’s origins, rice’s place in lowcountry history and its creole cuisine, and the grain’s role in the Atlantic world of trade and slavery.
Joseph Opala, who teaches African-American history at James Madison University in Harrisonburg, Virginia, has examined the similarities between lowcountry Gullah culture and that of the “Rice Coast” of West Africa, a 700-mile, six-nation region.

Opala worked for 17 years in Sierra Leone, where rice is not only the nation’s staple crop but it is also central to the people’s identity. “They’d say, ‘Joe, we’re Sierra Leoneans, we’re rice eaters. We eat rice three times a day, morning, noon, and night. Other foods are fine, but if we ever go to bed with our bellies empty of rice, we’re just miserable.’ ”

When Opala later visited the South Carolina sea islands, Campbell met him at the airport and explained, “Joe, this is your first time here on the islands, and I’ve got to tell you. We’re Gullah, we’re rice eaters. If we don’t have rice, we’re miserable.”

How could two peoples thousands of miles apart, separated by the Atlantic Ocean, describe themselves in such similar ways? Because Africans of the Rice Coast and many lowcountry blacks have a shared ancestry split by slavery. Centuries and human bondage didn’t destroy many cultural links, particularly those of traditional foodways.

Says Opala, “The dishes prepared in Sierra Leone are very similar to ones that are traditionally prepared in South Carolina, and in some cases have exactly the same names. When I told Sierra Leoneans that the Gullah eat okra soup, red rice, and rice and greens, they became convinced that lowcountry people were family.”

**ATTACHMENT TO RICE**

Over the past few decades, scholars have unearthed evidence that many cultivation techniques used on early rice plantations in North America originated on the Rice Coast of West Africa.

West Africans had been growing rice for thousands of years before Portuguese mariners began exploring the region in the mid-fifteenth century. Before European contact, West Africans knew how to grow it in dry upland areas and in irrigated wetlands; and how to plug hollow tree trunks as irrigation devices for cultivation, among other techniques.

By the 1720s, Carolina rice growers were telling slave traders that they wanted skilled Africans from the Rice Coast above all others. During the eighteenth century, more enslaved Africans from the Rice Coast were hauled into the ports of Charleston and Savannah than any other African region. “Rice growing was a particularly complex form of agriculture, and that’s why planters needed people from that part of Africa,” says Opala.

“There’s a pretty substantial literature now on technical connections between the Rice Coast and the lowcountry,” of South Carolina and Georgia, Opala adds. “We know what kinds of rice-growing techniques existed along the Rice Coast and how that knowledge affected the rice plantations.”

“*The slaves knew more about the business of the rice plantation than the family that had owned that plantation for generations.*” — Joseph Opala

In early March through April, female slaves walked barefoot between rows, dropping rice seed into holes created by their toes, then tamping it down with their heels.

Lowcountry slaves hoed fields three or four times from early June to early August. Hoeing was exhausting. The month of June, not surprisingly, was the month highest in runaway slaves.
industry of the eighteenth century lowcountry. The slaves knew more about the business of the rice plantation than the family that had owned that plantation for generations. But one of the things that hasn’t been written about much is how rice is central to the cultures of the Gullah and of the people of the Rice Coast.”

Rice was also precious to the lowcountry aristocrats who enslaved West Africans. Particularly before the Civil War, the swells of Charleston, Savannah, Beaufort, and Georgetown revered the grain. From the 1720s to 1860, no other commodity was remotely as important to the region as rice. Indigo, cotton, forest products, and manufacturing never came close to matching the riches that planters drew from slave-based rice production.

Lowcountry wealth seemed exotic, even decadent, to visitors, especially American northerners. Rice planters took pride in having the best of everything: horses, houses, clothes, art, furniture, and food. One observer pointed out that their luxuries denote “a higher degree of taste and love of show” than those found in northern states.

Although they could afford a cornucopia of grains, planters paid thrice-daily respects to rice. In plantation houses and summer homes, rice was at the heart of every course of every meal: soups, main dishes, side dishes, desserts, and breads. Carolina Gold rice —the variety named for its dazzling color in fields—was famous for its cooking qualities, aroma, flavor, and texture.

