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Iowa
CONSERVATIONIST

DECEMBER 1984

Iowa CONSERVATIONIST

Volume 43 No. 12 • December 1984

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COVER: Winter scene from Springbrook State Park.
— Photo by Ron Johnson.

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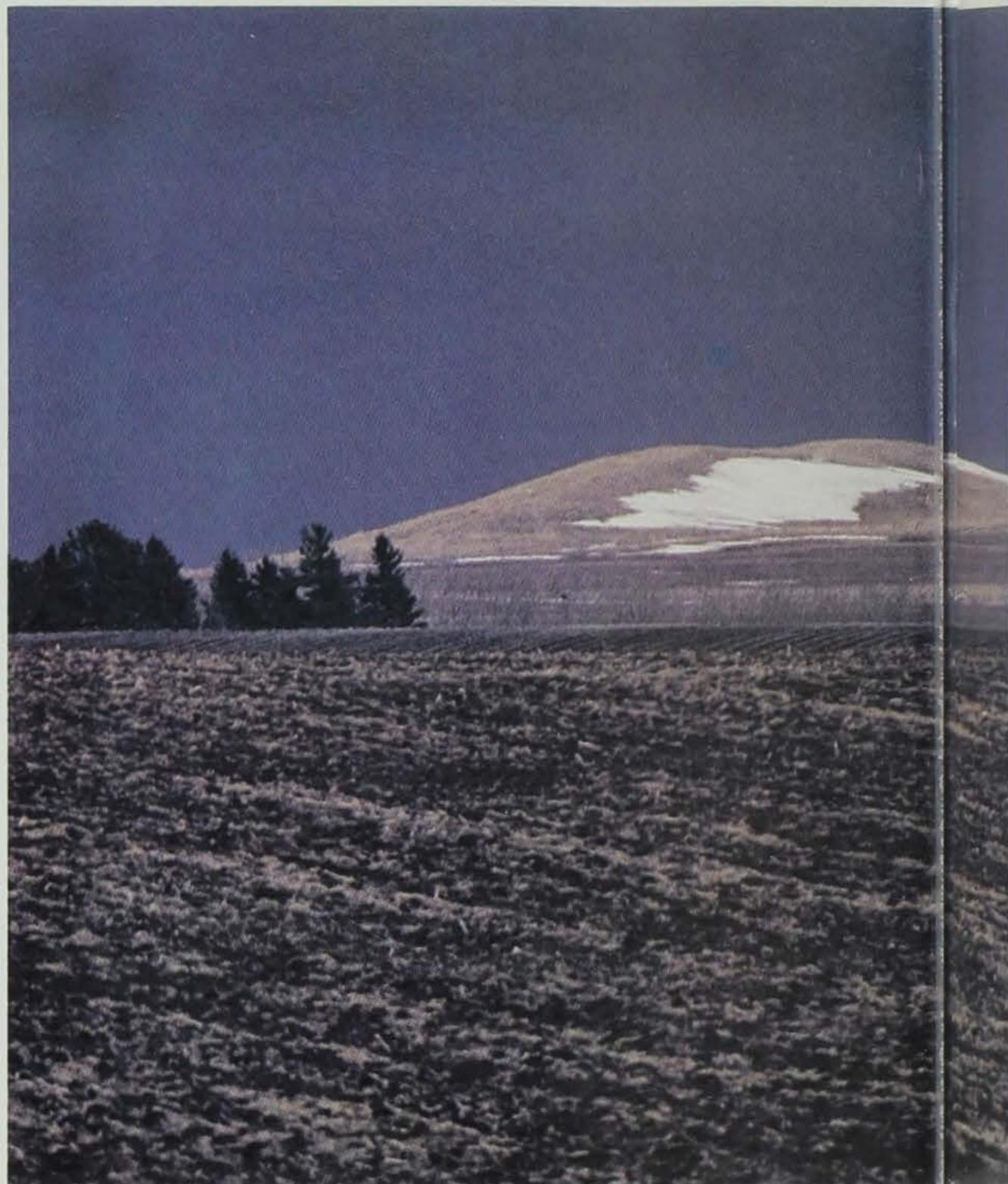
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IOWA CONSERVATIONIST (USPS 268-780), is published monthly by the Iowa Conservation Commission, Wallace State Office Building, Des Moines, Iowa 50319. Second class postage paid in Des Moines, Iowa, and additional mailing offices. Send changes of address to the Iowa Conservationist, Wallace State Office Building, Des Moines, Iowa 50319.

Send subscriptions — one year, \$5.00, two years, \$8.00, or 3 years, \$10.00 — to the address above.

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Photos by author



Ocheyedan Mound, (left) a large glacial "kame," is a northwestern Iowa landmark. Summer wildflower displays are the chief attraction to Iowa's most famous prairie — Cayler Prairie (below).

A HERITAGE OF ICE

By Douglas Harr

The Last Ice Age in Iowa

Imagine that we've just been transported far back in time. It is approximately 20,000 years B.P. (before present), and we have been dropped off somewhere in the midst of North America, about where the state of Iowa would be founded some 20 millenia later. Our first observation is to note the temperature is considerably cooler than to what we're accustomed, perhaps 15 degrees colder at any time of year.

Prehistoric humans are sparse, having arrived only recently to this continent via a land bridge connecting Siberia with Alaska. These are primitive people, dressed in animal skins for warmth. They are primarily nomadic hunters seeking prey with crude spears. The

animals they hunt are also different than those we know today. Dominant are furred, elephant-like creatures known as mammoths, grazing herds of caribou, long-horned bison, stalked camels, musk oxen and a four-horned ancestor of proghorned antelope called Stockoceras. Besides humans, these creatures are also preyed upon by saber-toothed tigers, giant dire wolves and other large predators long extinct by modern times.

The early hunters move gradually south with the years, following similar movements by their prey. Neither human nor animal realize exactly why, but they are being driven from more northerly haunts because the climate continues to cool. The fourth in a series of gigantic, continental glaciers is growing, spreading down into central North America from the earth's arctic ice cap. For nearly 2.5 million years much of our northern hemisphere has been buried periodically

by this ice, a time span collectively known as the Pleistocene Epoch, or the Ice Ages.

First it was the Nebraskan glacial stage, then Kansan, then Illinoian glaciers that covered much or all of what would someday be Iowa. Each stage was interrupted by long interglacial periods probably characterized by a climate somewhat similar to ours today.

At our particular stopping place in time it is near the end of the Sangamon interglacial stage. Some forces, not entirely understood even today, have caused the earth's average temperature to drop. It could be a slight shift or wobble in the planet's axis, causing the northern hemisphere to angle a little farther from the sun, or perhaps there has been a change in global magnetic polarity. Whatever the cause, snowfall in arctic and subarctic regions of North America, Europe and Asia has increased

tremendously. Summer warming is no longer enough to melt all snow that falls each winter, and this snow accumulates to incredible depths — nearly two miles deep over central and northern Canada.

As snow piles upon snow the lower layers are compacted by weight into ice. Ice, when placed under such very large pressure, begins acting like a plastic. The glaciers begin to move outward across the earth's surface, and there is only one convenient direction for this creeping ice sheet to go — south.

We next move forward a few thousand years in time to about 14,000 years B.P. The foot of the Wisconsinian glacier lies in present-day Minnesota. Out of the main glacier a lobe of ice comes pushing down into Iowa. It continues moving until it reaches approximately where the state capital building sits in Des Moines today. As it has traveled southward this gigantic wall of ice has behaved like a massive earth mover, picking up soil or rock and incorporating it into its icy mass. It scrapes the earth to bedrock, even plucking gigantic chunks of that bedrock and grinding it into smaller material.

But now the climate changes once again. The earth starts a slow warming trend. The wall of ice stops, then slowly begins melting and retreating back north. As it melts, water begins running off its face, carrying with it much of the rock, sand and silt trapped within the ice. This material piles up in large ridges and hills around the glacier's foot at first, then simply washes out in rivers and flatter outwash plains as the ice begins wasting rapidly away at a rate

of hundreds or perhaps thousands of feet per year. Left behind, beyond the flatter drift plain, these debris-laden hills form what we know today as moraine. Such deposits at the end of a glacial lobe are called terminal moraines, while those left at the outer boundary of its sides are called lateral moraines.

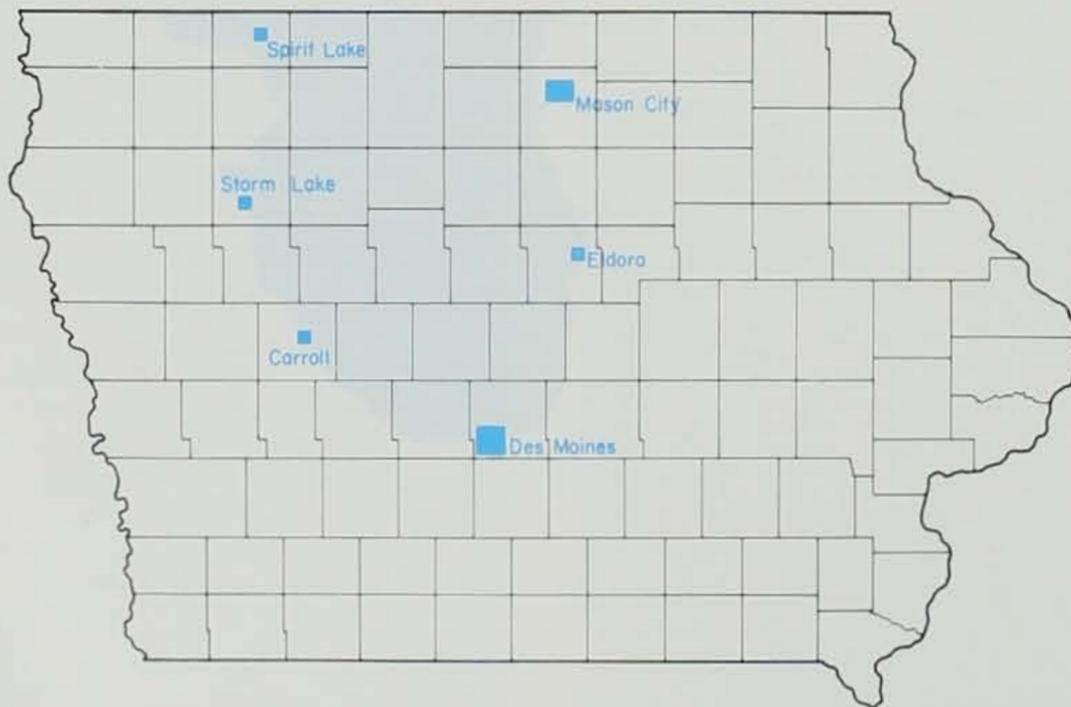
The climate has not yet stabilized completely; for periods of many years it temporarily cools, then warms again. The glacier stops, may even grow a little, then again retreats. Each time this occurs it leaves another range of knobby hills referred to as recessional moraines. Today we have even named each of the moraines in Iowa, and they may be readily observed in many parts of northern and central parts of the state. The outermost terminal and lateral bands are called the Bemis Moraine. This range of low hills may be followed by starting in northwest Iowa near Ocheyedan, proceeding southeasterly towards Spencer, then south to Storm Lake, from there roughly paralleling the Raccoon River and about 50 miles south of it, next swinging east to Des Moines. Tracing this moraine back up its eastern edge, it turns northeast from Des Moines to near Eldora, then north to Clear Lake and leaves Iowa near Northwood.

Recessional moraines may also be seen, of special note being the Altamont Moraine in the Spirit Lake and Esterville areas, plus the Humboldt and Algona Moraines, seen in the vicinity of their namesake cities. Within and near these morainal areas may be seen some other signatures of recent glaciation. It is here, trapped in these poorly drained-

moraines, that most of our natural lakes are found. Also visible are interesting features created only by glaciers: kames (peculiar cone-shaped mounds of gravel and sand), eskers (long serpentine ridges marking the path of an under-ice river), drumlins (bullet-shaped lone hills shaped by retreating ice), kettles (basin-like depressions where chunks of glacial ice melted in place) and fens (unusual upwellings of water on hillsides and hilltops, supporting unique plantlife reminiscent of the Ice Ages). These will be discussed later.

Between all the morainal formations of north central Iowa may be found the drift plains, relatively flat expanses of glaciated land. Here the ice melted at a fairly rapid and uniform rate, leaving little structure to the landscape, save for an occasional drumlin. It is this area of fairly heavy, black soils formed under prairie on the flat glacial plain that today ranks among the world's most productive farmland.

