

Wetlands:

A More Profitable Alternative?

Stories from the field about the economic benefits of wetland restoration



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Conservation Technology Information Center (CTIC) is a not-for-profit organization dedicated to advancing reliable, profitable solutions for improving the relationship between agriculture and the environment. CTIC provides information, education, training and consulting services to members and partners working to increase conservation and improve profits in agriculture.

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The Conservation Technology Information Center has compiled this document to highlight success stories in wetland restoration across the country. It is designed to provide farmers and others a greater understanding of the technical and social aspects of wetland restoration, including the many options available to farmers interested in restoring wetlands on their property. Mention of organizations or products in this document does not constitute endorsement by CTIC or the U.S. Environmental Protection Agency but is intended to provide information, resources and/or assistance the users may then evaluate in terms of their own needs. CTIC prohibits discrimination on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation and marital or family status.

Cover Photos: Natural Resources Conservation Service (NRCS)

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Introduction

Once seen primarily as unmanageable, wasteful and a hindrance to progress, wetlands in agricultural land today are increasingly valued for not just the environmental benefits they afford but also for the profitable alternative incomes they present. Through public and private incentives, or the sale of hunting leases and wildlife viewing access, landowners can often net more from a functioning wetland habitat than they could struggling to farm it.

That represents a significant shift from old ways of thinking about wetlands.

Since our country's earliest days, wetlands, more often called swamps, were considered a hindrance to the production of food and fiber, impeded travel and were considered unhealthy for humans and the landscape. So early settlers filled in the wetlands and laws were passed to allow and support wetland destruction.

When steam technology and drainage tiles were developed, the production and installation of drainage systems increased dramatically across the country's agricultural fields. By 1882, Indiana had more than 30,000 miles of tile drains. In 1884, Ohio had a series of public ditches stretching for more than 20,000 miles, all designed to drain approximately 11 million acres of wetlands.

In the 1930s, the U. S. government had increased its involvement in wetland destruction by providing free engineering services to farmers wanting to drain wetlands. In the next decade, the government began paying a share of

the cost to drain wetlands. At the same time, organized drainage districts were established throughout the country, with the specific intent of coordinating efforts to drain wetlands.

Subsidized drainage of wetlands continued for many years, and the Federal Government continued to take actions to support it. The Watershed Protection and Flood Prevention Act of 1954, in part, aimed to increase the drainage of wetlands located near flood control projects. It also authorized the government to subsidize the drainage of wetlands through public works projects and by providing technical and cost-share assistance to landowners.

Turning Tide

During the late 1980s, something changed. More and more, wetlands came to be valued for the habitat and ecological benefits they provide, not regarded as useless land. New laws were passed with sections directed at wetland protection, most prominently the 1986 Farm Bill. The Bill included a section known as "Swampbuster," which eliminated incentives and other mechanisms that had made the destruction of wetlands both technically and economically feasible. Other laws, such as the Emergency Wetland Resources Act of 1986, also were responsible for limiting wetland losses. Toward the end of the 1980s, political leaders were proclaiming the value of wetlands, and then-President George H.W. Bush proclaimed a new national goal of, "No net loss of wetlands!"

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NRCS



NRCS

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The tide toward wetland protection had turned. Instead of draining wetlands, the government was now looking for ways to increase wetland areas. Despite this new vision, however, an estimated 58,000 acres of wetlands were lost each year between 1986 and 1997.

Today, wetlands are gaining ground. In March 2005, the Natural Resources Conservation Service (NRCS) announced that agricultural wetlands had a net gain of approximately 263,000 acres between 1997 and 2003.

Why have farmers and ranchers adopted the changing perception of wetlands? It's economic, really. When a portion of cropland or pasture is wet, unmanageable, unproductive and fails to produce year after year, it's a waste of money. If that same portion of

land is restored to its natural state as a wetland, it can begin to be a source of income.

Federal programs have also made a shift from encouraging wetland destruction to providing incentives and assistance to restore, protect and install wetlands on agricultural lands. Today we have programs that pay farmers to install wetland areas on their land.

Through federal cost-share programs like the Wetlands Reserve Program and the Wetlands Habitat Incentive Program, as well as state and local assistance efforts, farmers are learning that the more profitable alternative to wet, unproductive ground is wetland restoration. In the pages that follow, the Conservation Technology Information Center (CTIC) brings you stories of 10 farmers who have successfully – and profitably – turned formerly marginal cropland into an economically viable part of their operation.

Sound, Profitable Solutions

CTIC supports sound, profitable solutions to improving the relationship between agriculture and the environment. Restoring wetlands on agricultural land is one way of achieving that. Bringing wetlands back leads to restoring the natural characteristics of the soil, hydrology and vegetation – putting back what nature intended. By doing so, we are also restoring the quality of the soil, providing vital wildlife habitat, improving water quality, reducing flooding on cropland, recharging groundwater, protecting biological diversity and providing opportunity for educational, scientific and recreational activities.

Turn to the stories inside to learn more about how farmers from each corner of the country have restored wetlands and restored profits to their farmland. CTIC highlights these farmers' stories to show that wetland restoration can be done effectively and efficiently, can be a profitable decision for farmers and leads to improved conservation in American agriculture.

In our quest to advance the improvement of soil quality in agriculture, CTIC believes that more farmers can benefit financially and more communities will benefit by improved conservation if we increase wetland restoration on cropland. By sharing these stories and the resource links at the end of the document, we hope that more farmers will take that first step and call their local Soil and Water Conservation District, Extension, Natural Resources Conservation Service or call us and ask about how, and with what financial and technical assistance, they can begin to restore wetlands on their land.

Karen A. Scanlon
Executive Director
West Lafayette, Indiana



Seeing new value, farmers have helped turn the tide on lost wetland acres.

Easements Made Easier

Where Colorado's snowiest peaks meet the high desert of the San Luis Valley, millions of migrating birds luxuriate in seasonal wetlands that glimmer in the landscape. Funneled into the valley by high mountains to the west and arid plains to the east, waterfowl descend upon the area around Monte Vista, Colo., to prepare for their long trip to the Arctic. In the shadow of the Rockies, they assemble in some of the highest nesting densities in the U.S., according to Bob Sanders, manager of conservation programs for Ducks Unlimited – more than 1,000 duck nests per acre, or three to five times denser than the phenomenal Prairie Potholes region of the upper Midwest. And their offspring come back year after year.

In a way, the same thing can be said about the McNeil family. Henry Bowen McNeil established his ranch in the western San Luis Valley in 1897. The sixth generation now walks in the shadow of the same mountains, surrounded by flocks of ducks and cranes surely descended from the great migrations that once blackened the skies.

Much as farmers have done since the days of the Bible, the elder McNeil started with rented pastures and built a legacy. Today, his descendants Mike and Cathy McNeil are using decidedly modern tactics – conservation easements – to pass that legacy on to future generations. Conservation easements offered the McNeils money to invest in their ranch, comfort in planning for the transition of the ranch to the next generation, and the assurance that their wet mead-

ows – and birds and cattle – could remain on the land in spite of growing development pressure.

Not So Scary

At first blush, selling off the development rights in a conservation easement seems to be tantamount to giving away the farm. But Cathy McNeil says it's just the opposite – easements have provided her family with an opportunity to adhere to their strong beliefs in preserving working rangeland, offered handsome payment and tax benefits, and allowed them to keep working the land.

McNeil is careful to point out that the family still owns its land – the conservation easements they've signed specifically address development rights, which are assigned to the easement holder in perpetuity, or forever.

"Perpetuity is a long time, and it's kind of scary, but once you sell land to a developer, that's perpetual too," she says. "Up to 70 percent of the land's value can be in its development potential, and that's potential we didn't want to utilize. So that's our biggest asset, and it's the one we didn't want to cash in."

The easement process goes like this:

- The parcel that is going to be placed under easement is defined.
- That land is appraised as if it is going to be sold.
- The terms of the easement are negotiated, defining what the landowner will and won't be able to do on the parcel.



McNeil Ranch

Seasonal flooding makes these meadows valuable to birds and cattle.

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- Based on the terms of the contract, the appraiser determines how much of the value of the land is diminished by the easement (for instance, a Ducks Unlimited easement on the McNeil ranch was determined to lower the land’s value by 70 percent).

- The prospective easement holder offers a price for the easement based in part on the appraiser’s report, and the parties negotiate.

- The difference between the price of the easement and the assessed value of the conservation rights can be declared as a charitable deduction for federal tax purposes.

- In the end, the landowner gets compensated and credited for the value of the conservation easement. The landowner also retains ownership of the land and its farming uses and, depending on the negotiations, other values such as mineral rights.

“This is a really great way to get some value out of the development potential of the land without having to sell out,” McNeil adds. “It buys you a little bit of breathing time and space. Especially after the drought of 2002, thank God we had that money.” In fact, she notes, the proceeds of the sale of conservation easements allowed the McNeils to invest in Diamond F Brand Beef, a branded beef marketing venture that allows the family to capture premiums for their direct-marketed, grass-fed beef.

that features unique soils of particular interest to NRCS as well as a population of a rare plant, the slender spider-flower.

That year, Ducks Unlimited also purchased a permanent easement on 520 acres of the 3,033-acre ranch, using funds from the Colorado Division of Wildlife and the lottery-funded Great Outdoors Colorado (GOCO) fund. The agreement preserves a string of natural wet meadows, which flood in the spring when migrating waterfowl need them most. Those wet meadows have produced lush forage for generations of McNeil cattle over the years, and habitat for countless birds. That’s why the Ducks Unlimited easement allows – even encourages – the McNeils to actively ranch on the wetlands.

“The Ducks Unlimited approach is not an approach that you protect a piece of property and put it in a glass jar up on a shelf,” explains Sanders. “We believe in working landscapes, in keeping farmers and ranchers on the land. Otherwise, you’re just keeping it on life support.

