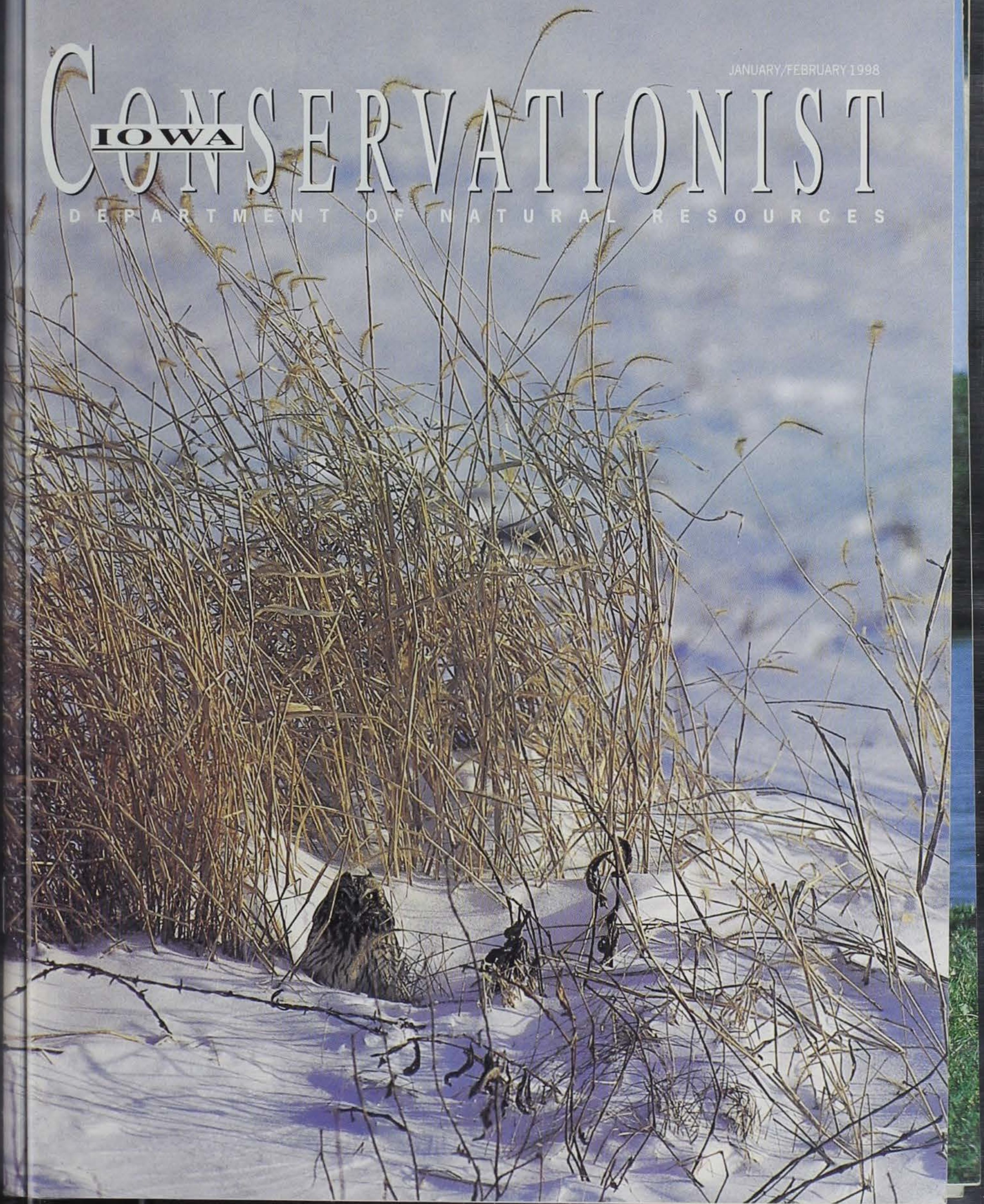


CONSERVATIONIST

IOWA

JANUARY/FEBRUARY 1998

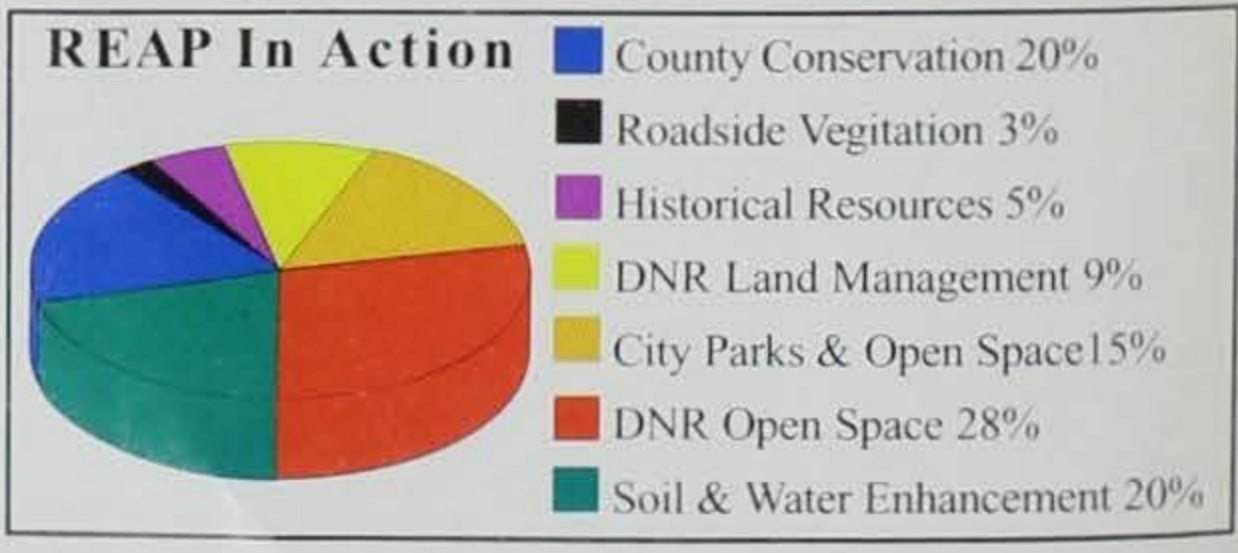
DEPARTMENT OF NATURAL RESOURCES





more than
just a
pretty
plate

■ The money from natural resources license plates goes to the Resource Enhancement and Protection fund -- **REAP**. Created in 1989, REAP has received the highest national award for conservation programs. So far, it has generated \$70 million and rising. To buy a set of the \$35 plates, take your current plates and registration to your county treasurer and request the natural resource plates.



January/February
Volume 57, Number 1

STAFF
 Ross Harrison, Bureau
 Julie Sparks, Editor
 Kris Fettkeher, Editor
 Kathryn Stangl, Assistant
 Lowell Washburn, Assistant
 Larry Pool, Graphic
 Len Formanek, Photo

NATURAL RESOURCES
 Thomas G. Monroe, Director
 Avonne M. Truyna, Deputy
 Ian Schneider, Secretary
 Richard Garrobs, Manager
 Marian Kieffer, Manager
 Douglas R. Smalley, Manager
 Anthony Hough, Manager

ENVIRONMENTAL COMMISSION
 William Elm, Chairman
