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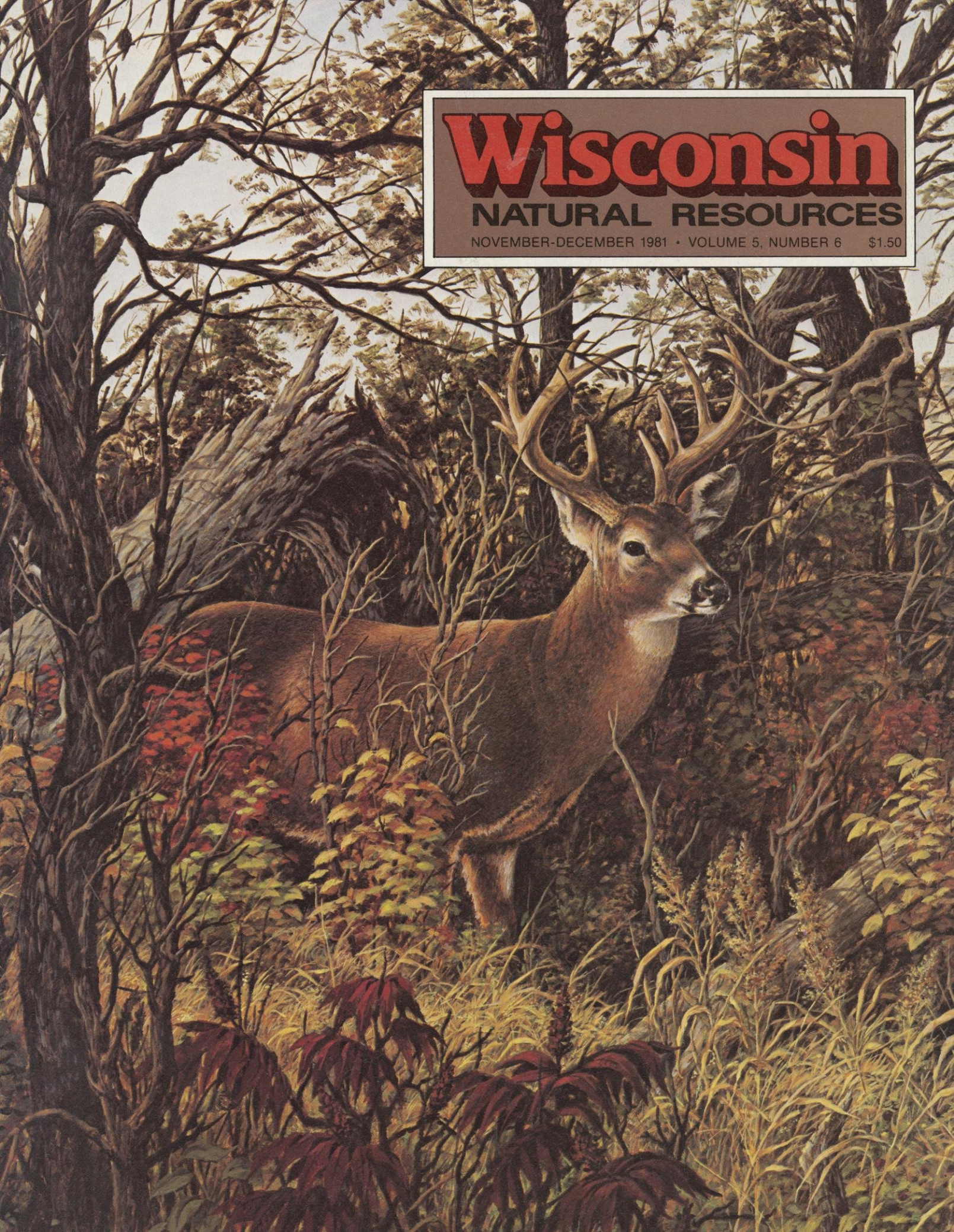

Wisconsin NATURAL RESOURCES

NOVEMBER-DECEMBER 1981 • VOLUME 5, NUMBER 6 $1.50

Blue jay
(Cyanocitta cristata)

GEORGE J. KNUDSEN, Chief Naturalist, DNR

Flaunting their blue plumage all through the year, blue jays are without question very pretty birds, especially when seen against the snow. Common year-round throughout Wisconsin, they are recognized by everyone! Many people hate them because they take eggs and young from nests of other birds, stuff themselves with goodies from winter bird feeders, quarrel with and chase other birds and generally carry on like spoiled brats! I love blue jays, as would most anyone else who took time to observe and really try to understand them.

No other Wisconsin bird has such a delightful diversity of behavioral traits. Adjectives beginning with every letter in the alphabet can be accurately applied to this bird. Let's pick a few like arrogant, boisterous, clownish, devilish, garrulous, impertinent, querulous, sneaky and so on, right down to zany!

Matching their behavior, they make a fantastic number of different sounds including whistles, clicks, chuckles, wheezes, slurring buzzes, etc. They mimic other birds, to the absurd point of sounding like a big, powerful red-tailed hawk!

One reason they survive in such large numbers is that they eat so many different kinds of food. Even during winter they have it made, for they often dine on food items pawed out of deep snow by deer or dug from the snow by squirrels.

Space doesn't allow me to write as much as I would like, but that is fortunate in a way, since hopefully some of you will be stimulated to observe blue jays more intently. Watch their every move, listen to their vocalizations, but most of all concentrate on their facial expressions, especially that impish gleam in their eyes!

Painting by Artist Bob Frankowiak, 4972 S. 20th Street, Milwaukee, WI 53221

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Special supplements

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Managing the deerest herd

Painting by artist Robert J. Schmidt, Star Route, Webster, WI 54893

No deer herd in the nation can top Wisconsin's. Managing it is a fine tuned science with a long history.

WILLIAM A. CREED, Rhinelander
FRANK P. HABERLAND, Madison

The Wisconsin deer management policy set by the Natural Resources Board, requires that regulations maintain a herd in balance with the range. Populations must be reasonably compatible with objectives for agriculture and forest management in each deer management unit. The units are areas of similar habitat bounded by major roads. Currently, Wisconsin is divided into 96 of them averaging about 580 square miles each.

Deer population goals are expressed as animals per square mile of range overwinter. Goals in individual management units vary from a low of five to a high of 30 deer per square mile. The overwinter goal, statewide, is 575,000. In the forested range, population goals are based on long-term average carrying capacity. This is determined by the history of how the population in a unit has responded to past winters. Goals in the agricultural range reflect an estimate of hunter demand balanced by an assessment of human tolerance to deer numbers. Crop damage and the frequency of deer-vehicle collisions on highways are the main factors.

An overwinter population of 575,000 is capable of producing a fall herd in excess of 800,000 deer. This will support an annual gun harvest of up to 150,000 or more, depending upon winter severity.

The buck season, either-sex, and hunter's choice permit are the harvest strategies used in management. Buck seasons are occasionally used to allow herd increases where numbers are below goals because of severe winters or continuous either-sex seasons. Either-sex seasons regularly apply in the intensive agricultural areas of southern Wisconsin. Buck hunting, combined with (hunter's choice in permits) for specific management units, is used in most of the state.

The hunter's choice permit entitles a hunter to harvest one deer of any age or sex.

Since 1963, when the antlerless permit started, gun hunters have enjoyed an average annual bag of more than 105,000 deer, ranging from a low of about 71,000 in 1971 to a high of almost 151,000 in 1978. Of these, the antlerless permit accounted for 12,500 in 1971 all the way up to almost 54,000 in 1978. Most were under the party permit which changed to hunter's choice only last season.

Wisconsin became the first state in the nation to establish an archery deer season back in 1934. Since that time, bowhunter numbers and harvests have steadily increased. Recent archery success has increased from about 3,000 in 1964 to more than 20,000 in 1980. There are now 155,000 licensed archers in Wisconsin. Present regulations allow the bowhunter to take one deer of either sex during an approximately 85-day season. This is in addition to the deer a hunter is entitled to during the regular gun season.

In the 96 management units, populations are monitored through a variety of surveys adapted to specific range types and harvest problems. The primary inventory methods include registered kill trends, sex-age-kill population estimates and pellet or trail surveys in northern units.

Wisconsin has a long history, from 1953 to the present, of compulsory deer registration which requires hunters to present deer to official registration stations for inspection and tagging. These stations, including DNR offices, gasoline stations, stores, sheriffs' offices and similar public places, total about 450 and are dispersed statewide. Cooperators at first were paid 10¢ per deer or $10 per season, whichever was greater. In 1979 these amounts were increased

Deer in an aspen/hardwood opening at Meade Wildlife Area near Marshfield. Scientific population estimates, aging techniques, surveys and kill registration allow wildlife biologists to practice finely-honed deer management. Photo by Bruce Bacon

Crazy deer stand in Forest County, south of Crandon. It features a utility-pole crow's nest and iron ship's bell.

to 20¢ and $20. Registration data include breakdowns by sex, age, license type, county and management unit.

Registration is the cornerstone of Wisconsin deer herd management. Because of it, the reliability of deer kill figures is not questioned. In addition, trends in the number of registered bucks have supplied one of the state's most dependable measures of population change. Kills are pinned down to very small land units.

Used in Wisconsin since the early 1960's, the sex-age-kill method for calculating deer densities has become increasingly important. It currently serves as the primary index to deer populations over most of the state.

This herd-estimating procedure combines annual deer aging surveys with registered kill data. The result is a population estimate for each management unit. The combination of many years of deer aging, plus registration has enabled DNR's research biologists to calculate harvest rates and herd composition. Using these measurements, they can come up with a minimum number of total deer present at the beginning of the hunting season. Refinements in the method have led to increasingly reliable deer population estimates and management efficiency.

In Wisconsin, although no longer used today, deer pellet surveys formed the basic population inventory for the Northern Forest Region from 1955 through 1978. They also provided the initial background for establishment of unit population goals in 1962.

When in use, this method of estimating population involved sampling 11 to 12 deer management units per year on a three-year rotation. Estimates of deer per square mile of range were then computed for individual units and also projected for the entire Northern Forest Region. Pellet groups were counted after last leaf fall with 13 groups equal to one deer day.

The main value of the pellet group survey was to establish modern deer density "bench marks." Prior to 1955, density estimates came primarily from deer drive censuses. Reliability of pellet surveys on a unit basis was highly variable, but when projected to the entire region, they correlated closely with subsequent buck kills and even better with buck kills of the previous fall.

Illustration by artist Deann De La Ronde Wilde, Rt. 2, Belleville, WI 53508

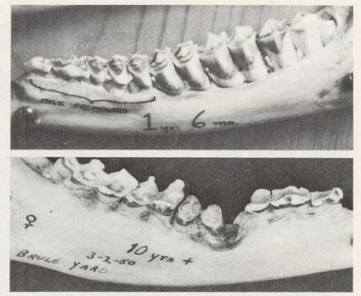
Pellet counts lost favor in Wisconsin during the 1970's, primarily because of the expense, but also because other methods, especially sex-age-kill estimates and trail counts, produced similar information at less expense.

Trail counts can be done at about one-fourth the cost of pellet surveys, and their precision is somewhat better.

The trail survey is a systematic method of recording deer signs on 50 random transects. Run in November or in spring between snowmelt and greenup, the transects are ¼ mile each. All deer trails intersected by the transect are counted. The average number of trails found per transect is then converted to a population density estimate by using a factor derived through research on areas of known population.

A number of other surveys play important roles in assessing the current status of deer populations and hunting effort:

(1) *Hunter Pressure Poll* — ten thousand license buyers are mailed a questionnaire to determine where and when they hunted. Expansion of replies produces hunter density estimates for management units.



Teeth tell age. A young deer's (top) are much less worn than an older one's. DNR photo

(2) *Dead Deer Surveys* — From 1955 to 1978, dead deer searches were conducted simultaneously with pellet surveys. Such surveys are inherently imprecise because of the clumped distribution of deer carcasses, but they help evaluate impacts on regional population levels.

(3) *Winter Severity* — This relates winter severity to spring deer condition and fawn survival. In Wisconsin, a combination of days with 18 inches of snow on the ground plus the number of days below zero correlate very closely with any percentage drop in the buck kill. This also provides an estimate of winter loss and subsequent fawn production.

After each deer season, managers reappraise population levels. Buck kills especially are examined closely because in Wisconsin harvest rates are relatively consistent for a given management unit. This means that the up or down trend in buck kill will approximate the population change. The number of deer added to the herd through reproduction can be deduced from the percentage of yearlings in the kill. Upturns or stability in yearling percentages generally indicate satisfactory production, while downturns reflect herd losses since the previous season.

Season recommendations are based primarily on three considerations:

(1) The status of the unit deer population in relation to goals for that unit.

(2) The effect of any proposed antlerless harvest. Eighteen years of experience with the variable quota system make it possible to predict this accurately.

(3) The impact of the previous winter on deer survival and subsequent fawn production.

In the beginning years of variable quota management it was common to harvest from 15 to 25% of the estimated fall population. The heaviest kills

Continued next page...

Deer hunt history

DAVID WEITZ, DNR Public Information, Eau Claire

The late Otis S. Bersing, writing in his book, *A Century of Wisconsin Deer,* said that in 1698 LeSuers, an unlicensed trader, wrote of hearing stags whistle near the Black River in Wisconsin and of calling deer with a wooden call.

Bersing's studies found that between 1804 and 1805 a French clerk with the Northwest Fur Company at Lac du Flambeau, inventoried almost 10,000 deer skins taken by traders in what are now Iron, Oneida and Vilas counties.

Before 1851 the season on deer in Wisconsin was open all year, with no license required and no restriction on the kind or number of deer that could be taken. In that year the first deer law was passed. Bersing gives the following chronology:

1851 — Season July 1 to January 31, any kind or number of deer, statewide, with no license requirements. In 1857 the wholesale price of venison was three to five cents per pound.

1860 to '66 — Season August 1 to January 1, any kind or number of deer, statewide, with no license requirements. More than 3,000 deer were brought into Eau Claire for shipment in 1866. The last native elk in Wisconsin was taken in Dunn County in 1866.

1877 to '79 — Deer season September 15 to January 1, for any kind or number of deer in 70 counties. No license was required. A special season was established from October 16 to October 31 in Burnett County for any kind or number of deer. In 1879 deer were reported plentiful in Chippewa, Clark and Richland counties. The same year venison sold in Eau Claire at five to six cents per pound.

1897 — The first bag limit was established. Hunters could take two deer of either sex in a 20-day season from November 1 to 20. The first deer hunting license, which cost $1, was required and 12,000 were sold. A nonresident license cost $30. The season was open in 69 counties.

1907 — The first extensive closing of counties. Thirty-six of the state's southern counties were closed. The season, from November 11 to 30, allowed two deer of either sex by residents but only one deer by a nonresident.

1909 — The first time residents were restricted to one deer. Hunters were required to be citizens, aged 15 or over. License sales came to 103,000 and 3,985 deer were shipped by rail after the season.

1915 — The first bucks-only season. It ran from November 11 to 30 and was open in 30 counties. Some 149,000 licenses were sold.

1917 — A 10-cent paper deer tag was required for the first time. The nonresident fee was increased to $50 and the first settler's licenses were issued. Laws prohibited any person hunting or possessing firearms from also having in possession any light for the purpose of hunting deer.

1920 — Hunters were restricted to one buck with antlers not less than three inches. Season ran for 10 days, from November 21 to 30. Metal tags were used for the first time. Hunters purchased 69,479 licenses and only 27 counties were open.

1925 — The first closed season. Afterwards open-closed seasons alternated with 1927, '29, '31, '33, and '35 all closed.