We now move forward in our journey through time. It is about 12,000 years B.P. The Ice Age has left Iowa a changed place after shaping it with a cover of ice some 1,000 to 5,000 feet thick. Temperatures continue their gradual increase over time, although cold winds blowing off the retreating ice sheet a few hun-



Approximate extent of the Des Moines Lobe (above), Wisconsinian Glacial Stage, in Iowa, 14,000 to 12,000 years before present. The Altamont Moraine (right) near Superior, several square miles of jumbled hills, marks a recessional moraine of the Des Moines Lobe.



dred miles north still affect our environment. Tundra-like vegetation eventually succumbs to spruce-fir forests around 10,000 years B.P., as evidenced by pollen samples taken from regional lake bottoms. Finally, decreased annual precipitation and increased temperatures result in drought and fires. Forest disappears and is replaced by the prairie vegetation still characterizing untilled Iowa land today.

More than just the landscape has changed. The vast herds of Pleistocene wildlife have also vanished for reasons no one yet completely understands. It was likely a combination of dwindling natural food supplies, fluctuating climate, perhaps even wasteful hunting by nomadic people (they often trapped animals in herds, killing all but using only a small portion for meat). Those ancient animals were replaced by prairie types we would recognize today — elk, bison, coyotes, wolves, grizzly bears and cougars. With one exception, these creatures existed in many parts of Iowa until white settlement in the 1800's — coyotes alone have managed to survive and even thrive around humans.

People likewise changed. As mankind's evolution progressed definite cultures developed and tribes emerged. Crude spears advanced into arrows fitted

with fine, sharp points. Because prey was more scarce (at least by their standards), means of hunting became more accurate and far less wasteful. The natives now lived at peace with their environment.

At last we travel on in time to about 150 years B.P. — the 1800's — and European immigrants plus former eastern U.S. dwellers begin settling Iowa, driving out the natives, slaughtering the remaining herds of game and turning prairie soil into farmland.

The rest is history.

Discovering Iowa's Glacial Legacy

For this part of the story we will take another trip. The difference will be that this journey is not in the imagination; rather, it is a tour of glacial landmarks that anyone can visit today.

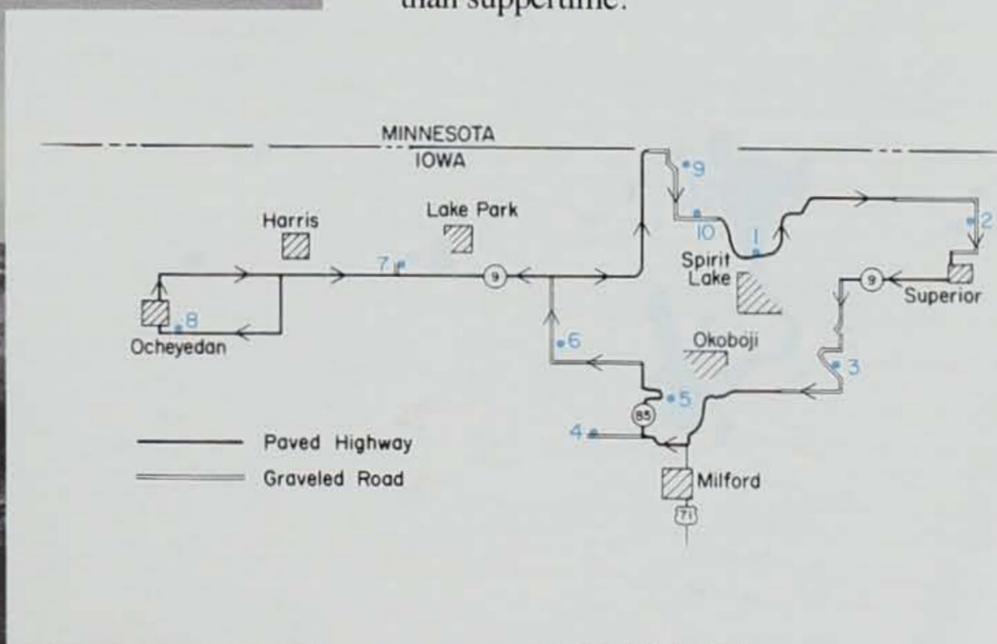
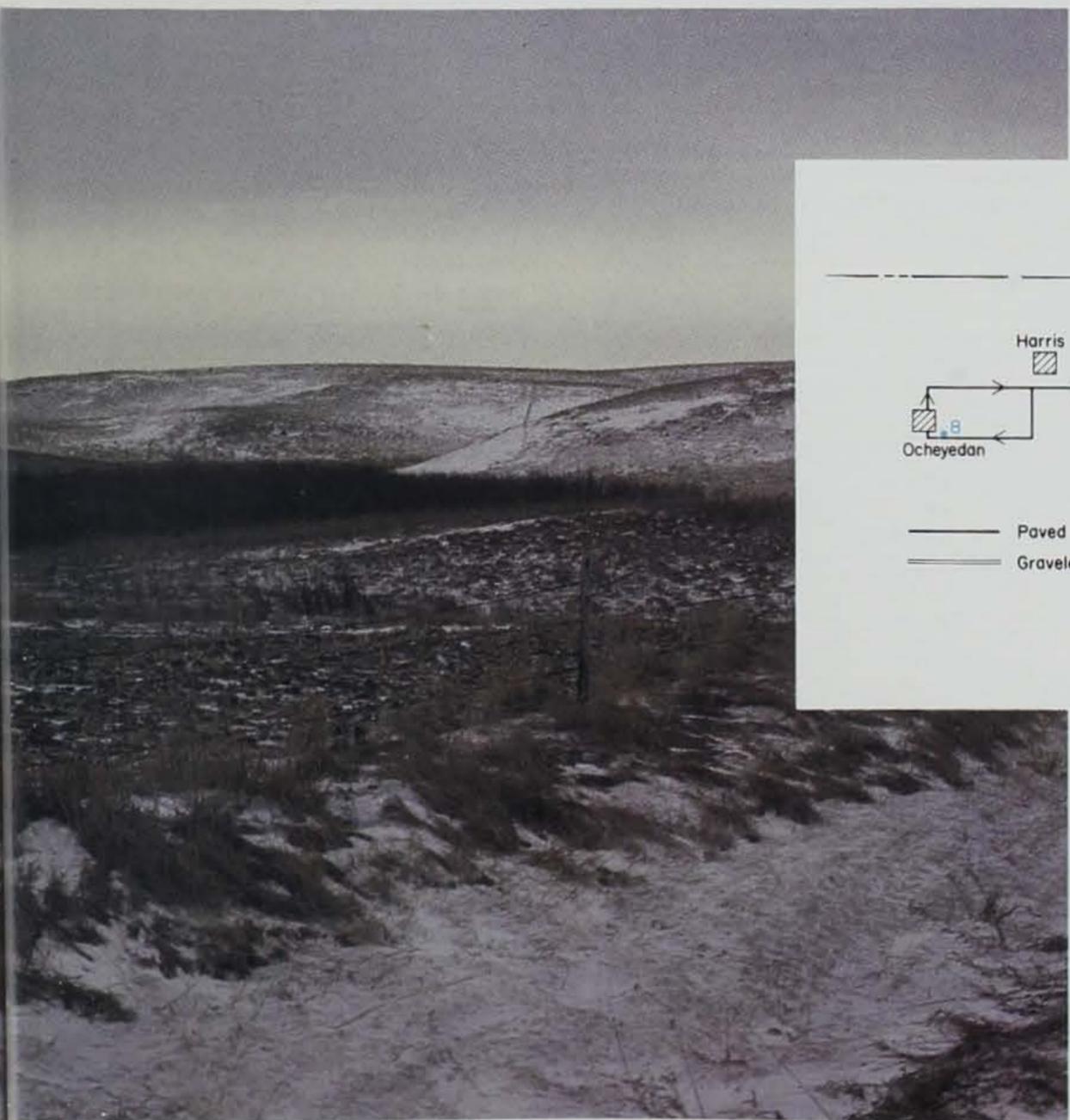
Perhaps nowhere in Iowa may the remnants of the last glaciation be seen more readily than in the famed "Iowa Lakes Region" of Dickinson and surrounding counties. It is here the great glacier left a landscape that has, to some extent, resisted being overwhelmed by agriculture. Although this region is heavily dependent upon a farming economy, it is almost as dependent upon

tourism for survival. The wealth of natural lakes and other resources make the area a haven for hunting, fishing, boating, sight-seeing and other outdoor recreational pursuits.

Over nearly 50 years the Iowa Conservation Commission has put forth much time and money in maintaining this region's resources. Today, local governments and private organizations have joined in the task of protecting what remains. Acquisition of lands for public use, protection of sovereign lakes and shorelines and preservation of unique glacial landmarks have keynoted this effort. Dickinson County alone boasts of over 21,000 acres of state-owned lands and waters, most of significant glacial origin.

For the rest of this article let's look at some important glacial remnants, particularly those concentrated in Dickinson and eastern Osceola counties. Here, in a day or two of touring, visitors might learn a little geology, observe rugged, rolling prairie carpeted with wildflowers, swim or fish in some of Iowa's finest natural lakes, picnic at one of numerous parks and observe or hunt (in season, of course) many varieties of wildlife.

Refer to the accompanying map and the following list of postglacial landmarks to see. This might give visitors to the region a pleasant, if full, day of touring. If you would wish to stop at each place for any amount of time, plan to leave early in the morning and return to campsite, cabin or lodgings no earlier than suppertime.



*Iowa Great Lakes Region
Glacial Landmarks Tour*

Approximate Distances Between Points

points	miles
1-2	10½
2-3	10½
3-4	11½
4-5	4½
5-6	6
6-7	9
7-8	10½
8-9	27
9-10	3
10-1	3½
Tour total	96mi.

1. *Spirit Lake* — Our tour begins on the south shore of Big Spirit Lake, Iowa's largest natural body of water. The lake is a typical glacial dam lake. This south shoreline, known locally as the "Isthmus," is actually a ridge or dam of glacially deposited sand, silt and rock. The natural dam caused melting glacial ice to form a large lake behind it. A profile of Spirit Lake reveals a flat bottom, much like a frying pan in cross-section; this may have been the site of a melting ice chunk which broke away from the wasting glacier. Many of the rocks and shoreline materials were probably carried by glacial ice from hundreds of miles farther north then deposited here during melting. While you're on this shore you may want to visit the Spirit Lake Fish Hatchery, also situated on the Isthmus. This modern hatching facility is open to the public during normal working hours, and each April and May it is open seven days a week during peak hatching activities.

2. *Little Swan Lake-Christopherson Slough Wildlife Area* — This complex of nearly 916 acres offers fishing, hunting, hiking, birdwatching and other activities. While itself situated on the Altamont Moraine, just south of the state land may be found probably the most

rugged moraine in Iowa. If you park along the east-west graveled county road about a mile south of Little Swan Lake, you can look out for miles over the huge, pastured heaps of rubble left by receding glacial ice. Because of the steep slopes and high sand and gravel content of this land most cannot be used for agricultural crops.

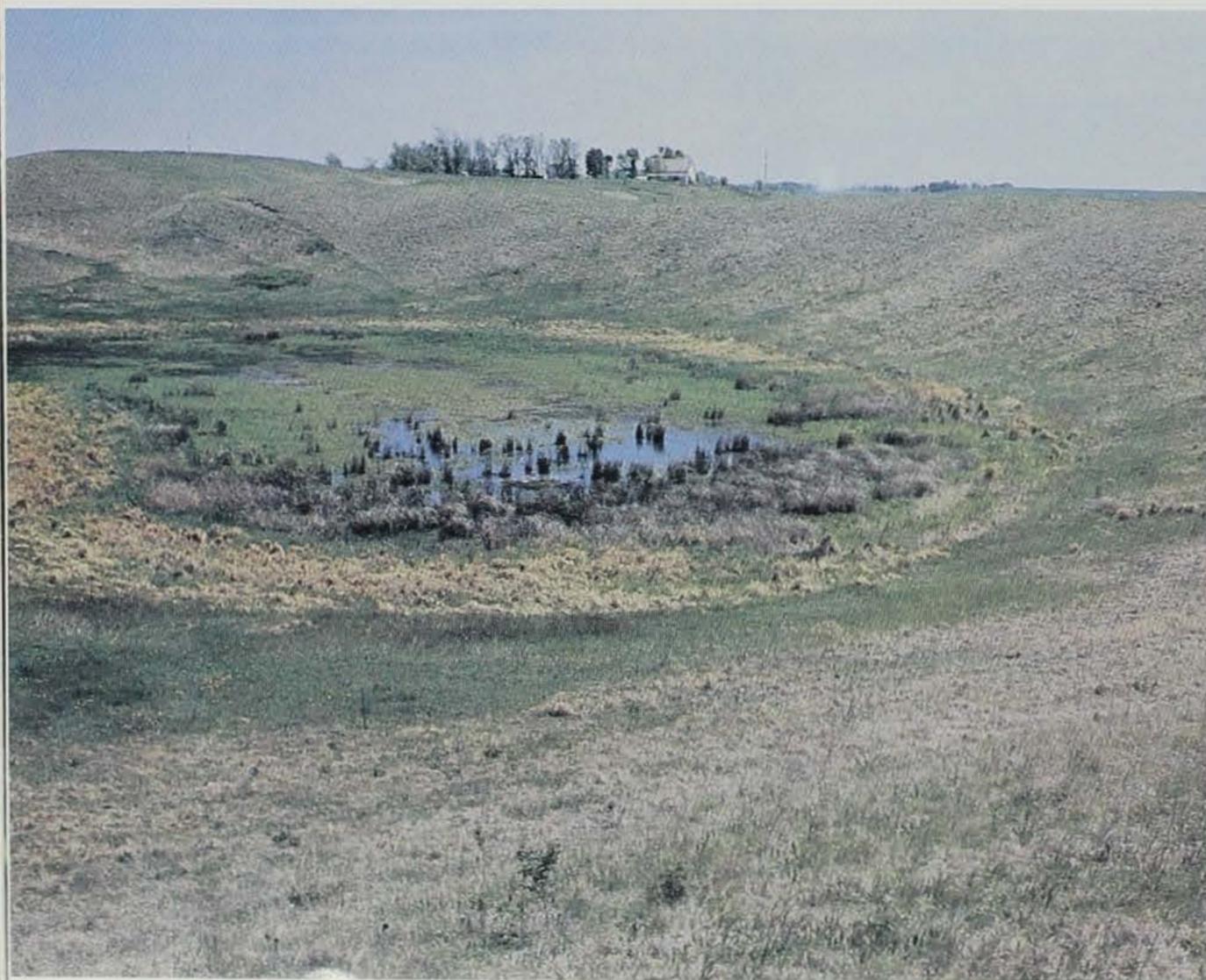
3. *Spring Run Wildlife Management Area* — Here we find a patchwork quilt of state-owned lands and larger lakes interspersed with many small marshes and totaling over 970 acres. This is an excellent example of "prairie potholes," those poorly drained areas of recent glacial moraine more commonly seen in the prairies of the Dakotas and Canada. Such landscape is extremely attractive to nesting waterfowl and other aquatic bird life, thus earning the area a reputation as a "duck factory."