 Terrence Townsend, Vice
 Charlotte Mohr, Secretary
 Kathryn Murphy, Member
 Lisa Venner, Member
 Sean McWilliams, Member
 Suzanne King, Member
 Larry C. Priebe, Member
 Donald Giannetto, Member

DIRECTOR
 Larry J. Wilson

DEPUTY DIRECTOR
 Don Paulin

DIVISION ADMINISTRATORS
 Dan Kuhn, Administration
 Larry Bean, Energy
 Dan Stokes, Environment
 Ben Farris, Fish and Wildlife
 William Farris, Forests
 Michael Carrier, Parks
 Teresa D. Hay, Water

WEB ADDRESS
www.state.ia.us/dnr

SPECIAL PHONE NUMBERS
 Hunting (515) 281-7100
 Fishing (515) 281-7100
 Parks (515) 281-7100
 Forestry (515) 281-7100
 State Management
 Emergency Spill Response
 (515) 281-7100
 Other Topics (515) 281-7100
 Turn-In-Poachers (TIP)
 TD (515) 243-5967

Iowa Conservationist is published monthly by the Iowa Department of Natural Resources, State Office Building, 900 E. Grand Avenue, Des Moines, IA 50319. Periodicals postage paid at Des Moines, IA. Postmaster: send address changes to *Iowa Conservationist*, P.O. Box 100, State Office Building, Des Moines, IA 50319.