“We don’t want to impose on the grazing scenario,” he adds. “But there are little things we can do to maximize the value of the wetlands without interfering with working lands. Getting water on as early as possible to accommodate migrating birds – of course, working within state water laws – really helps. So maybe putting water on in late March or early April instead of doing the first irrigation in May. Then we’d like to delay the haying – maybe keep that water on an extra two weeks or so to get the [nesting] ducks off before we start haying.”

Holistic Management

Ducks Unlimited offers some management guidelines – starting the first irrigation earlier and delaying haying until ducklings have left their nests – which suit the McNeils just fine. They are big proponents of holistic range management, which uses frequent movement of the herd and careful rotation among pastures to keep in step with the natural rhythms of growth and grazing that have shaped the range

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Programs

- American Farmland Trust
- Natural Resources Conservation Service
- Ducks Unlimited
- Colorado Division of Wildlife
- Great Outdoors Colorado
- NRCS Great Plains Program

Multiple Easements

The McNeils signed their first easements in 2003. The American Farmland Trust used funds from the National Resources Conservation Service (NRCS) to secure an easement on 580 acres of land

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ecosystem for millennia, so they build waterfowl needs into their rotations.

“We’re trying to mimic nature by flooding the fields,” says McNeil. “We get them nice and wet, then we let them dry out in order for certain invertebrates and food sources to be available. The grass gets a chance to grow, we have healthy populations of earthworms and other invertebrates, and the ducks seem to love it.”

The strategy is also good for the bottom line. McNeil says rotational grazing allowed the family to increase its stocking rate by 20 to 30 percent. Swapping hay baling equipment for a haying approach that piles windrows into small stacks about the size of a standard, small hay bale cut haying costs from \$30 per ton to \$5 per ton without a dramatic loss in protein. The cattle love eating along the old windrows, and so do birds and rodents (which, in turn, feed more birds), says McNeil.

More Easements, More Programs

Managing the wet meadows has been facilitated by a system of new water control structures, ditches, and strategically placed shallow stock watering tanks constructed with the help of a 75/25 cost-share program sponsored by NRCS through the Great Plains Program. On the family’s federal grazing allotment, a Coordinated Resource Management Plan that is in the works will also help tie together rotational grazing and range health goals, improving the National Forest land for both cattle and local elk herds and reducing hauling costs for the McNeils.

Mike and Cathy McNeil are sold on the value of easements for maintaining a working ranch and a smooth transition to future generations – especially in a valley where flocks of birds are jostling with herds of developers. In fact, they hope to have nearly all of their acreage covered by conservation easements by 2008.

“I hear people say that easements are a rancher’s way of dictating from the grave,” says Cathy. “Well, selling the land to a developer and blowing the money in Las Vegas is dictating from the grave, too – and you’ve got nothing to show for it.

“Right now, we’ve got the fourth, fifth and sixth generations working and playing on the ranch,” she adds. “I’d like to see this in the hands of the tenth generation.” ■



McNeil Ranch cattle graze here in the summer while wet meadows yield hay for winter.

“Perpetuity is a long time, and it’s kind of scary, but once you sell land to a developer, that’s perpetual too.”

Cathy McNeil

Easements: Like A Marriage

“Finding a conservation easement holding entity is kind of like a marriage – it’s got to work for both partners,” says Bob Sanders, manager of conservation programs for Ducks Unlimited in Monte Vista, Colo. Sanders has been involved in negotiating several conservation easements, and has learned a few lessons on how to make them into a real win-win-win for landowners, wildlife and conservation groups.

An easement document describes what a landowner cannot do on the land covered by the agreement, Sanders explains, so it is important that the landowner and the easement holder have compatible goals, objectives and philosophies. Landowners can shop around for easement holding entities with special emphasis on wetlands or other specific ecosystems, working farmlands, open land preservation, historical interests, and other attributes.

“Really, the tax benefits and financial elements are all about the same for all of them,” Sanders says. “It’s really about finding the right kind of fit of mission and workload.”

Negotiating easements is a skill that requires good representation – and not all lawyers and accountants are created equal, adds Cathy McNeil, a Monte Vista rancher and one of the founders of a Colorado land trust. “You really have to educate yourself, and you need to have really good representation – not every lawyer gets it,” she cautions. Easements can have great financial and tax benefits, but mistakes can be

costly and aggravating, so it helps to work with lawyers who have been through the process and seen creative solutions to the sorts of challenges that can pop up, like negotiating about mineral rights or water.

Conservation easements can be a great tool for a family that wants to preserve its farm or ranch without subdividing to dole out assets to multiple children or to sell off parcels to pay inheritance taxes, adds Sanders. But that’s a decision that should receive buy-in from the whole family.

“Involve your children and take six to 12 months to think about it,” Sanders suggests. “Take the time; run the scenarios. Most of the time, the kids are very positive. I think a lot of the time, that goes back to conservation – we’re dealing with families that have a strong conservation ethic.”



McNeil Ranch

Conservation easements will help ensure that valuable Colorado land will continue hosting cattle rather than subdivisions.

A View from the Top

From Neil and Muriel Bien's farm in the Coteau Hills, 1,200 feet above the South Dakota prairie, one can see some of America's most precious waterfowl habitat, the famous Prairie Potholes. But Neil Bien sees well beyond the horizon. Looking north, he can imagine the water running off of his 5,000-acre ranch to Hudson Bay. Looking south, across the Continental Divide that runs across his land, he can picture the water flowing off his ranch to the Missouri River and eventually out to the Gulf of Mexico.

"We're at the top of the watershed," he explains. "That's the first place you can do anything – good or bad – to affect the watershed." More than 100 natural wetlands pepper the Bien farm, and each has been protected by the family all the way back to homesteader Ole Bien, who settled the place back in 1892. Neil Bien has taken an even more active role in wetlands management, creating 15 new wetlands, dozens of stock watering ponds and three wooded wildlife habitat areas around the ranch. And through it all, he's walked the balance between environmental and economic sustainability.

Pay The Way

"We have to make our decisions based on economics," Bien says. "We enjoy hunting and fishing and recreating on the land, but we can't do just that – we have to make the cattle pay the way. We hope we're doing some good things on the land, and we're also helping our livelihood by improving our carrying capacity and gain from our cattle."

Wetlands are a key tool in improving the productivity of the ranch. All of the wetlands, regardless of their size, capture, store and absorb rain and snow, paying off all season long. Shallow, seasonal wetlands dry up by mid-summer, yielding lush pastures for the Bienes' herd of 325 cow-calf pairs. Deeper ones – Bien has potholes up to eight feet deep – serve as natural watering ponds for livestock and wildlife. Those ponds, and the stock tanks Bien has built over the years, provide easy access to water for cattle anywhere on the ranch, allowing Bien to practice rotational grazing.

Ready access to water allows Bien to break his pasture up into 19 grazing units, each paddock somewhere between 40 and 320 acres in size. Bien moves the cattle from paddock to paddock as the cattle graze the vegetation to desired levels, eating both prime and less-desirable forages as they go. Pastures are grazed when grasses and forbs are at their nutritional prime, and intensive grazing helps stimulate more growth. "We try to keep the grass like it is in June," Bien explains. "We try to make June last three months instead of 30 days."

Resting periods between herd visits allow the pastures to rejuvenate, and encourage high-value warm-season grasses to recover from years of traditional grazing practices that depleted much of the stand. Despite the costs (and hassles) of having to maintain 75 to 100 miles of permanent and temporary fencing on the ranch, rotational grazing pays. Bien says it's allowed him to increase his stocking rate by 15 to 20 percent. Frequent contact with the



NRCS

More than 100 natural wetlands (above) offer water for birds while facilitating Neil Bien's rotational grazing program. The Prairie Potholes (bottom) are among North America's most important waterfowl breeding grounds.



NRCS

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cattle also provides a good opportunity to keep current on animal health issues, he adds.

Protecting Neighbors Downstream

Bien adds that by capturing rain and snowmelt on the ranch, his wetlands also keep nutrients on his land and out of the river system. “Nutrients are pretty valuable if you use them in the right way,” he notes. “And we sure don’t want them dissolved in the water that someone’s drinking or using for recreation.”

Bien’s wetlands also perform the age-old role of evening the flow in the rivers they feed – a role he’d like to see more land at the top of the continent’s watersheds play. “I’m not saying you have to save every wetland,” he notes. “I’d just hate to see so many of them get taken out – a few years later, you get a bunch of flash floods. With all the drainage ditches that have been put in over the years, the water could end up flooding some city or sitting in some farmer’s field in the Red River Valley.”

Partners Bring Cash, Expertise

With more than two decades of service as a local conservation district supervisor under his belt, Bien has been an active cooperator with an array of state, federal and

private entities that share his dedication to habitat conservation and wetlands preservation. He enrolled 1,150 acres in the Conservation Reserve Program (CRP), making grassland a part of his habitat mix. And the U.S. Fish and Wildlife Service’s Partners for Fish and Wildlife program has been a major force behind Bien’s wetlands establishment projects.

Between earthmoving, grading and revegetation, Bien figures that creating a

Programs

- U.S. Fish & Wildlife Service Partners for Fish & Wildlife
- Conservation Reserve Program
- Conservation Security Program
- Ducks Unlimited
- Pheasants Forever

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Partners Program Targets Tallgrass Prairie

The tallgrass prairie is among the continent’s most threatened ecosystems, according to the U.S. Fish and Wildlife Service. Home to 250 species of birds, 50 species of mammals, and a host of reptiles, amphibians and invertebrates, less than four percent of the prairie remains intact.

South Dakota has fared better than its neighbors – while Iowa and Minnesota have lost more than 95 percent of their native prairie pothole wetlands, South Dakota has retained somewhere between 55 and 65 percent. But demand for those shrinking wetlands is high. In eastern South Dakota alone, three million breeding pairs of ducks were surveyed in the Prairie Pothole region of tallgrass prairie in 2000. High demand and scarce habitat make restoration and conservation on private land a critical effort.

