

A marsh reborn

The eyes, ears and words of generations past breathe life into a neglected wetland.

Alan Crossley



EARLY SPRING, 1965: Taxes are on the rise, and two small farmers on the outskirts of Sun Prairie in northeastern Dane County feel the pinch. To cover their debts, they need more crop land. The farmers drain a 160-acre marsh

— likely created in the wake of the last glacier's retreat from southern Wisconsin 10,000 years ago — and turn the spongy black soil into a cornfield.

LATE FALL, 1991: Combines roll across the large, flat field, bringing in the last of a pretty good corn crop. When the harvest is over, only stubble, a few shattered cobs and scattered corn kernels remain.

EARLY SPRING, 1992: As the final snows of winter melt, the 160-acre cornfield fills with water — almost 100 acres of water by the end of March. Two to three feet deep at its deepest point, the new body of water supplied with waste grain attracts migratory waterfowl by the thousands. Virtually every species of duck that migrates through Wisconsin can be seen in the field by early April. Several hundred tundra swans settle in. Large exposed mud flats created by the advancing water tempt flocks of shorebirds with a smorgasbord of invertebrates.

Within the span of a few months, a centuries-old marsh hidden under rows of corn for 27 years was reborn.

Patrick Marsh became Wisconsin's first "wetland mitigation bank site," a means of offsetting damage as wetlands are developed elsewhere. To guide the restoration, biologists and volunteers turned to written accounts of the marsh made by surveyors, settlers and landowners. Their descriptions of the marsh landscape and wildlife serve as benchmarks for evaluating restoration efforts today.

What they saw so long ago

Our first glimpse of the marsh and the surrounding countryside comes from surveyor Orson Lyon, who laid out the section lines in 1834. Lyon wrote of entering and leaving the "pond." He often had to mound earth for section corners because large, distinctive trees — the standard section markers — were few. What trees he did see were widely scattered bur oaks, a common species in the large prairie and oak savanna landscape of southern Wisconsin.

Effa Duscheck an area resident and local historian, gives us our next look at the marsh, known variously through the years as Patrick Lake, Brazee Lake, Brazee Swamp, Duscheck's Marsh, and

the Old Lake. Following are excerpts from remarks she made at a meeting of the Twentieth Century Club held in Sun Prairie on November 30, 1925.

One who has seen the tufted crane wading in the Old Lake; heard the sandpipers call along its shore; followed the flight of the wild ducks that frequent its waters; or looked upon the colorful Indian arrow-heads or dull stone hammers turned up by farmer's plow in its bordering fields, has caught something of the spirit of the early history of this attractive little body of water, just over the hill, one and one half miles north-east of Sun Prairie.

She described a bit of the human history of the marsh:

In 1841, when Milwaukee was a village of 500 inhabitants and what is now Sun Prairie was "Bird's Corners," there came to settle on the west shore of this lake, a sturdy Scotchman, William W. Patrick, with his wife, also of Scotch descent, and their four children....Mr. Patrick took a patent from the government for 125 acres of land on the west shore of the lake, which he named "Patrick Lake."

When the Patrick family had lived four years beside the lake, David Brazee "took up" title from the government to



NEIL HINTERBERG



1937 aerial when thousands of waterfowl used the marsh.

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Patrick Marsh was drained, tilled and farmed in the mid 1960s. Disagreements over its draining formed an important test case in state law.

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the land on the east side, across from the Patrick holdings. Ignoring the social right of the first settler to name the lake, Mr. Brazee wished it called by his name, "Brazee Lake." For years, controversy existed over the name of the lake. After the Patricks moved to Sun Prairie (1857), the name "Brazee Lake" gradually prevailed.

She also offered a hint of what the land looked like at the time of settlement:

Grass, "during the first few years" of the Patrick family's occupancy of the land, "grew high as men's shoulders." So wrote the youngest daughter of Mr. and Mrs. Patrick, in a letter received last March (1925). The little knoll now excavated for gravel, just north of the house, was blue with pasque flowers in early spring. Other wild flowers bloomed luxuriantly on the banks and in the bordering woods; delicious wild berries and game were plentiful, but fish put into the lake did not survive the winters.