Federal regulations prohibit discrimination on the basis of race, color, sex, religion, age, or national origin. If you have a complaint, please contact the U.S. Department of Justice, Office of Equal Employment Opportunity, 1400 K Street, N.W., Washington, D.C. 20547.

COVERS
 FRONT -- Short-circuited
 BACK -- Pleasant Trip

IOWA CONSERVATIONIST

STATE LIBRARY OF IOWA
East 12th & Grand
DES MOINES, IOWA 50319

January/February 1998
Volume 57, Number 1

STAFF

Tom Harrison, Bureau Chief
Liz Sparks, Editor
Chris Fettkether, Editorial Assistant
Alyson Stangl, Assistant Editor
Lowell Washburn, Writer/Photographer
Terry Pool, Graphic Artist
John Formanek, Photographer

NATURAL RESOURCE COMMISSION

Thomas G. Monroe, Chair, Sigourney
Lorraine M. Troyna, Vice-Chair, New Hampton
John Schneider, Secretary, Okoboji
Richard Garrels, Mount Pleasant
Brian Kieffer, Bellevue
Douglas R. Smalley, Des Moines
Anthony Hough, Harlan

ENVIRONMENTAL PROTECTION COMMISSION

William Ehm, Chair, Creston
Frances Townsend, Vice-Chair, Newton
Charlotte Mohr, Secretary, Eldridge
Alyson Murphy, LeMars
Lisa Venner, Breda
Brian McWilliams, Montezuma
Lizanne King, Mondamin
Mary C. Priebe, Algona
Donald Giannetto, Marshalltown

DIRECTOR

Terry J. Wilson

DEPUTY DIRECTOR

John Paulin

DIVISION ADMINISTRATORS

John Kuhn, Administrative Services
Terry Bean, Energy and Geological Resources
Brian Stokes, Environmental Protection
Alyson Farris, Fish and Wildlife
William Farris, Forests and Forestry
Michael Carrier, Parks, Recreation and Preserves
Cressa D. Hay, Waste Management Assistance

WEB ADDRESS

www.state.ia.us/dnr

SPECIAL PHONE NUMBERS

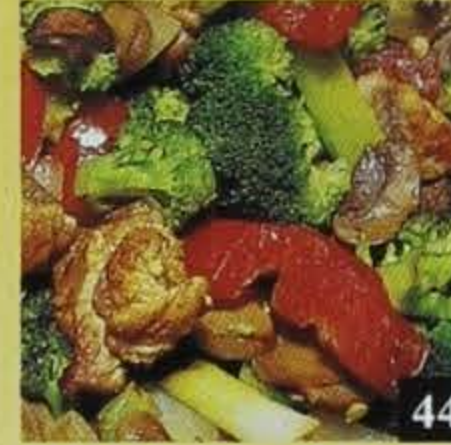
Hunting (515) 281-HNTR
Fishing (515) 281-FISH
Hikes (515) 281-TENT
Forestry (515) 281-TREE
Waste Management and Recycling (515) 281-8941
Emergency Spill Response (515) 281-8694
Energy (515) 281-5918
Water Topics (515) 281-5918
Out-of-State Poachers (TIP), (800) 532-2020
D (515) 242-5967

Iowa Conservationist (ISSN 0021-0471) is published monthly by the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0044. Periodicals postage paid in Dubuque, Iowa. Subscription rates: \$9.97 for one year, \$14.97 for two years and \$19.97 for three years. Prices subject to change without notice. Include mailing label for renewals and address changes. POSTMASTER: Send changes to the *Iowa Conservationist*, Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0044.