1934 — The first Wisconsin archery season. Gun license sales were 83,938 and dates were November 24 to 30. The season was open in only 22 counties.

1935 — Starvation in northern counties. The US Forest Service requested removal of 14,000 deer in the Chequamegon by controlled hunting. Overbrowsing in northern deer yards.

1937 — The first voluntary sportsman license. Fee was $5 and portions were used for acquiring refuges and hunting areas. Deer tag sales came to 90,906 for a three-day season from November 26 to 28, the shortest on record. Open season in 30 counties for forked-horn bucks or larger.

1939 —Buckshot prohibited for the first time. Hunters 12 to 16 required to be accompanied by parent or guardian. Deer hunters purchased 109,630 deer tags for a seven-day season from November 25 to December 1 with only forked-horn bucks with a one-inch or longer fork legal. The season was open in 30 counties.

1942 — Back tags required for the first time. A nine-day season for forked-horn bucks with a fork one inch or longer. Hunters purchased 120,605 licenses and killed an estimated 45,188 deer.

1943 — A split season with the first four days, November 18 to 21, for forked-horn bucks in 44 counties. November 25 to 28 was open season in 33 counties for antlerless deer. It was the first season on antlerless deer in 24 years. License sales came to 157,824.

1950 — First either-sex season since 1919. Ran for seven days from November 18 to 24 with license sales up to 312,570. Season was open in 47 counties.

1953 — First registration. Counts showed 15,880 deer taken by 234,032 hunters. The seven-day season, open in 53 counties from November 28 to December 4, was restricted to forked-horn bucks or larger.

1957 — Party permit system adopted. The system allowed four hunters to apply for a bonus deer of either sex. Hunters purchased 288,903 licenses and took 68,138 deer.

1959 — First time registered deer harvest over 100,000. The season total was 105,595. Hunters purchased 345,443 licenses.

1963 — Party permit tied to variable quota management and for the first time issued only for specific deer management units.

1980 — First hunter's choice permits.

then occurred in Central and Southern units and the buck harvest usually exceeded the antlerless kill. This often failed to halt herd growth when production was good, but was occasionally excessive in years immediately following severe winters.

As histories for individual units built up, accuracy in setting antlerless quotas improved. Buck kill is used as a guide. Experience has shown that most populations will sustain an antlerless harvest of from 70 to 80% of the buck kill. Using this guide, the harvest in Central and Southern units is higher because hunters take a higher proportion of available bucks there. Since productivity is higher than farther north, it balances out.

The major problem facing future deer management in Wisconsin is declining quality of the gun season. More than 600,000 people trying to bag a deer in only nine days creates a highly competitive atmosphere in some places. Excessive concentrations of hunters lead to poor conduct and a bad image. DNR's management policy addresses this problem. It calls for "achieving and maintaining opportunities for a quality deer hunting experience while still allowing to the extent possible, freedom of choice by hunters."

Regulations, according to the policy, should provide incentives or disincentives to encourage better distribution of

WISCONSIN'S OLDEST DEER HUNTERS

These three long-time hunting partners may be Wisconsin's oldest deer hunters. Left to right, they are Noris Nehls, 91, Watertown, George Meddaughs, 83, Iron Ridge and Henry Nehls, 87, Juneau.

Shown here outside their Glidden-area cabin, the three have been hunting together for more than 45 years. The cabin was built in 1936 with two other hunting partners whom they've outlived.

None of the trio has bagged a deer the last couple years, although sons and grandsons who join them at the cabin have. They'll be back trying again this season. Bringing home venison isn't the important thing, says Meddaughs. It makes him happy just to see deer.

Photo by Rocky Barker

"Autumn Prime". Painting by artist Patrick Sawyer, courtesy Northwind Publications, Box 249, La Crosse, WI 54601 ▶

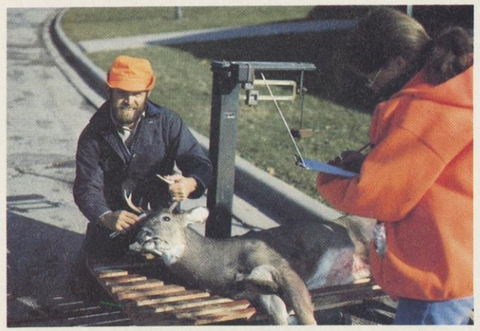
Wisconsin deer hunting regulations strike a balance between whitetail populations and available winter range. UMRBC photo.


PATRICK SAWYER '86
©

hunting pressure. If hunter numbers continue to increase, control of hunting pressure may become necessary.

To date, efforts to achieve improved quality have not been successful because the public has opposed proposed changes. Efforts, however, will persist. Eventually, an acceptable way will be found to better distribute hunting pressure over time and area. Improving quality is next on the agenda.

During severe winters, deer "yard" into small areas and eat up available browse. Fewer deer make it to spring in good shape, so quotas the following season must be lower. Illustration by Jeff Oens



Weighing in a trophy buck. At some special registration stations, researchers gather detailed records of sex, age, and condition of deer. The information helps to assess the overall size and health of the herd. DNR photo

SETTING THE SEASON

The actual process of setting the season starts when field wildlife managers submit quota recommendations to district headquarters. A consolidated recommendation from each of the six districts is then submitted to the central Bureau of Wildlife Management by early March. The bureau resolves any differences between districts, reviews the recommendations with the Forest Wildlife Research Group and prepares a statewide deer quota proposal. The statewide proposal is then returned to the field managers and made available to members of the Wisconsin Conservation Congress prior to official public hearings held in April.

The Congress is an important organization for all hunting and fishing regulations. It is an official citizen's advisory body to the Natural Resources Board. Three regular and two alternate delegates from each county are elected to staggered three-year terms by citizens attending the public hearings. Wildlife managers meet with local Conservation Congress members to explain the deer quota recommendations.

A public hearing on fish and game regulations is held in each county on the 4th Monday in April. Citizens attending vote on the proposals, including deer quotas, and these votes and other public testimony become part of the official hearing record. Wildlife managers are present at many of these hearings to explain and answer questions about the quota. Results are advisory and not binding.

The Conservation Congress conducts a meeting of its statewide members in late May or early June. Approximately 300 delegates attend and vote on DNR proposals. Results are presented to the Natural Resources Board.

In June, the Natural Resources Board sets quotas for the coming season. Members use recommendations from DNR, the Conservation Congress and the public hearings in making a decision.

Following this, the rules are submitted to the Legislature for review. If no objections are raised, after 30 days, the rules become hunting season regulations.

When winters are mild, does come through in better shape and bear healthy fawns. Twins are the rule in good years. "Spring Shadows" by artist Lori M. Nass, courtesy of Northwind Publications, Box 249, La Crosse, WI 54601

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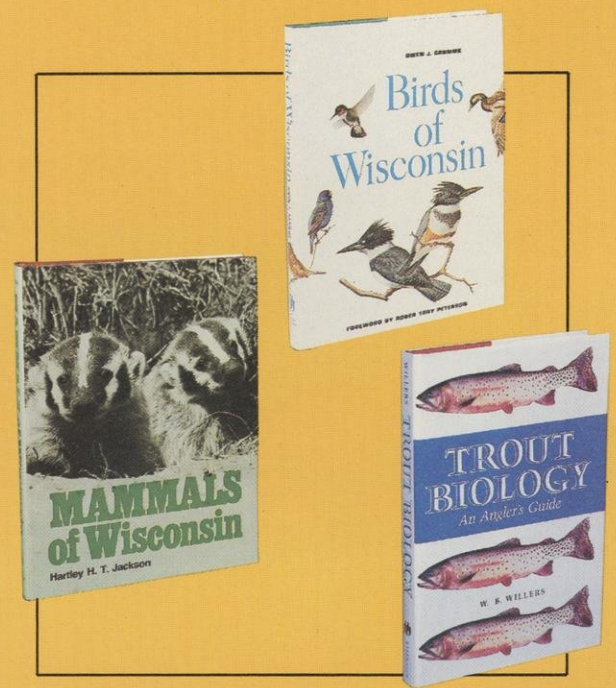

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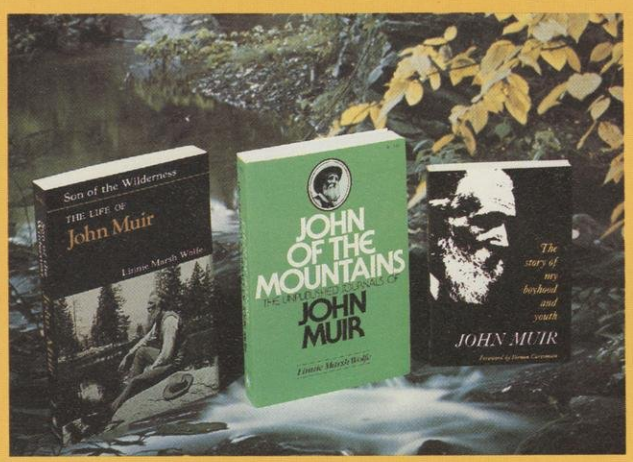

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The Wisconsin fund:
Rx for sick sewers

Sewage treatment plants are expensive and shrinking federal dollars mean a bigger share of costs will be paid by village and city residents. But the Wisconsin Fund will help.

DIANE BRINSON, DNR Public Information, Madison

The swimmer on the beach, the fisherman in his rowboat, the canoeist on the river, probably have never stopped to think that the water they're using has been used before — to cool a power plant, manufacture a product or to flush away somebody's sewage.

If you're one of the third of all Wisconsin residents who drink water drawn from lakes or rivers, there's a good chance somebody may have drunk that water before.

Obviously, clean water is important. It's also expensive. It costs millions each year to make sure Wisconsin's waters are environmentally safe for swimming, fishing, drinking and other uses.

The 4,000 residents of Orfordville know it's expensive. The people of that Rock County community have just built a new sewage treatment plant. The bill: $1.5 million.

Not long ago, citizens downstream from Orfordville were complaining about the town's old plant. It discharged effluent into a ditch that eventually made its way to Swan Creek and the Sugar River. Farmers along the creek said the plant polluted the water.

"There was raw sewage dropping out the end of the pipe (at the old plant)," says Orfordville farmer Roy Altman.

The village hired a new, better-trained operator to run it, and that helped somewhat, says Altman.

"But I told them it was like sending someone to the Indianapolis 500 in a Model A, and then blaming him for losing."

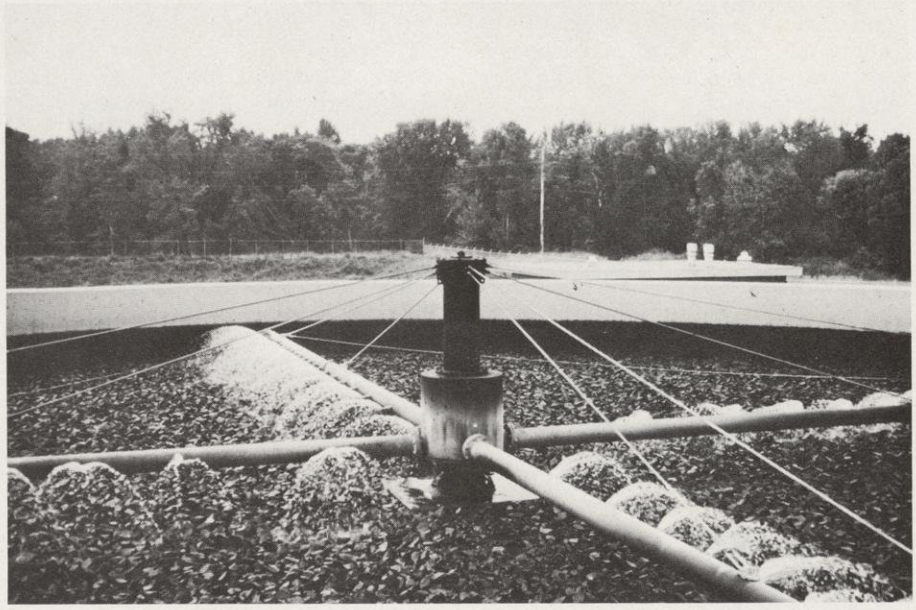
Altman and his wife Judy are strong believers in the environment and they worked hard to resolve the issue. Together they managed to get about 95% of the town's farmers to sign a petition to DNR demanding the situation be corrected.

Inside a six-foot-diameter pipe in Milwaukee, 70 feet below ground. When completed, this multi-million-dollar project will separate all sanitary sewer lines from storm sewers so that Milwaukee's sewage plant won't be overloaded by every heavy thunderstorm. The construction is partially funded by the Wisconsin Fund. Photo by author.

Orfordville had begun talking about upgrading or rebuilding its old plant as long as 10 years ago. At that time, the town's original plan was to build a lagoon system using $250,000 in federal funds. But while the village was chasing the "federal carrot," says former village president David Dickison, paper work, delays, inflation and changing state and federal codes drove up the price.

To the rescue came a new idea — a program known as the Wisconsin Fund. The fund was created in 1978, when the legislature realized that federal funds wouldn't be enough to help communities meet a 1983 federal deadline to clean up state waters.

Time lag to bring a new plant on line from the planning stage averages six years. At first the US Environmental Protection Agency (EPA) provided most of the aid money to build new sewers and treatment plants. So most Wisconsin communities starting out with



Orfordville's old plant had a trickling filter like this one. The new one uses a more reliable activated sludge process. DNR photo

A modern new plant at Fennimore, population 1,800, between Dodgeville and Prairie du Chien. Expensive sewage treatment technology hits hardest at small towns with small tax bases. Photo by author.

Plant operator Jim Palmer checks flowmeter that measures the volume of incoming sewage. The Orfordville plant treats 100,000 gallons daily. Photo by author

SEWAGE TREATMENT COST

How much does sewage treatment cost you?

That depends on four things: What it cost to build your sewage plant, what it costs to run it, how much of your community's money went into it and how much you use it.

Part of what you pay for sewage treatment goes to retire the debt on the money your town borrowed to build its plant, lay its sewer hookups and replace equipment expected to wear out over time. Wisconsin residents pay an average $81.53 for this "debt service."

Part of your sewer costs also reflect the money it takes to pay staff and other operation and maintenance expenses to keep your plant functioning smoothly. In Wisconsin, that averages about $84.73 per customer.

The combined total of debt service and operation and maintenance, costs Wisconsin homeowners an average $166.26 per customer. Add to that amount another average cost of $1.22 for every 1,000 gallons of water you use and you get your total sewage costs. Obviously, the less water you flush down the drain, the lower your sewage bill.

The amount and type of financial help your town received also affects your bill. Federal EPA grants pay a larger share of total planning, design and construction costs (75-85%) than does the Wisconsin Fund (60%). But Wisconsin Fund grants are readily available. EPA grants are drying up. If your town is lucky enough to have received an EPA grant for a new plant, your sewer bill will be lower.

The following chart shows average sewage cost breakdowns for some typical Wisconsin cities.

DETAIL—

	Grant Source	Debt Service	Operation and Maintenance	Total
Primary/Secondary (Lagoon) Boyceville, Campbellsport, Cochrane, Evansville, Hayward, Minong, Shell Lake	85% (EPA)	$23.74	$48.04	$71.78
Arena, Barron, Gresham, Kelly Lake Sanitary District, Milton, Morrisonville	60% (Wis. Fund)	63.30	48.04	111.34
Secondary Bangor, Berlin, Boscobel, DeSoto, Durand, Footville, Fountain City, Hudson, Montello, Mukwonago, Ontario, Plum City, River Falls, Saukville, Shiocton, Somerset, Spring Green, Whiting, Wonewoc, Wrightstown	60% (Wis. Fund)	91.42	81.75	173.17
Advanced Secondary (Tertiary) Delavan, Delafield/Hartland, Elkhorn, Mayville, Whitewater	60% (Wis. Fund)	99.92	94.34	194.26
Belmont, Brandon, Delafield, Dodgeville, Lakeland Sanitary District, Lena, Nashotah, Oostburg, Orfordville, Plain, Slinger	75% (EPA)	62.45	94.34	156.79
New Sewers and Treatment Plant (Previously Unsewered) Blenker-Sherry Sanitary District, Browntown, Forest Junction, Hustler, Larsen-Winchester, Liberty Sanitary District, Little Suamico, Lublin, Oxford, Salem Utility District, Suamico Sanitary District, Sullivan Township	Up to 75% Wis. Fund/FHA	108.00	114.53	222.53

EPA grants for planning and design also expected that when the time came, they'd receive an EPA grant for 75% of the construction costs.