4. *Freda Haffner Kettlehole Preserve* — Just two miles west of West Okoboji Lake's southern tip we find this privately owned landmark. The Nature Conservancy owns and maintains the area as one of the finest examples of a glacial kettle anywhere in the Midwest. Leave your car at the small roadside parking lot and hike a mowed path about 300 yards

northwest. You'll arrive at the rim of a depression nearly 500 feet in diameter and about 50 feet deep. As the great Des Moines Lobe melted away a large chunk of ice broke off and lodged at this site. The ice block melted and sloughed off its load of sand and rock, depositing it rather uniformly around the outside. Although privately owned the tract is open to public visitation and is designated a State Preserve in order to protect rare prairie flora. Visitors are asked not to dig or disturb any plants or remove any materials from the site. The kettlehole does make for some good photographic opportunities.

5. *Gull Point State Park* — It's probably about lunchtime by now, so the next stop on our tour should be this beautiful promontory point jutting into the clear waters of West Okoboji Lake. While you enjoy a picnic near lakeside, ponder the origins of Iowa's most famous lake. It, too, was left by the glaciers. There seems to be some discussion about the actual processes that formed the lake. Perhaps the ice gouged out a kind of canyon here or maybe it simply melted in place, with the force of running water carving out the lake's rugged 140-foot depths. Though threatened by pollution West Okoboji is still likely our purest natural water, its cool, clear depths beckoning visitors and permitting nearby towns to draw their water supplies. Just across from the park's main entrance is an attractive hiking trail. The Conservation Commission acquired a former Boy Scout camp in the 1970's and now maintains a well-groomed path complete with self-guiding brochure to the plants and other points of interest. It's well worth the walk.

6. *Cayler Prairie* — Iowa has long been a leader in preservation of remnant native prairies. Cayler Prairie has been the cornerstone of that effort since its purchase in 1960. This 160-acre parcel of native grasslands, untouched by the plow, offers us an authentic glimpse at what much of Iowa looked like a century ago. Over 265 species of plants exist here, some found almost nowhere else in Iowa. The state's universities and colleges send their botanists and plant ecologists here for training; many of the colored flags, small cages and metal tags seen on the prairie each year are indicative of extensive research. Plantlife is protected as at the kettlehole because this is also a State Botanical Preserve. The knobby hills populating Cayler Prairie are another manifestation of the Altamont glacial moraine. Because the area is so full of rock and sand it remained



Freda Haffner Kettlehole Preserve is an unusual bowl-shaped depression where a chunk of glacial ice melted in place.



Small white lady's slipper, a wild orchid, is found primarily on glaciated wet prairies of northern Iowa.

The Ocheyedan Mound is a significant glacial feature called a "kame." Here, a hole melted through the wasting ice and the glacier's debris load was deposited down that hole into a rather neat, conical mound. Small kames are numerous throughout morainal country, but few can equal this particular formation. It lies on the Bemis, or outer recessional moraine, marking the farthest western advance of the Des Moines Lobe. A local historic landmark, the Ocheyedan Mound was frequently used by plains Indians as a lookout and has been a tourist attraction in northern Iowa for decades. From certain locations it appears to loom over the horizon like a dormant volcano.

9. *Grover's Lake Wildlife Area and Koppen Prairie* — The Iowa Conservation Commission only recently acquired this large tract of wildlife land. Including wetlands and native prairie it will be managed as part of the nearby Kettleton Hogsback Wildlife Management Complex (see tour stop #10, on the map). Grover's Lake straddles the Iowa-Minnesota boundary and prior to purchase was one of the state's largest remaining private wetlands.

In 1985 work will continue to renovate native haylands into prairie, erodible lands will be permanently seeded and already suitable wildlife habitat will be improved. On the far eastern edge of this tract is a small area now designated "Koppen Prairie," named for the family which owned and preserved this land for over a century. If you care to hike about one-quarter mile to find this ridge-top prairie you'll discover what may be one of our most interesting glacial relics. Standing atop the ridge you'll note its long, sinuously curved top extends onto private land a considerable distance both north and south. It is believed this is probably an "esker," essentially the path where a meltwater river carved its way under melting glacial ice. Eskers abound in glaciated areas of Minnesota and Wisconsin, but only a few are known in Iowa. Most eskers are extremely high in sand and gravel content; this particular example has more silty material than is usually expected. More explorations are needed to positively identify this landform, although its characteristic shape

impossible to farm, and for that reason it remains intact today.

7. *Silver Lake Fen* — Probably once quite common in Iowa's glacial moraines, high-quality fens are now seldom encountered. One exception is the fen designated a State Preserve at the southwest tip of Dickinson County's Silver Lake. Fens are unusual upwellings of cold water, frequently on a morainal hillside or in small dome-shaped formations. Water seeping from the ground is very high in carbonates and sulfates and tends to collect in little natural terraces. On and around these water-filled terraces grow some of the state's rarest flora. Many species at Silver Lake Fen are either threatened or endangered. Extreme caution is urged should you visit the fen; even stepping on certain of these rare plants might spell their doom. A few, narrow foot trails may be found during summer months, created by researchers studying this fen and its

flora. Visitors must stay *only* on these paths and wear rubber foot gear — the earth underfoot is high in peat, completely waterlogged, and it quakes or sometimes gives way as you walk. Mosquitoes, ticks and other insects are often abundant. Casual visitors might be forewarned that the fen is not an easy place to visit. For most people simply viewing the fen terraces from the area's access road may constitute a sufficient visit.

8. *Ocheyedan Mound* — This prominent Iowa landmark was once thought to be the state's highest elevation but was surpassed a few years ago when a farm feedlot near Sibley was determined to be higher. Still, "The Mound" is an imposing bump on the rolling plains of Osceola County. In 1983 the site was donated to the Iowa Natural Heritage Foundation, which in turn deeded the property to the Osceola County Conservation Board. In October, 1984, the mound was officially designated a state preserve.

Kettleston Hogsback Wildlife area (right), a complex of glacial wetlands, woods and open fields lies in the morainal hills just west of Spirit Lake. Terraces of water and unusual flora help define Iowa's little-known fens, such as Silver Lake Fen Preserve (inset), another remnant of the Ice Age.



and location almost certainly assure it is truly an esker. Because this area is newly acquired, no parking facilities have yet been developed. It may be necessary to leave your vehicle along the county road at the tract's southwest corner in order to walk in.

10. *Kettleston Hogsback Wildlife Management Area* — The last stop on our glacial tour is this complex of state-owned wetlands, uplands and sovereign lakes totaling approximately 1,421 acres. It serves as operating headquarters for northwest Iowa's Big Sioux Wildlife Management Unit and is located on "knob and kettle" topography of the Altamont Moraine. Drive back to the parking area and stop at the visitor information display. Here you'll find an area map, hunting and fishing regulations, a list of area birdlife and other items to acquaint you with the facility and its wildlife. A system of public hiking trails for wildlife viewing permits various walks of from one-fourth mile to over three miles in length. Trails are heavily wooded and lead up the high "hogsback" ridge for which the area is named. This ridge is a result of two

melting chunks of glacial ice casting off or pushing up debris between them. The hogsback rises to nearly 40 feet above Marble Lake on the east and Hottes Lake on the west. At its highest point the ridge is but a few yards wide. Following the trail as far east as possible visitors will pass tiny Sunken Lake, probably another kettle formation like that of the Haffner Preserve (stop #4). All of the area's lakes and wetlands are populated with giant Canada geese, part of the Conservation Commission's effort to re-establish these once nearly extinct birds. A 32 square mile refuge has been established to help protect and increase locally breeding geese.

That completes our tour of glacial landmarks in the Iowa Great Lakes Region. Many people know the area for its water-based recreation; fewer realize to just what we owe this wealth of lakes and related resources. Thanks to the great Wisconsinian Glacier this area of northwest Iowa was shaped into a landscape that plow and bulldozer could not completely eradicate. A rich bounty of plants and animals thus abound in these wetland-pocked prairies, unlikely to be

matched elsewhere in Iowa. The region is more than just a good place for swimming, fishing and boating. It could be considered a living museum of the last great Ice Age — one of nature's most incredible phenomena.

Suggested additional readings about the Ice Age in Iowa:

Prior, Jean Cutler, "A Regional Guide to Iowa Landforms." Iowa Geological Survey Educational Series 3. Iowa Geological Survey, Iowa City, IA. 1976.

Cooper, Tom C., Editor. "Iowa's Natural Heritage." Iowa Natural Heritage Foundation, Des Moines, IA. 1982.

Doug Harr is the wildlife management biologist for the Big Sioux Unit in northwest Iowa. He holds an M.S. degree from South Dakota State University and has been with the commission since 1972.

TIME TO REGISTER SNOWMOBILES

Snowmobile owners are reminded by the Iowa Conservation Commission that now is a good time to renew their snowmobile registrations as all current registrations expire Dec. 31.

Beginning in January, registrations will be valid for two years; Jan. 1, 1985-Dec. 31, 1986. All snowmobiles can be registered with the county recorder in the county in which the owner resides. There is a registration fee of \$12 plus a writing fee of \$1.

Any unregistered snowmobile can also be registered for the remainder of the current year and the subsequent two years. The fee is \$15 plus a writing fee of \$1.

The commission also noted that copies of the state's snowmobile regulations are available for public distribution. Copies may be obtained at county recorder offices and from conservation officers throughout the state or by writing to the Iowa Conservation Commission, Wallace State Office Building, Des Moines, Iowa 50319.

Bald Eagle Days at Keokuk

The Iowa Conservation Commission, together with the Illinois and Missouri Departments of Conservation, will be holding a bald eagle appreciation days program on January 19 and 20, 1985 at Keokuk, Iowa. The program will provide an opportunity for people to learn about and observe bald eagles on a major eagle wintering area.

Each winter, eagles concentrate in the Keokuk area to feed on fish in the Mississippi River. They roost in forested areas nearby. Peak winter



eagle populations have ranged from 150 to over 400 birds at Keokuk.

The program, which will be held at the Keosaupee Mall and nearby riverfront, will include one hour indoor sessions plus outdoor observation of eagles. There is no charge for the program which is brought about in part by the Iowa Chickadee Checkoff for nongame wildlife. However, due to expected high interest, individuals and groups wishing to attend an indoor session must register in advance. People wishing to register should send a postcard to Michael Sweet, Endangered Species Coordinator, Illinois Department of Conservation, 524 South Second Street, Springfield, Illinois 62701-1787. The postcard should indicate which day and hourly session the person plans to attend. Indoor sessions will be between 8:00 a.m. and 4:00 p.m. each day.

Winter Workshop Planned

The Iowa Conservation Education Council will be holding their annual Winter Solstice Workshop Jan. 18-20 at the Conservation Education Center in Springbrook State Park near Guthrie Center. The workshop is open to teachers, naturalists, scout leaders and all educators.

Concurrent sessions will be held on winter camping, Iowa energy problems, Plains Indian history, deer reproduction, ice fishing, cross country skiing, paper making, winter survival and many other subjects.