Monthly rations of rice, meanwhile, were given to plantation slaves. But Africans had to stretch rations by growing subsistence crops in private garden plots after their daily tasks were completed. In the early nineteenth century, a lowcountry slave noted, “Most everybody have rice of their own, for we all had land to plant, and most everyday we done our task time enough to work for ourselves.”

To supplement rice dishes, Africans would add fish or wild game or use leftovers from the planters’ hog killings such as pig’s feet, ears, heads, and entrails. After the Civil War, the Carolina rice economy struggled and then died out. The grain’s importance to high society faded. For the Gullah people, however, rice has sustained its central place through generations, though it was either grown locally as a subsistence crop or purchased from commercial growers elsewhere in the United States. Gullah people, living on isolated sea islands or in mainland pockets, continued to grow rice.

Slaves used a “fanner” basket, usually made of sweetgrass, to separate rice grains from the chaff.

The Rice Growers of Africa

Lowcountry planters imitated many agricultural methods used along West Africa’s Rice Coast, a 700-mile region that, today, includes six nations. Planters especially sought Africans from this region who already knew how to grow rice.

Pounding the rice by hand to remove its husk began in late November or early December and sometimes extended into February.

LINE DRAWINGS COURTESY OF MIDDLETON PLACE
rice in their gardens and in some cases in freshwater swamps until the 1950s and ’60s.

Still, for most lowcountry whites and many urban blacks, rice holds no special meaning now—with one exception. On New Year’s Day, South Carolinians enjoy a dish of rice and black-eyed peas or tiny red field peas, usually cooked with bacon, called “Hoppin' John,” which is supposed to bring good luck. Folklore says that people who “eat poor New Year’s Day eat rich the rest of the year.” “Hoppin’ John,” writes culinary historian Karen Hess, “is the signature dish of South Carolina, black and white.”

Hoppin’ John is a pilau dish (pronounced “perlow” by the Gullah), a kind of stew. To make a Gullah pilau, you heat a broth fattened by bacon or salt pork or seafood. Once the broth is simmering, long-grained rice is added—two parts liquid to one part of rice by volume. The pot is then covered, the rice steamed until nearly dry and its separate grains visible and glistening.

“You’d name the pilau after what you put in it,” says Campbell. “If you put oysters in, that was an oyster pilau; put in shrimp, that was a shrimp pilau.”

In the case of Hoppin’ John, black-eyed peas and pork are mixed in. Its name likely comes from the French Creole term for black-eyed peas: pois pigeons (pronounced “pwah pee-JON”).

First known as a dish popular with slaves, Hoppin’ John’s beginnings trace to Africa and the sugar islands of the Caribbean. Botanically, the Carolina black-eyed pea (Vigna unguiculata) is closer to the bean than the pea. The slave trade brought the black-eyed pea from West Africa to the West Indies. By the early eighteenth century, colonists carried it to Carolina, where slaves grew it in provision gardens.

This is just one example of hundreds of plants that arrived by circuitous routes from the Old World to the 13 British colonies. Europeans usually experimented with crops in North America only after planters had already tried them out in the West Indies.

There were exceptions, however. At least some rice varieties were carried directly from Africa to the North American colonies as food for slaves and were probably never intended to be planted for export.

Following favorable trade winds from homeports, Europeans would pilot their ships to the West African coast, where captains would buy slaves and provisions for the Middle Passage across the Atlantic. Once loaded, ships would continue following trade winds, southerly and westerly, to the New World.

By 1700, when the Carolina settlement was only 30 years old, Europeans already had more than a century of slaving experience. Ship captains exchanged information on how to keep as many captives alive as possible, as cheaply as possible. It became common knowledge among ship captains that if kidnapped Africans from the Rice Coast were fed familiar foods, they would be less likely to revolt during the Atlantic crossing.

“Captains routinely purchased rice from African communities to feed human cargo during the Atlantic passage,” says Judith Carney, a geographer at the University of California at Los Angeles.

Slave women milled the cereal by hand, working above deck with mortars and pestles to remove the husk from the grain, which was fed to the crew and to slaves below deck.