But federal dollars began to shrink. In the last five years, Wisconsin's federal allocation has been only enough to share payments on about 15 plants a year, as compared to more than 200 that need rebuilding. The most recent cutbacks have reduced federal aids even further.

But in spite of this, in the past two years 120 Wisconsin villages, towns, cities and local sanitary districts have been able to go ahead. The Wisconsin Fund is financing the rebuilding or upgrading of their sewage systems. The $150 million already spent on their plants is undoubtedly the biggest construction project in the state today.

And by the time the Wisconsin Fund expires in 1987, local communities will have received $700 million. That kind of aid makes the high price of clean water easier to swallow. Although federal dollars still pay 75% of the cost of planning and design for many new systems, the Wisconsin Fund far outstrips construction assistance from Washington. DNR administers both EPA and Wisconsin Fund grants in the state.

At Orfordville, the Wisconsin Fund contributed $847,000 to the new $1.5 million plant. The federal Farmer's Home Administration paid another $70,000. That left the village with a local share of roughly 40% of the total cost instead of only 25% they'd planned for under the EPA grant.

The difference means higher sewer costs for Orfordville residents. An Orfordville family of three with dishwasher and washing machine has seen its quarterly water and sewer bill double from about $46 in early 1980 to about $95 one year later. (Roughly half the cost is for sewer; the other half is for water.)

Orfordville is not unique. Most communities that build new sewage systems see treatment costs at least double, forcing higher rates. But Orfordville plant operator Jim Palmer says a glass of effluent coming from the new facility now looks cleaner than the town's well water. And farmer Jim Altman says minnows and tadpoles are now returning to his creek, which had been dead for years.

The Town of Bangor also received a Wisconsin Fund grant. That little La Crosse County community of 1,000 had to build a new sewage treatment system when its aged, 40-year-old plant was condemned. Village president Theodore Piske admits "otherwise we probably wouldn't have done it. We didn't build a plant just to build a plant."

"We were getting complaints from people downstream," Piske said. "But I don't think we were totally to blame. There's barnyard runoff, too."

Former Orfordville president David Dickison (left) and plant operator Jim Palmer inspect the plant's settling tank. Photo by author

Plant operator Arlen Niedfeldt spends about three hours a day running the Bangor plant — performing the necessary tests and making sure everything is in working order. He's happy with the plant and believes it was designed with economy in mind.

Although Bangor's compact package plant looks economical, it wasn't cheap. A package treatment plant like Bangor's usually consolidates all treatment units under one roof — primary settling tank, aerator, final settling tank, sewage digester and chlorine tank — and requires a fair amount of operator attention. The total cost of construction alone was $654,000: the Wisconsin Fund picked up $383,920 of that amount, and the community is funding the remainder with a five-year loan at about 7% interest. As Piske points out, the town was lucky; long-term loans aren't available anymore for municipal financing.

The village started seeking grant assistance back in 1973 and was originally told they could get 80% funding from the federal government, Piske says. The funding didn't come through, and that's a sore point with him. The village received its Wisconsin Fund payments within three weeks of submitting bills, he says, but he's still upset because the village was promised federal aid it never

received.

Like most communities building new sewage treatment plants, Bangor's rates have gone up about 325%. The minimum sewer charge is now $23 per quarter, plus the water bill at 75¢ per 1,000 gallons. That's still relatively cheap, but under the old system, customers paid a minimum charge of less than $5, which included 6,000 gallons of water.

One woman saw her sewer bill and accused the village of being crazy, Piske says. "People have threatened not to pay their bills, but they always do. When you spend that much money, people complain — but they knew they had to have a new plant."

Orfordville and Bangor are just two Wisconsin communities that have gone through the mill for clean water. "It may not make someone paying higher sewer bills feel any better to know that thousands of other people are in the same boat," says DNR Secretary C. D. "Buzz" Besadny, "but clean water means a lot to the health of the state's economy and to the health of each person who depends on clean water for drinking, cooking, growing food and catching that fish of a lifetime."

A SEWAGE PLANT PRIMER

While science uses a language all its own, sewage treatment is amazingly simple, if incredibly expensive. Only 30 sewage systems in Wisconsin still use what's called *primary* treatment, while 540 use *secondary* and another 30 such as Orfordville have *advanced* or *tertiary* treatment.

PRIMARY

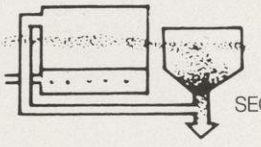
Primary treatment is sewage disposal at its simplest. Basically, the raw sewage flows first through a screen, to remove large objects like rags and sticks. From there it enters a *grit tank*, where coarse material such as sand, cinders and stones fall to the bottom. Finally, it flows into a *primary settling tank*, where it's allowed to sit until all other solids — known as *sludge* — settle out. As it accumulates, the sludge is either trucked away as is or pumped off to other parts of the plant where it is sometimes thickened *(de-watered)*, broken down *(digested)* and dried before being hauled to a landfill or sold as fertilizer.

Primary treatment leaves about 70% dissolved organic material in the wastewater or effluent, so most plants must go beyond primary to secondary treatment. This process removes 90% of organic solids. The partially treated wastewater is sometimes sprayed from rotating arms over a deep bed of stones known as a *trickling filter*. Bacteria on the surface of the stones further breaks down the solids.

Or sometimes air is pumped through the material. Bacteria use the influx of oxygen to multiply phenomenally and digest the remaining solids. The digested solids are then allowed to settle out in yet another *final settling tank*.

This aeration treatment is often called an *activated sludge* process, because as air is added, some of the already-settled sludge is run back through the process again to provide an infusion of hungry bacteria which "eat" the organic matter.

Some towns use a *lagoon treatment system*, which is the simplest combined primary-secondary unit. Raw, untreated sewage is held in large shallow ponds where the combined action of sunlight, oxygen and algae break down the solids and purify the wastewater. Sludge settles to the bottom to be removed later.



SECONDARY

A growing number of Wisconsin sewage plants employ what's known as *tertiary* or *advanced secondary* sewage treatment. As outmoded plants are replaced, one-third of Wisconsin's sewage plants will eventually use advanced treatment. In Orfordville's case, effluent from the town's plant goes directly into a ditch that transports the treated wastewater to the Swan Creek and Sugar River. Without the plant, there would be no flow in the ditch — all the water there comes from the sewage system.

TERTIARY

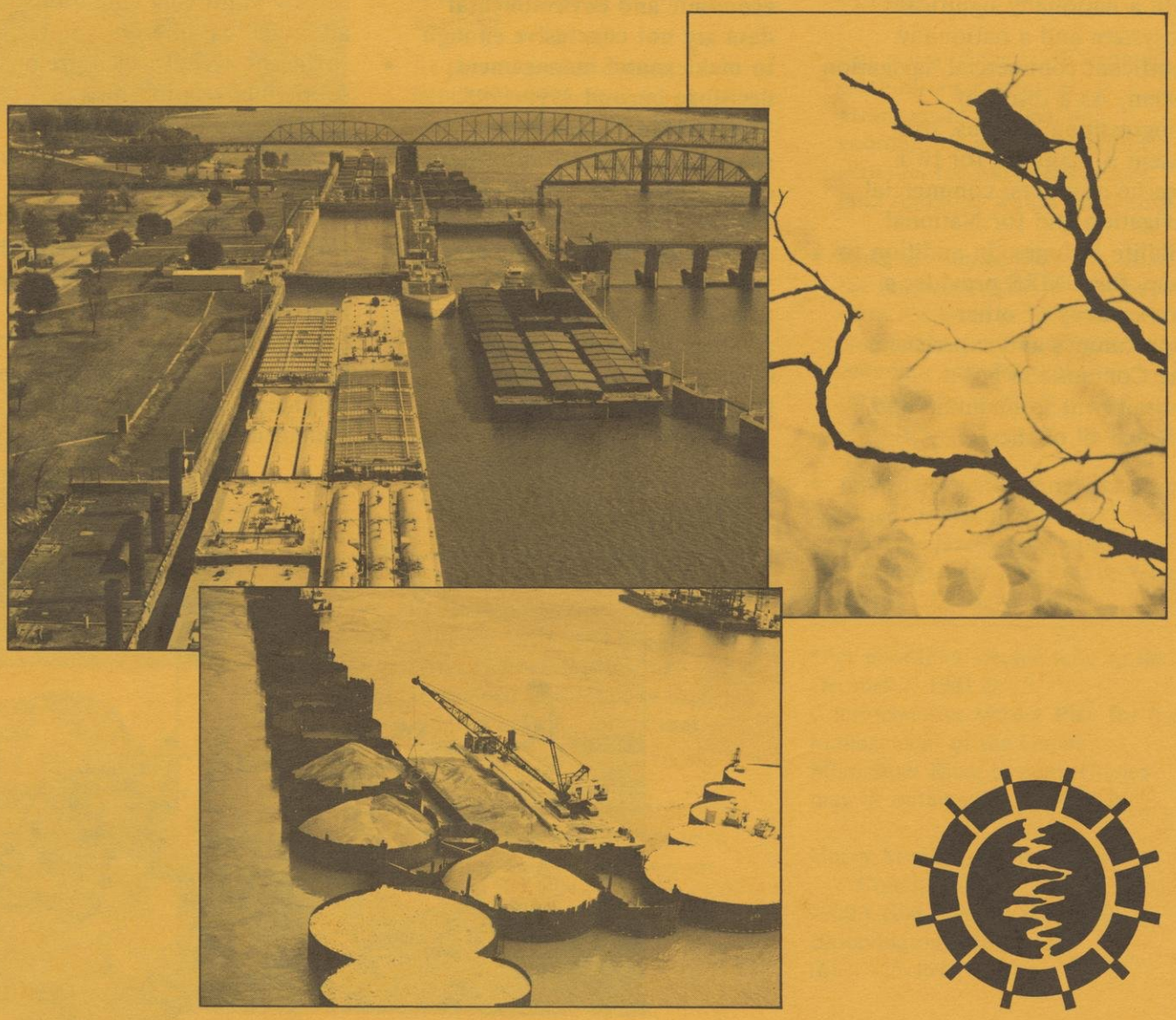
FIXED FILM SYSTEM
DENITRIFICATION

Without tertiary treatment, both the ditch and creek would be a lifeless, stinking morass. Such a situation calls for advanced treatment.

In Orfordville's tertiary system the treated wastewater goes through the extra step of filtering through a bed of anthracite coal, which removes almost all suspended organics. Other types of tertiary treatment can remove phosphorus that fertilizes algae, other chemicals, and even heavy industrial metals like mercury, lead, cadmium, zinc or chromium.

While normal primary or secondary treatment is expensive, the cost of advanced treatment can be phenomenal — an average of one-third more. It usually calls for more highly-skilled plant operators, costly chemicals, extra energy and generates more sludge to dispose of. But it also leaves exceptionally clean wastewater where rivers, lakes or streams have little ability to absorb and nullify discharged wastes.

Latest:
Upper Mississippi River System Master Plan goes to public hearing



Background on Upper Mississippi River Basin Commission action:

In developing recommendations for management of the Upper Mississippi River System (UMRS), the Commission recognized three basic factors:

1. The Upper Mississippi River System is a multi-purpose unit. Two Congressional mandates govern it. Resource managers and national decision-makers recognize the river as both a nationally significant ecosystem and a nationally significant commercial navigation system. As a result of Congressional actions, this system is managed for two specific purposes: commercial navigation and for National Wildlife Refuges. In addition to these, the UMRS provides a diverse array of other opportunities and experiences. The Commission has a commitment to maintain and enhance all of these.

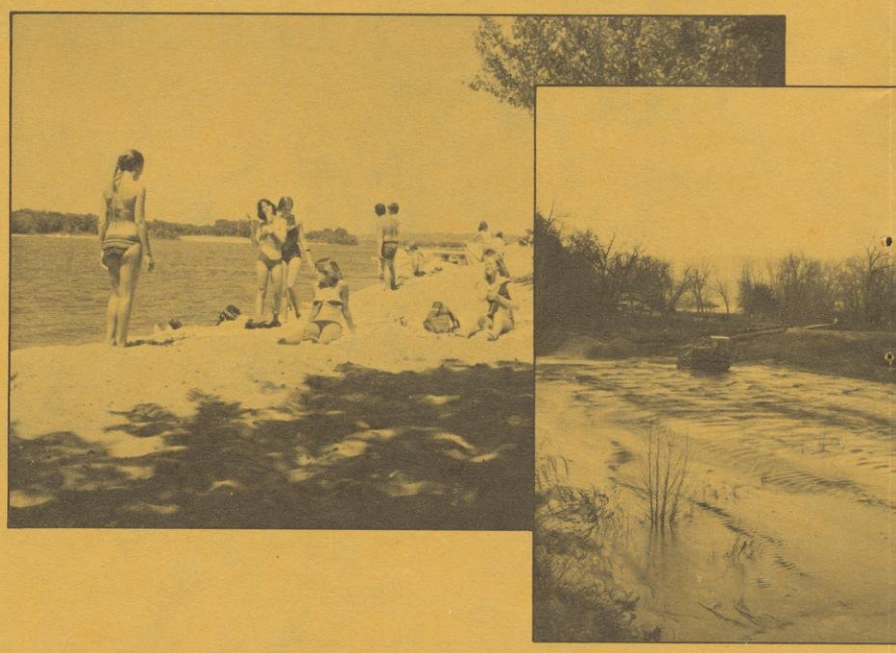
2. Immediate action is necessary. Both the legislative history of the Master Plan law and the studies conducted pursuant to it recognize that immediate decisions and actions are necessary. Projected commercial navigation growth beyond 1990 cannot be met with presently authorized projects. Nor can integrity of the ecological system including fish, wildlife, and terrestrial and aquatic habitats be maintained or enhanced under existing authorization and with current levels of funding.

3. Currently available economic and environmental data are not conclusive enough to make sound management decisions beyond 1990-1995. Master Plan studies have provided substantial information concerning environmental and economic needs. They have also made great strides in the area of systemic analysis. However, long-term investment decisions based on them would be tenuous. The combination of insufficient baseline data and dynamic economic and environmental conditions preclude long range recommendations at this time. Continued monitoring and management are necessary.

This is especially critical in view of projected transportation needs. After 1990, another major expansion decision may have to be made. The information gained implementing the recommendations here will provide a better basis for making timely decisions then.

To maintain and enhance navigation, recreation, fish and wildlife or other uses of the UMRS is no simple matter. Merely improving conditions for an individual interest is not sufficient because each use has subtle interrelationships or conflicts with the other uses. These require understanding and careful management.

The recommendations here form a sound basis for managing the resources of UMRS over the next 10 years. They not only provide for the near-term period but also authorize activities that will help with multi-purpose management in perpetuity.