One hour of graduate credit from Drake University is available for the weekend. Pre-registration is encouraged and is \$7 (before Jan. 4). Registration will be \$10 at the door. Lodging is \$4 per night and the meal package is \$21.

Brochures and registration forms are available by writing the Conservation Education Center, RR#1, Box 53, Guthrie Center, IA. 50115; or by calling (515) 747-8383.

BALD EAGLES "HOLDING STEADY"

The endangered bald eagle population is "holding steady" after years of decline, according to the results of the National Wildlife Federation's 1984 Bald Eagle Survey.

The year's survey, taken from January 2 to 16, counted 11,819 bald eagles in 42 of the continental states. Last year's count for the same states was 10,903.

"The bald eagle isn't home free yet," said Jay D. Hair, NWF Executive Vice President. Hair said the eagle needs years to recover from the drastic decline it suffered in the 1960s, primarily from

DDT and dwindling habitat. "Slowly, but surely," he said, "the bald eagle is making a comeback, and this year's survey demonstrates encouraging progress."

The bald eagle is officially endangered in 43 states and threatened in five others. The bird is plentiful only in Alaska, and none live in Hawaii.

Considered to be the most complete midwinter bald eagle count available, the National Wildlife Federation survey provides eagle experts with data on where the birds live during the winter and the habitat they need to survive. The survey is conducted over a specified two week period in January each year, and states participate on a voluntary basis.

In 1979, the Federation's first survey counted 9,815 bald eagles in 48 states. In 1982, the last year a count was taken in all 48 continental states, the survey reported 13,825 eagles.

Brian Millsap, biologist in the NWF Raptor Information Center and survey coordinator, said that this year's severe winter in the eastern half of the United States concentrated wintering bald eagles and made them easier to count.

"Eagles tend to congregate near open water," Millsap said. "This accounts for the high concentrations of eagles near the Mississippi River and in the warmer, southern states."

According to this year's survey, the largest bald eagle population was in Washington state, with 1,525 birds; the next largest was in Missouri with 975, followed by Utah (901), Oklahoma (794) and Arkansas (639). Complete surveys were not done in California, Florida, Maine, Michigan, Oregon, or Rhode Island.

The survey was conducted by 2,800 state and federal conservation agency personnel and private volunteers.

The NWF, whose logo features a bald eagle in flight, has long been associated with eagle protection. It offers \$500 for information leading to the conviction of anyone who illegally kills a bald eagle.



CALENDAR OF EVENTS

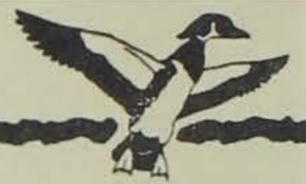
DECEMBER 1984 - FEBRUARY 1985

December 15	Red Fox in Iowa	Lime Creek Nature Center Cerro Gordo Co. (515) 423-5309	January 19	Winter Wildlife Adaptations and Habitat	Lime Creek Nature Center Cerro Gordo Co. (515) 423-5309
December 20	Downhill Ski Hill Operations Begin	Squaw Creek Park Linn Co. (319) 377-5954	January 21	Conservation Film Night	Algona High School Little Theatre Kossuth Co. (515) 295-2138
December 20	Nature Movie Night	Monona County Arboretum Monona Co. (712) 423-2400	January 22	Conservation Film Night	Iowa Lakes Community College Auditorium Emmetsburg Palo Alto Co. (712) 424-3177
December 27	Beginners Cross Country Skiing Class	Post Office Basement, Osceola Clarke Co. (515) 342-3960	January 23	Armchair Adventures (2 children's movies)	Lime Creek Nature Center Cerro Gordo Co. (515) 423-5309
December 28	Cross Country Ski Instruction and Tour	Easter Lake Park Polk Co. (515) 999-2557	January 24	Nature Movie Night	Monona County Arboretum Monona Co. (712) 423-2400
December 29	Cross Country Ski Clinic (preregister)	Lost Island Park Palo Alto Co. (712) 424-3177	January 25	Bird House Building Seminar	Smith Lake Conservation Office Kossuth Co. (515) 295-2138
December 30	Cross Country Ski and Snowshoe Clinic (preregister)	A. A. Call State Park Kossuth Co. (515) 295-2138	January 26	Winterfest 85	Green Castle Recreation Area, Ferguson Marshall Co. (515) 752-3150
January 5	Cross Country Skiing Clinic	Lime Creek Nature Center Cerro Gordo Co. (515) 423-5309	January 27	Winter Fun Day	Littlefield Recreation Area Audubon Co. (712) 563-4551
January 5	Cross Country Ski and Snowshoe Clinic (preregister)	Lost Island Park Palo Alto Co. (712) 424-3177	January 27	Winter Birds and Christmas Count Results	Swan Lake State Park, Carroll Carroll Co. (712) 792-4614
January 6	Cross Country Ski and Snowshoe Clinic (preregister)	A. A. Call State Park Kossuth Co. (515) 295-2138	January 27	Tracking Winter Wildlife (nature hike)	Swiss Valley Nature Preserve Dubuque Co. (319) 556-6745
January 9	Beginning Cross Country Skiing	Swiss Valley Nature Preserve Dubuque Co. (319) 556-6745	January 27	Ice Fisheree	Lake Iowa Iowa Co. (319) 655-8465
January 12	Seasons of a Marsh	Lost Island Park Palo Alto Co. (712) 424-3177	January 27	More Cross Country Skiing	Camp Wesley Woods Warren Co. (515) 961-6169
January 12	Beginning Cross Country Skiing	Camp Wesley Woods Warren Co. (515) 961-6169	January 28	Cross Country Ski and Snowshoe Clinic (preregister)	A. A. Call State Park Kossuth Co. (515) 295-2138
January 13	Cross Country Ski Race	Lime Creek Nature Center Cerro Gordo Co. (515) 423-5309	January 29	Cross Country Ski and Snowshoe Clinic (preregister)	Basswood Recreation Area Palo Alto Co. (712) 424-3177
January 13	Seasons of Union Slough	USNWR Refuge Office Kossuth Co. (515) 295-2138			
January 17	Landscaping Workshop	Monona County Arboretum Monona Co. (712) 423-2400			

February 2	Wildgame Cookout	Lime Creek Nature Center Cerro Gordo Co. (515) 423-5309
February 2	Winter Tracking	Squaw Creek Park Lodge Linn Co. (319) 398-3505 or (319) 362-0664
February 3	Winter Dendrology – Who Grows There? (nature hike)	Swiss Valley Nature Preserve Dubuque Co. (319) 556-6745
February 7	Cross Country Ski and Snowshoe Clinic (preregister)	Burt Lake Shelter House Kossuth Co. (515) 295-2138
February 7	Nature Movie Night	Monona County Arboretum Monona Co. (712) 423-2400
February 8	Cross Country Ski and Snowshoe Clinic (preregister)	West Bend Wildlife Area Palo Alto Co. (712) 424-3177
February 10	Winter Fun Day	Swan Lake State Park, Carroll Carroll Co. (712) 792-4614
February 10	Rare and Unique Plants and Animals of Cerro Gordo County	Lime Creek Nature Center Cerro Gordo Co. (515) 423-5309
February 10	Swiss Valley Stream Walk	Swiss Valley Nature Preserve Dubuque Co. (319) 556-6745
February 11	Conservation Film Night	Algona High School Little Theatre Kossuth Co. (515) 295-2138
February 12	Conservation Film Night	Iowa Lakes Community College Auditorium, Emmetsburg Palo Alto Co. (712) 424-3177
February 14	Armchair Adventures	Lime Creek Nature Center Cerro Gordo Co. (515) 423-5309
February 19	Cross Country Ski and Snowshoe Clinic (preregister)	A. A. Call State Park Kossuth Co. (515) 295-2138
February 20	Cross Country Ski and Snowshoe Clinic (preregister)	Lost Island Park Palo Alto Co. (712) 424-3177
February 22 & 23	Star Watch	Swan Lake State Park, Carroll Carroll Co. (712) 792-4614
February 23	Seasons of a Marsh	Lost Island Park Palo Alto Co. (712) 424-3177
February 23	Owl Prowl	Hickory Hills Park Warren Co. (515) 961-6169
February 24	Seasons of Union Slough	USNWR Refuge Office Kossuth Co. (515) 295-2138

DONATIONS

North Iowa Times, McGregor	Printing Services for brochure, value — \$300	Umthum Trucking Eagle Grove	2 semi trailers sans wheels and axles for trail bridges at Conservation Ed Center, value — \$100
Louise Tinley Shenandoah	\$3,000 for an observation deck at Riverton Wildlife Area	The following are contributions for A. A. Call State Park:	
Eastern Iowa Wild Turkey Federation	\$1,000 for radio telemetry equipment for turkey research	Aid Association for Lutherans, Algona	Picnic tables, benches, grills and cement, valued at \$5,000
Monticello Conservation League	\$100 for fish and wildlife	Soroptimists International, Algona	Bulletin board construction, valued at \$250
	Framed 1984 Iowa Ducks Unlimited Print of the Year, value — \$300	The following are contributions for playground construction at Bellevue State Park:	
Mr. and Mrs. Dean Hogge, Fort Madison	16mm movie projector, valued at \$900	Bellevue Rotary Club	\$100
Mid Iowa Bass Masters	\$700 for fish and wildlife	Bellevue Jaycees	\$350
Iowa City Women's Club	\$100 for Lake MacBride	Bellevue Lions Club	\$100
Stanford Warner, Blakesburg	\$500 for electricity at Lake Wapello	McArdle Lumber	32 landscape timbers, valued at \$100
Mr. and Mrs. Ronald Fleming, Mt. Vernon	\$200 for Palisades-Kepler	Bellevue Masonic Temple	Materials valued at \$100
Spirit Lake Protective Association	2 picnic tables and 2 grills for Crandell's Beach, value — \$582	Rick Klemme Construction	Labor valued at \$100
Cherry Cutlery, Inc., Oelwein	Steak knives and fillet knife for Fort Atkinson State Preserve, value — \$85	The following are contributions for equestrian campground development at Brushy Creek Recreation area:	
Paul Bryan, Waukee	17 duck nesting boxes for Walnut Woods State Park, value — \$50	Mr. and Mrs. John Nissan, Corwith	Two days use of trenching machine, valued at \$130
Tony Thompson and Boy Scout Troop 121, Winterset	Construction of physical fitness trail at Pammel State Park, value — \$50	Don Doolittle Duncombe	10 acres disced on two occasions, valued at \$360
Henry Field Nursery, Shenandoah	102 shade trees for Viking Lake State Park, value — \$872	The following are contributions to George Wyth State Park:	
Earl May Nursery, Creston	Trees and shrubs for Green Valley State Park, value — \$250	Kroblin Transportation, Inc., Waterloo	37 truck rims valued at \$370
Okoboji Yacht Club	Swimming platform at Gull Point State Park, value — \$400	Warren Transport, Inc., Waterloo	25 truck rims valued at \$200
Mike Kray, Anamosa	Tire rims for fireplace construction, value — \$440	Weissman Iron and Metal, Inc.	Plate steel, pipe, and angle iron valued at \$630
Anonymous	1,330 trees and shrubs, value — \$10,876	Anonymous	210 cross ties, switch ties, bridge planks, valued at \$2,100
Union Grove Lake and Park Holding Association, Inc.	Herbicide, seed, and ground preparation for prairie planting at Union Grove State Park, value — \$806	Anonymous	22 utility poles, valued at \$330
		The following are contributions to Pikes	
		Point State Park: Berkley & Company, Employees Contribution Committee, Spirit Lake	Swing set
		Docks Unlimited Iowa Great Lakes Lift, United Building Center	Swimming platform, value — \$800



LEA

IOWA
NATURAL HERITAGE
FOUNDATION



FOR THOSE WHO FOLLOW

Over the past 138 years in Iowa our rush towards the future has often destroyed features of our past — wiping out places, natural areas and traditions which made our history and greatly contributed to what we are today.

In response to those past losses and their possible continuation into the future, a handful of Iowa's leading citizens joined together to form the Iowa Natural Heritage Foundation to aid both government and private citizens in helping to reverse the trend of losses in our natural heritage.

John W. Tobin

John W. Tobin was born in Vinton in 1895. He has had a long and distinguished career as a lawyer (1917-1953) and district court judge (1954-1970). Throughout his lifetime Judge Tobin has been involved with numerous projects associated with fish and wildlife conservation.

Judge Tobin took an active part in obtaining enactment of the statute creating the Iowa Fish and Game Commission. He assisted in drafting and enactment of several conservation laws, such as the Biological Balance Statute, Code 109.39. He was instrumental in the enactment of the statute creating the Federal Outdoor Recreation Resources Review.