The U.S. Fish and Wildlife Service has teamed up with an array of entities including the USDA’s Natural Resources Conservation Service and Farm Service Agency, state wildlife and agriculture agencies, conservation districts, wildlife conservation groups, native tribes and more than 3,000 private landowners to restore thousands of acres of habitat through the Partners for Fish and Wildlife program.

South Dakota’s effort applied \$500,000 to wetlands and grasslands improvement and to encouraging improved grazing practices. The program is also available in other states. For more information on the Partners for Fish and Wildlife program, contact your local conservation district or visit www.fws.gov/partners/.

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new wetland in his area can run from \$500 for a simple earthen plug in a gully to \$5,000 or \$10,000 for a larger, more elaborate project. The Partners program cost-shares 50 percent or more of the costs, and many services – from surveying the project to fencing out cattle to planting native grasses or food plots – have been picked up by wildlife organizations including Ducks Unlimited and Pheasants Forever.

Bien is looking forward to the year that his ranch is eligible for the Conservation Security Program (CSP), a Natural Resources Conservation Service incentive program that pays farmers and ranchers for good stewardship practices. Though he says he needs to get up-to-date on his soil testing to round out his application for CSP, Bien believes his operation is a good fit with the CSP approach to conservation. “I think this has got a good philosophy,” he says. “You reward people for doing the right thing, and hopefully encourage others to do it, too.”

Bien spends a lot of time considering the philosophy of conservation. Whether it’s fishing with one of his six grandchildren or taking them out to stalk frogs in the wetland; watching turkeys or eagles or flocks of ducks use the wetlands; or considering the path the water takes from his ranch to the sea thousands of miles away, he’s determined that his conservation philosophy can have impacts that reach far beyond his property line and his lifetime.

“Wouldn’t a hundred thousand little dams that had

livestock and wildlife value be better than one big dam for flood control?” he muses. “If everybody does a lot of little things along the top of the watershed, cumulatively we can get a lot of things done.

“The main reason most people don’t [protect or restore wetlands] is that they consider these wetlands an inconvenience for their equipment,” Bien notes. “If you consider them an inconvenience, then they are. If you consider them a treasure like we do, then they’re a treasure.” ■

“We hope we’re doing some good things on the land, and we’re also helping our livelihood by improving our carrying capacity and gain from our cattle.”

Neil Bien



CREP Turns Back Time on Converted Wetlands

Just a few decades ago, landowners were encouraged to drain wetlands and clear riparian areas to help facilitate stream maintenance and put potential farmland to work. Now, a greater appreciation for the value of wetlands – and a greater realization of the challenges of farming them – have prompted the USDA Farm Service Agency (FSA) and state environmental agencies to dedicate Conservation Reserve Enhancement Program (CREP) funds to restore these valuable areas. In northwest Washington, the Whatcom Conservation District and many farmers have put CREP funds to work on more than 160 projects – and put historic wetlands back on the map, too.

Rod Perry farms 130 acres and milks 180 cows on his dairy operation in Everson, Wash., snug against the Canadian border. In the 1960s, agencies dredging the streams in the Everson area encouraged Perry and his neighbors to cut down the trees along the banks. In 2001, he enrolled 15 acres along two creeks into 15-year CREP contracts, the first step into restoring them to their original state. Though the parcels represent more than 10 percent of his hay and silage ground, Perry says he won't miss trying to raise a crop on them. In fact, pulling the ground out of production will make farming easier, he says.

Raising Taxes

“In one area along the creek, it's just swamp and hills – you can't do anything with that land. We just raised

taxes on it,” Perry jokes. “We were farming along the other, but it ended up a real small piece of ground to farm. One was a five-acre field and the other was a two-acre field with a swamp at one end.

“The way farming has gone, it's all bigger and bigger machinery,” Perry adds. “Your headlands become a vast percentage of the field, and because it's on a creek, it's not square.”

Perry wanted his CREP acreage to cover hard-to-farm areas and square off one of the fields to make farming the remainder more efficient. He says losing some production on the field was compensated by making



Steve Werblow

Mark Peterson says site prep and good establishment are keys to healthy riparian planting.

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the field quicker and easier to manage. Whatcom Conservation District resource specialists Sabina Gouran and Chris Clark started with a sketch from Perry and developed a farm plan. To map out the project and develop a planting plan, the pair delved into local historical documents as much as they referenced plant guides.

“We’re constantly in this battle in restoration between what historically was here and what we can expect to get established now,” explains Gouran.

The CREP project on Perry’s farm pushes the land back toward its historic form and helps replace invasive species with local shrubs and trees.

CREP paid twice the going rental rate for ground of equal quality, Perry says, so the annual income is pretty good. “On a big farm it’s peanuts, but on a small farm, it’s a substantial percentage,” he points out.

Program money also included about \$2,000 per acre for re-establishing native vegetation on the sites and approximately \$2,100 per acre for maintenance costs, which range from noxious weed control to beaver management.

Prep Is Key

Establishment is something you don’t want to cut corners on, notes Mark Peterson, who contracted with Perry and more than three dozen other local farmers who were reestablishing wetlands and riparian plantings. “If you get your fields all prepped nice, life’s easy,” Peterson says. “If you don’t it can be really tough.”

Subsoiling, rototilling, brush cutting and blackberry control are a must for giving new tree and shrub plantings a head start, Peterson explains. When the land was clear, Peterson planted 12 species of trees and shrubs to provide good diversity for habitat, growth habit and survivability. Plantings included alder, cottonwood, Sitka

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CREP In A Nutshell

The Conservation Reserve Enhancement Program is a unique federal-state program that applies USDA Farm Service Agency (FSA) funds to removing sensitive land from crop production in accordance with state-set priorities. Federal funds are augmented by state money to apply conservation practices – native grasses, trees, and other erosion-controlling vegetation – to sensitive areas around the country. CREP programs typically benefit wetlands, water quality, air quality and wildlife habitat. In Washington State, restoring habitat for salmon is a major criterion for CREP projects.

Because it is managed on a rolling basis, there are no set sign-up periods for CREP as there are for the Conservation Reserve Program (CRP) or Conservation Security Program (CSP). Flexible sign-ups and a strong local and state voice in earmarking funds for specific goals and types of projects make CREP an extremely versatile tool for landowners seeking a conservation program that is compatible with their goals and management style.

More than a billion dollars have been earmarked for CREP projects; however, CREP is not available everywhere. Conservation districts and FSA offices have details on local CREP programs and priorities.

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spruce, Pacific spruce, willow and hardhack (also called spirea).

The CREP acreage has been a big success, notes Gouran. “The amount of wildlife I’ve seen in even these small buffers over the past five years has been incredible,” she points out.

Diversifying the Operation

Perry sees CREP as a way to add a little diversity to a very specialized business. It’s also one of the rare income opportunities that doesn’t require expenses first.

“You want to bring in income from different sources,” he notes. “Of course, one of the reasons to sign up is the money. After [the CREP planting is] established, it’s paid pretty much 100 percent – there are no expenses after that. In this cow game, you’ve got to work damned hard to get that, because there’s always an expense against income.”

He adds that the CREP acreage is also becoming more precious as recreational ground as developers hem in farms in an effort to build lavish retirement homes and bedroom communities for nearby Bellingham, Wash. “It used to be when we were younger, you could go anywhere and hunt,” Perry recalls. “Now, people don’t want you coming onto their land and hunting, and it’s turning more residential, so there’s fewer and fewer opportunities, fewer and fewer places left to hunt.”

A growing stand of trees, a straighter field border, and a shot at a growing population of wildlife has made CREP a highly popular program in Perry’s area. “I can’t think of a farmer who’s had a bad experience with it,” he notes. ■

Programs

- Conservation Reserve Enhancement Program (CREP)



Steve Werblow

CREP plantings on Rod Perry’s farm seek to unseat invasive species like red canarygrass.

Creating a Sanctuary

When farmer Joe Banks visits his South Point wetland restoration project, it's a step back in time, back to the days he hunted the parcel as a boy, back when it was undisturbed wetlands and forest, back when it was crowded with ducks and shorebirds, bobwhite quail and white-tailed deer. After decades of breaking a string of owners who couldn't make a crop on the wet ground, the 2,000-acre South Point parcel once again bears Joe Banks' footprints. This time, Banks is not hunting it as a guest – he bought it in 2003 with the intention of restoring it to its wetland roots.

With the help of retired Natural Resources Conservation Service (NRCS) technician Denva “Den” McKeithen, Banks is creating a model Wetlands Reserve Program (WRP) restoration of a farm that – half wetland and half highly erodible soils – will be infinitely more productive, and profitable, out of crops rather than in them.

Banks made two crops on the South Point property, bidding the required 12 months of ownership before the parcel could be entered into WRP. He enrolled the farm in a perpetual easement, locking in a cost-share contract that covers 100 percent of the cost of restoration. McKeithen, Banks' land manager, figures that's worth an average of \$350 per acre to get the job done right.

Recreating the Wetland

McKeithen says Banks' bid on the land was also calibrated against WRP's budgets. In Louisiana, WRP payments

top out at \$800 per acre; Banks paid \$750 per acre for the land. The pair also knew that with McKeithen's experience – a 35-year NRCS employee, he had served on the state's WRP team – they were likely to receive permission to handle the restoration themselves, creating the wetland of Banks' dreams.

Converting the parcel back to a wilder state after decades of farming involved a lot of planning and quite a bit of digging. McKeithen points out that a thorough survey is a vital first step, guiding every other step of the project.

“By laying out your food plots and water, you're setting the limits for planting your trees,” he says. Banks and McKeithen made sure that South Point was dotted with shallow water areas. The average size is 30 to 40 acres, says McKeithen, though some are as large as 120 acres. Most of the shallow water areas are seasonal, with depths of less than 18 inches. That's ideal for a range of ducks and shorebirds. Sloughs are kept full of water – in fact, at four feet deep, they are classified as “permanent water.”