Catch-all

Western coal pipeline eyes Lake Superior water

Mel Albers,
Coastal Management Liaison
Madison

Superior—A Montana firm has made the first serious proposal to remove large amounts of Lake Superior water from the Great Lakes Basin. William Westhoff of the Powder River Pipeline Company told a conference here recently that **his firm wants to build a 1,923-mile coal slurry pipeline from Montana and Wyoming to Lake Superior. The proposal calls for piping up to four billion gallons of Lake Superior water per year to mines in the dry western states**, mixing it ton-for-ton with pulverized coal, then looping the pipe back to the Great Lakes states. **Cost estimates for the project run to $1.26 billion.**

Pie-in-the-sky schemes to ship Great Lakes water to thirsty western states have been bantered about in government and development circles for years. The Powder River proposal, however, is the first concrete, serious plan to build such a diversion.

Originally, the company planned to build a one-way pipeline to ship the slurried coal from West to Midwest. But the corporation ran into objections that water in the west is scarce enough already without shipping it to the wetter Midwest. That's when Powder River came up with the idea of sending Great Lakes water on a round trip.

"It would be the first step in tapping Great Lakes water for use outside the upper Midwest," said Allen H. Miller, program manager for the Wisconsin Coastal Management Council.

Miller said Wisconsin and other Great Lakes states are just beginning to understand the value of having the world's largest reservoir of fresh water.

"The East, West and Southwest all have an eye on the Great Lakes. It is not at all clear that Wisconsin or any of the other lake states are prepared to deal with future demands on their water," he said.

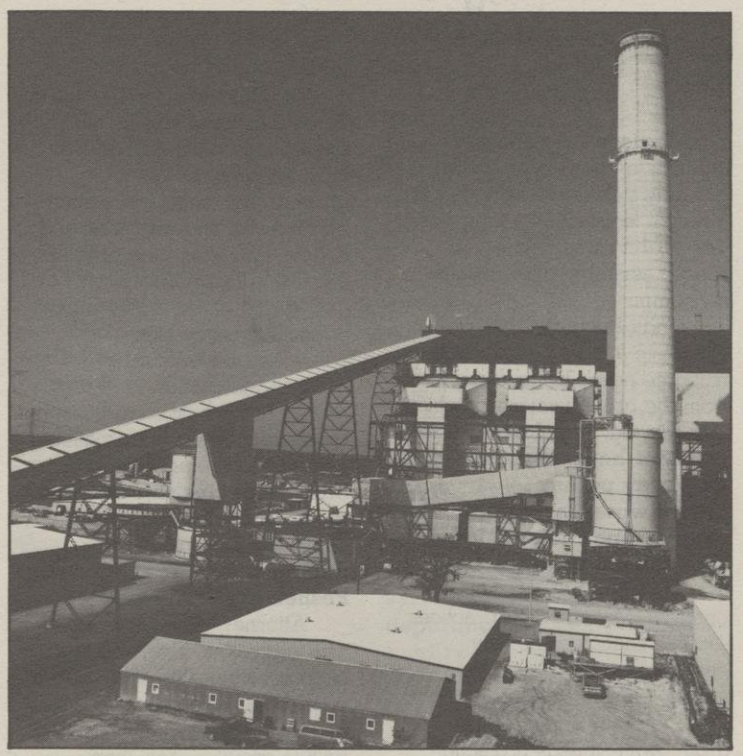
Pesticide in 14 wells

Rhinelander—After finding the pesticide aldicarb in 14 wells in Portage County, DNR is testing groundwater samples from eight other counties that have similar soil and agricultural conditions. **The eight are: Waushara, Adams, Langlade, Vilas, Oneida, Marathon, Waupaca and Barron.**

Aldicarb is a systemic insecticide used primarily to control insects and root worms on Wisconsin potatoes. Water soluble, the chemical can leach into groundwater under certain conditions. **The Wisconsin guideline for aldicarb in drinking water is 10 parts per billion.**

The Pesticide Review Board may use results of the survey and other research to revise aldicarb label instructions for next season's use.

Washing the stack



Wisconsin Electric's newest power plant, Pleasant Prairie, near Kenosha, will consist of two generating units. Each unit utilizes a precipitator complex for particulate removal: precipitator cost, $35.7 million.

Empty holes

Madison—Prospecting firms drilled 98 exploratory holes in Wisconsin last year without finding any new minerals worth mining, according to the State Geological and Natural History Survey.

Most of the 98 holes were sunk in northeastern Wisconsin by nine of the 15 companies that held prospecting permits.

The holes were drilled to bring samples of bedrock to the surface for analysis. Rigs similar to water well drills were used to penetrate as much as 5,000 feet below the ground's surface.

Kerr-McGee Corp. drilled five holes for base metals and two for uranium in Florence County under a program aimed at determining whether there would be any radiation hazards if uranium were mined.

Exxon Minerals Co. continued poking around the copper-zinc deposit it discovered near Crandon about five years ago. Exxon drilled 10 holes to help determine whether it is feasible to mine the Crandon deposit.

The survey said Exxon also drilled two holes in Florence and Forest counties unrelated to the Crandon project.

Hearing stirs groundwater

Larry Sperling,
Public Information
Madison

Madison—A variety of opinions on how to protect groundwater were expressed at a recent legislative hearing here. The hearing was held by a special assembly groundwater subcommittee.

Linda Bochert, DNR executive assistant, suggested the resource needs to be protected from the groundwater up, which is to say that **legislators should consider how combined land uses may pollute groundwater instead of setting separate standards for each activity.** She added that state regulations were only one tool. Management practices such as changing the way pesticides and fertilizers are applied as well as education can make the public aware that groundwater needs protection.

Professor James I. Hoffman, UW-Oshkosh, noted that some groundwater aquifers are more valuable than others. Perhaps they should be classified to provide the greatest protection to drinking water aquifers, he said.

Meredith E. Ostrom, state geologist, agreed with Bochert that groundwater needs a comprehensive approach which includes manure pit management and pesticide application as well as waste management. **He noted that authority for protecting groundwater is presently spread among many agencies and needs to be put in one place.**

David Nichols of Residuals Management Technology, Inc., a consulting firm, said groundwater protection policy should be drafted in phases. Regulate those activities that are well understood now, then set a timetable for examining and regulating activities that are more poorly understood, he recommended.

Dr. Henry Anderson, of the State Division of Health, said preventing contamination was most important. Often groundwater pollutants cannot be removed and only time and dilution can lessen the problem, according to Dr. Anderson.

Peter Peshek, a Wisconsin public intervenor, was concerned that victims of groundwater pollution weren't getting much help from the state. He said when wells are polluted, people need regulatory teeth. **State agencies should get on the side of the victim and seek compensation or damages from the polluter, Peshek said.**

Attorney James Derouin, who represents diverse industrial interests, suggested starting at a more basic level. He said first determine current activities that pollute groundwater, then research existing state authorities to regulate those activities; finally, develop solutions that fill in the gaps.

James Morgan, who represents waste haulers in Wisconsin, disagreed about groundwater protection starting from the groundwater up. He said pollution comes from human activities and that individual land uses should be regulated. **"Let's not kid the public that one groundwater rule can cover everything,"** he said.

Terry Kakida, from Citizens for a Better Environment, felt that the public policy question boiled down to whether we protect groundwater dischargers. He said policy should initially assume zero discharges to groundwater and then selectively allow discharges which are strictly regulated. Groundwater policy, he stated, should stress public health and protect groundwater users.

Acid Rain Rain go away

Wendy Weisensel, DNR's public information officer for Air Management, was besieged by phone calls after a recent report from the National Wildlife Federation listed Wisconsin as one of the "top 10" states, extremely susceptible to acid rain damage.

Precipitation in Wisconsin is 10 times more acid than normal rainwater—ranking the state 10th on the Federation list of most vulnerable states. First is Massachusetts, where rainfall averages 30 times more acid than normal.

The Wildlife Federation timed release of its findings to coincide with hearings before a US House of Representatives subcommittee on proposed revisions to the Federal Clean Air Act.

The release of the information prompted a spate of telephone calls to DNR from outdoor lovers.

Access gives walleyes to Spider Lake

Jim Bishop
Public Information,
Spooner

Spooner—Because public access has finally been arranged, DNR recently announced a management program for the Spider Lake Chain in Sawyer County. Initially it will consist of walleye stocking and a fishery survey.

Management on the chain ceased in the mid-1970s because of inadequate public access. Under state law, no fish management is allowed unless public access exists. Numerous attempts to obtain one were finally successful when DNR signed a long-term lease this year for an access ramp and parking area. The first of its kind in northern Wisconsin, the access is located at Foss' Bear Paw Resort on the east shore of Little Spider Lake.

A $2.00 launch fee will help defray maintenance costs.

Surveys showed only limited walleye reproduction and DNR has already started stocking. Some 25,000 fingerlings were put in the chain on September 11. DNR Fish Manager Frank Pratt said survey results showed complaints of a declining walleye fishery were well justified. However, he pointed out that the lake is one of the few remaining self-sustaining muskellunge lakes left in northwest Wisconsin.

Wisconsin trapping big business

Madison—A total pelt value of $15,300,000 was realized by Wisconsin trappers from last year's fur harvest.

Muskrats and raccoons led in income production with 958,318 muskrats brought in $6,097,715 for an average pelt price of $6.36. Raccoons numbered 179,000 and brought a total of $5,800,000, an average of $32.33 each. Muskrats and raccoons have been the leaders in total pelt value during the past ten years.

Catch-all

Continued

Water shortage in Wisconsin

Diane Brinson,
Public Information
Madison

Madison—In the past five years, 21 Wisconsin communities have experienced water shortages and another seven suffered drinking water contamination, according to a recent DNR report on municipal water conservation. The report is part of a study to determine the value and feasibility of water conservation in Wisconsin. Similar studies covering industrial and agricultural water use will be completed by the end of the year.

In 1979, according to the report, municipal water utilities in Wisconsin pumped 198 billion gallons for more than three million residential, commercial and industrial users.

Source of 49% of the state's municipal supply is groundwater, which goes to 53% of the population. Surface water serves the remainder and is more expensive to treat.

Municipal residents use all the way from 36 gallons per person per day in Burnett County to 72 gallons per person in Rock County. State average is around 56 gallons. The DNR study found the heaviest water use among those with more education and higher incomes.

According to the report, the advantages of conserving water in the Great Lakes Basin are not primarily related to shortages. Instead, **major benefits include: 1) savings in land, labor and capital needed to build new water supply and sewage treatment plants, and 2) the reduction in energy cost that comes from pumping less water and waste through the system.**

DNR estimates it will cost more than $1 billion over the next two years to bring municipal wastewater dischargers into compliance with the Federal Clean Water Act.

As part of the study, DNR surveyed 560 municipal water utilities. Of the 450 that responded, 21 said they had experienced water shortages because of heavy demand, leaky water mains, faulty pumps or other events. They are Abbotsford, Athens, Brokaw, Cadott, Cobb, Crandon, Denmark, De Pere, Eau Claire, Florence, Hurley, Iron Belt, Onalaska, Pewaukee, Plainfield, Rhinelander, Rib Lake, Ridgeway, Sturtevant, Thorp and Trempealeau.

In recent years, southeast Wisconsin and the Green Bay-Brown County area have been forced to switch to surface water because groundwater couldn't meet the heavy demand.

DNR management jibes with survey results

Robin J. Irwin,
Public Information
Madison

Madison—DNR management is responding to reader opinion expressed in this magazine's "We're Asking For It" survey last year.

Printed as part of the special supplement, "Fish and Wildlife for the 1980's and Beyond," the survey showed loss of habitat at human hands to be the number one concern among the 9,607 people who responded. That opinion reinforces DNR's wildlife management program which devotes much time and many dollars to acquiring and developing habitat for wildlife. For example this year's projects include; acquiring more than 4,000 acres in new wildlife areas plus adding to old ones; developing some 6,000 acres as nesting and breeding cover for ducks and pheasants; and improving about 10,000 acres of forest land for deer and grouse.

Ranked as the second most important concern was lack of public understanding of fish and wildlife needs and the resulting roadblocks to wise resource management. To address this, DNR spends a portion of its annual budget on public meetings and information and education materials to help people better understand the dynamics of wildlife management.

Third was concern about overcrowding and competition for fish and wildlife resources. The most recent DNR response to this was the shift from a four-member party permit for deer hunting to the one-person hunter's choice permit. Additional improvements will be made as public acceptance takes hold. **Most people responding to the survey wanted the department to improve the quality of deer hunting (82%). Among other results readers want:**

- **increased wetland legislation efforts (94%)**
- **protection for sharptail grouse habitat (61%)**
- **and more money for furbearer management (57%).**

Only 20% of all respondents agreed that most people are aware of and can name more than three endangered plants or animals.

Dams repaired

Hudson—Repairs that cost more than $800,000 at three dams in Willow River State Park are near completion. Leaks in the structures were first detected August 9, 1980 after a period of heavy rainfall. Inspection during high water indicated immediate drawdown was necessary to assure safety.

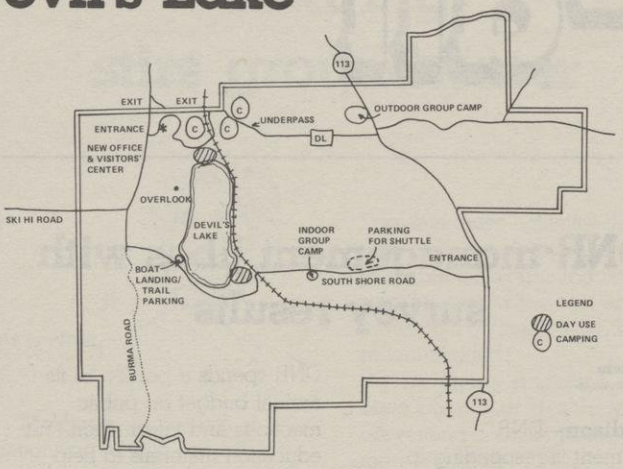
All three dams are expected to be fully operational for next season, according to Mark Kubler, assistant superintendent.

Repairs at Little Falls Dam will include rebuilding three 12-foot gates and one 22-foot gate. The dam will be lighted and electric motors installed on the gates.

At Millpond Dam, the four 12-foot hand-operated gates will be motorized and stairs and lights added for safety.

At Mound Pond Dam, an access portal will be closed as a safety measure.

New look planned at Devil's Lake



Greg Matthews
Public Information
Madison

Baraboo—Devil's Lake State Park will soon become the site of a new interpretive center as part of the Ice Age National Scientific Reserve. A revised master plan released in October recommends relocating the park entrance at the northwest boundary and building a combined administrative office-interpretive center there.

A federal law passed in 1971 designated the area as one of nine park segments along the Ice Age Trail, which roughly follows the terminal moraine of the last great glaciers to move through Wisconsin. The interpretive center will offer visitors information on the parks' unique geological, botanical, and archaeological wonders.

The new plan was developed by a 13-member local citizen's committee which revised an earlier version proposed by DNR.

It calls for a new campground at the north end of the lake with space for large groups. A cramped existing one on the south shore will be converted to a picnic ground and recreation area and the road that now bisects the campground will be relocated around it.

To reduce the number of automobiles in the park, a new shuttlebus system will accommodate visitors at peak periods. Cars, however, will still be allowed.

Other basic park uses will remain unchanged.

Devil's Lake is one of the state's oldest parks, dating back to 1911. It was one of four areas recommended for purchase by the first State Park Board.

Sun Prairie pays

Greg Matthews,
Public Information
Madison

Madison—A recent out-of-court settlement with the City of Sun Prairie may prompt careless municipalities to monitor sewage treatment plants more carefully in the future.

Sun Prairie was charged with filing false data on discharge monitoring reports, incomplete record-keeping and failure to perform required sampling analysis. The incidents took place over a four-year period prior to September, 1980.