Surplus food rice, arriving on slave ships to the New World, was used to plant subsistence gardens.

As early as the 1540s, ships were transporting rice to the emerging sugar plantations of the Brazilian tropics. For generations afterward in Brazil, slaves and escaped slaves—called maroons—planted rice in small-scale gardens. Early South American colonies, then, used rice primarily as food for captives or as livestock fodder.

Another century passed before rice was grown extensively in a North American British colony. By 1648, pamphlets and letters from Virginia mentioned its cultivation there, though probably not for export markets. One Virginia colonist pointed out that “we perceive the ground and Climate very proper for (rice cultivation) as our Negros affirme, which in their Country is most of their food.” But the Virginia climate was not suitable for large-scale rice production.

**RICE TRAVELS THE WORLD**

No one knows exactly when rice was introduced to Carolina. Two rice species might have been grown in Carolina very soon after the colony’s beginnings—the only two species available anywhere in the world for cultivation: one Asian (Oryza sativa), and the other African (Oryza glaber-rima). Within the two species are countless rice varieties with various characteristics. Commercial rice farming in North America was based on Asian rice, but Carolina colonists originally thought that their rice was of African origin.

In the traditional “foundation” story of Carolina rice, a storm-damaged ship en route from Madagascar in 1685 limped into Charleston for repairs. The English ship captain gave some rice seeds to a Charleston doctor, and the Carolina colony’s rice industry supposedly grew from them.

Some historians are skeptical of the Madagascar story because it too conveniently shows Europeans as the exclusive agents of early Carolina rice cultivation. It might be an accurate
GLOBAl TRADE. South Carolina rice was grown for international markets, particularly for Europe. From the 1720s to the Civil War, the lowcountry economy flourished as ship after ship loaded with rice left Charleston Harbor. PHOTO/S.C. HISTORICAL SOCIETY
CAROLINA GOLD'S Trail

Where was Carolina Gold rice planted before it arrived in the New World? Was it brought here from rice farms in Madagascar? Or was it grown in West Africa before arriving in Carolina on slave ships? Answers to these questions could complete the story of the rice variety that once dominated the lowcountry economy.

Researchers are using molecular tools to study Carolina Gold’s genetics, looking for clues to regions where it was planted before it arrived here. Scientists know that Carolina Gold is a variety from Southeast Asia and that it likely originated in Indonesia. It was later planted in various locations, but its genetic trail has been difficult to trace.

A traditional farmer would have kept some of the healthiest seeds to plant each following year. Therefore the seed from generation to generation changes slightly over time based partly on the farmer’s selection. When the seed is carried to another environment and planted there, plants could change in the new conditions.

“The plants that are most robust in South Carolina might not have been most robust in Southeast Asia,” says Merle Shepard, entomologist and former resident director at Clemson University’s Coastal Research and Education Center. Shepard is growing a plot of Carolina Gold at the center. “You’ll find differences that occur in a rice variety if it’s being taken around the world and grown in different locations. We don’t know whether the Carolina rice we are growing right now is the same rice that was grown in the 1600s in South Carolina or the same as (what was grown) 2,000 years ago in Southeast Asia.”

But scientists are searching for threads of evidence that trace Carolina Gold’s path from Southeast Asia to the lowcountry.

Anna McClung, a U.S. Department of Agriculture plant breeder, has examined genetic markers of 1,600 different rice varieties. Carolina Gold “markers don’t occur very often in other rice (varieties),” she says. She found that it’s unique genetic markers do not trace to West Africa or Madagascar, which means that its path to South Carolina remains a mystery.

account—no one really knows—but some historians argue that Africans were more likely to have been the first to plant rice in Carolina. Africans had expertise growing rice, and Europeans did not.

For generations, Europeans were given exclusive credit for introducing valuable crops into the Americas. Now perhaps Africans should be given more due for their own largely hidden agricultural exchanges from the Old World to the New World.

“Africans grew crops that they preferred, creating a parallel system of transfer of many plants to the Americas,” says Carney. “It was an amazing form of technology transfer.” In their small private plots, Africans created what Carney calls “the botanical garden of the dispossessed.”