With their wetland maps drawn, Banks and McKeithen dug or rebuilt sloughs to move water throughout the farm. With the tailings, they built mounds to provide roosting and nesting habitat among the wetlands.

McKeithen also mapped out an intricate tree-planting strategy, arranging a dozen species of trees across the property based on water levels and wildlife needs. Each



Mammals benefit from wetlands just as birds and invertebrates do. That can yield great – and profitable – hunting opportunities.

NRCS

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planting has at least three tree species, plus persimmon or mayhaw to produce fruit for wildlife. For instance, many low-lying wet areas are forested with nuttall, cypress, overcup water tupelo and mayhaw. Areas that are intermittently wet are planted to willow oak, water oak and nuttall, and upland areas have a blend of cheerybark, cow oak, nuttall, shumard oak and persimmon, with several 10-acre blocks of sweet pecan.

Food Plots Prevail

Food plots for wildlife are a vital part of Banks' plan to build wildlife populations for himself and other hunters. Five percent of the acreage is dedicated to food plots, which are planted in five-acre blocks on the farm's best soils. Legumes, bundleflower, warm-season blends, then wheat, oats and clover blends offer year-round nutrition to birds, mammals and other fauna. McKeithen started all the food plots out with a crop of Roundup Ready soybeans. Over-the-top application of glyphosate helped clean up weeds and clear the way for good food plot establishment, he explains.

McKeithen lays food plots out north-south in wide blocks rather than thin strips. "I like food plots that are 300 feet by 600 feet," he says. "I'd rather have a wide food plot, because in 10 to 12 years, you're going to lose half of it to encroachment or canopy if it's narrow."

Despite the rule for wide plots, there are some valuable strips of food – 12 feet on either side of every road is seeded in a native quail mix.

The wetlands themselves also offer a rich banquet for waterfowl. Preparing the wetlands to produce native plants can require significant management steps or none at all, says McKeithen. Where ground prep is needed, he performs a harrowing or light disking to mix

in local seeds and spur them to germinate. His goal is to encourage smartweed, barnyardgrass, and the tasty crusta-

ceans that keep migrating birds coming back for more. "It gives shorebirds and ducks going north a lot of nutrition," he says. "Especially if you've got those crustaceans."

Barnyardgrass and other native wetland species are a far better bet in a working wetland than cultivated vegetation, McKeithen notes. For one thing, ducks love native vegetation. "From past history, I've had two or three fields that were solid barnyardgrass, and you couldn't shoot the ducks off of them," he says.

Native plants are also better suited for wetlands than upland crops are. "The program is oriented toward natural regeneration," says McKeithen. "They'll produce more tonnage and will stay there longer than with any cultivated crops." Soybeans sound like a good source of fats and forage, but they rot in just a couple of weeks, McKeithen points out. On the other extreme, milo produces a sturdy stalk, but it won't lay over where ducks can get at it, and U.S. Fish and Wildlife Service regulations prohibit shredding stalks.

Ponds Require Management

Even without the ability to shred stalks, WRP is tailored to allow land managers like McKeithen to actively manage the wetlands quite well. "With WRP, I can actually manipulate one-third of the shallow water areas each year," says McKeithen. "I try not to have to do anything, but if I get an influx of sesbania or woody species, I can manipulate it to set back plant succession by mowing, disking, flooding or draining to reintroduce new seed. I'll also sometimes plant a three-millet blend – a combination of pear, Japanese and brown-top. After a year, they're considered barnyardgrass."

Using sets of six-inch steel drop logs in simple weirs, McKeithen maintains ponds at a variety of depths throughout the spring, with an emphasis on shallow pools. "A mallard duck can feed at 18 inches, but prefers six to 12," he notes.

Programs

- Wetlands Reserve Program

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“You’ll have some diving ducks in there, too. We also try to leave deeper areas in water. You always want to have water for your deer, quail, shorebirds and amphibians.”

Balancing the Checkbook

WRP projects can pencil out well, but they require a substantial up-front investment by the landowner. “The landowner has to carry the restoration cost until it’s finished,” says McKeithen. “The government won’t give him partial payment.”

Once the job is done and the reimbursement comes in, profits may follow. McKeithen points to one WRP parcel in which the landowner created a business leasing hunting rights to corporations, creating a fixed return on his investment and offering companies a place to bring clients or reward high-performing employees. Think of it as a huge, wet stadium skybox.

The South Point project is generating income from both day and season-long hunting leases. Duck blind leases range from \$5,000 to \$10,000, depending upon location. With 20 blinds on the property, hunters can pick their price point.

Day hunts can also be quite lucrative – this year, South Point will host full-day hunts that start in the duck blinds early in the morning and end late in the afternoon in the property’s deer stands. At \$350 per gun per day, the potential earnings are impressive.

However, it’s not like minting money – it’s expensive to keep prime hunting land in top shape for lease-paying guests. Maintaining roads, liming and fertilizing food plots, controlling invasive weeds, and managing the wetlands all cost money. “You may spend \$25,000 to \$30,000 per year on maintenance, upkeep and taxes,” says McKeithen. “On small tracts, there may be \$4,000 to \$10,000 per year just on maintenance.

“There are all kinds of ways to manage it, but if you’re looking at high-quality habitat, you’re going to have to spend money,” says McKeithen.

From a sportsman’s point of view, hearing the rustle of wings or the crunching of leaves under a deer’s hooves is the sound of money well-spent. And with the right planning and financial strategy, it sounds like a good investment, too. ■



Lee Salber, Ducks Unlimited

Wetlands offer benefits that touch young and old...and generations yet to come.

“It gives shorebirds and ducks going north a lot of nutrition, especially if you’ve got those crustaceans.”

Den McKeithen

WRP – Worth Some Work

Powerful interest in good hunting land and investors from the cities have driven land prices well beyond the reach of many farmers who dream of a parcel of recreational ground, says land manager Denva “Den” McKeithen in Mangham, La., in the northeast corner of the state.

“Especially on smaller tracts, land values are sky-high,” he says. “Down here, some of the smaller tracts have gone for \$1,100 an acre; up north, some have been as high as \$5,000 an acre.” By contrast, agricultural values on promising hunting ground range from \$700 to \$825.

McKeithen – who retired from the Natural Resources Conservation Service’s Wetlands Reserve Program (WRP) team – says WRP could offer growers a fighting chance at owning recreational land by defraying most, if not all, of the costs of buying and restoring it.

“The improvements you can’t expect to get a return on, but you can expect to get a large portion of your investment back,” he notes. In Louisiana, WRP is capped at \$800 per acre in exchange for a permanent easement on the land. Restoration costs are cost-shared or fully reimbursed, depending on the deal the landowner strikes with the government.

McKeithen points out that although WRP was the obvious choice for the 2,000-acre South Point project near Mangham, La., each grower needs to assess all the program possibilities before zeroing in on one to sign onto. After all, a perpetual

easement lasts forever, and it’s designed to be hard to change once it’s been signed.

“The reason we chose WRP was to get the capital return on the property,” says McKeithen. “But you need to make sure that WRP is the way you want to go, instead of CRP [the Conservation Reserve Program] or some of the other activities or government programs that are available. Make sure you know the rules and regulations before you commit to any one program.”

For growers set on WRP, the magic number is 30 – 30 percent of the parcel must be in shallow water to earn a high score. McKeithen says it may be worth doing some restoration work in advance to qualify for the program. “If they know that they can’t get 30 percent of the land into shallow water areas, they may want to do some dirt work to get to 30 percent,” he notes.

From Money Drain to Wetland Gain

California's Central Valley is home to some of the world's most productive farmland. But it's also home to thousands of acres of historic wetlands – and many converted wetlands have been nothing but trouble for the growers who have tried to wrestle crops from the heavy, flood-prone fields.

One of those parcels is an 1,150-acre farm along a low-lying drain near the town of Arbuckle, Calif., in the heart of California's rice-growing country. During relatively dry years, the drainage canals running through the fields provided water and drainage. During really dry years, the drains were empty. And during wet years, most of the farm was waterlogged for weeks or months.

"This used to be a seasonal floodplain marsh," explains Alan Forkey, the Natural Resources Conservation Service's (NRCS) state wetlands biologist in Davis, Calif. "The soils are very heavy clay, high in salinity. There's a lot of natural flooding – this area floods every year." After decades of fighting the floods, the Kalfsbeek family decided to embrace them.

Turnover

Hoping for the best, Hiram Kalfsbeek consolidated the parcel in the early 1970s, buying it in pieces from three landowners who managed it three different ways. Tying the whole farm onto a single water system, Kalfsbeek's goal was to farm row crops on the higher portions of the parcel and rice on the low ground. But the fields proved to be tough to

manage, and more often than not, he found himself harvesting his rice in standing water. A levee designed to protect the row crops lasted just two years before runoff from the fast-developing orchard ground to the west overtopped it, drowning 300 to 400 acres of sugarbeets. "That was the last time we raised sugarbeets," notes Kalfsbeek's son Todd.