The observation that fish did not survive the winter is our first clue that the "lake" was more of a shallow-water wetland. The natural fluctuations of this dynamic wetland did not escape her notice:

Undoubtedly the reason for the lake's being commonly called "the old lake" in later years, is that, like a phantom lake, it has disappeared from time to time. Within the period since the

arrival of the first settler, the water has markedly receded, or disappeared five times. The water was at normal height from 1845 to 1855. Then the lake went dry, and remained so until 1866, when water again filled the basin. In 1870, the water began to recede again, until in 1872-3 there were only about five acres of water in the area of the lake, which consists of 160 acres. Two or three years later (1875), the whole area was drier than usual during dry periods of the lake. When ordinarily dry, it has been somewhat like a marsh, with growth of marsh grass, weeds, reeds, and cattails. In 1875, the lake bottom was dry enough to walk across.

In 1877, the water began to fill in again, and remained a lake until 1883. During the period 1890 to 1893, the lake reappeared after a dry period of seven years. Then it began to recede until in 1901 it was the driest it ever had been. That year some of the lake bottom was plowed and onions raised on its fertile soil. This period of dry area, lasting from 1893 to 1910, was the longest of any within memory. In 1910, the springs began to open, and the basin of the lake filled up surprisingly fast. The water reached the highest point on record in 1922. The present period of high water from 1910 is the longest that the area has remained a lake (circa...1925). ...There is no apparent inlet or outlet to the lake proper; but after a dry period, when the water

begins to re-appear, springs are visible in and around the lake area.

The next bit of history we find is an aerial photograph of the marsh taken in 1937. It shows the marsh was relatively shallow, with open water and emergent aquatic plants. Clyde Terrell, an aquatic biologist with the Wisconsin Conservation Department recounted in January 1937 how waterfowl were attracted to this marsh. "When the lake was only one to two feet deep in the fall of 1935, thousands of shallow-water feeding ducks, chiefly mallards and blue-winged teal came here. They were attracted I believe principally because the shallow water made it easy for them to get food."

This marsh was so important to wildlife that it attracted the attention of Dr. Robert A. McCabe, a professor of Wildlife Ecology at the nearby University of Wisconsin in Madison. He studied the nesting ecology of marsh birds in a three-acre area along the west shore of the lake from 1947-1951. He published his findings, "The Loss of an Entire Wetland Habitat and its Wild Bird Populations" in the Wisconsin Academy of Sciences, Arts and Letters' *Transactions*, Vol, 71, Part 2, 1983:

The emergent vegetation along the shoreline was sedge (Eleocharis, Scirpus, Carex, and Cyperus), cattail (Typha), and bulrush (Juncus). In the water area, arrowhead (Sagittaria), pondweeds (Potamogeton sp.), partic-



It became a test site again from 1991–93 as the Department of Transportation and Department of Natural Resources restored the full 160 acres for waterfowl use.

DNR PHOTO

ularly sago pondweed (*P. pectinatus*), Bur reed (*Sparganium* sp.), and Duck weed (*Lemna minor*) were common.

One of the important ornithological aspects of Brazee Lake was the largest known colony of yellow-headed blackbirds in southern Wisconsin. These large handsome blackbirds were the primary species in a study of all the marsh birds which I began in 1947...the five-year nest total for yellow-headed blackbirds was 246. In all, 646 nests of 15 species were examined. This amounts to 127 nests per ha in the year with the largest bird population and 76 per ha in the year of the lowest density, averaging 96 per ha over the 5-year period.

Dr. McCabe's photos, taken sporadically from 1947 through the early 1980s further document that ever-changing marsh landscape. In some years emergent aquatic plants covered the entire surface; in other years, deeper water kept the marsh fairly open.