The first planting of rice in Carolina was most likely a subsistence crop by Africans, says Opala. In their small gardens, Africans in Carolina were growing numerous rice varieties—perhaps both African and Asian species—from various sources. Some rice varieties were carried over on slave ships and intended as food for slaves, according to Carney.

Slaves in the early Carolina colony probably were familiar with Asian rice. By the sixteenth century, the Portuguese had brought Asian rice varieties to the Rice Coast of West Africa, where it was planted widely.

Could Asian rice have flourished in a Carolina slave’s garden and caught a European’s attention? Says Opala, “A planter likely saw a patch of rice growing in a slave’s food patch and decided to use it. That’s speculation, but it seems a logical way” that an Asian rice variety could have been introduced to Europeans, who then planted the slave’s seeds in an effort to produce a crop for export.

At the very least, the earliest Carolina rice industry was a creole phenomenon, a blending of African and European knowledge. White planters in the Southern Colonies usually did not experiment with crops brought directly from Africa. For instance, according to the traditional Madagascar story, white colonists believed that the Asian rice brought into Carolina was an African plant.

Searching for suitable crops to grow for export markets, colonists in the American Deep South usually looked for agricultural successes in the Mediterranean, China and Southeast Asia, and the Caribbean. Southern planters would invest commercially in African plants only after crops had been successfully grown in the West Indies or after slaves in America had cultivated them in garden plots.

Rather than directly importing African crops, “planters more often discovered them in the gardens of their slaves,” writes Joyce E. Chaplin, a Harvard University historian in a 1993 book.

Southern planters, for instance, found lucrative commercial uses for sesame seed (known locally as benne), which had originated in Africa, after seeing it grown in slave gardens.

MOVING INTO THE BIG HOUSE

Before the Carolina colony was founded in 1670, colonists in the British West Indies had already become enormously rich from growing and exporting sugar. The Virginia colony flourished by cultivating tobacco and exporting it to Europe. The earliest Carolina colonists were searching for similar opportunities to grow a lucrative staple.

After someone—white or black—proved that Asian rice thrived in Carolina soil, some European planters took it up, hoping they’d found the commodity that would make them wealthy. Asian rice soon proved to offer higher yields than any available African rice. The Asian rice, moreover, didn’t break as easily during the milling process as did African varieties. This made Asian rice more valuable on the European market.

The resulting Carolina rice industry flourished almost immediately. By 1700, Carolina was cultivating more rice than there were ships in
SELECT SEEDS.
This Carolina Gold rice seed was planted in June 2006 at Clemson University's Coastal Research and Education Center. A 1911 hurricane destroyed the last major commercial crop of South Carolina rice, and Carolina Gold disappeared from the lowcountry for generations. But a U.S. Department of Agriculture research institute kept the seed in a special collection. Scientists want to make sure that valuable genes aren’t lost when plant varieties go out of fashion. Now farmers are growing Carolina Gold for niche markets as well.

PHOTO/WADE SPEES

WINNOWER. A plantation worker winnows rice from the husk after milling in the early twentieth century. INSET PHOTO/S.C. HISTORICAL SOCIETY
port to carry it across the Atlantic. Planters then moved rice fields from upland areas to more productive inland swamps. By 1720, rice was the lowcountry's most valuable export commodity.

To expand their profits, the cleverest Carolina planters were always trying to outwit their competition. The most successful growers continuously invested in irrigation and cultivation technologies and land improvements.

Rice planting in the Southern Colonies was labor-intensive, and it demanded specialized knowledge. Searching for a competitive edge, planters imported West Africans from the Rice Coast who already understood the complexities of growing the grain. Certain African ethnic groups were sought because they had an ancient tradition of rice cultivation. "These were learned people who were held in bondage, who had the knowledge of rice from West Africa," says Carney.

Although planters built upon West African knowledge, they also constantly improved familiar seed varieties and experimented with new seeds, selecting for special characteristics—disease and pest resistance, for example.