Under state law, the Justice Department could have sought maximum fines that would have cost the city millions of dollars. But an out of court settlement limited the forfeiture to $13,560. Sun Prairie's City Council agreed to add additional staffing at the plant, including a new certified operator. The former plant operator's certification was cancelled because of the violations.

"Treatment plants are multi-million dollar operations and should be treated as such," said Ron Curtis, DNR environmental enforcement specialist. Curtis said the Sun Prairie case makes it clear that it is the permit-holder's responsibility to oversee the treatment plant, both morally and legally.

Sewage treatment award

Diane Brinson,
Public Information
Madison

Stevens Point—The Environmental Protection Agency (EPA) recently commended the City of Stevens Point for having the best sewage treatment plant operation in Wisconsin.

EPA presented city officials and those who run the plant with an award for effluent quality, plant esthetics, laboratory control and preventive maintenance.

Muskies in Silver Lake

Milwaukee—DNR will stock 460 muskellunge fingerlings in Silver Lake, Kenosha County and 1,000 in Okauchee Lake, Waukesha County sometime this fall. Part of a 10-year plan, the goal is to provide one legal musky for every five acres of water. The fingerlings should reach the 30-inch minimum legal size within five years.

Silver Lake will be the only one in Kenosha County with a musky fishery. Other southeastern Wisconsin lakes that provide musky action are Pewaukee Lake in Waukesha County, Eagle Lake in Racine County and Random Lake in Sheboygan County.

Kettle Moraine questionnaire

Eagle—DNR is asking Wisconsinites what they want for the future in the two Kettle Moraine state forests. As part of a master plan for the northern and southern units, a survey will be conducted to find out what kinds of recreation visitors prefer. Answers will help DNR address user-conflicts as part of a plan to benefit both the user and the resource.

New Washburn County recreation area

Spooner—A new 2,500 acre recreation area is now open in Washburn County. Called Cedar Creek Recreation Area, it is located on county forest land in Frog Creek Township. Management practices will emphasize habitat for ruffed grouse, deer, bear, woodcock and furbearers.

Coming attractions

In the January-February issue . . .

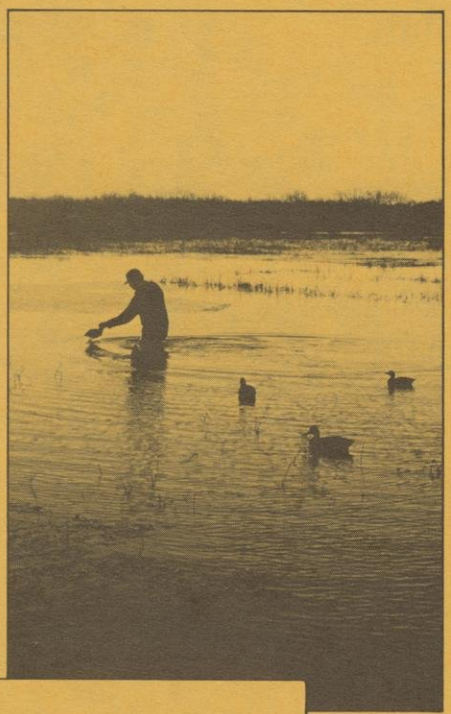
- ***Wildlife in Wisconsin 200 years ago.
- ***The why and wherefore of the Public Intervenor.
- ***Stories about forestry and trees.
- ***The Wisconsin River.
- ***How to make a collage.

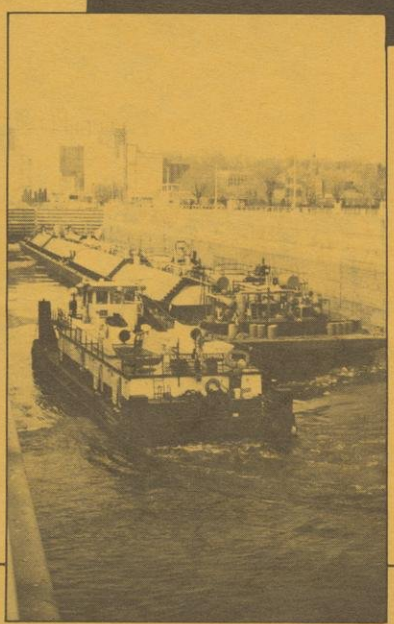
In the March-April issue . . .

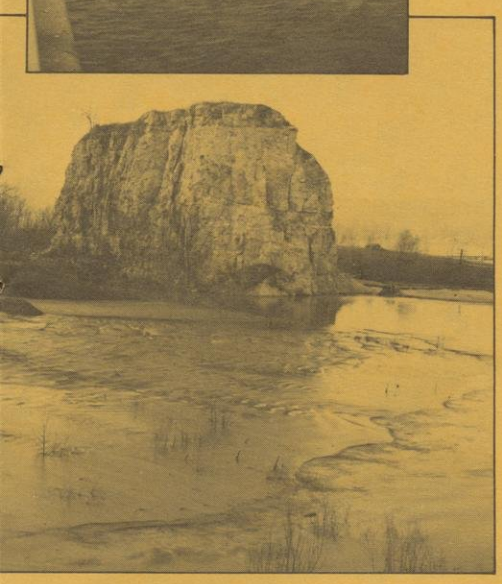
- ***A special supplement on erosion and non-point pollution.

Next summer: A giant insert on threatened and endangered flowers.

Summary of Recommendations*







On September 15th, 1981, the Upper Mississippi River Basin Commission decided to send the following recommendations to public hearing:

The Upper Mississippi River Basin Commission recommends:

- That Congress immediately authorize the engineering, design, and construction of a second chamber, 600 feet in length, at Lock and Dam 26.
- That no action under the NEPA 1969 (Environmental Impact Statement) is required for the construction of the second chamber.
- As part of a total navigation improvement plan, steps be undertaken to increase the capacity of specific locks throughout the system by employing certain non-structural measures and making minor structural improvements.
- Traffic movements on the navigation system be monitored to update traffic projections, verify lock capacities, and refine economic justifications and implementation dates for future capacity expansion.
- Congress immediately authorize a program to plan, construct, and evaluate projects to rehabilitate, enhance, or protect aquatic and terrestrial habitats lost or threatened as a result of man-induced activities or natural factors.
- Congress immediately authorize implementation of a long-term resource monitoring program.
- Congress immediately authorize implementation of a computerized inventory and analysis system for data storage and retrieval, and for use in the long term resource monitoring program.
- Continue current disposal practices including those detailed in the GREAT channel maintenance programs in those areas where they have been developed. The Master Plan Dredged Material Disposal Matrix Process may be used as a tool in the site evaluation.
- Develop a dredged material marketing program utilizing and updating existing demand survey information as well as collecting empirical data to facilitate productive use of dredged material.
- The states of the UMRS should establish a cooperative arrangement to maintain coordinative and management activities for water and related land resources within the UMRS.
- Congress immediately authorize the implementation of a program of recreational projects and the conduct of an assessment of the economic benefits generated by recreational activities in the UMRS.
- Immediate action should be taken to reduce erosion rates to tolerable levels to help preserve the integrity of all resource values on the UMRS.

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*For additional details refer to the October 2, 1981 Draft, Comprehensive Master Plan for the Management of the Upper Mississippi River System. Copies may be obtained by contacting:

Upper Mississippi River Basin Commission
7920 Cedar Ave. S, Suite 210
Bloomington, MN 55420
(612) 725-4690

Schedule for October public meetings and November public hearings on the Upper Mississippi River System Master Plan

Meetings

All meetings will run from 3:00 p.m. to 5:00 p.m. and from 7:00 p.m. to 9:00 p.m. Purpose is to provide information on the draft plan and to prepare for the November hearings. Commission representatives will open the meetings with a general overview of Master Plan development and recommendations. At 3:40 p.m. and 7:40 p.m. participants will break into small discussion groups according to Master Plan study topics (i.e., navigation and transportation, environmental and recreational, dredged material disposal, and computer inventory and analysis system studies). Participants will reconvene at approximately 4:15 p.m. and 8:15 p.m. for a brief summary of the small group meetings, followed by an opportunity for questions and answers. Meeting locations:

St. Louis, Missouri: Tuesday, October 6th at the Henry the VIII Motor Inn (rooms will be posted), 4690 N. Lindberg Highway, Bridgeton, Missouri.

Davenport, Iowa: Tuesday, October 13th at St. Ambrose College, Louis Hall, Room 111, 518 W. Locust Street.

Peoria, Illinois: Thursday, October 15th at Bradley University, Neumiller Chapel, Bradley Hall.

La Crosse, Wisconsin: Tuesday, October 20th at the University of Wisconsin-La Crosse, Indian Commons, Cartwright Center, 1725 State Street.

Roseville, Minnesota: Tuesday, October 27th at the Pollution Control Agency Hearing Room, 1935 County Road B-2.

Formal hearings

Purpose of the hearings is to provide the public with an opportunity to present formal testimony regarding the draft plan before its final revision and submittal to Congress by January 1, 1982. All hearings will run from 3:00 p.m. to 6:00 p.m. and from 7:00 p.m. to 10:00 p.m.:

St. Louis, Missouri: Monday, November 2nd at the Henry the VIII Motor Inn (rooms will be posted), 4690 N. Lindberg Highway, Bridgeton, Missouri.

Peoria, Illinois: Tuesday, November 3rd at Bradley University, Neumiller Chapel, Bradley Hall.

Davenport, Iowa: Wednesday, November 4th at St. Ambrose College, Louis Hall, Room 111, 518 W. Locust Street.

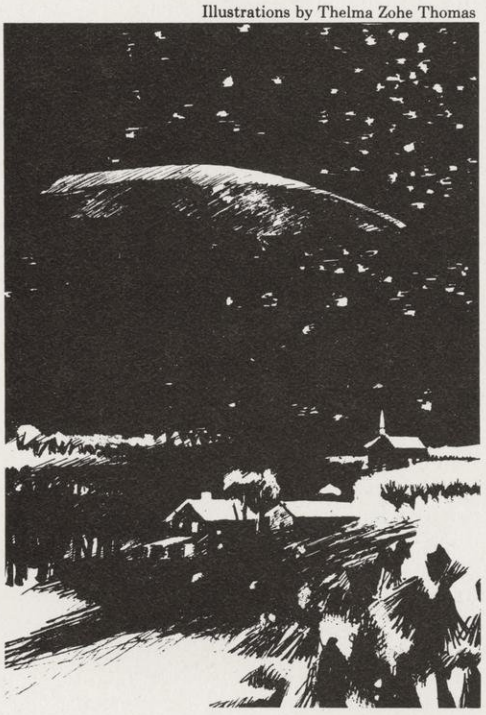
La Crosse, Wisconsin: Thursday, November 5th at the University of Wisconsin-La Crosse, Hall of Presidents, Cartwright Center, 1725 State Street.

Roseville, Minnesota: Monday, November 9th at the Pollution Control Agency Hearing Room, 1935 County Road B-2.

Written comments will be considered if received at the Commission Office prior to the close of business on November 16.

The Christmas flight

Illustrations by Thelma Zohe Thomas



**a story of a township
an old man
a pipe
and a lone goose**

JUSTIN ISHERWOOD

"Perhaps it is a child's story, perhaps not."

Grandfather was like that; beginning stories easy, circling the edge, a barefooted approach, kinda sneaking up on them. He is remembered as an old man, countenanced as the old often are; bald and snared in the bony knots of arthritis. His skin softly wrinkled as new-plowed ground; even furrows rolled over by a sharp share of years. He was bequeathed a lameness in limb and looks by his farmer profession. During the last years of life he had the tendency to situate himself by a favorite window and just gaze across the fields. No blank stare, instead a working look, the eyes performing a physic on the light as it came into the head, squeezing something more from it.

"It may not even be true," he said, "though myself I have come to believe it." He was galling that way, almost cruelly raising a child's anticipation. His mouth would twist inboard, betraying a slight smile like the barely visible smoke from a hot fire. He'd stop then to fill his pipe, in no hurry, for you must understand, the audience was what could be called assured.

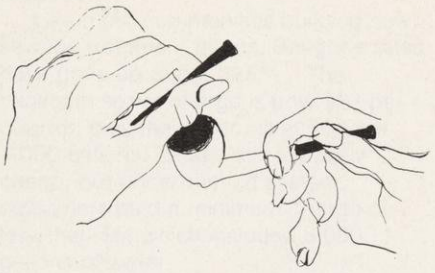
"The territory filled with the motive and the sounds of it; oxen bellowing at the stump derricks, the clank of heavy chains and the whisper of shovels, the paint wearing off, digging at tree roots. Smoke permeated, never a day without smoke, without the scent of pine boughs and stumps burning." He relit the pipe, using kitchen matches which he wove intently over the bowl, his eyes reflected the light as the flame was sucked in, and we, but children, thought the flame ran right through him.

"We did make fields, fields like the many small rooms of a boarding house. Rooms for barley, rye, wheat, room for potatoes and new-broke ground fit for rutabagas. It was a handsome country, made safe for steel plows and long straight furrows. A man had neighbors. Neighbors with beam and board barns, gambrel roofs, fenced pastures for cattle, granaries with tamarack rafters, ash roof boards on the ice houses insulated with sawdust and corncribs and white houses with bay windows. All that was, was what we ourselves had made. It was a land reshaped, a land quite suddenly trained to our will.

"When my father, your great-grandfather, first came to this place, the country was far different." We knew the lineage but he was unrepentingly determined to affix all the great greats it was possible to attach. We never knew whether he did it for the sense of sentence, or for the sheer verbiage that families gain from the very act of being family, or for the sake of punishment.

"What is now field and pasture was then an endless conundrum of new-growth woods, endowed with stumps in the wake of a logger's rage. We, like the loggers, had little use and little love for such boundless woods. We were farmers with a frantic appetite for fields. A need so compelling and consumptive it twisted the very bodies of us. It was the dirt we wanted, the dirt of root, branch and stump. From the mesas and hills, trees were the all of it. Trees disappearing into the blued curve of distance. The sky itself had a green infection, a contagion spread by countless trees. Trees were the task at hand, a labor, a nigh impossible labor that made one sick at the endlessness of it.

"A strange thing began to happen, few noticed it. Took place about Christmas time, when nights were



expansive and monopolistic in their will, perhaps it was the coercion of this north-country's darkness that was the reason itself. It was not so much what was seen or heard as what was felt. We were farmers, a deliberate kind of people, at no liberty to fool ourselves, yet we felt it, the unmistakable presence of something out there.

"I was just a youngster then, first of the new natives. On Christmas morning I was coming to the house, in a hurry as kids are apt to do, when I noticed it. Snow was falling with the benign patience of early winter. Because of the snow I could not see any distance but it was as if something passed overhead. Passed slow, perhaps a cloud, or bird. I didn't think much on it, not till the next year when I was in almost the same position. Hurrying to make the house, chores done, in a rush to see if the squirrel gun was there that I had been wanting. The crops had been good, and the prices, and I had my hopes. Much as I was drawn to the house a movement stopped me, as something moved overhead. The day was overcast and I remember turning around, and around again trying to lay hold of the source; again it was the compelling presence of something besides myself. I did not see it, but I could feel it, my scalp moved and a shiver went among my bones. A look possessed my face when I came into the house, cause your great-grandmother asked what was wrong. Pa had not yet come home to the house, he had the tendency to be meanly slow on Christmas morning.