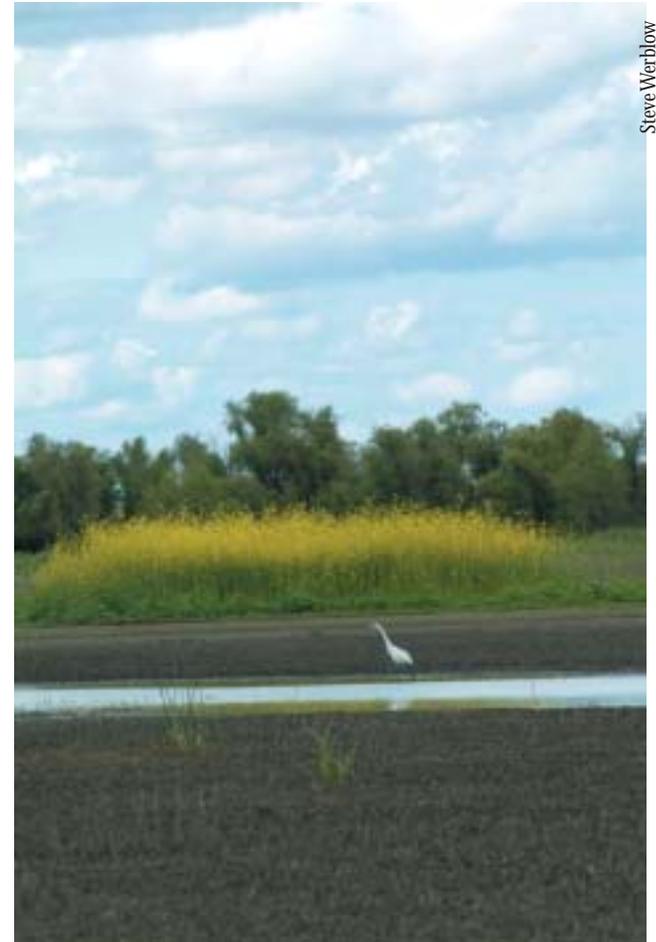
Farming the ground threatened to drown the Kalfsbeek operation, so the ranch was sold to a group of investors from the city in the 1980s. With little better luck than the Kalfsbeeks had enjoyed, one of the new owners wanted out after a few years, so Hiram's widow and sons Joe, Knute and Todd bought his one-third share.

The farm hadn't improved much. "It was a real gamble every year," recalls Joe. "We lost money about as much as we made it."

Flyway

While the farming efforts limped along, the parcel attracted a group of hunters who were drawn to the farm not by rice, but by the more than 2 million ducks and geese that pass through the region every year as they follow the Pacific Flyway. Soon, it became clear that the best use for the land was as wetland bird habitat – and the Wetlands Reserve Program (WRP) was just coming on-line to make it a profitable alternative.

In 1992, an NRCS survey team identified 960 acres of the farm that was eligible for a WRP contract. For just under the appraised land value of \$1,900 per acre, the Kalfsbeeks and their partners



Steve Werblow

Where rice and beets flooded out, birds thrive.

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A deluxe lodge reflects the prime hunting found on this WRP parcel.

Arbuckle, California

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entered a WRP contract with NRCS that forbade harvesting crops or building structures on the land.

NRCS cost-share helped cover the cost of de-leveling the rice

fields, digging swales for deeper water, and rebuilding straight levees into meandering berms. In short, renovation was a pretty shocking process for a rice farmer, a breed known for extraordinarily precise grading and laser-straight levees.

“It was completely opposite of everything I’d ever done,” says Kalfsbeek. “But I got a little philosophical. That ranch is the way it was when I was born.”

Though weeds seem to thrive on a farm, they’re surprisingly challenging when you see them as a crop, adds Knute. “Raising weeds is harder than raising rice,” he laughs. “You have to be doing something all the time – disking, mowing, raising or lowering the water.”

Balance Sheet

The balance sheet also pencils out a lot better than it did in the struggle to produce rice on the parcel. Land costs dropped significantly – the WRP money covered the farm’s purchase price, and converting the site to wetland habitat reduced taxes by about 25 percent. Joe Kalfsbeek figures the de-leveling cost his family and their partners about \$60 per acre where a bulldozer needed to be brought in, or an average of about \$30 an acre across the whole farm. They recouped that expense

after just two years of leasing hunting rights, he says.

The project was a real team effort, drawing together resources from NRCS, the California Waterfowl Association and the California Department of Fish and Game. The California Waterfowl Association paid the full cost of establishing brood ponds in the upland portions of the farm to encourage key species to nest. And the California Department of Fish and Game’s Waterfowl Habitat Program, also called the Presley Program, pays \$20 per acre to flood the land in the summer. Joe says the \$20 doesn’t quite cover pumping and maintenance costs, but the results are great for the birds and the loss isn’t too bad.

When the Kalfsbeeks’ farming partners fell upon hard times and needed to sell their shares of the property, the club of 15 hunters who had leased hunting rights stepped up to buy their interest. “It was like hunting on an onion skin that first year – there was zero vegetation on it,” says Joe Kalfsbeek. But clearly the hunters saw the potential of nearly 1,000 acres of prime wetland habitat right along the corridor used by more than 44 percent of the waterfowl that travel the Pacific Flyway.

It’s been good business for the Kalfsbeeks, too, who also farm 2,000 acres of rice, orchard crops and wheat in the area.

“Everything we do, we’re reimbursed for [by the partnership],” says Joe. “I haven’t stuck a profit on it, but I don’t lose money.”

“It’s working really well with our rice operation,” he adds. “It’s pretty seasonal. We’re really focused on rice for about 45 days in the spring and about 45 days in the fall, and we have a couple of men we carry all year. Maintaining the wetland creates work that I get reimbursed for with these guys.

“Maintaining a wetland isn’t just walking away from it,” Joe explains. “Irrigating it is quite a bit of labor, and in the

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Programs

- Wetlands Reserve Program (WRP)
- Conservation Reserve Enhancement Program (CREP)
- Presley Program
- California Waterfowl Association



Steve Werblow

Knute and Todd Kalfsbeek, with their brother Joe and a group of sportsmen, turned an ailing farm into a hunter's paradise.

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fall, there's hunting preparation – chopping weeds and disking areas of it, blind maintenance, and manicuring around the blinds by making strategic cuts in the vegetation. If you just walk away from it or chop and walk away, you get a lot of undesirable vegetation. You want watergrass, smartweed and hardstem bulrush, but you don't want uncontrolled tules, jointgrass or cocklebur."

Hosts

Evolving from experts in land leveling and weed control into adept de-levelers and cultivators of watergrass and smartweed has taken the Kalfsbeeks into new directions. The brothers led the way in what has become an effort to create a wetlands corridor along the Colusa Drain, which could someday encompass 8,000 to 9,000 acres dedicated to stemming pollution and managing seasonal flooding. Their parcel has hosted countless mallards, gadwall, cinnamon teal and pheasant – as well as several masters' degree candidates immersed in the study of wetland wildlife.

And they've come to look at fields in a whole new light. "I don't think all ground should go into these pro-

Expanding The Contract

By 1999, the hunting was so good on the 960-acre Wetland Reserve Program parcel owned by the Kalfsbeek brothers and a group of 15 avid duck hunters that the club members wanted to build a clubhouse. But the WRP easement forbids the construction of buildings on the land.

Buying a few acres out of the easement would have cost the owners the original land price plus interest accrued since the contract was signed in 1992. So the group looked over the property line and bought 10 adjacent acres from their neighbor to the west. A first-class clubhouse and its high gravel pad covers two acres, and the other eight were placed into the Conservation Reserve Enhancement Program (CREP) for a rental contract and planted to native grasses.

Score one for the birds, one for the hunters, and one for federal programs that benefit both.

grams, but there's ground that should – problematic ground," says Joe Kalfsbeek. "If you can't make a living farming it, why not do this?" ■

"If you can't make a living farming it, why not do this?"

Joe Kalfsbeek

Love at First Sight

It was the kind of beauty that strikes only the foresighted few – lovers of decrepit old tractors, fixer-up houses, and wetlands in the rough. When banker and farmer Mel Taylor and his brother Wade saw a 160-acre field that flooded out with alarming regularity, a hastily converted wetland built to make up for illegal drainage, and a center pivot looming like an aluminum white elephant, they knew they were looking at something special.

Mel Taylor says he did the math and realized that he and his brother could create the wetland of their dreams and even pull in a healthy return to boot. “It attracted me both as a banker and a wildlife lover,” he recalls. “I always wanted a

wetland and this place sat out there under a stressed financial situation, so I suspected from my past experience that it would be a weak sale.”

Taylor was right. In 1999, he and Wade picked up the quarter-section for \$550 per acre in a market that was paying three times that much for good farmland. The trick was seeing through a different lens. “Everybody I bid against at the sale was looking at it as a corn and soybean farm,” he explains. “I knew they’d have to consider

the fact that they’d be flooded out three out of every five years. The way we looked at it, that didn’t bother us because we don’t get out there until after the floodwaters subside anyway.”

Better than Expected

Taylor knew he was looking at a duck-hunter’s playground and a pretty decent place to raise a hay crop. “But it wasn’t until I talked to the Ducks Unlimited people that I realized how unique it was,” he says. “It has two rainwater basins completely contained on the property.”

Taylor’s area of southcentral Nebraska is called the Rainwater Basin, a 4,200-square-mile patchwork of marshes and prairie that is a critical stopping point for tens of millions of migrating waterfowl and shorebirds – more than 250 species in all. The Rainwater Basin is the pinch point in the Central Flyway’s hourglass. Farther west, arid conditions yield little habitat. Farther east, the land has almost completely been drained for farming and development. Having a pair of wetlands – 22 to 23 acres of them, called rainwater basins themselves – completely on the property meant Taylor could restore them without having to cajole or negotiate with any neighbors to see his vision through.

Of course, the first step was to get some cash flowing. The Taylors sold the center pivot (which had been a pretty optimistic investment on a previous owner’s part in the first place). That left some cash and a high-volume well to jumpstart wetland restoration efforts. Then they farmed the ground for three years, pulling off decent row crop harvests during the relatively dry 2000, 2001 and 2002 seasons and building an invaluable cropland base for entering the parcel into the farm program.

Meanwhile, Taylor worked with the state to reduce the parcel’s tax rate to reflect its future status as a working wetland instead of an active row-crop farm.

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Ryan Heiniger: Ducks Unlimited

Big bluestem can be as profitable as row crops in Nebraska’s Rainwater Basin.

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Then they were ready to get to work on restoring the wetland basins they'd bought.