It's ironic that the widely fluctuating water of Patrick Marsh, led to its demise in 1965. Landowners adjacent to the marsh began draining it in the winter of 1964–65 in preparation for spring planting. The Public Service Commission sought an injunction to halt the drainage in March, 1965. In *State of Wisconsin vs. Joseph N. Hanley and Julius Krebs*, the Dane County Circuit Court ruled in October, 1965, "That the State of Wisconsin may not prevent the defendants from working

the lands in question nor may the State of Wisconsin interfere with defendants' pumping of water from the lands concerned (i.e. Patrick Marsh)."

In its decision, the court cited an 1877 Wisconsin Supreme Court ruling concerning Patrick Marsh. In *Boorman vs. Sunnuchs*, the court ruled that since Patrick Marsh had virtually dried up in the mid-1870s the adjacent landowners owned the marsh bottom land.

Some classes from nearby Sun Prairie visit Patrick Marsh three times as grade school, middle school and high school science students.



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Contrary to Orson Lyon's survey of 1834, the marsh was no longer considered a meandered, navigable lake.

Gone for a time, but never forgotten

For nearly three decades the marsh ceased to exist. A tile and pump system kept the soil dry — no water, no aquatic bugs and plants, and as a consequence, no nesting birds. But the expansion of State Highway 151 from Sun Prairie to Columbus in the early 1990s set the stage for the cooperative restoration of the marsh as part of a wetland mitigation agreement between the Department of Transportation (DOT) and the Department of Natural Resources. State law required DOT to replace wetland acres lost as a result of the widening of the highway. As DOT and DNR looked for suitable wetlands to restore, Patrick Marsh came to mind. The problem was that the marsh was 160 acres in size, and DOT only needed to restore 26 acres. In a creative solution, Wisconsin's first wetland mitigation bank site was born.

"Banking" would give DOT "cred-



PATRICK MARSH WILDLIFE AREA

A WETLAND AND PRAIRIE AREA RESTORED AND PROTECTED BY:
WISCONSIN DEPARTMENT OF TRANSPORTATION WISCONSIN DEPARTMENT OF NATURAL RESOURCES



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(above) Sun Prairie third graders sample the marsh waters to better understand the link between aquatic food sources and the birds that feed here.

(left) Two signs of cooperation. Yellow-headed blackbirds are coming as the marsh recovers.

it" for wetlands lost on other projects in southern Wisconsin. The banking protocol requires highway builders to, first, avoid wetlands whenever possible; second, minimize wetland disturbance if chosen road routes must cross a wetland; and, third, restore another wetland near the original site. Only after attempts to meet these first three conditions have been exhausted can the transportation and environmental agencies agree to consider "banked" sites as an alternative.

Banking does not give DOT carte blanche to route highways without regard for wetlands. It does provide the chance to consolidate fragmented wetland parcels from highway construction into larger blocks that can promote a more diverse mix of plants, animals and habitat than would be found in smaller parcels.

The plan in Sun Prairie was to turn back the calendar to 1841, the year William Patrick first saw a large, thriving marsh surrounded by uplands and tallgrass prairie.

The restoration project began in the winter of 1991, when DOT removed the drainage tile and pumping system that had been in use on the cornfield.

The marsh began to fill with water; by April 1992, about 100 acres of water covered the marsh, with an average depth of about 18 inches and a maximum depth of about three feet.

More than 5,000 ducks and 200 tundra swans were observed on the marsh during the 1992 spring migration. Survey results that year identified 13 species of breeding birds using the marsh itself, with an additional 26 species in the uplands. Twenty-eight different species of aquatic plants were found in the marsh just six months after it began to fill with water. A survey of frogs and toads found only the American Toad present in the marsh.

With abundant rainfall in the spring of 1993, the marsh filled to its normal level of about 160 acres of water, with an average depth of almost five feet and a maximum depth of nearly eight feet. Sixteen species of breeding birds were found using the marsh, with about the same number in the uplands. A graduate student working in the marsh found dozens of coot nests, as well as pied-billed grebe, sora rail, red-head, mallard, and blue-wing teal nests, to name a few. A few yellow-headed blackbirds returned to the

marsh in 1993, although none were known to have nested.