Judge Tobin is an active member of the Izaak Walton League. He founded several chapters of the I.W.L.A., and

BOOK REVIEWS

THE FEDERAL DUCK STAMPS A Complete Guide by David P. McBride. 240 pages with illustrated photographs and line drawings. Published by Winchester Press, 220 Old Brunswick Rd., Piscataway, N.J. 08854. Hardcover \$34.95

This year marks the 50th anniversary of the Migratory Bird Hunting Stamps, now officially called Migratory Bird Hunting and Conservation Stamps but known to millions simply as the Duck Stamps. The federal duck-stamp program has been the single most successful governmental fund-raising effort in the history of wildlife-habitat conservation. So important is it that on July 2, 1984, in Des Moines, Iowa, the United State Post Office issued a commemorative postage stamp honoring the achievement — and portraying the first Duck Stamp, designed by the famous J.N. "Ding" Darling in 1934.

The Federal Duck Stamps is a monumental book on this subject. Each of the 50 stamps is pictured, together with the original artist's design. For every stamp there is a complete page of data on the artist, his medium, the design, species portrayed, judges who chose the art, color or colors, number sold, plate numbers, prints, and special notes. In addition, the book presents a history of the stamp program, illustrated with historic photographs and "Ding" Darling newspaper cartoons. There are more than 150 illustrations. McBride covers the duck stamp art contest right from its inception, the duck stamp prints, and details of

production, sales and enforcement. Appendices include the text of the Migratory Bird Hunting Stamp Act, a table and map of National Migratory Bird Refuge Areas, a table and map of waterfowl production areas, a chart of stamp sales and revenues, a list of species eligible for stamp design, and an analysis of stamp-art designs.

The Wildlife Management Institute's new book, *White-tailed Deer: Ecology and Management*, is now available. The 896-page volume, edited by Lowell K. Halls, is the most ambitious publication project ever taken on by the Institute.

The product of nine years of effort by 72 authors and numerous other contributors, the book details virtually all aspects of whitetail history, behavior, habitat and management throughout the world. Among its 42 chapters are presentations on hunting and other recreational uses of whitetails.

The book was carefully prepared to be of interest and use to sportsmen and other wildlife conservation enthusiasts. It contains more than 450 photos, a 16-page color unit and original artwork by Cindy House. This volume will be the leading reference on white-tailed deer and their management for many years to come.

Copies are available from Stackpole Books, Cameron and Kelker Streets, Harrisburg, Pennsylvania 17105. The cost is \$39.95, plus \$2.50 for shipping and handling. The price to students (must provide ID number) is \$29.95, plus \$2.50 for shipping and handling.

Use Only Proper Ammunition in Firearms

Using only the proper ammunition for each gun is one of these important safety rules. There are a significant number of possible improper and unsafe combinations where a cartridge or shell can be chambered and where damage to the gun or shooter may result if the trigger is pulled and a discharge takes place. Just because a load can be inserted in a chamber doesn't make it correct to use. Shooters and gun owners should be aware of these unsafe combinations.

Sportsmen, hunters, shooters and gun owners may obtain a copy of this list of improper arms and ammunition combinations without cost by writing to SAAMI, P.O. Box 218, Wallingford, CT 06405. They should furnish a pre-addressed return envelope (common business size — #10); if the envelope is marked "Unsafe arms/ammo list" on the reverse side, they can save writing a letter to specify what it is they want.

Urban Wildlife Guide Published

The National Institute for Urban Wildlife has published a guide to help interested citizens plan and manage for urban and suburban wildlife, according to the Wildlife Management Institute. Titled "A Guide to Urban Wildlife Management," the booklet serves as a primer for urban wildlife management and suggests ways to enhance wildlife benefits through habitat improvements.

Copies are available from the Institute, 10921 Trotting Ridge Way, Columbia, Maryland 21044 for \$3.00 each postpaid.

LEADERS IN CONSERVATION

The foundation's purpose is to create and participate in action programs, often including efforts to extend the effectiveness of public dollars. The foundation concentrates its activities in three major areas.

Land Preservation and Stewardship

Over 6,500 acres of natural, wildlife, cultural and recreational resource lands have been protected in Iowa as a direct result of the foundation's efforts.

The foundation staff provides assistance in untangling the often complicated procedures for buying, selling, donating and protecting natural areas. Both landowners and government bodies receive assistance in determining protection alternatives and tax and legal consequences... aid in negotiating agreements

...advice in planning natural resources projects...and support in finding sources of funding for land acquisition.

A new "Wetlands for Iowa" program focusing on protecting and restoring Iowa wetlands has recently been initiated (See Page 22).

Public Education and Awareness

One of the foundation's primary goals is to make Iowans more aware of their natural heritage and to increase support for conservation. Foremost among these efforts has been the publication (in cooperation with the Iowa Academy of Science) of a landmark book, *Iowa's Natural Heritage* — an authoritative, comprehensive natural history edited for general audiences. Over 27,000 copies have been sold to date making

it an Iowa best seller.

The foundation's OUTLOOK program developed in cooperation with the University of Northern Iowa, the Iowa Department of Public Instruction and the Iowa Conservation Commission has produced special environmental education enrichment materials and teacher training for Grades K-12. A unique soil stewardship program established under a grant from The Joyce Foundation encourages private-sector support for soil conservation programs. In addition, an annual "Wildlife in Art" exhibition and sale done in cooperation with the Iowa Conservation Commission, along with a series of professional photographic exhibits, increases public appreciation of our natural resources through the arts.

Long-Range Planning and Research

The foundation encourages long-range planning and stimulates programs aimed at the study and management of Iowa's natural resources. As an element of a comprehensive inventory of the state's natural resources, the foundation has helped fund a survey of fish species and populations in the state's lakes, rivers and streams. This project will aid in the Iowa Conservation Commission's update of the book *Iowa Fish & Fishing*.

The success of the Iowa Natural Heritage Foundation in preserving our state's natural resources will play a large part in ensuring a richer, fuller future for those who follow. Your help and support are needed to make this goal a reality. The foundation does not receive any support from tax dollars and does not become directly involved in lobbying for legislative change.

The foundation encourages broad-based support in two special ways. A membership program which provides the opportunity for individuals, corporations and organizations to become involved in the foundation's work. Annual membership dues, ranging from \$25 to \$1000, provide direct support for program operations.

Support is also generated through a continuing effort to establish a working endowment. This professionally managed fund provides operating income for programs and serves as a source of repayable, interim financing for land acquisitions and special projects. The foundation's staff is happy to discuss the wide range of gift possibilities and assist in working with members and donors. They are providing leadership today...for those who follow.

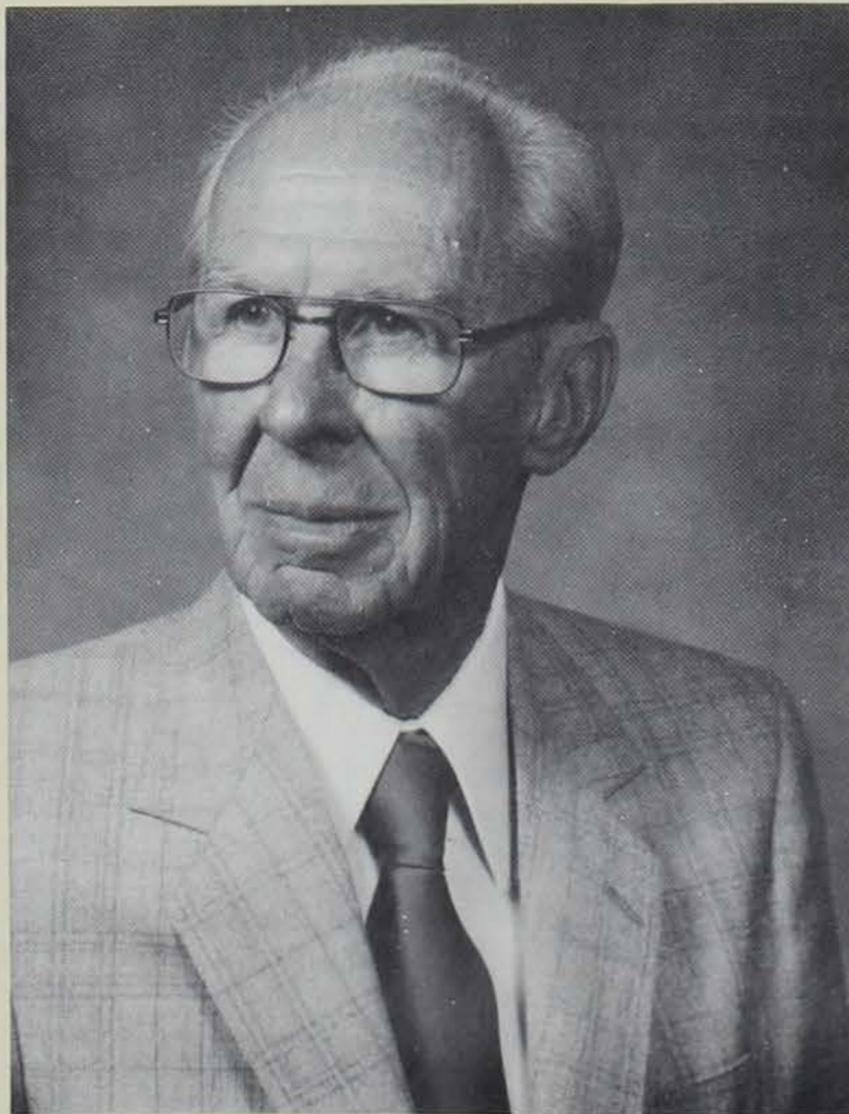
served as national president. He established and funded annual awards for conservation recognition by the national and state I.W.L.A. He is a member of the Izaak Walton League Hall of Fame.

Judge Tobin also helped organize several local fish and game clubs. He is a former vice president of the Iowa Wildlife Federation.

He participated in the organization and activities of the Northeast Iowa Conservation Council, which provided strong support for conservation legislation for a number of years.

Judge Tobin also donated his cabin and eighty acres on the Cedar River to the Benton County Conservation Board.

An avid hunter and fisherman, John Tobin is well-recognized among the outdoorsmen of Northeast Iowa as a quality person, deeply concerned for the future of our natural resources.





Nature Tale for Kids

Mottie — the white-muzzled woodchuck

By Dean M. Roosa

It's a long way from Keg Hollow to Indian Creek, especially if you're a young woodchuck following a mother who is always in a hurry. Mottie was seven weeks old, capable of living on his own, but he still felt safer in the presence of his mother. He was born on a sand terrace along the Skunk River in Keg Hollow. In fact, his den was under the machine shed of a small farm. The farmer didn't mind, you understand, but soon the family had another burrow in the barn, another under the brush pile and another in the orchard. The farmer tried to persuade them to either leave or at least stop digging up his soil. He placed big rocks in the burrow entrances, threw rocks at them, and did everything his gentle nature would permit in an attempt to convince them to take up residence elsewhere.

The woodchuck family patiently dug around the rocks blocking their entrances and contentedly dug yet another burrow about thirty feet from the farmer's back door. This increased the vexation of the young farmer, but one day

he saw Mottie, about the size of a kitten, crawling unsteadily in his orchard. Mottie wobbled up to the farmer's shoe, sniffed at it, and then crawled up and sat on the toe. Soon both were startled by a loud whistle — Mottie's mother was sounding the alarm. Something made Mottie race for the den where he was chastized for wandering away. After the farmer saw the tiny woodchuck sitting on the toe of his boot, he forgot all his dire threats and spent part of each day watching the family utilizing the plants in his yard. Early June, with its serenity and warm breezes, had settled on Keg Valley.

Danger arrived in the form of a big black dog a neighbor had just purchased. Despite the farmer's protests, the dog roamed the valley, putting fear in the hearts of Mottie's parents. Mottie's father spent several terrorized afternoons in a tree, with the dog baying at the base. Several near-escapes for Mottie's mother made her decide that enough was enough! She ordered Mottie to follow and together they left the sand terrace

forever. Still terrified, she set a terrible pace. Mottie could scarcely keep up, but he knew if he stopped he would be lost, so he just whimpered and tried to keep up.

Finally she stopped. Mottie immediately flopped down and went to sleep. An hour later he was rudely awakened by his mother. She had found a den for the night. He snuggled close to her and slept the sleep known only to a fatigued baby woodchuck.

Two days later they arrived at Indian Creek, having dodged around several farms that had dogs patrolling their border. They settled in the middle of the valley far from any farm, and here spent the summer growing fat, lazing in the sun, munching on the new green shoots.

Mottie grew fast, and now bigger than his mother, lived in a separate den. He developed into a beautiful example of a woodchuck and had usual markings for a woodchuck — a whitish cast to the hair on his head and throat, as though he was covered by frost. He ate ravenously, preparing for the winter he would sleep away. He even enlarged his den by digging it deeper and adding two new compartments. In October, something told him to crawl into the deepest recess and curl up to sleep. And sleep he did, undaunted by the blowing snow and sub-zero temperatures of the central Iowa winter. He was well below the frost-line, his body temperature had dropped, and his breathing and heartbeat had slowed to conserve energy.