During the eighteenth century, planters experimented with rice varieties from West Africa, Louisiana, the West Indies, and Asia. As a result of field experiments and trial by error, a new high-yielding Asian variety called Carolina Gold rice emerged for the first time at about the time of the American Revolution.

Carolina Gold and Carolina White—actually two classes of one variety—were named for their different colors in the field, though they had similar characteristics. One with a yellow husk was known as Carolina Gold, the most valued rice commodity on the marketplace; its pale sister was called Carolina White.

In any field of Carolina Gold, some Carolina White plants would also grow naturally. If a farmer sought to cultivate Carolina Gold exclusively for future crops, he would try to take out Carolina White plants from his field.

Carolina rice planters pursued a disciplined breeding effort that lasted until the Civil War. "It was an extraordinary task to get Carolina Gold seed, keep the seed vigorous, and make it widely planted," says Glenn Roberts, a rice grower and proprietor of Anson Mills in Columbia, S.C., and president of the Carolina Gold Foundation, a nonprofit organization dedicated to reviving interest in the heirloom grain. "To have one kind of rice planted in a region is very difficult" because other varieties or classes compete with it.

"To think that the lowcountry's major export commodity became associated with just one name—Carolina Gold—that's just amazing.

KAREN HESS

Hoppin' John was an African dish that moved into the Big House and stayed there.

By the 1750s, some planters began moving rice fields from inland swamps to riverine lowlands to capture tidal flows of fresh water. Slaves were used to build huge flood-control structures along rivers, giving planters access to larger, steadier supplies of water for field irrigation. Planters who had opportunities to use the tidal method grew fabulously wealthy. A slave could harvest five or six times more rice per acre in a tidally irrigated rice field than in an inland swamp.

The second half of the eighteenth century (with the exception of the American Revolutionary War years) was the economic high point of South Carolina rice. Several hundred rice planters consolidated their power, dominating every aspect of coastal South Carolina, creating one of the richest agricultural dynasties of their era.

But after 1800, South Carolina planters increasingly faced competition from growers overseas, particularly from British colonies in Asia.

Slaves continued cultivating rice in their private gardens, though probably not Carolina Gold. A tall plant that tends to fall over and break easily, Carolina Gold is difficult to grow. Slaves also cultivated greens, field peas, and beans, among other crops. The combination of rice and beans was crucial for slave sustenance, providing an inexpensive, filling complete protein. Slaveholders encouraged Africans to grow rice and beans, which were inexpensive foods that could keep slaves productive.

Almost every region in the New World that established a slave-based economy created a creole cuisine based on rice and beans. "Rice and beans was the signature dish of the African diaspora," says John Martin Taylor, a food writer and historian. In her book, Karen Hess lists some of these dishes: rice and field peas of Jamaica; Pois et Riz Collés (red beans and rice) of Haiti; and Feijoada (black beans, meat, and rice) of Brazil.

Over time, Hoppin' John, the slave dish of South Carolina, became the state's universal food. Barriers between white and black in antebellum Carolina were often porous in matters of cuisine. Enslaved cooks used African cooking techniques and seasoning to transform ingredients available to them in plantation kitchens. The wives of slaveholders ordered meals of European origin, but African cooks creatively made these recipes their own. This mixing of traditions was central to the creole character of lowcountry cuisine. The tastes and smells of Africa became part of the slaveholders' diet and sparked interest in dishes like Hoppin' John that slaves cooked in their own homes.

By the 1840s, the old slave dish had found its way into the homes of the super-wealthy elite. "Hoppin' John," says Hess, "was an African dish that moved into the Big House and stayed there."
A unique habitat is disappearing on the South Carolina coast, one of the last of its kind along the entire eastern seacoast. Remnant rice fields with breached dikes, valuable for wildlife and water quality, have been changing from open-water environments to swamp forests. In breached fields, these changes, called ecological succession, have occurred at various rates in every river basin in coastal South Carolina.

The early-stage, open-water environments provide habitat diversity for birds and fish. Only eight open-water breached fields (50 percent or more open water) remain in South Carolina—all on the Cooper River. “These are special places,” says S.C. Sea Grant researcher B.J. Kelley, a retired biologist at The Citadel. “We need to take a hard look at whether these habitats should be allowed to disappear.” For generations before the Civil War, landowners used slaves to clear cypress forests along the coastal rivers of the Southeast and build extensive dikes to control flooding of rice fields. Planters drained or irrigated these fields to kill weeds and encourage rice to germinate.