Keeping Focused

Mel Taylor joined up with Steve Moran of the Rainwater Basin Joint Venture (JV) and a JV-led team including representatives of the USDA Natural Resources Conservation Service, the U.S. Fish and Wildlife Service, the Nebraska Game and Parks Commission, the local Natural Resource District, Ducks Unlimited, Pheasants Forever, and public and private entities with an interest in wetlands. The team cobbled together funds to cover the restoration. The JV – funded by a combination of federal sources and lottery proceeds – offered \$25 per acre per year base incentive payments for the first 10 years of the project, and Ducks Unlimited came up with \$42,500 in cash and \$30,000 in in-kind contributions, including more than 500 staff-hours, mostly in engineering services.

Though the funds were available, Taylor says it wasn't always easy to keep his project on the radar screens of the disparate group of agency people. However, Ducks Unlimited biologist Ryan Heiniger says Taylor's focus helped keep the project moving – and make it successful.

"Mel was probably the first landowner I've ever worked with who literally came to the table with all his goals and objectives written out on paper," marvels Heiniger. With a combination of economic and environmental goals on the table at all times, Taylor secured the funds, in-kind contributions and permits required to restore his wetlands and create a vibrant grassland that yields both habitat and hay.

Ducks Unlimited took on the challenge of moving 28,761 cubic yards of sediment out of the two wetland basins, creating a low embankment to facilitate seasonal water management, and building a few small access roads to allow year-round access through the parcel. Mel Taylor did most of the finish work with equipment he uses in the rest of

his farm operation.

In the fall of 2002, Taylor received funds from his local Natural Resource District to seed 40 acres of Eastern gramma grass, 50 acres of a warm-season native grass mix, and 70 acres of a cool-season blend that included five grasses, some legume species and bundleflower. He also planted eight acres of food plots funded by Pheasants Forever, starting with Roundup Ready soybeans to introduce nitrogen into the soil and allow him to clean the plot of weeds. By the next season, the food plots were ready for milo, cane, corn and millet.

Returns Flow In

Taylor sees the parcel as a good source of grass hay. Taking a single cutting off of half the acreage per year, he figures he can get 2.5 tons of good grass hay per year from 80 acres, leaving the other 80 acres standing as feed and habitat all season long. On the hay acres, he can hay around the wildlife's schedule, waiting out receding waters and delaying his cutting until pheasants and ducks have all hatched.

Steve Moran at the Rainwater Basin Joint Venture in Grand Island, Neb., says private landowners like Taylor who actively manage their land are a vital piece of the wetlands conservation puzzle. "Agencies can't afford to own the wetlands," he says. "They might be able to find the money to buy them, but they won't have the money to manage them.

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Ryan Heiniger, Ducks Unlimited

Shallow rainwater basins are vital stopping points for migrating waterfowl.

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And the worst thing you can do to a wetland in the Rainwater Basin is walk away from it. You have to be constantly in there disturbing it, knocking the vegetation back.”

What’s good for the wetlands may also be good for the bottom line. “There’s a great benefit to wildlife, but we’ve also had some reasonable economic return relative to the investment,” says Taylor. “Unfortunately, we haven’t gotten to the point where I could consider it to be a stable return. When it stabilizes, I think it will be real comparable [to row crop ground]. In fact, it might end up being better than a lot of the land being sold right now.” Taylor explains that row crop farms are yielding a return on investment of about 5 percent right now, while his wetland has sometimes hit as high as 15 percent.

“The real difference between this and a typical property is that it’s real low-input,” he explains. “The taxes are a lot lower and you don’t have a lot of equipment cost, fertilizer and chemicals. You don’t handle near as much money, but when you’re done, there may be just as much left as if you’d been growing a crop that required \$40,000 or more in input costs.”

And there’s a different kind of payoff, too. “It was pretty neat driving out there last spring and seeing 20,000 snow geese out there,” Taylor recalls.

It looks good from beyond the field’s boundaries, too. “We see this as a great demonstration area,” says Ducks Unlimited’s Heiniger, who believes the success of the Taylor project will help inspire other landowners to help Ducks Unlimited reach its goal of restoring 9,000 acres of rainwater basins by 2013. “It’s certainly one of the best wetlands restoration projects in the Rainwater Basin.” ■

“You don’t handle near as much money, but when you’re done, there may be just as much left as if you’d been growing a crop that required \$40,000 or more in input costs.”

— Mel Taylor

Programs

- Rainwater Basin Joint Venture
- Ducks Unlimited
- Pheasants Forever
- Natural Resource District Funds

BIOTEAM TACKLES WETLANDS

If there’s one thing landowners hate and fear about protecting or restoring a wetland, it’s the thought of getting tangled in red tape spun by not one or two or even three, but seemingly countless agencies from the local to the federal level. In southcentral Nebraska, the Rainwater Basin Joint Venture created Bioengineering teams to harness brainpower and resources while streamlining the wetlands conservation process. A bioengineering team may include representatives from the Natural Resources Conservation Service, U.S. Fish and Wildlife Service, Nebraska Game and Parks, a local Natural Resource District, and Ducks Unlimited – entities with an interest in wetlands issues whose angles sometimes intersect, often diverge and usually introduce redundancy to the planning process.

“We reduce that redundancy so people can be more efficient, more effective,” says Steve Moran, coordinator of the Joint Venture in Grand Island, Neb. A typical wetland project starts with a site visit by several members of the team at once. “I tell landowners, ‘don’t be intimidated by all these people – they all have a piece of the answer,’” he says.

Moran adds that because it’s built around landowner concerns, the Bioteam approach nets out better for the wetlands in the long run, too. “Agencies have programs that they want to deliver, so they’ll often get too narrowly focused on their program and not on the resource,” he adds. “Programs are biological science. Resource management, that’s social science.”

Professional Farm Manager Views Wetlands as Assets

Few people see the dollars and cents side of farming as clearly as Lannie Philley, AFM. Philley is a professional farm manager for Delta Land and Farm Management Co. in Mer Rouge, La., a firm that manages approximately 150,000 acres in six states. With the awesome responsibility of handling other people's land and money, Philley has made a career out of penciling out the options and checking all the angles. And increasingly, he's seeing ducks, quail and deer become as valuable to many clients as soybeans and cotton – maybe even more valuable. “On some farms, you might net \$80 to \$100 an acre for hunting vs. \$20 an acre for soybeans,” he points out.

Wetlands have become good business, and Philley and his colleagues are writing them into their management plans right beside cropland and timber lots. Of Delta Land and Farm Management's acreage, 4,000 to 6,000 acres are managed as wetlands.

“We incorporate wetlands in our farms as income for the landowners we manage land for,” Philley says. “It's been very productive because recreation is a big thing in our area. A lot of times, being in a conservation program like WRP or CRP is way more lucrative than farming a piece of ground.”

Philley notes that the investment-grade properties sought by pension funds and insurance companies are generally prime production ground. But most farmers' operations have some areas where conservation might be a valuable option. On rental ground, though it seems like

pulling the rug out from under a renter, committing acreage to conservation could even help tenant relations, he notes. “If a tenant's not making any money on a place, you're doing him a disservice,” Lannie says.

Site-Specific

The first step in putting wetlands to work is finding the best sites to restore. “We try to maintain a careful balance between farming and conservation,” Philley explains. That often means designating a low-lying side of a field for wetlands, or targeting a strip of low-producing land along a river or stream.

Global positioning satellite (GPS) technology has become an invaluable tool for this first stage. It's not just because maps can be drawn up more easily than ever. It's that yield mapping technology can quickly and accurately pinpoint the low-producing areas of a field and show in no uncertain terms what the losses are. That can be a real eye-opener for landowners.

“Most of the time, they don't realize they're losing on it,” Philley explains, taking a hypothetical 80-acre field with a big low spot as an example. “Let's say they average 35 bushels of soybeans across the farm. But until you look at the actual production on that 80 acres, you might not even realize that you're only making 9 to 18 bushels on that wet ground.”

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Matt Young, Ducks Unlimited

Hunting leases or guided hunts can yield far more than crops on well-managed wetlands.

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Picking Programs

Government programs are an integral part of making wetlands pay. Philley points out that picking the right government program for a site is an important next step, and can help managers pencil out the economics and cash-flow aspects of restoration.

The Wetlands Reserve Program (WRP) offers 100 percent reimbursement for restoration costs, he notes, while the Conservation Reserve Program (CRP) cost-shares 50 percent. However, stepping up to the Continuous CRP program for riparian areas bumps cost-share levels up to 90 percent of restoration costs, says Philley.

On one farm where cropping profits had declined, Philley used CRP to create grassy habitat for quail along a local bayou, and WRP to re-establish a wetland in the floodplain. On that farm, WRP alone yielded a \$150-per-acre payment up-front and \$70 to \$80 per acre in annual incentive payments for 15 years.

Restoration Efforts

Wetland establishment in rain-blessed Louisiana is easier than in many other areas of the country, Philley admits, which adds to their appeal.

He figures it takes \$120 to \$160 per acre to establish wetlands, from ground preparation to planting native grasses and trees. Maintenance costs come to about \$5 to \$8 per acre per year in areas that need to be maintained, though he notes that some wetlands just end up looking after themselves.

Where maintenance is necessary, it usually adds up to mowing levees, bush-hogging vegetation in shallow-water areas, and drawing down water in the spring to encour-

Programs

- Wetlands Reserve Program (WRP)
- Conservation Reserve Program (CRP)
- Continuous CRP
- Hunting leases

Scott Liles, Ducks Unlimited



Hunters call for good access to prime wildlife sites.

age good vegetation growth and supply shallow-water habitat for the wildlife that needs it. “You’ve got to keep your structures in place to be able to control the water,” he explains. “Keep your levees seeded and preferably mowed down some. Keep the bad weeds down, and keep the levees in some kind of seed-producing plants for the wildlife.”