Just when most everyone had given up hope of spring ever coming to central Iowa, warm days arrived. The earth slowly warmed up, a mantle of green plants changed the character of the land, and once again woodchucks began to stir. Mottie slowly awakened and oh was he hungry. He whimpered for his mother, forgetting for the moment he was an independent woodchuck, entirely on his own. He had to do some digging to get out.

The sun was very bright, and those greens! He feasted, running from this green patch to that green patch until he was gorged. His mother had emerged from hibernation four days earlier and had moved down Indian Creek valley, leaving Mottie the sole occupant of the valley.

He could not have designed a better home site — thick brush to shield him from enemies, sandy soil for easy dig-

CLASSROOM CORNER

Education on the use and management of our natural resources takes many forms. During the fall hunter safety education is a particular concern. A number of hunter safety classes are offered year around throughout the state. Below are ten questions about the mandatory hunter safety class itself. See how well you do.

HUNTER SAFETY CLASS QUIZ

1. What is the minimum age for taking the mandatory Iowa hunter education course?
(a) 10; (b) 12; (c) 13; or (d) 14.
2. Under Iowa's new mandatory hunter education law, anyone born after January 1 of a certain year must have a valid certificate of completion to purchase a hunting license. That year is:
(a) 1960; (b) 1965; (c) 1967; or (d) 1969.
3. What is the minimum number of hours of hunter education training required in the mandatory program?
(a) 6; (b) 8; (c) 10; or (d) 12
4. All hunter safety instructors are certified by:
(a) Department of Public Instruction; (b) Iowa Conservation officers; (c) County recorders; or (d) Department of Public Safety
5. Hunter safety instructors:
(a) are paid for their services with license fee money; (b) are paid for their services from taxes on guns and ammunition; (c) volunteer their services; (d) must be in the law enforcement profession.
6. The most important rule for a new gun handler is:
(a) have a valid hunting license; (b) buy a good quality gun that is properly suited for you; (c) be able to identify legal game; or (d) always treat every gun as if it were loaded.
7. To enroll in a hunter safety education course, you should contact:
(a) an Iowa Conservation Commisison enforcement officer; (b) county recorder; (c) Department of Public Instruction; or (d) Department of Public Safety
8. Subjects that are taught in the hunter education course are:
(a) wildlife identification; (b) wildlife management; (c) bow hunting (d) first aid; (e) all of the above; or (f) none of the above.
9. Hunter orange is required by law to be worn by gun hunters when they hunt
(a) quail; (b) raccoon; (c) deer; (d) pheasant; or (e) all of the above
10. When waterfowl hunting, a plug is required so you can only have a certain number of shells in the shotgun. How many shells are permitted?
(a) 2; (b) 3; (c) 4; or (d) 5.



ging and plenty of green plants for an endless picnic. Foxes also liked the valley and located their den on a dry ridge overlooking the valley. The male fox would often nip at Mottie and circle him, but it was largely in fun. When Mottie tired of the harassment, he simply climbed a tree until the pesky fox retreated. Sometimes he would issue a loud whistle as warning; woodchucks are also called whistle-pigs or ground hogs. Mottie preferred "woodchuck". Life was good in the central Iowa valley for the white-muzzled Mottie.

He was now very large for a woodchuck and wandered throughout the valley; he even constructed another den at the upper end and spent time in both dens. One day he thought he caught scent of another woodchuck, but wasn't sure. He returned three days later to find a smaller woodchuck in his den. Well! He decided to put an end to such intrusion, whistled a challenge and prepared for battle. Out of the den came a small female that had been recently driven off Kennedy Ridge by farm dogs. No battle ensued, and Mottie decided to share his valley, his dens and his greens with her.

Later, three young were born in the big den. Mottie stood guard against weasels, skunks and the hated farm dogs. A naturalist, who lived on the edge of the valley, liked to watch Mottie with binoculars from the ridge. Mottie was the only woodchuck with a white muzzle the naturalist had ever seen. The young naturalists' prize photograph was of Mottie, standing upright just outside the den entrance.

Mottie lived in Indian Creek Valley for seven years, raised several families, and was known to all the nearby residents, because of his unusual markings. In his eighth year, he disappeared ... some say old age caught up with him, some say it was farm dogs, some say he was caught in a raccoon set by mistake. Nonetheless, he was missed by all, especially the young naturalist.

The next spring, in mid June, the naturalist returned to Indian Creek to peer through his binoculars at the birds that nested in the valley. A movement in the brush captured his attention. There, standing on the crest of a slight knoll, was a young woodchuck in the middle of Mottie's old territory — and look, it has a frosty muzzle! The naturalist smiled as he pointed his long telephoto lens at the young 'chuck and tripped the shutter.

Answers: 1. b 2. c 3. b 4. b 5. c 6. d 7. a 8. e 9. c 10. b

1985 Boating and Water Safety Poster Contest

It's time for the Fifth Annual Boating and Water Safety Poster Contest, held each year in conjunction with Iowa Safe Boating Week. The contest is conducted by the Iowa Conservation Commission, in cooperation with the U.S. Coast Guard Auxiliary, Des Moines Power Squadron, and the Iowa Chapter of the American Red Cross. Co-sponsor of the contest, the IMT Insurance Company of Des Moines, is providing the prizes and plaques to be awarded the winners.

School children in fourth through sixth grades throughout the state are eligible to enter, and your students will have the chance to win one of the cash prizes. The first prize winner will also be invited to attend the signing of the Safe Boating Proclamation to take place in the Governor's Office at the State Capitol.

Prizes for the contest are: First prize — \$200 savings bond; second prize — \$100 savings bond; third prize — \$75 savings bond. Each winner will also receive a certificate of achievement and appreciation.

The theme for this year's contest is "Think Before You Drink — Be A Responsible Boat Operator." Suggestions for the theme are:

1. Alcohol is a leading cause of boating accidents.
2. Don't drink if you're planning to operate a boat.
3. 50% of all adult drowning victims are intoxicated at the time of death.
4. Alcohol reduces muscle coordination and balance and that increases your chances of falling overboard or capsizing a boat.
5. After a few hours on the water, fatigue caused by wind, sun, glare and noise reduce the ability of boat operators to observe and react but if alcohol is involved the effects are multiplied.

These ideas are suggestions only. As long as the theme is depicted in some way, the poster will be accepted.

We believe the Boating and Water Safety Poster Contest is an important method for promoting water safety education, and we hope you will encourage your students to enter this year's competition. To all entrants we say, "Thank You and Good Luck!"

THINK



TWICE

Contest Rules

1. The poster must be drawn on poster paper 15" by 20" or 14" by 22". Students may sketch their design lightly with pencil, but it must be colored. There is no limitation as to the type of media — such as paint, crayon, cut paper, etc., but it should be easy to reproduce. **Use no more than three colors.**
2. Posters must be designed on a vertical plane rather than horizontal plane.
3. The official entry form must be completely filled out and attached to the back of the poster.
4. Posters may be packed and wrapped flat or mailed in a sturdy sealed mailing tube. Entries must be postmarked or received by February 1, 1985.
5. Entries will not be acknowledged or returned. All entries become the property of the Water and Boating Safety Committee of Iowa.
6. Winners will be contacted by mail and listed in the Conservationist Magazine.
7. Children of the judging committee may not enter.
8. The right to modify any poster for reproduction is reserved.
9. Magazine illustrations or copyrighted material may not be used.
10. Each winner will be awarded a savings bond and a plaque. Other deserving participants will receive honorable mention.

To Parent or Teacher:

To the best of my knowledge, this is the original work of my child/student and represents his/her level of ability.

Signature of Parent/Teacher

Check One: () Parent () Teacher

All entries must be postmarked no later than deadline date of February 1, 1985. Address to: **Iowa Conservation Commission, Wallace State Office Building, Des Moines, Iowa 50319.** Fill out entry form completely and secure it to the lower left hand corner on the back of the entry.

Official Entry Form

(Please print)

NAME _____ PHONE _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

NAME & ADDRESS OF SCHOOL _____

GRADE _____ DATE OF BIRTH _____

1984 Winners

Last year's first place winner was Toni Allison, a 6th grader from Johnston Middle School. Her design "Think Twice" was judged the best among over 300 entries. Toni is the daughter of Anita Sciarrotta and Dennis Allison. Toni received a \$100 savings bond and a plaque, and met Governor Branstad during the signing of Iowa's safe boating proclamation last May.

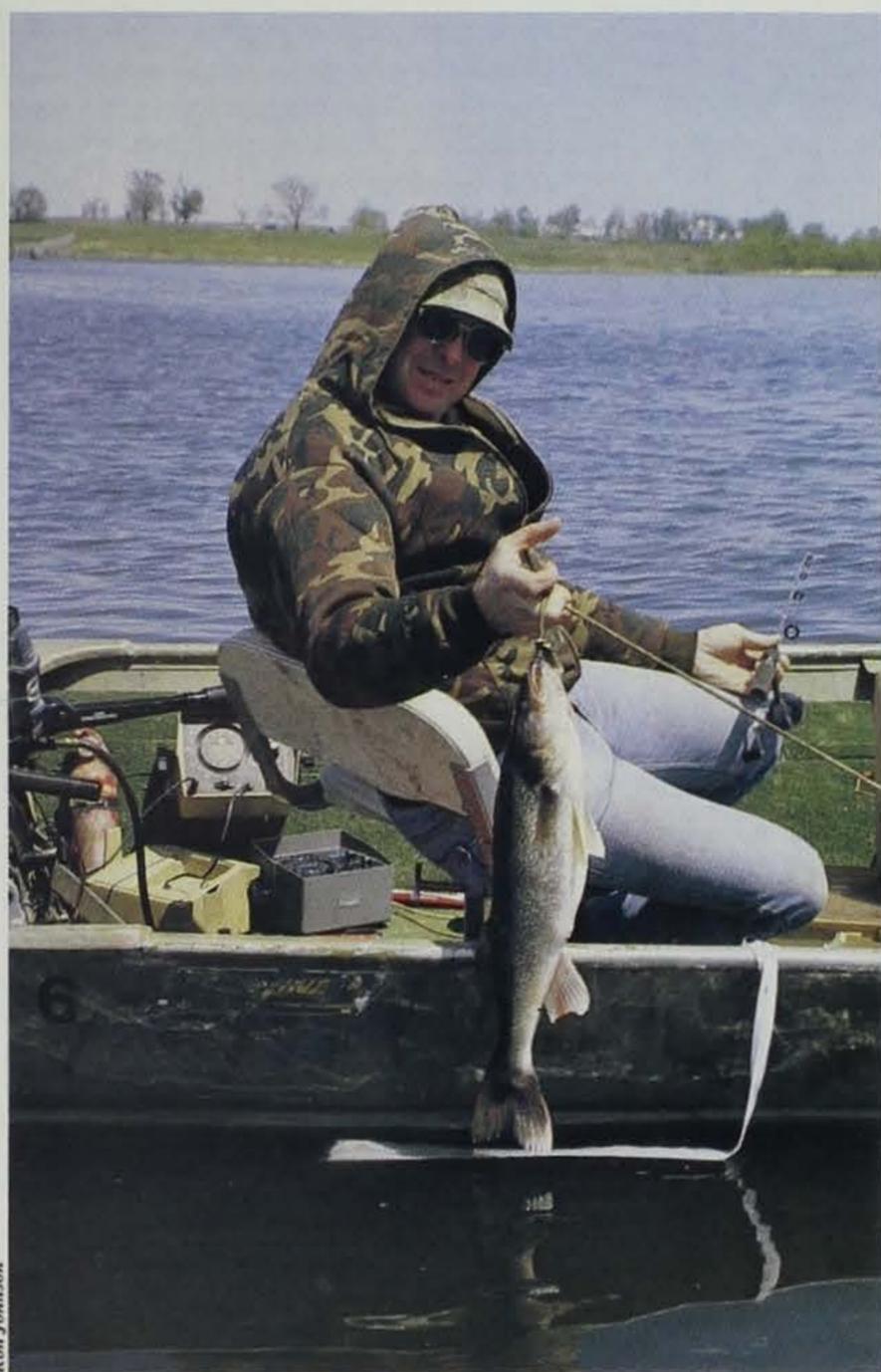
Savings bond awards and plaques were also given to the following second and third place winners:

2nd place — (\$75 savings bond) Hedi Crone of Washington, a 6th grader from Stewart School in Washington

3rd place — (\$50 savings bond) John Goodhue of Carlisle, a 4th grader from Emerson School in Indianola.

Where'd That Walleye Come From?

By Wallace Jorgensen



Ron Johnson



Ron Johnson

Where did that walleye come from? A walleye egg! This probably would be the most common answer to this question and is, of course, true. However, where and how the egg was hatched may be a surprise.

There is a strong possibility the egg was artificially spawned and hatched at one of Iowa's fish hatcheries and not by Mother Nature alone. Spirit Lake and Rathbun produce and stock up to 130 million walleye fry each year. In addition to the fry, biologists annually request approximately 210,000 four- to six-inch walleye fingerlings.