Federal regulations prohibit discrimination on the basis of race, color, national origin, sex or disability. If you believe that you have been discriminated against in any program, activity, or facility as described above, or if you desire further information, please write to: Director, Iowa Department of Natural Resources, Wallace State Office Building, 900 E. Grand Ave., Des Moines, Iowa 50319-0044 or the Equal Employment Opportunity Commission, Washington, D. C. 20240

COVERS

FONT -- Short-eared Owl by Roger A. Hill
CHECK -- Pheasant Tracks by Roger A. Hill



FEATURES

- 4** New and Better Ways To Do Old Business
by Terry W. Little
- 8** The Conservation Reserve Program Benefits a Variety
by Todd Bogenschutz, Lisa Hemesath and Guy Zenner
- 14** What's For Dinner? At Iowa's Fish Hatcheries
by Mike Mason
- 18** The History of Waste
by Beth Hicks
- 21** Pine Creek Water Quality Project
- 28** Early To Bed, Early to "Fry"s
by Alan Moore
- 35** 1998 Winter Birdfeeder Survey
- 37** Iowa Energy Leadership Awards
by Julie Tack
- 44** No, It Isn't "Just Like Chicken!"
by Lowell Washburn
- 48** 1998 Seedling Order Form

DEPARTMENTS

- 50** Parks Profile
- 53** Practical Conservationist
- 55** Classroom Corner
- 57** Conservation Update
- 62** Warden's Diary
- 63** Parting Glance





Lowell Washburn

New and Better Ways to Do Old Business

by Terry W. Little

We live in an electronic age. This may not be particularly comforting to those of us that still need our teenagers to program our VCRs. But it is a fact -- more and more of our fast-paced modern lifestyle is being impacted by electronic technology. Many of these developments improve our lives -- microwave ovens, cable and satellite television, VCRs, remote car and garage door openers, home and business computers, lasers and robotics that improve the quality of such diverse activities as human health care and manufacturing processes, and the list goes on.

Other technologies lower the cost and provide more efficient ways of doing business. Virtually any financial transaction can be done electronically -- mortgage and car payments, utility bills and a host of other expenses can be automatically deducted from your bank account or paid individually by you through one of the Internet service providers. Credit and debit cards are now used by some individuals more commonly than cash or checks. Purchase nearly anything at almost any retail store, run your card through the machine and have an instant charge applied to your account. While the security of these systems can be unsettling to the more conservative among us, their accuracy and safety record is amazing considering the multiple millions of transactions zinging through our telephone lines or across satellite feeds every day.

Eventually some of these technological advances were bound to find application to the DNR's many conservation programs. At least three new and innovative approaches are being looked at to do business cheaper, more efficiently and to provide better service to hunters and anglers.

Harvest Program

Beginning migratory bird register with Service's Harvest Program (HIP). In Iowa, who thinks the goose, snipe, perhaps more register with hunting and registered with register and meanor. All hunting licen

HIP Te

Welcome Automated Harvest Program (co At the conclu will need a p 1998 hunting HIP registra not have bot please hang you have the

If you di ear, press 1 If you tag any, pres If you ba lucks, press If you ba press 4 now. If you wa e repeated, If you di press 1 now. If you hu tag any, pres If you ba eease, press If you ba press 4 now.

Harvest Information Program (HIP)

Beginning in January of 1998, all migratory bird hunters will have to register with the U.S. Fish and Wildlife Service's Harvest Information Program (HIP). In Iowa, this will mean anyone who thinks they will hunt ducks, coots, geese, snipe, rails, woodcock and perhaps mourning doves, will have to register with HIP before they go hunting and carry proof they have registered while in the field. Failure to register and carry proof is a misdemeanor. All hunters required to have a hunting license must register annually,

even those with lifetime hunting privileges.

To register, hunters need only call a toll free number (1-800-WETLAND) and answer a few questions about their hunting activity (see the box for a list of the questions for 1998). Some questions will be answered by pushing the numbered keys on the telephone, others by speaking clearly into the phone. The complete registration should take less than three minutes to complete.

After registering, hunters will be given a HIP registration number. That number must be written in the red HIP box that appears, for the first time this year, in the upper left corner of their hunting license.

The purpose of HIP is to gather better data for the management of waterfowl populations and to have, for the first time, reliable harvest estimates for snipe, rails, woodcock and mourning doves. Sound harvest information is one of the cornerstones of any wildlife management program and better data can only improve management of these species.