Hunting Bonanza

Government cost-share programs can take the sting out of wetland restoration, but hunting leases can put wetland properties over the top economically.

“Just putting the land in a program is only part of it,” says Philley. “The recreational aspect is on top of that. It’s a great income opportunity.”

In northeast Louisiana, Philley says, deer hunters will pay \$10 to \$35 per acre for the chance to hunt a farm. That adds up in a hurry – five hunters on a 500-acre farm can yield \$10,000. Day leases for bird hunters can also be valuable – at \$100 to \$150 per gun for doves, quail or pheasant, 10 hunters on a 20-acre field scare up \$75 per acre. Philley figures expenses for insurance, roads and land preparation run about \$25 per acre, so a good manager can

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net \$50 per acre per hunting day during a three-week bird season.

On the right piece of ground, wetlands are good business in Lannie Philley's ledger. "Wetlands can solve erosion problems and prevent siltation in streams," he notes. "And they can stabilize income." From a professional farm manager, that's a powerful endorsement. ■

Hunting Leases Are Big Business

Commodity price peaks come and go, but hunting leases have stayed surprisingly strong, in spite of an overall decrease in the number of hunters around the U.S.

According to the U.S. Fish and Wildlife Service's 2001 National Survey of Fishing, Hunting and Wildlife-Associated Recreation, more than 82 million Americans over the age of 16 fished, hunted, or watched wildlife, each contributing to a \$108-billion industry. While new rifles and fancy fishing tackle accounted for a big portion of the expenditures, \$624.5 million was spent on hunting leases in 2001.

Of course, like any business, getting into hunting leases requires some research. Landowners need to ascertain local market rates, determine whether they want to sell leases directly or go through outfitters or hunting services, and learn the laws surrounding the liability of having paying guests hunt their land.

Fortunately, most states have tried to encourage hunting on private land – rather than overextending public hunting resources – by instituting recreational use statutes that indemnify landowners from liability for injuries resulting from certain activities on their land. Generally, protection is afforded to landowners who don't charge a fee for access to their property, but state lawmakers have increasingly been exploring how to expand that protection to landowners who lease hunting rights. For more on liability, the Conservation Technology Information Center (CTIC) has an online article from its Partners magazine at www.ctic.purdue.edu/CTIC/CTICPartners/2004/JulAug2004.pdf.

State wildlife officials and tourism boards can be a wealth of knowledge about hunting leases. For an online background, check out www.utextension.utk.edu/publications/pbfiles/PB1627.pdf; for details in your area, contact the local office of your state's wildlife agency.

"A lot of times, being in a conservation program like WRP or CRP is way more lucrative than farming a piece of ground."

Lannie Philley

Small is Beautiful

There's nothing like a vast expanse of wetland habitat to make the heart of a bird lover sing. But not all wetland projects have to be done on a large scale – countless farms are home to small wetlands that also play a part in habitat conservation and put wetlands restoration within the reach of thousands of farmers and ranchers. Best of all, restoring a small wetland may actually make farming easier – and more profitable.

That's been the experience of Tom Bowman, a wildlife biologist for the Kansas Department of Wildlife and Parks who farms 320 acres of wheat, soybeans and milo in the rolling Flint Hills of Kansas. One of his 65-acre fields was a challenge to farm, thanks to a 1.5-acre wet spot. "The first five years I owned it, I was only able to harvest a crop off of that little spot once," says Bowman. "It was either too wet to plant it or too wet to harvest it."

Back to Wetland

Bowman decided to pull the spot out of production and enroll it in a 10-year Conservation Reserve Program (CRP) contract. Through CRP, the Natural Resources Conservation Service offered 90-percent cost share on restoration and seeding expenses, and an NRCS technician designed the wetland for Bowman. He also enrolled three more acres surrounding the wetland to serve as a buffer. In 2001, Bowman hired a bulldozer operator to do

some grading and diking, installed an Agri Drain stoplog water control structure, and a two-acre wetland was born – or reborn. The average depth of the wetland is about 12 inches, says Bowman, perfect for dabbling ducks like teal and mallards. However, a strip along the inside of the dike drops 3.5 feet. During dike construction, it served as a borrow ditch. As the wetland fills and empties, the trench will also collect sediment, extending the life of the wetland.

Around the wetland, Bowman seeded his three-acre buffer with a native grass blend spiked with a variety of native forbs, including Maximilian sunflower, partridge pea, purple prairie clover and Illinois bundleflower. The broadleaves add value to birds using the buffer as brood cover, Bowman says. Like the native grasses, the forbs are also well-adapted to fire, which is a significant part of his maintenance program.

Keeping It Beautiful

Every three years, Bowman will burn his CRP ground in early April. Fire – a timeless cleansing force on the prairie – thins native grass stands before they grow so thick that they choke out habitat. It also prevents trees from getting established. Bowman points out that an unburned wetland and grassland like his would soon be thick with cottonwoods, boxelder, and red cedar.

Bowman's burns are scheduled to coincide with the years that the field surrounding the wetland is planted to wheat. That way, the flames are hemmed in by green vegetation rather than dry stubble, and the whole process is safer.

Burn year or not, Bowman also seeds the muddy banks and bottom of his wetland after the water recedes. "In a dry year, I'll broadcast milo or millet at the bottom," he says. "If it floods again in the fall, great – the ducks love it. If it doesn't, no problem – the deer and pheasants and quail will eat it."

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Tim Christian, KAWWS



Small wetlands can have big benefits.

Program

- Conservation Reserve Program (CRP)

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In spite of a couple of extremely dry seasons after the wetland was established, Bowman is seeing wildlife come in as the wetland is beginning to fill. Teal, wood ducks, coots, a few mallards, a couple of Canada geese, and turkey have all moved in. “Teal love these little mudholes,” says Bowman, underscoring the value of even small patches of habitat on a dry landscape. Turkey, deer and raccoons have taken to the grass buffer.

Looking to the Side

Bowman’s next goal is to provide his wetland with a more reliable supply of water. The site lies next to a waterway that drains about 50 acres of farmland, he points out. A little earthmoving and a new water control structure would allow him to divert that waterway into the wetland, capturing more water and, he hopes, extending the parcel’s wet period.

He’s planning to shop around for a program that would help him accomplish his upgrade. In the meantime, Bowman points out that the initial project penciled out beautifully.

“My out-of-pocket expenses were only about \$300,” he says. “CRP pays \$55 per acre per year, plus it covered about \$3,000 in cost-share. By the time I get 10 years’ worth of payments on it, CRP will more than pay for the cost of the five acres.

“To my way of thinking, it was a really good deal,” he adds. “Not only was I not making any money on that piece of ground, it was costing me money to farm it. And having a wetland out there isn’t any more inconvenient than trying to farm it – if it’s too wet to plant it, I’d be farming around it anyway.” ■

“Having a wetland out there isn’t any more inconvenient than trying to farm it – if it’s too wet to plant it, I’d be farming around it anyway.”

Tom Bowman

Small Wetlands, Big Difference

Though large-scale wetland restoration projects make headlines, farmers and ranchers who protect or restore small wetlands are also doing an invaluable service. The benefits of small wetlands can be felt locally and globally – from a boost for local frog populations to vital breeding and feeding sites for migratory birds traveling nearly pole-to-pole.

“Small wetlands play a very critical role in improving the water quality of a watershed,” adds Tim Christian, state coordinator for the Kansas Alliance for Wetlands and Streams (KAWS) in McPherson, Kan. “They’re placed in natural sinks for nutrients and pesticides. Even though they’re small, they’re extremely important. Not only do these wetlands clean surface water, they recharge aquifers and stream systems with water they have filtered. And for habitat value, they start at aquatic invertebrates and go all the way up to mammals and different kinds of birds.”

An educational non-profit dedicated to wetland and stream health, KAWS has engaged in wetlands restoration projects ranging from one-tenth of an acre to 300 acres, notes Christian, and from playa lakes in arid western Kansas to wooded, riverine wetlands in the rainier east side of the state. The KAWS web site (www.kaws.org) features a variety of publications and resources of interest to landowners across the Great Plains.

Christian emphasizes that wetlands of all shapes and sizes are valued additions to the landscape. “We see wetlands as being an integral part of the Kansas landscape,” he says. “They’re worth people understanding them and being aware of how to protect and restore them.”



Tom Bowman

Too wet to farm most years, this plot became a valuable wetland.

A Wetlands Vision

Oregon grass seed growers Mark and Debbie Knaupp are taking their passion for wetlands all the way to the bank – their Mud Slough wetland mitigation bank, which flanks their Wetlands Reserve Program (WRP) acreage to create a thriving 440-acre wetlands complex in the Willamette Valley.

Tired of fighting geese and water on a flood-prone area of their farm, the Knaupps decided in 1996 to view a 320-acre parcel in the middle of their 1,200-acre operation as a

wetland instead of a trouble spot in a fescue field. They enrolled the acreage in WRP, diversifying their farm into a grass-seed-and-wetlands operation that has continued to evolve – the Knaupps added their mitigation bank to their initial wetland in two stages. Developers, road departments and other permittees who need to mitigate, or make up for, impacts on wetlands can buy credits from the Knaupps – essentially, buying a piece of the Knaupps’ wetland to make up for little pieces of wetlands drained elsewhere.

That’s a big step from selling grass seed. When it comes to wetlands, says Mark Knaupp, “you have to have a vision of what it could be. It’s difficult to do when you’re looking at a grass field.”

Steve Werblow



Mark and Debbie Knaupp consider wetlands part of their diversification strategy.

Picking Programs, Teams

The Knaupps were lauded for their WRP project, which has hosted tours and training sessions for conservation professionals from as far away as China. Selling a permanent conservation easement to the government through WRP provided a great training ground for wetlands restoration, good income potential from leasing hunting rights, and a large foundation for the working wetlands that add value to the mitigation bank, Knaupp says. But now his eye is on the income-generating potential of mitigation banking.