Hatcheries do not just hatch a "bunch" of fish, but try to produce the number and size that management biologists need. There are 14 management biologists statewide who are responsible for managing the fishery resource in their respective areas. Management personnel use data from electro-shocking, creel surveys, survey seining and gill-net sampling to determine the correct species, numbers and size of fish to be stocked. In 1984 the fisheries section will stock walleye in 14 natural lakes, nine

impoundments and seven rivers at 24 different locations in the state.

Why not let walleye spawn themselves? This question is asked quite often and deserves some explanation. Many walleyes do spawn naturally; however, in most instances it is not sufficient to provide a good walleye fishery. There is not one simple answer as to why natural reproduction is inadequate. One major reason is the degradation of suitable spawning habitat. Other factors include egg viability, egg and fry predation, pollution, siltation and adverse weather.

The argument for stocking walleye is strengthened by several studies conducted in the state. A project on Spirit Lake from 1973 to 1975 showed that the base larval walleye population was formed by *stocked fry*, with natural production additionally strengthening year-class abundance. It appears Spirit Lake is almost entirely dependent on the hatcheries for a walleye fishery. Other research conducted on Rathbun Lake indicates that walleye fry survival since the original stocking in 1980 has been quite questionable. Fingerlings were reared and stocked in

1975 and showed the first substantial recruitment since 1971. Fingerling walleye have been stocked most years since 1975 and appear to have the greatest impact on walleye populations in the lake.

All this information appears to be quite conclusive in that stocking efforts play a very important role for a satisfactory walleye fishery in Iowa. In addition to the importance of maintenance stocking talked about, artificial spawning and rearing provide a source of fish for stocking new impoundments, renovated waters and winter freeze-out areas. For example, Saylorville, Big Creek, Rathbun and Clear Lake, to name a few, have established walleye populations through stocking efforts.

So, whatever you catch — from pan size to trophy lunker walleyes — there is a high probability they were originally produced at one of Iowa's hatcheries!

Wallace Jorgensen is the hatchery manager at Spirit Lake Hatchery. He has been with the commission since 1958.

WARDEN'S DIARY

By Jerry Hoilien

I was tired and uptight when I got home one night. It was the last of the deer season and it had been long and frustrating as usual.

The average deer hunter is a good hunter, obeying the rules and regulations and doing very well. Then, there's the other kind, trying to get a deer, any deer, anyway they can. It's strange what happens with some individuals when it comes to deer hunting. Even some normally good hunters seem to develop a strange attitude toward regulations, trespassing, wardens and general sportsmanship during this particular season.

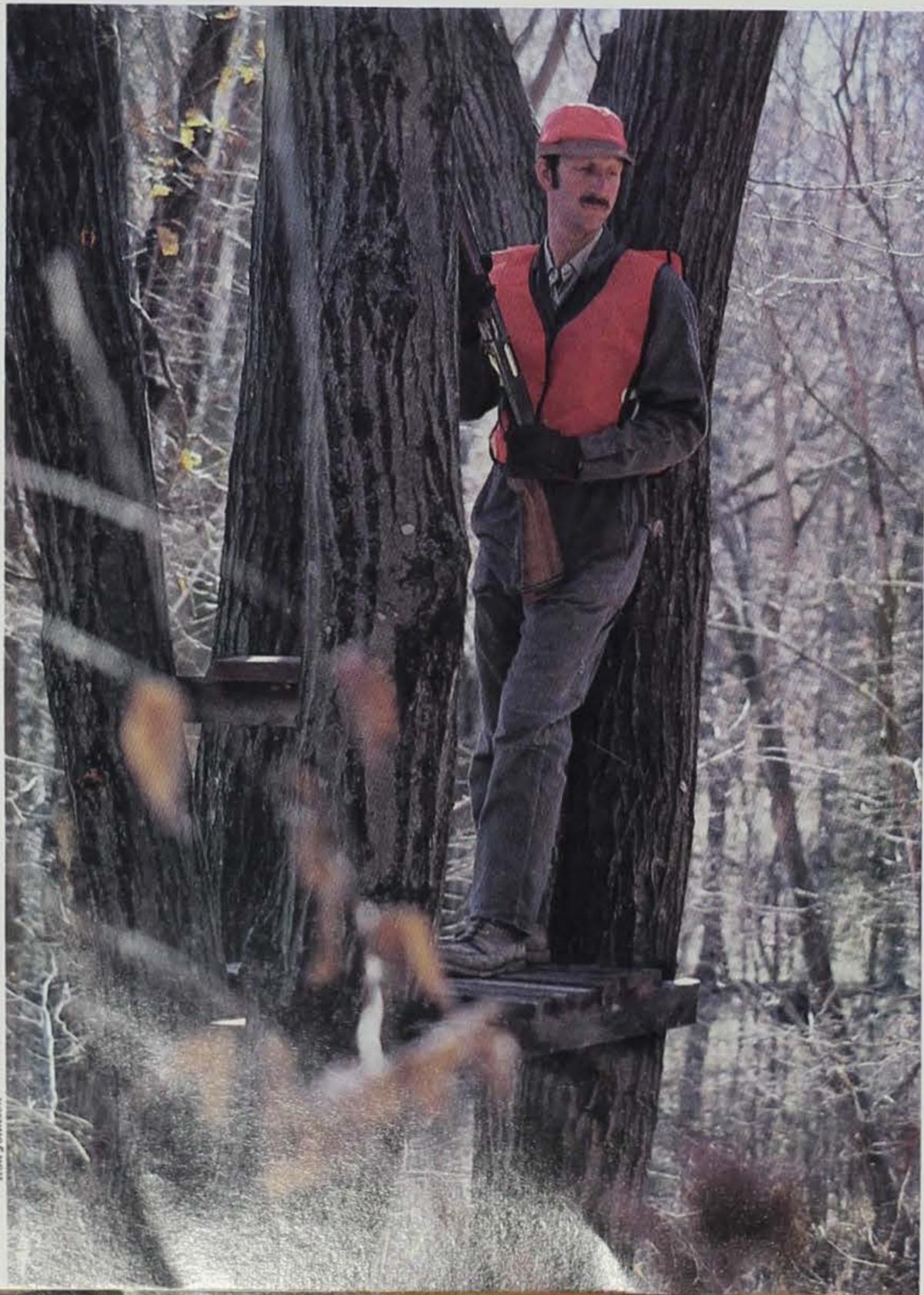
I turned on the "quiet music" to unwind and open my mail. I opened several pieces from the department, numerous Christmas cards from old friends, the usual advertisements and then a strange letter from someone whose name I didn't recognize. The fireplace was crackling and beginning to thaw the bones on my backside as I opened this last letter. It was from a man I'd never met and he lived a long way from here. Seems he liked to read the *Iowa Conservationist* and particularly the Warden's Diary. He was a duck hunter for thirty some years, raising

three sons and exposing them to the world of the hunter, taking them through maturity and growing beyond the normal scope of a "hunter" to a "sportsman" and, he hoped beyond.

He had read the November 1983 issue on the "World of the Marsh" and written me of his feelings and impressions.

He was saying he hoped he had made it as a "sportsman" — growing in maturity and wisdom. Reading on in his letter, and in between the lines, I *knew* that he had already gone beyond. He was growing by teaching his three sons and passing on this love of the marsh we share. Yes, here was a sportsman, one of those rare individuals in this world, who with respect and grace become WATER-FOWLERS. I wrote him a letter back. I hope his sons realize what they have there. Isn't it strange how a strong bond can be established between people on that subject?

I don't think I've ever eaten a meal in a restaurant, in or out of uniform, that someone hasn't come over with "Hey, there's something I've been wanting to ask you!" I don't mind, matter-of-fact, I enjoy it. People are friendly and want to know. I don't enjoy some of the butt chewings I get for something I can't control, but I guess that's part of the job. Sometimes it helps if they get it off their chest. But by and large, we deal with a great type of people. I enjoy watching them grow physically and mentally, especially "maturing as hunters." It's a bit frustrating out in the field waiting for some of them to grow up, but I've grown more tolerant as I learn about people and how they act and grow in our world.



Ron Johnson



Jerry Leonard

Speaking of rewards, the snow is about a foot deep in my front yard at "Applesprings" (as my kids named it) and I'm watching a dozen cardinals, skads of chickadees, various species of sparrows, gold and purple finches, nuthatches, you name it. But the three deer that just wandered into view make the world seem small and relatively unimportant. They're pawing for the frozen apples under the snow. They seem to know just where to find them and from the satisfied look on their faces, they may know something we don't know about those frozen apples. It's like I tell everyone, they really own this area, they just let me stay here awhile.

And talking about the wonders of the world, I stopped by Vivian Huffman's at Rossville and she had a new twist to an old favorite of mine. Seems she had some butternuts in her freezer and made a pie that was out of this world. I swiped her recipe and you might want to try it. You'll get by without a guard baking the first one but after that you'll have to load the gun to keep 'em away.

4 eggs lightly beaten
 add 1 cup light corn syrup
 1 cup sugar
 2 tbsp melted butter
 1 tsp vanilla
 1/8 tsp salt
 1 cup butternut meats
 mix all together then:
 Pour into unbaked pie shell
 Bake 55 to 60 minutes in a 350° oven
 Lower the temp to 325° after 30 min so it doesn't get so dark.

The Sportsman: An Endangered Species

By Randy R. Edwards

In the past the terms "hunter" and "sportsman" were basically synonyms. But over the past few years there has been a vast dissimilarity forming between the two terms. Nowadays, due to that fact, these words are easily and often misinterpreted.

You might say every "hunter" who goes afield with a gun considers himself or herself a "sportsman." But now when it comes right down to it, we know there is a big difference between these two stereotypes.

Take the word "hunter" for example. Just what is a hunter? The dictionary says that he or she is "one who hunts." That's it. Isn't there more to the sport than just that?

It's unfortunate that the actions of a few can have a disastrous effect on the intentions and purpose of the true sport of hunting.

What we need and are going to *have* to have is a lot more of the other term... *SPORTSMEN*. The dictionary defines the term as "one who abides by the rules and accepts victory or defeat graciously."

A sportsman respects the sport of hunting and proves it by practicing and promoting conservation and sportsmanship afield.

He or she respects the farmer and the right of private property by always asking permission to hunt. Saying "thanks"

and even sharing the take of game is only a part of the respect and courtesy due the farmer or landowner. Properly disposing of any litter should be automatic and just common sense.

He or she knows, understands and obeys the conservation laws and sees to it that others do, too; not necessarily because they have to, but because they *want* to. They know that conservation laws exist not to hinder the sport, but to perpetuate it.

It's important to know and obey the conservation laws and regulations. If you should ever have a question, contact your local conservation officer. He or she will be happy to answer any questions you may have. Your best bet is to find the correct answer from a reliable authority rather than a friend who is "pretty sure," unless your friend will pay your fine for you!

Before the hunting season opens, read up on the hunting laws and regulations, including the boating laws if they will apply to you. Portions of various game laws may change from year to year. The importance of knowing the law is obvious. Remember... ignorance of the law is no excuse. It's your sport so you'd better know the rules.

Randy Edwards is a park ranger at Pleasant Creek Recreation Area near Palo. He has been with the commission since 1975.

A CHECKLIST FOR SPORTSMANSHIP

There's a lot that goes into being an ethical hunter. And, in each case, it's up to the individual hunter to understand and be knowledgeable about his responsibilities in the field. Here are some suggestions on good sportsmanship.

A responsible hunter

- is always familiar with all the game laws and regulations that apply to the species he hunts.

- is knowledgeable about his game's habits and can identify game in the field.

- practices judging distance and shoots only at game within range.

- always uses firearms and ammunition appropriate for the game hunted.

- understands the importance of being familiar with the safe and proper operation of his gun.

- is a safe hunter. He is familiar with and always follows the rules of safe gun handling and hunting safety.

- knows the importance of being seen while hunting. If appropriate for his type of hunting, he wears outer garments of fluorescent orange.

- always gets permission from the landowner to hunt on private land.

- treats the land on which he hunts as if it were his own. Whether it's public or private land, he always packs out his litter and is careful to leave gates as he found them.

- knows that alcoholic beverages will seriously impair his judgment when hunting.

- knows that firearms safety in the home is just as important as firearms safety in the field.

- understands that his commitment to ethical hunting helps ensure the future of the sport.





Honeybees not only provide man with a delicious golden sweetener, but also help pollinate a variety of plants beneficial to both man and wildlife.



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HONEYBEES

A VALUE TO MAN AND WILDLIFE

By Glen L. Stanley

The naturally sweet goodness of honey is creating an ever increasing demand for this Iowa agriculture product. Honey is the only natural sweetener known to man. No change in the way of manufacturing is necessary to prepare it for human consumption. There are between six million and eight million pounds of honey produced in Iowa annually from over 85,000 colonies. Cash receipts for the honey and wax produced are in excess of \$4 to \$6 million annually.