After the Civil War, the lowcountry rice industry faded, and landowners eventually abandoned the impoundments. When many dikes broke, sediments deposited by tidewaters raised field bottoms, triggering the plant succession process. In 1985, a portion of the Cooper River flow was diverted to the Santee River, and average water levels dropped farther, encouraging more rapid growth of plants and trees. Approximately 50 percent of the open-water habitat on the Cooper River has progressed to later stages since 1985.

Vegetation continues to grow in remnant fields in the river basins of coastal Carolina, altering their ecology and potentially their water quality.

Daniel Tufford, a University of South Carolina biologist, and Kelley have been studying the processes and effects of plant communities’ change in former fields of the upper Cooper River.

Tufford has examined the degree to which various successional stages affect dissolved oxygen levels in the upper Cooper River. Biochemical oxygen demand (BOD) load is an important—and controversial—water-quality parameter applied to industries that have permitted discharges. Several industries are permitted dischargers of BOD in the Cooper River, but its upper section is largely undeveloped perhaps because of the former rice fields along its banks.

The scientists chose three fields representative of various stages of ecological succession. One field comprises predominately submerged aquatic plants. A second field is predominately intertidal, its plants submerged only at high tide. And the third is an intermediate stage between those two, shallow subtidal with floating leaf plants.

“During the day, the submerged plants are photosynthesizing and they’re releasing that oxygen into the water,” says Tufford. “And if the tide is going out at that time, then all of that high-oxygen water is going out into the river.” At night, the submerged-vegetation field’s “oxygen-production machine is shut down because there’s no sunlight,” and submerged plants use up more oxygen through biochemical respiration than they produce.

In total, the submerged-vegetation field has a potentially positive effect on water quality, providing a net source of oxygen to the river.

By contrast, the two remnant fields with shallow subtidal and intertidal vegetation provide a neutral net oxygen effect to the river. “At low tide their green stems and leaves are always above water, and the oxygen produced goes out into the air,” Tufford says.

Submerged-vegetation fields, meanwhile, are important habitat for wading birds, waterfowl, and fish. Previous Sea Grant studies showed that submerged vegetation absorbs nitrogen and phosphorus. Such open-water rice fields that are owned by state agencies also provide places for the public to fish and hunt. Yet these particular ecosystems are becoming increasingly rare.

For years, resource agencies and landowners have been discussing which management options are best for the future of the state’s former rice fields. One question is whether to allow ecological succession to continue or to establish active management of the fields.

Preserving the early-stage fields, says Kelley, would require deepening topography in selected fields to create open-water habitat, or building flood-control “trunks” to allow for increased water flow and public access.
Lowcountry rice plantations depended on slave labor and expertise, but after the Civil War many freedmen looked for other opportunities. They didn't want to go back into the malarial rice fields. The Gullah people would say, “I don't want that mud work.” Instead, they acquired small landholdings where they farmed, fished, or worked in phosphate mines and timber mills for wages.

Over the next half-century, rice plantations struggled with labor scarcity, hurricanes, and competition from producers overseas and in the Old American Southwest—Texas, Louisiana, and Arkansas.

The last sizable stand of South Carolina rice was destroyed in a 1911 hurricane. Rice fields were abandoned and returned to wilderness or purchased by wealthy northern industrialists for duck-hunting plantations. Carolina Gold and Carolina White disappeared, extirpated from the region where they had made the planter elite immensely rich.

In some communities, Gullah people continued growing rice until the 1960s. Some people grew it in dry, upland areas, others in freshwater swamps. By the middle of the twentieth century, however, it was far more common for Gullah families to purchase rice from the grocery store.

Then, in the early 1980s, Richard Schulze, a Savannah eye surgeon, began searching for Carolina Gold rice seed. An avid duck hunter, he had been cultivating various rice varieties on Turnbridge Plantation in Jasper County, South Carolina, as food for waterfowl.