“The WRP program in itself would not have enough incentive for us to bring in new acres,” he explains. “The prime motivating feature on a majority of WRP situations is that the owner retains recreational use of the property. [Mitigation banking] is one of the few processes that allow us to get a return on the wetlands.”

A Mitigation Banking Review Team was formed to bring together federal and state agencies that would need to oversee aspects of the mitigation bank development. Chaired by the U.S. Army Corps of Engineers and the Oregon Department of State Lands, the team also included the U.S. Environmental Protection Agency, the Oregon Department of Environmental Quality, the U.S. Fish and Wildlife Service and the Oregon Department of Fish and Wildlife.

The Mitigation Banking Review Team was the final word on every step of the mitigation bank development process, which includes:

- Delineating the wetland – boundaries, depths, characteristics and performance standards
- Approval to proceed
- Proving the initial hydrology – the vital step of showing that the project could literally and figuratively hold water
- Maintenance
- Monitoring for water levels and vegetation

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The Knaupps hired consultants to help them tackle the extensive surveying, hydrology and paperwork challenges that mark mitigation banking projects. But as with the WRP restoration, the job fell to them to keep regulators focused on the goal.

“You’ve got to be persistent when you work with the feds,” explains NRCS’s Hale. “You need a creative landowner and flexible, creative bureaucrats to move it forward.” Picking review team members with creativity and courage is an important step, Hale emphasizes. In many areas, mitigation banks are still relatively untested, so regulators in the field have to put themselves on the line to find ways to shepherd them through their agencies’ bureaucracies. That takes creativity and a measure of risk, he points out.

Getting Wet

Establishing the wetland on the mitigation banking sites, as with the WRP acreage, was relatively straightforward for the Knaupps – mostly a matter of cutting off old drainage systems. They built islands to encourage nesting and provide roosting habitat. They integrated an eight-acre, 50-acre-foot pond on the WRP site into their plan, using it as a reservoir to provide water to the mitigation bank and the WRP parcel during dry spells. And unlike the WRP site, which revegetated itself naturally, the Knaupps aggressively replanted the mitigation bank site to jump-start it on its way to meeting its plant establishment goals. In fact, they used their WRP site as a nursery to provide locally adapted wetland flora.

Complementing their replanting regime, an adjustable water control outfall structure and spillways allows them to manage water levels throughout the site. That was extremely helpful in managing plant populations – Knaupp was able to move water in and out of the mitigation bank to encourage native wetland plants and discourage invasive weeds like reed canarygrass.

Weed control can be the make-it-or-break-it factor in establishing a wetlands mitigation site, notes Hale. An aggressive invader like reed canarygrass can scuttle a project, choking out desirable vegetation that forms the foundation of the bank’s performance goals and cleaning out the bank owner’s bank account.

To beat the weeds, Hale suggests looking carefully upstream to ensure that there isn’t a big reservoir of seed that will flow down continuously to your property. Vigilant attention to controlling small weed patches before they get out of hand is vital (Knaupp walks his wetlands with a backpack sprayer and a pocketful of native plant seed). And aggressive planting of desirable plants can give them a leg up on invaders while speeding the site toward achieving performance objectives that will allow the Review Team to release credits for sale – generating vital cash flow.

Marketing Strategy

For wetland veterans like the Knaupps, navigating the process and establishing the wetlands on their mitigation bank acreage represented just part of the challenge of creating the bank. Once credits were released for sale by the Review Team, the Knaupps needed to start selling them.

They worked hard to secure a sizeable service area, the region in which people or agencies impact-

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Steve Werblow

Managing wetlands generates income in farming’s off-season, but requires careful attention.

“You have to have a vision of what it could be. It’s difficult to do when you’re looking at a grass field.”

— Mark Knaupp

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ing a wetland could buy into the Knaupp’s mitigation bank to offset the effects of their project. But even with a wide service area, mitigation banking is still a competitive business.

Steve Werblow



Establishing wetland vegetation is vital to receiving permission to sell mitigation credits.

“Once you get the service area established, the question is, what’s going to be the need for mitigation?” Knaupp points out. “That depends on economic cycles, location, and price.” And, like anything else in farming, mitigation banking comes down to efficiency. “You have to keep your costs down and try to be the low-cost producer,” he adds.

Managing for the Future

Mark and Debbie Knaupp see wetlands as an asset, and a product that augments their grass seed operation. Hunters lease duck blinds on the WRP ground; credits in the Mud Slough Mitigation Bank are selling well; and managing the wetlands falls largely within the dormant season for grass seed crops.

“This gives us a great opportunity for us to manage our resources more efficiently by utilizing those resources during the off-season of the agricultural year,” says Knaupp.

The wetland also gives them a new view of geese – a pest on a fescue field, now a welcome guest on a wetland – and thousands of other birds, mammals and invertebrates that thrive there. And it gives the Knaupps a chance to look ahead – to the days when their daughters may manage not only a farm, but a wetland business as well. ■

Programs

- Entrepreneurial mitigation banking
- Wetlands Reserve Program (WRP)

FARM WETLANDS – A CHANGING PERSPECTIVE

Mark and Debbie Knaupp represent a new breed of farmer, says Natural Resources Conservation Service district conservationist Ken Hale in McMinnville, Ore. Through the NRCS’s Wetland Reserve Program (WRP) and their private mitigation bank, the Knaupps have diversified their operation with two of the hottest commodities on the market – habitat and open space.

“The Knaupps have merged their love for wildlife and wetlands with their agriculture business,” Hale says. “They had their own vision and married it to the public vision to meet personal, economic and societal goals. They have found a way to get economic return from the non-consumable value of property – wildlife and wetlands – showing that wetlands can be part of a matrix of an ecologically and economically healthy watershed.”

WRP is a mechanism by which society pays for the wetlands that it deems a high priority, Hale explains, just as selling credits in a mitigation bank bring the transaction to a private business level. Either way, it creates a win-win-win opportunity for society, wildlife and farmers.

Resources

Wetlands Reserve Program — www.nrcs.usda.gov/programs/wrp/

Conservation Reserve Enhancement Program — <http://www.fsa.usda.gov/dafp/cepd/crep.htm>

U.S. Fish and Wildlife Service – Habitat Programs

www.fws.gov/habitat/

Wetlands serve as habitat for an array of species. Fish & Wildlife offers programs that could suit a broad range of private wetlands projects. This site covers the gamut of the agency's habitat incentive programs.

U.S. Geological Survey: National Water Summary of Wetland Resources

<http://water.usgs.gov/nwsum/WSP2425/>

The USGS site features a great library of papers on wetlands – from their history to their restoration – that is a great starting point for understanding how they function. The agency's Wetland Science Institute (<http://www.pwrc.usgs.gov/WLI/>) is also a wellspring of knowledge.

National Wetlands Mitigation Action Plan

<http://www.mitigationactionplan.gov/index.html>

This web site is the home of the National Wetlands Mitigation Action Plan, formed by the Environmental Protection Agency, the Army Corps of Engineers, and the Departments of Agriculture, Commerce, Interior, and Transportation in 2002.

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The internet abounds with great resources for land-owners eager to explore the broad issues – or the nuts-and-bolts details – of wetlands. This list is hardly an exhaustive one, but we hope it provides a useful start. Happy hunting!

US Environmental Protection Agency: Wetlands, Oceans and Watersheds

www.epa.gov/owow/wetlands/facts/fact16.html

www.epa.gov/owow/wetlands/wetlandsmitigation

A phenomenal starting point for research on wetlands, this site includes basic wetlands information and culminates in an online publication titled *What You Can Do To Protect Our Vital Resource*.

USDA Natural Resources Conservation Service

NRCS is an outstanding source of technical resources as well as funding for a variety of wetland restoration programs. The agency's web site is organized in part by programs, so a couple of good starting points for exploring wetland restoration and profitability include:

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Ducks Unlimited

www.ducks.org

For decades, Ducks Unlimited has dedicated enormous resources and developed invaluable expertise in wetlands restoration. DU biologists can provide insight ranging from the mechanics and hydraulics of wetlands projects to the resources available for funding them. In addition, the organizations Prairie web site may be of particular interest to readers in the Midwest: www.prairie.ducks.org.

Pheasants Forever

www.pheasantsforever.org/

Pheasant habitat – often in the form of vegetated buffers – often firsthand-in-hand with wetlands projects. Pheasants Forever may be able to help landowners whose projects could help boost populations of one of America’s favorite game birds.

National Wetlands Conservation Alliance

<http://users.erols.com/wetlandg/#top>

Though eclipsed by NRCS’s work with members of this informal alliance, the organization still maintains a web site that serves as a helpful rundown of information on wetlands restoration funding sources, survey information on wetlands restoration projects, and resource materials.

Environmental Law Institute

www.eli.org

Dedicated to environmental law and policy, ELI has become an authority on wetlands mitigation banking.

Ecosystem Marketplace

www.ecosystemmarketplace.com

A treasure trove of contacts and insights on the emerging markets for resources such as carbon credits and wetland mitigation, this site takes an unvarnished look at the debates surrounding these developing industries. A must for would-be wetlands mitigation bankers.

Land Trust Alliance

www.lta.org

The Land Trust Alliance web site is devoted to serving this organization that is the convener, strategist and representative of land trusts across America.

The Nature Conservancy

www.nature.org

This web site serves The Nature Conservancy, whose mission is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive.

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Mississippi State Wildlife Enterprises

<http://www.gri.msstate.edu/research/wildlife/>

This web site provides information to private landowners about the economic opportunities available on their properties through fee-access wildlife and fisheries recreation.

Conservation Technology Information Center

www.conservationinformation.org

CTIC is proud to provide this publication, as well as dozens more, on its web site. From conservation farming techniques to water quality protection, CTIC is dedicated to farming that is environmentally and economically sustainable. Our web site also includes back issues of *Partners*, our quarterly magazine.