"I told Ma how it seemed a shadow had passed but the day being cloudy that wasn't possible. A rapid possession took over her face the way it does when a person is surprised, or scared, the eyes gone blank because they focus inside instead of looking out. "Just your imagination," she said, but from the way she said it, a detached voice with no leverage behind it, made me wonder all the more. I soon forgot about it. Pa had come to the house with a couple chunks of stovewood in one hand and in the other a long object muffled in the confines of a burlap sack. He often carried stovewood but rarely long objects concealed in burlap sacks unless it was, my child's faultless logic assumed, the hoped for twenty-two caliber tilt-block, single-shot rifle. The unanimous smile on his face said it was. I could hardly eat my breakfast while that known yet unknown object stood in the corner, waiting to be touched.

"In those days we lived in a log house. Hewn of pine, it was small by modern standards. The kitchen lean-to slanted to the east; Ma had her window there and a clothes washing bench out front. The floors were plain boards, a tall tin chimney generated such draft that wind would rattle the stove door on stormy nights. The logs were chinked with mortar and ground limestone, the graying logs and the clean yellow chinking lent a beauty to the house. A window faced the barn and it was worth the barn chores to walk toward that window in the evening when it was steamed over by the supper cooking. When my father, your great-grandfather, first came to the place, he brought with him a wool quilt, coffee, matches, pipe tobacco, a new wife and a pail of lilac slips.

"It was that next year and its Christmas morning, I remember the stars were spilled out sharp and unblinking when I walked toward chores in the barn's scented warmth. I remembered what had happened the years before, remembering it had been cloudy and this day promised clarity."

Grandpa stopped to scratch and reach for an iron nail he used to tamp his pipe, his twisted fingers no longer fit the bowl. He relit the tobacco, puffed it a few times, then set the pipe in an ash tray, teasing us.

"I came out of the barn having forgotten my earlier excitement till I was halfway to the house. A movement caught my eye. There, two-thirds of the way across the sky, was a goose. A solitary goose, flying with the patient movement of wings so particular to those birds. There seemed nothing extraordinary about it so I turned my back to it. It was then I realized geese don't fly in winter, not here, not on mornings so cold the eastern star hangs like a jewel suspended within grasp. I turned around to find the bird which was now just above the horizon, working its way with that rhythmic beat.

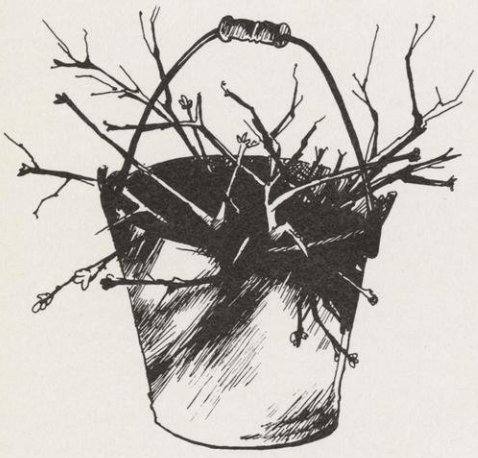
"That was years ago, if you will believe it, when even I was a child. Every Christmas since that bird has passed, either seen or felt. Others saw it. At first no one would talk of it, thinking it a product of a township mind too long left to its own meanderings. Thinking others would believe them strange, dontcha know, to have seen a goose flying over a township country following the well-worn path of the earlier, autumn flights.

"My father, your great-grandfather, (we knew), said he once talked to the Menominee who kept an annual basket camp near the marshes. He asked them if they had ever seen the goose that passes at the time of the longest nights. They looked at him in a surprised manner and for awhile talked among themselves in a rapid kind of way, pointing at him. At length an old one asked if he too had seen the goose. 'Course I have,' he said, 'how could I ask of it if I had not seen it?'

"The Indian camp was an old camp, just on the edge of the woods at the back-forty's far end. The people came there to cut bolts of ash and elm which they would pound with wooden mallets. The pounding was taken up by the ground and heard throughout the township. It was a pleasant noise, a sound to sleep by. From the bolts they would pull strips to weave baskets, baskets for the harvest of cranberries and wild rice farther west in the wide

backwaters of the river. Father liked having them near and to visit their wigwams fashioned from bent alder branches, covered over with birch bark. On rainy days they had a cozy, ground-hugging comfort to them. He liked to take pipe with them, hunkering down the way they did, not exactly talking, not exactly still. It made your great-grandma mad, his coming home with the seat of his pants soiled. He'd kid her about having eaten dog soup seasoned with deer hooves, then try to kiss her with his suspect lips.

"The Indians told him they were surprised that eyes set in a white face could so see to have perceived the great



single goose. They, who have been here long, had seen the goose and known of its flight since their first days, recalled by the still pool of memory reflecting within them.

"My father, in his last years, often thought about the bird. The old have time for such thoughts. He came to believe like the Indian that the creature has always been, perhaps part of the beginning itself, as if it were a shadow of the first hands, an echo of the first word, a ghost of first things. The creature has kept its flight since the borning days when the planet was poured molten from star fire. There were flights over rocks and seas still warm from their birth. The bird was here when the mountains were lifted up from the infant face of earth. The place was empty save for its presence, for it was the time before the green prayer was shouted from the land. I believe the old man. The bird is a remembrance of mountains and seas where now there are none, of the vengeful ice, and of scattered hills and trout creeks on the flat sand townships below the hills.

"The bird has seen the land and its man. Seen the bark wigwams and in still mornings passed the roof posts of their cooking fires. It watched the barns be born of sweat and boards, as fields were shouldered among woods, cows where once were caribou. Seen the changes and the things unchanged. Seen the tin chimneys and their own poles of smoke in a morning quiet, smoke smelling of cornbread.

"The creature watches, I have seen it turn its head to look better at the earth beneath. Curious, that it comes at Christmas, though maybe not. It is a peaceful time, the land gentled by snow. Snow gives a kind of equality to all that is beneath. Snow hides the differences, potato ground is level with corngrounds, cemetery equal to pasture, and... boundaries are blurred between neighbors. Earth and sky grow quiet and become one."

Grandpa stopped, a bit breathless; he reached for his pipe and tapped out the cold ashes; extricating a red tin of Prince Albert from a shirt pocket, he refilled his pipe. He frisked his pockets a couple times before he found the last place the matches had been put and struck one on a large rock he kept on the end table.

"Found that rock down by the creek one Sunday morning when I should have been in church. Look close and you'll see footprints there of other lives. The goose of Christmas remembers those lives. Its flight joins them all, smearing the difference between earth and breath. We are not much different from that rock, the very same materials, if but rearranged and a bit more fluid.

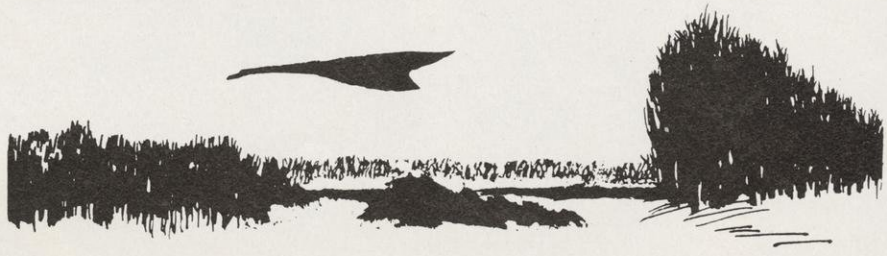
"In my own years I have come to understand, to understand the goose is an energy. An enthusiasm natural to creation and its manifestations in the township. It is proof of the exuberance in mere existence; the sorcery in sunlight and plain dirt. When we have been here long enough our minds are taken up, vaulted so as to see from an elevated plain. We ourselves inherit wings with which to watch the land congeal, all time swaddled into one instant. Life becomes the process linking stars, man and stones; a blood tie is revealed between supernovas and blue eyes. The township is emboldened, a continuance, the dust of galaxies is plowed back into the universe's dark fertile soil, where in the next burst of stars part of everything will be me and you, and us."

Grandpa paused and looked out the window; he had done a lot of staring the last thirty years. His eyes held in focus the first houses, of hewn white pine logs, seen broadaxes traded for sawmills, horses for diesel tractors. But the laughter sounded the same, rising from the ground in almost spontaneous response of life and land. If he complained of the wheelchair he did so in small whispers for it seemed he had escaped its confined existence.

Snow was falling. Easy. Drifting through the dark deserted arms of the winter trees, trees with the appearance of backward lightning flung blackly out from an earth cumulus. "It is odd," he said, "that snow looks like stars. Sometimes you get the sense the snow begins not at clouds but farther out. Falling through space, past Pluto, Neptune, drifting in the lee of Jupiter's big shed, sifting past Mars to land at last on earth. I have seen the great gray goose, seen it there just over the lightning rods of the barn, seen the bird through the haze of a snow storm, like it was the mind behind the shout."

Grandpa was always telling stories. Jack Frost, he had told us, was an outlaw relative of Picasso and he showed us the family resemblance right there on the window. We didn't know whether to believe him or not, pipe smokers and lame pipe smokers are not trusted with the exact truth. Matter of fact we didn't believe him, till one Christmas morning we saw him sitting alone, his favorite Navajo blanket drawn across his knees. He was leaned over to the window, nose flattened on the pane, looking up, his mouth hung slack like a kid in the front row of a magic show, about to see a rabbit pulled out of a hat.

First you hear the wind in its wings, then an almost music. There, there on the horizon you will see it. Coming slow, the wings rowing easy in the dense air of winter. Its head will be turned to watch the fields and pastures, stitched together by the line fences into one common fabric. Man and earth woven together with the flight of a lone goose. Thread after thread shuttled, the strands yield one cloth, hue by hue in a natural precision. A connection is made between the planet and its people, it is possible to believe in winged flights, of geese and perhaps of angels. And believe a peace that can be found between man and his neighbor, yea even a peace between man and his ambition. You've got to look close to find it, for sometimes it flies almost beyond the eyes to see.



So long, spring

It was a sad day when the cool, sweet spring turned sour. The cause was easy to explain, but still tough to take.

DAVE CREHORE, DNR Public Information, Green Bay

Back in July, DNR had to close down a natural, free-flowing spring along a roadside in Waupaca County.

It hurt to do it. We were sorry. What's more refreshing and reassuring than water from a merry little spring? It quenches thirst and certifies the health and well-being of our surroundings in a couple of long, cool swallows.

Providing, that is, the water is safe to drink.

Unfortunately, the water from this spring, about two miles south of New London along County Trunk W, was thoroughly unsafe. It had been safe once, in the past, but no more. The refreshment and inspiration were gone. The spring had become the latest addition to our state's hamper of dirty diapers.

The tale of the spring's fouling is simple enough. Because it is on the county right-of-way, Waupaca County owns it. As part of a program to test such "semi-public" water supplies, the county took some samples late in June. The test results indicated the presence of coliform bacteria in the water. State drinking water standards allow no coliforms, so public use of the spring had to stop.

On June 29, the county erected a sign at the spring, advising that the water was contaminated and unfit for human consumption. The next morning the sign was gone, post and all, ripped off by a vandal or self-appointed critic of DNR. In the meantime, the spring had been tested twice more and was still unsafe.

A day or two later, the county put up another sign and painted a warning on the hydrant-like structure through which the spring water flowed. But people continued to arrive with trunkloads of empty jugs — some of them from Fox Valley cities many miles away. With the Fourth of July weekend coming up, we contacted the media and asked them to help spread the word.

Apparently unsafe springs are news, because within a day the story was on the Associated Press wire, had been covered by all three Green Bay TV stations, and had made the newscasts of innumerable radio stations.

At the DNR office, we started getting calls. Dozens of them, from still more media and many users of the spring. Most were concerned and cooperative, but all the callers had misconceptions about groundwater and the things that can contaminate it.

So we explained and explained. Groundwater, we said, doesn't "come all the way from Canada" and it doesn't flow through "underground rivers." Instead, it rarely moves more than a few miles from the place where it falls as rain or snow. And most of it is stored between rock and soil particles.

A common misconception was that if water bubbles out of the ground in country where grass is green and birds sing, it is inherently safe to drink. Not necessarily so, we had to say. No spring in Wisconsin should be considered safe unless routine testing proves it is.

Usually we had to give a short course in bacteriology, too. We explained that coliform bacteria live in the intestines of mammals, and when you find them in water it indicates contact with some sort of sewage or manure.

The bacteria themselves, we said, can give you gastro-intestinal troubles of the sort sometimes known as "tourista" or "Montezuma's Revenge." But the real danger is from serious diseases such as hepatitis, typhoid or dysentery, which can also be transmitted by human waste. Fortunately, yet another test of the New London spring showed these organisms were not present, though coliforms were still there in force.

The users of the spring who called were mostly understanding and slightly worried. Some brought the water home 40 or 50 gallons at a time. Could they

Illustration by Artist Jim McEvoy

use it? No. Could they give it to the dog? No. If they were keeping it nice and cold in the refrigerator, would it be OK? No. Then they should just ditch it? Yes.

You should understand that these were thoughtful people who liked the taste of springwater and were willing to drive quite a distance to get it. They knew little or nothing about groundwater because they'd never had occasion to learn.

A typical letter we received started out: "It is with much sadness that I understand the well on W in the area of New London is contaminated.... We are at a complete loss to understand how this well could become contaminated...." After a while, we began to feel like we were commiserating with relatives who had lost a beloved member of the family.

On Wednesday, July 8, a Waupaca County crew removed a delivery pipe, effectively deactivating the spring. Only a couple of DNR sanitarians and a TV news crew were present to witness and mourn.

And really, something special had died. The cause of the spring's demise is probably simple enough — somewhere up the hydraulic gradient there lies a clogged-up septic tank. But simple or not, hundreds of people who liked a cold drink of sweet water had lost a friend.

Eventually the source of the contamination may be found, and some day the New London spring may run clean again. But in the meantime, it's silly to talk about environmental concerns being "passé," about environmental "extremism," or about the "luxury" of environmental protection. The people who no longer drink from the spring won't buy those excuses. Because if you can't trust the water that flows cool and clear from the breast of Mother Earth, what is there left to trust?

Hello

The story of the New London spring has a happy ending after all. Since this story was written, the source of contamination has been found and water from the New London spring is safe to drink again. On September 9, the well was hooked up again after three successive weekly water samples tested safe.

As it turned out, the contamination was not from a failing septic tank or some other distant source, but from water near the surface in the immediate vicinity of the spring.

While DNR water supply specialists were investigating the problem, they found that the spring was actually an artesian well 108 feet deep, lined with galvanized iron pipe to a depth of 48 feet. They eventually learned that the "hydrant" from which the water flowed had been hit by a car some time in the past, and that the hydrant and the pipe below it had needed repair.

Suspecting that something may have gone wrong with the repair, DNR asked Waupaca County to excavate around the well. Sure enough, there was a tiny leak in the first pipe joint below the surface. Small as it was, this leak admitted water from the roadside ditch and a nearby field — near-surface water that was likely to contain coliform organisms.