The variety and number of aquatic plants decreased slightly in 1993, probably as a result of the deepening water levels. But instead of hearing only the American Toad, biologists heard six additional species of frogs that year. How frogs and other slow-moving amphibians find their way to such intermittent waters would make another interesting story.

In 1994, water in the marsh stabilized at the maximum level established by natural land contours and an overflow tube. Although there seemed to be fewer bird nests, those nests that birds started were far more likely to successfully produce young than nests in previous years. At least two pairs of yellow-headed blackbirds likely nested on the marsh. Tiger salamanders were also caught there for the first time.

This spring, water levels were again high and individual numbers of each species seem to have declined, probably due to a lack of emergent aquatic plants. Approximately 40 black terns could be seen at the marsh most days. The eared grebe returned, as did a few yellow-headed blackbirds. Painted turtles were sighted here for the first time this spring, and minnows, bullheads and muskrats are thriving in the marsh.

On the uplands, state managers, local citizens and volunteers from the Madison Audubon Society restored a few acres of prairie using locally-collected seed. Weedy trees were also removed from the property to encourage the growth of oaks and native shrubs, including gray dogwood, red-osier dogwood and hawthorn.

Alive with natural history

Today, Patrick Marsh thrives with wetland life. Although highway traffic bustles along just a few hundred yards away, people can still take quiet walks along the marsh shore or stop to observe the birds, just as William Patrick did in 1841.

Patrick Marsh has blossomed as a site for education, study and research where Sun Prairie students of all ages can better understand Patrick Marsh

RESTORING A MARSH

as part of their local history and local landscape.

Thanks to a grant from the Wisconsin Environmental Education Board and matching funds from DOT and DNR, the marsh serves as an outdoor classroom for some enthusiastic teachers and students. Jill Zimmerman (third grade teacher at Bird Elementary), Nancy Schlingen (middle school science teacher), and Delores Crowley (high school ecology teacher) lead trips that provide hands-on exposure to the restored marsh.

The project gives these Sun Prairie school children the opportunity to visit Patrick Marsh in three different years during their public school education. The grant provided funds to fully equip students with hip boots, binoculars, field guides, nets, spotting scopes and other equipment to make their visits more fun and educational. Students pull on boots and venture into the marsh to explore everything from tiny water fleas, leeches and dragonfly nymphs in the water, to toads and leopard frogs calling near the water's edge. Binoculars and spotting scopes help students identify birds in the wetland and uplands. Pupils also look for nests of red-winged blackbirds, robins, mallards and coots.

Students are encouraged to teach



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what they've learned. On a recent trip to the marsh, several of Nancy Schlingen's middle school students served as tour guides and leaders for Jill Zimmerman's third grade class. Senior high students are developing narratives that describe marsh ecology at each stop on the tour.

Third-grader Megan Wolfgram summed up her experience in a letter:

Thank you for coming and teaching us all those wonderful things. The best part was your station. I liked it best

because I caught lots of animals and I got to walk in the water. You did a very good job on teaching us, so did Miriam (middle school student leader). I'll be sure to come again this year to see everything and to pick up any litter that's hanging around. You did a great job. Thanks again.

And Kristen Tyson had this to say about her experience:

Thank you for letting us come to Patrick Marsh. It



was fun. You taught me a lot of stuff I did not know. On the trip, I learned that water can look low but it is really high. I never knew that so many animals depend on wetlands to give them food and shelter.

What will the future hold for Patrick Marsh? In our lifetimes we should see much of what Effa Duscheck described: dry periods when we can almost walk across the marsh, and years in which the water levels are so high that we see few plants. As the water recedes and more vegetation grows, we will likely see healthy nesting colonies of yellow-headed blackbirds like those Dr. McCabe witnessed. And hopefully, we will kindle growing interest in the environment and the outdoors in the children who are touched by their experiences at Patrick Marsh. Such experiences can build a generation with the foresight and diligence to sustain wetlands and maintain a place in their lives for wild things and wild places. □

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Through tours, hands-on observation and artwork, students find many ways to share what they remember about visits to Patrick Marsh.



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