Schulze contacted Charles Bollich, a plant geneticist at the U.S. Department of Agriculture (USDA) Agricultural Research Service in Beaumont, Texas. Bollich found Carolina Gold seed preserved in a USDA gene bank collection. After preparing the rice seed for two years, Bollich sent 14 pounds of Carolina Gold to Schulze, who planted 12 acres in 1986 and has every spring since. Now his son, Richard Shulze, Jr., owns the property and is considering planting 18 acres next year.

Why did the USDA hold Carolina Gold? “Old grain varieties are disappearing,” says Merle Shepard, entomologist and former resident director at Clemson University's Coastal Research and Education Center. “Preserving an old grain is almost like preserving a species.”
As growers and plant breeders have selected and improved grains for certain traits, genes could have been lost in the process. To preserve genetic values, agricultural research institutes around the world have kept older varieties in special collections.

“You want to make sure you don’t lose a gene that has a value later on,” says Shepard, who also serves as vice-president and acting chairman of the board of the Carolina Gold Rice Foundation. “For example, in selecting and improving grains, you can lose a gene resisting against disease that can wipe out a whole crop, or a gene that resists insects, or a gene that imparts a certain flavor. If you lose that old grain, you can’t go back again, you lose it forever.”

In the late nineteenth century, five to 10 rice varieties—including Carolina Gold—were cultivated in the American South. Plant breeders used these plants to select characteristics for new rice varieties. Crops that emerged became the result, is one of the parents of today’s long-grain rice varieties. Carolina Gold, in fact, had been one of the very first plant varieties to be placed in the Aberdeen collection. “It went in there in 1902,” she says. “We don’t know who sent it to the collection. It was probably someone associated with growers, who knew Carolina Gold was important.”

Numerous variations of Carolina Gold and Carolina White had been preserved in Aberdeen. Plants always mutate in the field, and each version of Carolina Gold is unique, a “variation on a single variety,” says McClung.

To provide a single, reliable version of Carolina Gold rice seed for farmers, McClung has used molecular fingerprint markers in the process of characterizing and purifying it. She has eliminated Carolina White and any other easily displaying classes of this variety. The resulting seed, called Carolina Gold Select, is being grown by farmers in several southern states, including South Carolina, and sold to upscale restaurants and gourmets interested in using authentic ingredients called for in historical recipes.

“It’s a unique, beautiful crop,” says Campbell Coxe, owner of Carolina Plantation Rice. He grows 20 acres of Carolina Gold Select on his 200-acre farm along the Pee Dee River in Darlington County. But Coxe also points out that Carolina Gold “falls down in any kind of wind, which makes it extremely difficult to harvest mechanically. It’s a labor of love.”

Now there is growing interest in reviving some of the older, heirloom varieties. Carolina Gold rice has made a small comeback as a gourmet product.

In 2002, a group of South Carolina farmers asked Anna McClung, a USDA plant breeder, for purified samples of Carolina Gold for the historical cuisine market. This was not an uncommon request for McClung. Over the last decade, she has been selecting and purifying varieties primarily for niche markets.

About 60 percent of U.S.-grown rice is consumed domestically, and about 40 percent is sold overseas. Overseas growers, particularly in Asia, are flooding the world with inexpensive rice, forcing many U.S. farmers to search for new niche markets.

McClung studied Carolina Gold seed from a USDA collection in Aberdeen, Idaho, which includes 22,000 different plant varieties. Carolina Gold, in fact, had been one of the very first plant varieties to be placed in the Aberdeen collection. “It went in there in 1902,” she says. “We don’t know who sent it to the collection. It was probably someone associated with growers, who knew Carolina Gold was important.”

As growers and plant breeders have selected and improved grains for certain traits, genes could have been lost in the process. To preserve genetic values, agricultural research institutes around the world have kept older varieties in special collections.

“My father eats rice!” says Emory S. Campbell, an expert on Gullah, “When I go out and talk to groups about various aspects of the Gullah/Geechee culture and I mention rice, people raise their hands and say, ‘Oh, that’s why I like rice!’ or ‘That’s why my father eats rice!’”