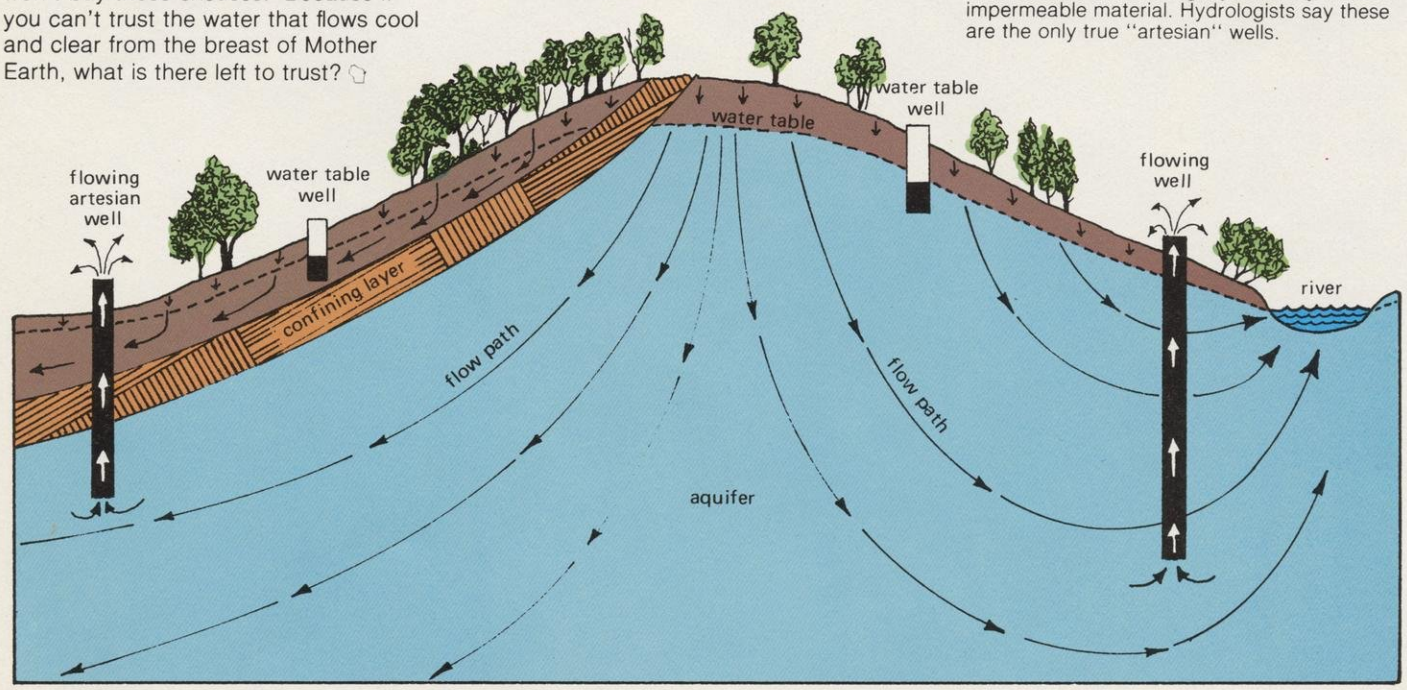
As soon as the leak was sealed, the well tested safe again. To make sure it stays safe, the county will test the water once a month from now on.

So as luck would have it, the source of contamination was found and repaired fairly easily. But there's a lesson here nonetheless. The New London spring showed people are still greatly concerned about the quality of the water they drink, and with the environment in general.

The kind of problem we found south of New London brings up another point. The state has enacted detailed well codes that specify safe methods of water supply construction. Well drillers, plumbers and pump installers have to follow these codes. But because all metals and mechanical devices can fail, the state also requires frequent testing of community water supplies and urges regular testing of all other private wells, in case something goes wrong.

It's a relief to know that the groundwater south of New London isn't contaminated 100 feet below the surface. But we should remember that a little hole in a pipe can cause the same problem, as far as the user is concerned. We need to protect groundwater supplies through the enforcement of tough regulations — and we need to protect ourselves with regular testing of the water we actually drink. In this case, a drop of prevention....

Flowing wells in Wisconsin most often occur where groundwater moves upward in the aquifer, usually toward surface water (right). They can also occur where an aquifer is "capped" by a confining layer of clay or other impermeable material. Hydrologists say these are the only true "artesian" wells.



Stepping on tows

Although barges bring dollars to the Mississippi River bank, their deposits are something else. The Upper Mississippi River Master Plan may double traffic. The environment could get halved.

BY J. WOLFRED TAYLOR, Editor, Wisconsin Natural Resources and W. JEFFREY SMOLLER, Director, Information & Education

The Wisconsin stretch of the Mississippi River is a patterned ribbon of beauty. Its rich backwaters, islands, sloughs, ponds, lakes and marshes teem with wildlife. People seek it out for solace and recreation. It is listed as one of the best hunting and fishing areas in the Upper Midwest, if not the nation.

These are the realities and amenities at stake, and what Wisconsin has to protect or lose, as we move toward the year 2000. The Master Plan of the Upper Mississippi River Basin Commission (UMRBC) sets the stage for how the river will look and how it will be used in the year 2000 and beyond. A look at the river near Cairo, Ill., or at the Illinois Waterway, or at the Ohio or the Missouri Rivers should show Wisconsin and all people who care about our Mississippi what we have to lose.

In the planning process, strong forces pull and tug at the river. Just as hunters, boaters, anglers and sight-seers claim the river as "theirs," so do barge captains, oil jobbers, industry executives, fertilizer dealers and coal distributers. The river is their "highway" and thousands of tons and millions of gallons of commodities travel over what amounts to a ribbon of commerce linking the South and Ohio Basin with the Twin Cities. But maintaining that highway — or expanding its capacity — comes at an environmental cost. There is always a price to pay when an environmental resource is used, and the Mississippi is no exception.

Even at its present level, towboat traffic has an impact. To keep the river deep enough for barge traffic it must be dredged. And dredge spoil hurts fish, wildlife and plants. Chemical contaminants in the sediment complicate efforts to dispose of it. To resuspend contaminants is bad but likely to happen if spoil is not properly placed and contained. In addition, propellers from daily barge traffic turn up polluted sediments; oil spills occur, and fleeting areas threaten shorelines and wildlife habitat.

Lock and dam 26 at Alton, Illinois is the focus of an environmental-economic controversy. Now in the process of being replaced by a new lock twice as big (1,200 feet), construction of still another with a 600 foot chamber has been recommended. The resulting increased barge traffic will hurt the river environment in Wisconsin, affect tourism, railroads and Great Lakes ports.

All these environmental impacts from commercial river use — and more — surfaced during Congressional debate that led to directing UMRBC to develop a proposed Master Plan for the River north of Lock and Dam 26 at Alton, Ill. It was the controversy over lock replacement and expansion that resulted in the Congressional directive to consider the environmental impacts of increased barge capacity and commercial navigation. And it is through the public hearing process this fall that Wisconsin citizens and people up and down the river will have the chance to share their feelings about whether the unique nature of the river will be adequately protected in years ahead.

Pre-hearing lobbying has been intense. Environmental, hunting, fishing and recreational boating groups have been organizing on one side. Commercial barge operators and their constituencies are on the other. Fitting in somewhere between are the railroads, whose own economic interests might be affected by the number and sizes of barges allowed north of Alton.

Actually, like ripples from a pebble, a whole series of concentric controversies has emanated from Alton and the Corps of Engineers for more than a decade. As long ago as 1964, environmentalists worried that initial Corps proposals for reconstruction of Lock and Dam 26 was the prelude to a 12-foot navigation channel. Twelve is three feet deeper than the one now authorized and by itself could cause profound ecological harm to Wisconsin's stretch of the Mississippi. Although this dispute has been dormant lately, the 1,200 foot lock now being built at Alton, by some coincidence, is deep enough to handle a 12-foot draft if need be. In addition, environmentalists suspect that once the two replacement locks at Alton are firmly in hand, there will be a push for similar expansion of the other 25 locks upstream, one at a time in stairstep fashion.

Even the legislation that mandated development of the Master Plan for Congress compromised a controversy. The first proposal was to build two locks at Alton. But environmentalists, railroads and others whose interest would be affected urged studies first to find out what would happen. Congress finally okayed one 1,200 foot lock but asked for more environmental, economic and recreational data before deciding about the second. Gathering the data was assigned to the UMRBC and the deadline for the report to Congress set at January 1, 1982.

When traffic doubles, more and more barge fleeting areas like this will monopolize the riverbank. Terminals, repair docks and mooring sites will increase. Recreation seekers will be squeezed out, habitat wrecked.

Duck hunting and habitat for waterfowl on the river are threatened by increased barge traffic. There may be serious effects on angling as well.

Funding shortages and an earlier than expected project deadline meant some of the efforts to determine long term environmental impacts of certain activities were not fully investigated. This troubles conservation agencies, hunting and fishing clubs and environmentalists up and down the river. They say — at the very least — more time and money are necessary to study what might happen to the Mississippi if more and bigger barges are to use it. This is one of the concerns expressed by Wisconsin DNR staff, who point out that some ecological studies that were supposed to take four years were cut to 19 months. It was a case of not being able to predict the impact of more barges simply because there weren't enough seasons and wasn't enough time to develop scientific models and predictions. The result is that few precise judgments can be made about the environmental impact of increased barge traffic based on studies made to date. If the Commission recom-

mends expanded lock facilities at Alton, the least conservationists should expect is a strong Commission position on the need for continued, intensive research.

DNR is especially supportive of two UMRBC preliminary recommendations that are important to Wisconsin and the Mississippi as it touches our western border. The first calls for long-term resource monitoring on the river. The other would authorize a $190-million program to reverse both natural and manmade environmental damage. If approved by Congress, they may finally make data available for judgement before the next big push comes for another new lock someplace further upstream. The projects will go a long

Regular dredging by the Corp of Engineers maintains the nine foot channel. But dumping dredge spoil is a big environmental problem. Among other things, it blocks sloughs, destroys habitat, cuts off light for plants, gets churned up by propellors and hurts fish. More barge traffic means heavier damage. ▶

▼ It won't be long before this backwater lake turns into dry land. Barge prop wash kills millions of baby fish.

way toward repairing some of the damage already done by barges, dredge spoil deposit and sedimentation. One would spend $5.2-million on rehabilitation near Cassville. Another is across the river at Weaver Bottoms and would cost $3-million.

Meantime, what has been learned so far about the environmental effects of increased barge traffic merits concern. Garnered from the 19 months of study and earlier work by the Great River Environmental Action Team (GREAT), the information also includes results of so-called "impact panels." These were convened as a substitute for actual studies. They let scientists in various river disciplines get together and brainstorm educated guesses about what towboats might do.

Here are some random excerpts from various reports:

Between Wyalusing and Minneapolis 25% of the open water habitat has been converted to nonwater in the past 34 years. Even without an increase in traffic. In the next 50 years most of the backwater lakes will become marshes — in 100 years dry land.

If towboat traffic on the river doubles, turbidity along the Wisconsin stretch could increase by 31%, erosion by 23% and backwater sedimentation by 19%.

River dredging increases turbidity and sedimentation, reduces dissolved oxygen, releases contaminants from polluted sediments and destroys aquatic and terrestrial habitat, depending on disposal methods and location. It smothers bottom dwelling organisms and destroys fish spawning, nursery and feeding areas.

During a three day period along only 1,000 feet of river near Genoa, towboats killed more than one-million larval fish. Nobody knows whether or not this hurts recreational and commercial fishing. And nobody knows exactly where the Mississippi's juvenile fish live from the time they're fry until they're fingerlings.

More barges will also mean habitat destruction for birds, furbearers and other wildlife. Photosynthesis, plants and plankton are adversely affected and creatures that depend on them for food likewise suffer.

Manipulation of water levels to maintain the nine foot channel dries out fish eggs or washes them away. Manipulation floods waterfowl nests, exposes and destroys plants and bottom organisms that are food for other species and hurts muskrat production.

Forty percent of the river's recreation seekers say they'll look for a different spot if barge traffic gets too heavy. In 1975 more than four-million fishing activity days were recorded on the Wisconsin stretch of the Mississippi. There were also large numbers of hunters and boaters. Changes wrought by barges could have a significant detrimental effect on the river's tourist industry in Wisconsin.

No studies have been done on the effect increased Mississippi River barge traffic would have on Wisconsin's Great Lakes ports. It is possible that substantial cargo could be diverted at a time when many port cities are expanding facilities in anticipation of heavier grain shipments.

The environmental work team of the UMRBC concluded its studies with these words....

"The Upper Mississippi River System as we know it today is destined to become a navigation channel and little else within the next century unless we take action to halt the degradation. Information available to date indicates that increases in barge traffic will hasten the long term deterioration that is the result of the locks and dams and sedimentation from uplands and tributaries.

"The multi-purpose system already mandated as an integral part of the National Fish and Wildlife Refuge System and as a nationally significant commercial navigation system — will convert to a single purpose system, useful only for commercial navigation and development, unless action is taken to give equal or greater priority to protect, preserve and enhance the natural environment that remains. It is a misconception to think that the construction of the lock and dam system was an indefinite boon to the natural environment. Its positive effects are only temporary. The natural river would have taken thousands of years to fill in. Man will accomplish that same feat in the next 100 years if no action is taken.

"It is imperative with or without any expansion of navigation capacity that Congress provide funds for an extensive program of habitat rehabilitation and enhancement, on-going resource monitoring and upland erosion control. This is essential if we are to maintain the existing natural resource base of the system under current levels of navigation. It is even more critical if Congress continues to authorize actions which will enable the expansion of commercial navigation on the Upper Mississippi River System."

FISH SPECIES HURT BY LOSS OF BACKWATER HABITATS

- Gizzard shad
- Bigmouth buffalo
- Smallmouth buffalo
- Carp
- Golden shiner
- Bluntnose minnow
- Silvery minnow
- Red shiner
- Blackstripe topminnow
- Mosquitofish
- Freshwater drum
- Yellow bullhead
- Channel catfish
- Flathead catfish
- Northern pike
- White bass
- Largemouth bass
- Spotted bass
- Orangespotted sunfish
- Green sunfish
- Bluegill
- Redear sunfish
- Black crappie
- White crappie
- Walleye
- Sauger
- Yellow perch
- Bowfin
- Longnose gar
- Shortnose gar

The Wisconsin hearing on the Master Plan will be held Thursday, November 5th at the University of Wisconsin-LaCrosse Cartwright Center, 1725 State Street. For more information on the Master Plan see the gold-colored insert at pages 16 and 21.

Guest editorial page 31.

The readers write!

I'd like to respond to the reader who thinks auto emissions testing is a "futile inspection boondoggle."

Ozone hurts people with lung problems, costs the general public millions. Carbon monoxide debilitates people and helps form ozone. Motor vehicle exhaust accounts for most of the carbon monoxide that hurts us. Emission controls and inspection will reduce it, clean the air for healthy breathing.

The Wisconsin plan is a necessity, not a ripoff. Ask the emphysema sufferers victimized by high ozone levels in Milwaukee last July.

KATHY KAEHLER, Communications Coordinator
American Lung Association of Wisconsin,
Milwaukee

In the article "Coho aren't king" (May-June 1981), I question the statement that anglers here catch only 5% of the coho Wisconsin stocks. This statement is very misleading.

Over 40% of the coho caught by Wisconsin anglers can be credited to the state's coho stocking program — not 5%, as a reader might interpret.

True, chinook are more economical to raise than coho. But survival, once the fish are released, is higher in coho than in chinook.

Coho may never be king, but they remain the bread and butter fish of Lake Michigan.

DR. JAMES A. NORDSTROM, Kenosha

It's true that only 5-7% of the coho Wisconsin stocks are caught by Wisconsin anglers. Of 458,000 planted in' 1980, approximately 32,000 will be netted by anglers in this state.

But it's also true that of all coho caught here, 60%, about 50,000, are salmon stocked by Michigan, Illinois or Indiana. Obviously, that means 40% are Wisconsin fish.

The apparent discrepancy arises over the difference between fish caught and fish stocked. Not all fish stocked are later caught — many die or are eaten by bigger fish before reaching maturity.

It's also true that coho survive better after stocking than chinook. But survival rates only make sense viewed in terms of the total numbers that can be stocked. Many more chinook can be stocked for the dollar than coho, and that more than offsets the difference in survival rates. It's just a matter of getting more chinook than coho per buck, and in these days of shrinking government dollars for most everything, that's a big difference.