It is estimated that in Iowa the pollination services of the honeybee is valued at 25 times the value of the honey and beeswax produced. The benefit of pollination to various agriculture crops would then amount to a total of \$125,000,000.

Last year (1983) in Iowa, there were 250 to 260 acres of strawberries and 1100 acres (producing acres) of apples. The value of the strawberries was \$1,225,000 and the value of apples was \$3,850,000. More than 60 percent of the fruit set on these two crops is a result of honeybee pollination. This provides a total value of honeybee pollination of \$3,045,000 on these two crops alone.

Crops that produce nothing at all with-

out the aid of honeybee pollination include melons (of all types), cucumbers, squash, zucchini and many other vegetables in this family.

General farm crops are benefited by honeybee pollination and some types of soybeans are increased in production by as much as 15 percent after being pollinated by bees. Nearly all clovers depend on honeybee pollination. Little or no alfalfa, birds-foot-trefoil, crown vetch or red clover seed would be harvested unless pollinated by bees.

Aside from the garden and farm crops there is the benefit of the honeybee to wildlife. Bees continuously help to propagate plantings used for roadside beauty as well as coverage for wildlife. An example of this is the crown vetch, alfalfa and clovers used for this purpose. Honeybees are constantly pollinating all blooming plants which in turn provide seed which feed many of our birds. There are times, according to wildlife experts, when our seed eating birds obtain 90 percent of their food from flower and weed seed.

It was observed in one particular area of a southern state that there were few or

no birds, some five or six years later, following the movement of bees into the area, the countryside is now well supplied with bird life. There is considerable evidence that there was insufficient food there for the birds until the beginning of pollination by bees.

Nationally, there are an estimated 200,000 beekeepers who produce honey, beeswax and offer pollination to other segments of agriculture. Total ownership in the United States is estimated to be 4.2 million colonies. One-third of all food and fiber produced in this country is a direct, or indirect result of honeybee pollination.

The average pollination service by the honeybee, nationally, is estimated to be worth \$14 to \$15 billion in the production of food and fiber.

The honeybee is the only controllable pollinating insect. Beekeepers of Iowa and this nation are providing us with what we know as the "indispensable honeybee."

Glen Stanley is the state apiarist for the Department of Agriculture.

Wildlife Species	Herbaceous Plants Used
Virginia rail	smartweed
Sora rail	smartweed
Common snipe	ragweed
Bobwhite quail	ragweed, smartweed, beggarweed, sunflower
Ring-necked pheasant	ragweed, smartweed, sunflower
Gray partridge	ragweed, smartweed, dandelion, clover
Wild turkey	clover, beggarweed
Mourning dove	ragweed, pokeweed, smartweed, lambsquarters, pigweed, sunflower
Hummingbird	jewelweed, morning glory, beebalm
Horned lark	ragweed, lambsquarters, pigweed, smartweed, clover, curled dock, sunflower
Black-capped chickadee	ragweed, sunflower
Bobolink	smartweed, curled dock, ragweed
Meadowlark	ragweed, smartweed
Yellow-headed blackbird	ragweed, smartweed, dandelion
Red-winged blackbird	ragweed, smartweed, curled dock
Rusty blackbird	ragweed
Common grackle	ragweed
Cowbird	ragweed, smartweed
Cardinal	smartweed, nightshade, ragweed
Indigo bunting	ragweed
Purple finch	ragweed, cocklebur
Common redpoll	ragweed, smartweed, lambsquarters, pigweed, Russian thistle
Pine siskin	star-thistle
American goldfinch	ragweed, thistles, shepherds-purse, goosefoot, dandelion, goldenrod

Wildlife Species	Herbaceous Plants Used
Rufous-sided towhee	ragweed, smartweed, chickweed
Savannah sparrow	ragweed, chickweed, smartweed, pigweed
Grasshopper sparrow	sheep sorrel, smartweed
Henslow's sparrow	ragweed, sheep sorrel, smartweed
Vesper sparrow	ragweed, smartweed, pigweed, lambsquarters, purslane, curled dock
Junco	ragweed, smartweed, goosefoot, pigweed, goldenrod, sweet clover
Tree sparrow	sheep sorrel, pigweed, ragweed, smartweed, chickweed, goldenrod, aster, sweet clover
Chipping sparrow	chickweed, pigweed, ragweed, spurge, purslane, lambsquarters, smartweed
Field sparrow	sheep sorrel, pigweed, ragweed, lambsquarters
White-crowned sparrow	ragweed, lambsquarters, pigweed, doveweed, smartweed
Fox sparrow	smartweed, ragweed
Swamp sparrow	smartweed, ragweed, lambsquarters, bidens, goldenrod, spurge
Lapland longspur	pigweed, ragweed, lambsquarters, smartweed, purslane
Snow bunting	ragweed, pigweed, lambsquarters, smartweed, buttercup

*From Martin, A.C., H.S. Zim, and A.L. Nelson, 1961. American Wildlife and Plants; a guide to wildlife food habits. Dover Publications, New York.

This list reports the minimum variety of plants used, more complete studies may have been done since this was published. Although waterfowl also use weed seeds, they are not included here.



Ron Johnson

Not all Iowans are accepting the current status of wetlands as the way it has to be in the future. Some have formed the Wetlands for Iowa Program, an organization dedicated to protecting Iowa's remaining wetlands and the 240 species of wildlife that inhabit these unique ecosystems.



Jerry Leonard

In the early 1800's, Iowa had a wetland resource of approximately 4 million acres. This marsh, lake and pothole complex existed primarily in Northwest and North Central Iowa. By 1906, 3,070,000 acres had been lost to drainage and filling. In 1922, 368,000 acres of the wetlands region remained. By 1950, a meager 1½ percent survived, leaving only a remnant 50,000 acres of our vast resource.

Today, only 27,000 acres can be inventoried, while additional acres are lost annually. These lands represent unique ecosystems of major importance. Iowa's wetlands provide unique recreational areas which support hunting and fishing, are high in aesthetic value, and contain irreplaceable plant and animal life that make them especially valuable for educational and scientific studies. One of our most precious natural resources is disappearing in front of our eyes.

A group of concerned Iowans has been organized to halt this decline. The organization is called The Wetlands for Iowa Program and is sponsored by the Iowa Natural Heritage Foundation. The group is dedicated to:

- ...protecting Iowa's remaining wetlands.
- ...protecting 240 species of wildlife that inhabit Iowa's wetlands.
- ...seeing Iowa's wetland acres *increase* instead of decrease.
- ...seeing Iowa's waterfowl population *increase* instead of decrease.
- ...increasing non-game wildlife species in Iowa.
- ...providing outdoor recreational opportunities for Iowans today and in the future.
- ...helping to improve and protect Iowa's water quality.
- ...assuring a future for Iowa's endangered and protected species.
- ...providing opportunities for research and education.

The WIP will coordinate fund raising activities state-wide. These funds will be used to acquire and develop high potential wetlands into wildlife production and resource management areas. The WIP will also seek donations of land, other appreciated assets or conservation easements to land in order to protect wetland areas.

After acquisition, the WIP may develop a maximum wildlife production and natural resource potential of the area through the construction of low-head dikes, water control structures and predator-proof nesting islands.

The program is organized to work hand-in-hand with the Iowa Conservation Commission and County Conservation Boards, as well as other private organizations, to select projects and develop maximum resource management opportunities for each area.

Since the program's kickoff in June of this year, the WIP has four projects nearing completion. The projects total approximately 370 acres and incorporate a balance of upland nesting habitat and open water areas for brood rearing. The areas provide excellent habitat for a variety of wildlife.

The WIP's philosophy parallels that of Ducks Unlimited. While developing projects similar to D.U., the WIP will concentrate on saving Iowa's wetlands and will utilize avenues of fund raising that do not conflict with those currently developed by D.U. It is the goal of the WIP to work compatibly with Ducks Unlimited for the mutual benefit of both groups in saving our wetland resource in Iowa.

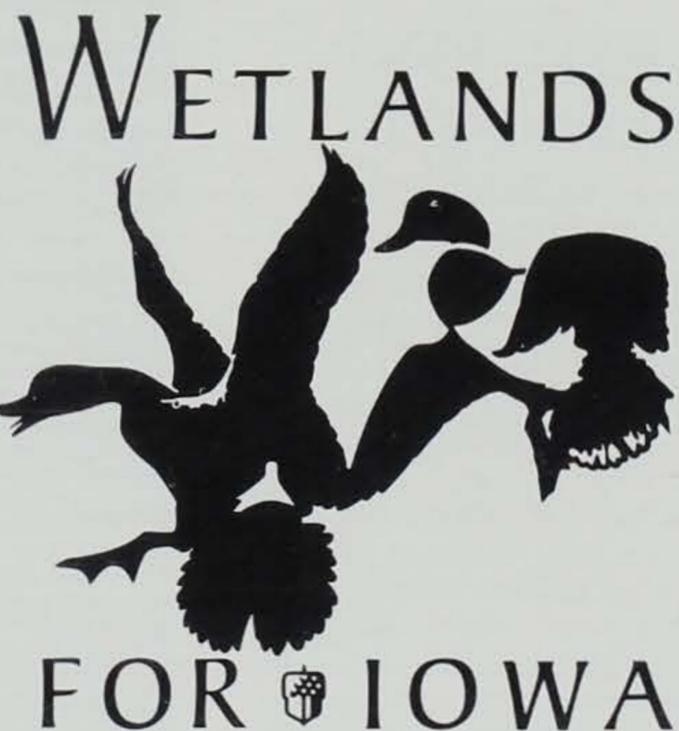
The WIP Program Director, Al Weaver, and interested citizens are now holding a series of informational meetings around the state to solicit ideas. If you are interested in holding a meeting in your area to discuss the program, contact: Wetlands for Iowa Program, Program Director Al Weaver,

1626 Elaine Dr. N.W., Cedar Rapids, Iowa 52405.
319/396-6264.

The Wetlands for Iowa Program is a special part of the Iowa Natural Heritage Foundation providing for concentrated efforts and activities to protect and develop Iowa's rapidly disappearing wetlands.

The Iowa Natural Heritage Foundation is a non-profit Iowa corporation dedicated to the preservation and long-term wise management of Iowa's natural resources. The foundation's role is to act as a catalyst and facilitator, working jointly with government and with private individuals and groups on projects and programs that serve both short and long-term natural resource goals.

Full memberships to help support the WIP are available through the foundation. Members receive special discounts, recognition and identification items. To join the WIP contact the Iowa Natural Heritage Foundation, Wetlands for Iowa Program, Suite 830, Insurance Exchange Building, 505 Fifth Avenue, Des Moines, Iowa 50309, (phone 515/288-1846) or contact Al Weaver.



The Logo

Two renowned Iowa conservationists have cooperated some 50 years apart on the same piece of art used to develop the logo of the Wetlands for Iowa Program. They are J. Norwood 'Ding' Darling and Maynard Reece.

'Ding' Darling created the design of the first migratory waterfowl stamp ("Duck Stamp") initiated in 1934 with his drawing of "Mallards Dropping In." The annual stamps continue to be sold to waterfowl hunters nationwide.

It is fitting then that the 'Ding' Darling Foundation offered "Mallards Dropping In" as a basis of a logo for the Wetlands for Iowa Program. After all, the original design was done by an Iowan for wetlands preservation. The desire of the logo received an additional professional touch by another famous Iowa conservationist/artist, Maynard Reece. Reece is world famous for wildlife art as well as for having won the first Duck Stamp competition held in 1948 (previous to 1948 all designs were commissioned) and for winning this prestigious competition a total of five times — more than any other artist in the history of the stamp.

PLANT TALE OF THE MONTH

WHITE PINE (*Pinus strobus*)

By Dean M. Roosa and Bill Pusateri

Many people think the white pine (*Pinus strobus*) is our most stately tree. For good reasons...it is green all year round; reminds us of cool, northern forests; has an uncommonly nice scent; provides a romantic sound as the wind sweeps through the needles; is a good choice for a landscape planting; provides a nice carpet of needles over the years.

The white pine is widely planted in Iowa, but is native mainly in the northeast portion of the state, with "outlier" populations in Hardin and Muscatine Counties. It is our only native pine, but several other species are also used for landscape purposes.

The Iowa populations are probably remnants of a cooler era — the period after the retreat of the glaciers. White pines generally result from a disturbance such as fire. They are a pioneer species, in need of considerable sunlight to thrive. If they are overtopped by deciduous trees, they will live only a short time in the shade. Since the settlement of Iowa, fires are generally a thing of the past. In many white pine stands there is little reproduction. In some cases, managers must intercede with specific management practices to keep the pines from disappearing from a site.

The stately white pine grows in some of the most scenic spots in Iowa. When you see it, you should realize it is a living lesson in plant geography, history and ecology.

Ken Formanek