Anthropologist Joseph Opala agrees. “When I lecture around the U.S., I’ve always encountered black people whose ancestors come from the lowcountry, and one of the stories that I hear again and again is that rice (is central to their foodways), and this has continued for generations. When every other element of Gullah culture is gone, rice will remain.”

Rice
AS A SURVIVING TRADITION

For generations, the modern world has frayed the Gullah culture, originally forged in the isolation of anteellum rice plantations. Since the 1950s, resort development, racial integration, the civil-rights movement, and economic opportunities have transformed the coast and hastened Gullah’s decline. Many African words in the Gullah language have been lost. Moving to the North, searching for work in New York, Philadelphia, and industrial centers of the Midwest, or to cities in South Carolina, many Gullah people have lost contact with their culture.

One aspect of Gullah, however, still thrives among many who left home. Says Emory S. Campbell, an expert on Gullah, “When I go out and talk to groups about various aspects of the Gullah/Geechee culture and I mention rice, people raise their hands and say, ‘Oh, that’s why I like rice!’ or ‘That’s why my father eats rice!’”

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On both sides of the Atlantic Ocean, in the rice-growing areas of Africa and in the lowcountry among many Gullah descendants, “having insufficient rice is a condition of misery,” Opala says. “Without rice, the world is not right. By contrast, having enough rice is associated with prosperity, with the good life.”

PEOPLE POWER. Volunteers drop Carolina Gold rice seed into furrows at Middleton Place. The plants grow to a height of about four feet at harvest time. PHOTO/WADE SPEES
**Beach Sweep/River Sweep Annual Litter Cleanup**

**Statewide**
**September 16, 2006**

Are you concerned about litter trashing sensitive ecosystems? Then join thousands of like-minded volunteers for the 18th annual Beach Sweep/River Sweep on Saturday, September 16, 2006.

There are hundreds of locations from which to choose across South Carolina. Get together with an existing group or tackle a particularly needy area that you’ve noticed. Beach Sweep/River Sweep is a great way to show your community spirit.

The annual cleanup—organized by S.C. Sea Grant Consortium and S.C. Department of Natural Resources—is part of the International Coastal Cleanup, a worldwide effort to eliminate unsightly and dangerous debris.

To volunteer on the coast, contact Sue Schweikart at (843) 727-2078 or bsrs@scseagrant.org. To volunteer inland, contact Bill Marshall at (803) 734-9096 or bsrs@dnr.sc.gov. For a list of coastal site captains, areas covered, and cleanup results and photos from previous Sweeps, visit [http://www.scseagrant.org](http://www.scseagrant.org).

**9th International Conference on Shellfish Restoration**

**Charleston, South Carolina**
**November 15-19, 2006**

This conference will provide an opportunity for government officials, resource managers, users, and residents to discuss approaches to restore coastal shellfish ecosystems through remediation and pollution abatement, habitat restoration, and stock enhancement. The conference will feature a series of invited keynote and panel presentations, case studies, and contributed oral and poster presentations.

Three focused restoration science/policy issue sessions will be held on Water Quality Issues in Shellfish Restoration, Shellfish Restoration and Public Health, and Establishing Goals and Success Criteria for Shellfish Restoration Programs.

To participate, contact Elaine Knight via e-mail at Elaine.Knight@scseagrant.org; voice mail (843) 727-6406; or fax (843) 727-2080. The conference Web site is [www.scseagrant.org/icsr.htm](http://www.scseagrant.org/icsr.htm).

**ATTENTION SCHOOL TEACHERS!** The S.C. Sea Grant Consortium has designed supplemental classroom resources for this and past issues of *Coastal Heritage* magazine. *Coastal Heritage Curriculum Connection*, written for both middle- and high-school students, is aligned with the South Carolina state standards for the appropriate grade levels. Includes standards-based inquiry questions to lead students through explorations of the topic discussed. *Curriculum Connection* is available on-line at [www.scseagrant.org/education.htm](http://www.scseagrant.org/education.htm).

**Subscriptions are free upon request by contacting:** Annette.Dunmeyer@scseagrant.org

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