In your Devil's Lake story (July-August 1981) I found a picture of my brother. He's the man with a "monkey" on his lap. Actually it's a Chacona baboon. The girl with the turban sitting beside him is me! My father owned a cottage directly adjacent to the Cliff House foundation, which at the time was in ruins from a fire, I believe.

MARGARET CLARK, Beaver Dam

Since there haven't been any comments on your article on wolves in the March-April issue, I will make mine.

First off, I'm sure that more people would be happier to see the tracks of 20 to 50 more deer than those four-inch-wide tracks of a wolf. The people happiest about having wolves are those who spend all their time writing about them, putting transmitters on them and tracking them. All this is paid for by our tax dollars.

The new people in control in Washington look at government differently and maybe they'll correct this foolishness and get rid of those people, if that's all they can find to do.

We are not being selfish when we eliminate rats from our grain bins or mice from our cupboards. Having no wolves in our woods is no different. Wisconsin contains no remote wilderness where wolves are really necessary. There is a large difference between this and large areas where wolves can be tolerated, as you described.

LAWRENCE KRAK, Gilman

Congratulations on the very timely article about groundwater. Laurie Mann presents a good overview of current status and concerns.

A minor error, though. One picture caption says "Serious health effects for babies and pregnant women can result from nitrates." True, pregnant women were advised to avoid nitrates for many years. But recent research resulted in dropping the advisory for pregnant women. Since then, we've tried to dispel the inaccurate belief that nitrates can harm expectant mothers. Now, the only known health danger from high nitrates in drinking water is to infants under six months of age.

ROBERT BAUMEISTER,
DNR Public Water Supply

In your article about Devil's Lake (July-August 1981), you said the Cliff House there opened in 1866, just 16 years after Wisconsin statehood.

Looks like someone's math faltered. Wisconsin statehood dates to 1848.

LOREN H. OSMAN, Regional Reporter, Milwaukee Journal

Let's see ... 8 from 16 is 8, carry the one, 4 from 5 is ... oops!

Reviewing covers on past issues, I find natural photographs the most appealing overall. The hazardous waste (July-August 1981) cover has a lot to say for itself but its proper place is *inside*, with an article.

Can't please everyone all the time, but my vote is for natural pictures about natural resources. And that includes little kids in yellow slickers (March-April 1981). After all, are not our children Wisconsin's greatest resource?

JOHN BOCK, Bayfield

You asked for it. I go along with the letter criticizing your covers (Readers Write, July-August 1981). You can add the hazardous waste cover from the above issue to the list.

There are many good nature shots to use for your covers. I'm sure your readers will be glad to supply them. Some covers make great scrap-book pictures or are suitable for framing, so don't ruin them with labels, etc.

I enjoy your magazine. Your *Catch-all* feature is great.

R. MERGENTHALER, Milwaukee

The Wisconsin hearing on the Master Plan for Managing the Upper Mississippi River will be held Thursday, November 5th at the University of Wisconsin Cartwright Center, 1725 State Street. For more information on the Master Plan see the gold-colored insert at pages 16 and 21.

Story on page 26.

The Mississippi: an endangered river

Guest Editorial
by JAY REED, Outdoor Writer,
The Milwaukee Journal

Of all the endangered species in the Upper Midwest, none is of greater importance to more people than the Mississippi River.

The Mississippi? Endangered? You bet. Here's why.

The Great River serves two masters. On the one hand, it is the very backbone of mid-America's inland water commercial transportation system.

On the other, it is a vast outdoor playground serving the recreational pursuits of hunters, fishermen, trappers, pleasure boaters, campers, bird watchers and a varied assortment of nature buffs and environmentalists.

And it looks like the first is destined to kill the second. That makes the river endangered.

The Upper Mississippi River Basin Commission has been told by one of its environmental work teams that, within 50 years, the river will be dead as a recreational force unless steps are taken to control barge traffic.

What was the reaction? The commission is moving to double barge traffic on the river by the year 2000.

Given that, then, it is possible to say this:

Water levels on the river and its backwaters will continue to be manipulated according to the needs of commercial traffic thus indiscriminantly killing untold numbers of fish and wildlife either directly or indirectly by disrupting spawning and breeding.

Dredging main navigational channels will continue thus choking more feeder streams, disrupting natural water flow and causing continued sediment buildup that will ultimately fill most every slough and bay and pond and pool off the main river.

The prediction of the environmental work team of the river's recreational death within 50 years will come true.

And generations yet to come will be cheated because we — you and I — allowed it to happen.

It's all so sad.

Readers are invited to express opinions on published articles. Letters will be edited for clarity and conciseness and published at the discretion of the magazine. Please include name and address. Excerpts may be used in some instances. Letters to "The readers write" should be addressed to Wisconsin Natural Resources magazine, Box 7921, Madison, Wisconsin 53707.

Front cover:
"Early Autumn" by artist John Wilson, courtesy Wild Wings, Lake City, MN 55401. For the inside scoop on how Wisconsin's deer herd is kept in prime shape, see page 4.

Back cover:
Downy woodpeckers by artist Jonathan Wilde, Rt. 1, Belleville, WI 53508. Woodpeckers are just one of over 85 birds that use dead snag trees. For others, see page 32.

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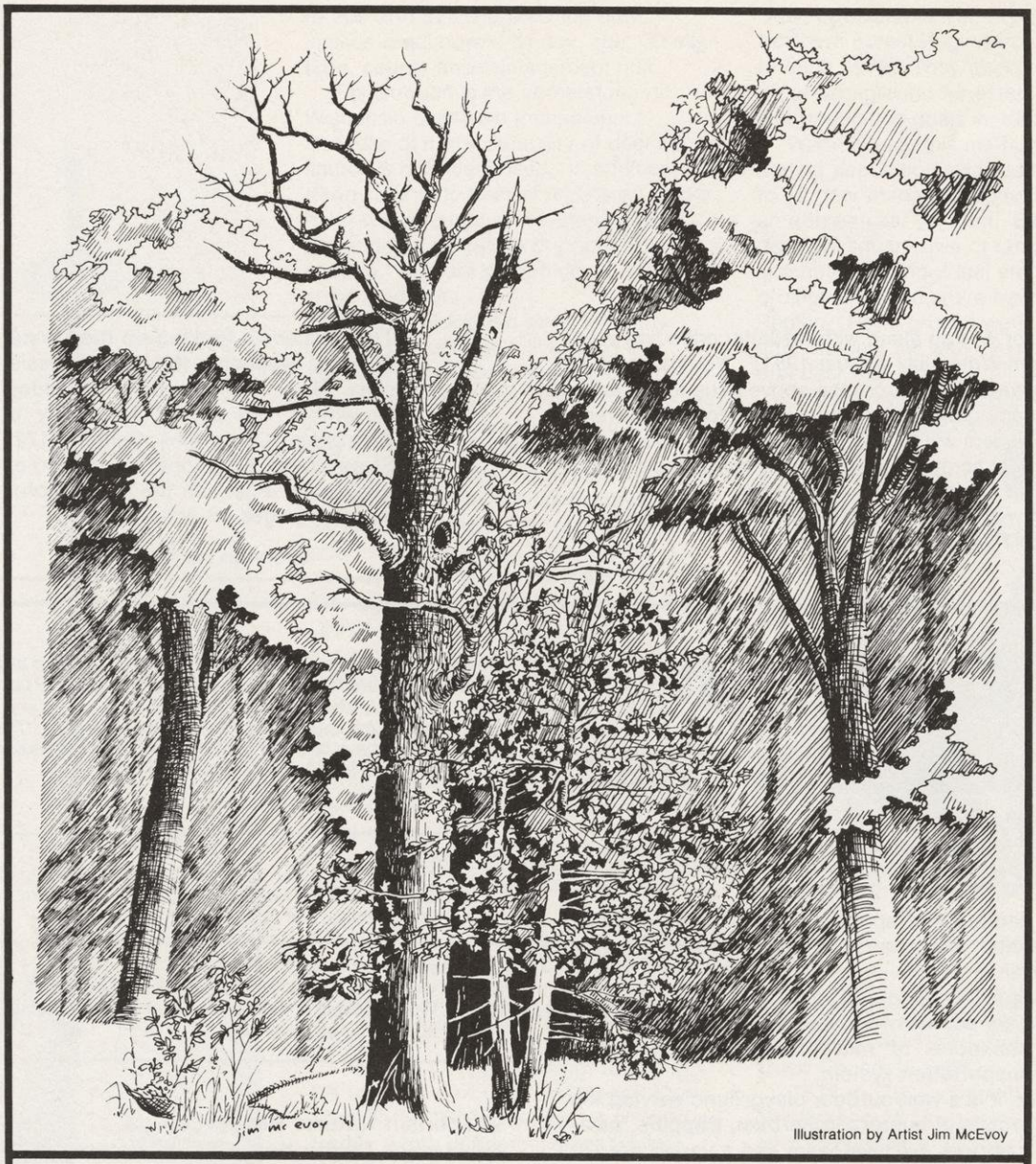

Illustration by Artist Jim McEvoy

WOODSMAN
SPARE THAT SNAG

Who says dead wood is unproductive? Woodlot snags may have a higher purpose than fueling the fireplace.

INGA BRYNILDSON
Communications Coordinator,
DNR, Office of Endangered Species

Dead wood. Lumberjacks and backlot woodsmen have a cord of names for it — cull, wolf tree, tinderbox, lightning rod, widowmaker, organ pipe, deadfall and snag. They've all come to mean one thing — pretty much useless. Something that just takes up space and should be cut down. (Got any "dead wood" in your office?)

In lumbering days past, snags were the first to get axed. Nothing but fire traps, insect snares and safety hazards. But foresters have found a "snag" in this old practice. In fact, the US Forest Service now encourages woodlot managers to save old, dead trees. Reason for the about-face is a lesson in forest ecology and economics.

In nature's scheme of waste not — want not, even dead wood is put to work. As a tree dies and decomposes, it may have a series of tenants. Take for example a mid-size oak on the outskirts of a Wisconsin woodlot. First something breaks off a small branch — wind or maybe a tree-climber. Brown creepers nest in the split of the bark. Fungus and insects hollow the injury enough to accommodate white-breasted nuthatches. As the trunk decays, "primary excavators" like red-headed woodpeckers or common flickers go pecking for insects and chisel nest holes.

When that generation leaves,

"secondary users" such as grey squirrels, saw-whet owls, raccoons or bluebirds claim the hollow. As the tree becomes limb-bare and stripped of bark, Wisconsin's largest woodpecker, the huge pileated, drills into the standing hull. Once the tree topples, black-capped chickadees dig a nest in the rotted stump. Each generation prepares the way for the next until the log flakes to humus on the forest floor.

And this little snag life-history is by no means complete. At least 85 North American birds are cavity-nesters. A northern Minnesota study counted 11 primary excavators and 23 secondary snag-using birds in forests similar to northern Wisconsin. In addition to birds, 30 mammals plus 13 reptiles and amphibians bring the total to 77 snag-using vertebrates in northern forests. And that's not even counting all the insects these animals eat!

According to the Forest Service, the main thing limiting the number of cavity-nesters is lack of nest trees. Apparently, forest managers have done *too* good a job downing snags. To help save dead trees, in 1977 the service adopted a snag-management policy in national forests to provide habitat for viable, self-sustaining populations of cavity-nesting, snag-dependent wildlife.

The reason Smokey the Bear has taken this sudden interest in his forest friends is economics. Most snag-using birds are also insect-eating birds. According to the US Department of Agriculture, insects destroy a third of the food and wood produced in the US each year. Some insects have become resistant to pesticides. This makes insect-hungry birds like woodpeckers invaluable to foresters.

When bark-gleaning birds forage for bark beetles, termites, carpenter ants, sawflies, spiders and moths, they perform a valuable service. According to the Forest Service, if an insect outbreak strikes forests with healthy bird populations, birds can "buffer, contain or possibly eliminate the insect infestation." The Service notes other benefits too; natural predators cut down the need for costly pesticides, and help solve problems of pesticide resistance and the environmental danger of heavy application.

If the snag goes, so does the woodpecker and other insect-eaters. Long gone are the truly huge, great-grand-daddy den trees which housed the likes of peregrine falcons, barn owls and ivory-billed woodpeckers. The red-cockaded woodpecker, today an endangered species in the southern US, was probably once a major predator of the southern pine beetle, a pest that infested 29.5 million forest acres in 1980. If we ever hope to reduce America's pesticide habit, saving the snag should be a

"Red-tailed hawk". Painting by artist Arthur Singer, © The Frame House.

"Laughing Falcon". Painting by artist James E. Coe, 44 Hancock Street, Somerville, MA 02144

crucial part of sensible pest management. But learning to save snags may be one of those "you don't know what you've got 'til it's gone" lessons.

Nowadays, foresters are examining ways to *create* snags. Routing out holes in otherwise healthy trees is one method being tested. Ohio State University researchers are even experimenting with plastic trees. They placed 50 soft-plastic, eight-foot cylinders in woodlots. Within a few months, woodpeckers bored nest holes in 85%.

Most snag- and woodpecker-promoting strategies are more basic:

- Limit the size of clearcuts to 20-40 acres (It takes 20-30 years before a completely cleared stand is once again suitable for woodpeckers).
- Clearcut long, narrow, rather than square strips.
- Leave three to four-foot stumps when cutting trees. This so-called "high stumping" allows cavity nesters to move into what's left.
- Leave woody debris and underbrush in cut areas.
- Construct and attach nest boxes.
- Save snags.

In Chequamegon National Forest, timber managers now preserve at least two snags per acre. And the size of those trees is important too, since snag-users range from tiny chickadees to turkey vultures with 70-inch wingspans. The Chequamegon plan sets a minimum snag diameter of 12 inches at breast height. Generally, the larger the snag, the more species it will accommodate.

Saving snags is not just for loggers or backwoodsmen. Homeowners should keep in mind that snag-nesting swallows, swifts and purple martins are mosquito-eaters. Plus, if you like to watch birds and small mammals, snag trees (a safe distance from the house) draw them like no manufactured birdhouse ever will. Hang suet bags in winter to fortify the larder for woodpeckers.

With dead wood meaning fuelwood to more and more Wisconsin families, good, dry firewood is at a premium. If you cut wood, check for wildlife nests and dens before you chop. Leave plenty of good-sized snags standing. Cut green wood if necessary and let it dry a year or two. An upcoming DNR research project will examine wildlife use of snags and the impact of fuelwood-cutting on southern Wisconsin woodlots.

Perhaps the Forest Service should add a third mascot to its forest-wise team of Smokey the Bear and Woodsy the Owl. Maybe somebody should nominate Woody Woodpecker. What we need is a little more dead wood around here.

SOME BIRDS THAT USE SNAGS

Hairy woodpecker
Downy woodpecker
Black-backed three-toed woodpecker
Northern three-toed woodpecker
Great crested flycatcher
Tree swallow
Purple martin
Black-capped chickadee
Boreal chickadee
Tufted titmouse
White-breasted nuthatch
Red-breasted nuthatch
Brown creeper
House wren
Winter wren
Eastern bluebird
Prothonotary warbler
Wood duck
Common goldeneye
Hooded merganser
Common merganser
Turkey vulture
Peregrine falcon
American kestrel
Barn owl
Screech owl
Barred owl
Boreal owl
Saw-whet owl
Chimney swift
Common flicker
Pileated woodpecker
Red-headed woodpecker
Yellow-bellied sapsucker

◀ Osprey. Painting by artist John Ruthven, Wildlife Internationale, Inc., 6290 Old US 68, Georgetown, Ohio 45121.

American Kestrel. Painting by artist James E. Coe, 44 Hancock Street, Somerville, MA 02144.