Automated Deer and Turkey Harvest Surveys

For years, the DNR has used mail-in postcard surveys to determine deer and turkey harvests. A sample of hunters is sent postcards prior to their deer or turkey hunt and asked to return it after the season. They are asked if they hunted, if they were successful, the type of deer or turkey they bagged, and other questions about their hunt. But printing, mailing and data entry costs are constantly escalating and providing a serious strain to DNR wildlife budgets. And, the surveys take months to complete, mostly due to hunter procrastination in returning the postcards. Sometimes survey results are barely available in time to set the next year's regulations.

In an attempt to curtail costs and speed up the survey, spring turkey hunters in 1998 will be asked to take a different approach. One set of hunters will be mailed survey cards to provide the traditional estimates of harvest. Another set will be asked to call a toll free number to report the same information verbally or using the telephone keys. Details of how to report have not yet been developed, but will be provided to hunters with their survey cards.

If the two surveys produce similar harvest estimates and the telephone survey is cheaper and faster, as expected, the survey may be expanded to include deer and fall turkey hunters as well.

HIP Telephone Registration Script

Welcome to the Iowa DNR's Automated Harvest Information Program (commonly known as HIP). At the conclusion of this recording you will need a pencil or pen and your 1998 hunting license to record your HIP registration number. If you do not have both of these available now, please hang up and call again when you have them.

*If you **did not** hunt ducks last year, press 1 now.*

*If you hunted ducks, but **did not** bag any, press 2 now.*

If you bagged between 1 and 10 ducks, press 3 now.

If you bagged 11 or more ducks, press 4 now.

If you would like these choices to be repeated, press the star key now ().*

*If you **did not** hunt geese last year, press 1 now.*

*If you hunted geese, but **did not** bag any, press 2 now.*

If you bagged between 1 and 10 geese, press 3 now.

If you bagged 11 or more geese, press 4 now.

If you would like these choices to be repeated, press the star key now ().*

If you hunted woodcock last year, press 1 now. If not, press 2 now.

If you hunted coots last season, press 1 now. If not, press 2 now.

If you hunted snipe last season, press 1 now. If not, press 2 now.

If you hunted rails last season, press 1 now. If not, press 2 now.

Please state your complete name slowly and distinctly. Press the pound key when you are done.

Please state slowly and distinctly your complete street address, town, state and zip code. Press the pound key when you are done.

Please state the month, date and year of your birth. Press the pound key when you are done.

Thank you for registering with HIP. You will now be given your HIP registration number. Please write it on your hunting license in the upper left corner in the box labeled HIP. Your HIP registration number is xxxxx.

Iowa is looking at implementing an electronic licensing system, greatly streamlining the current licensing process. This Automated Sportsman's Data System (ASDS) looks much like the compact machines used for credit card purchases.

Electronic License Sales

By far, the most complicated and ambitious new program is an attempt to sell all hunting and fishing licenses, stamps and tags through an electronic computer-based system. Since the early 1900s the DNR has been selling hunting and fishing licenses in mostly the same old way. License books are sent to county recorders and other license agents across the state -- nearly 1,100 altogether. License agents fill out the appropriate license manually, leaving carbon copies in the books, and collect fees from hunters and anglers. The license copies and fees must be accounted for monthly and returned to the DNR. Agents have to purchase an expensive performance bond to be able to sell licenses and must spend considerable time accounting for the 20 or more different license types that may be sold.

From a customer's standpoint, hunters and anglers are often inconvenienced by not being able to find an open store that sells licenses in the evenings or on weekends, or having the only agent in town run out of the very license they need. Deer and turkey licenses must be purchased from the DNR through a lengthy, complicated and uncertain application process that seems to change nearly every year.

The DNR is faced with rising printing, mailing and computer costs

that have driven the price for issuing licenses to more than half million dollars a year (money that could be better spent on protecting or enhancing Iowa's precious natural resources). We also have to distribute many more license books and applications than will ever get used to insure adequate distribution across the state, face difficulties in recovering accounting information and fees in a timely manner, and are frequently confronted by frustrated customers unable to find a license or do not understand application instructions, and face other problems associated with an antiquated and cumbersome paper licensing process.

Fortunately a solution is at hand. In 1994, the Oregon Department of Fish and Wildlife began the first-ever computer-based licensing system, selling all types of licenses through their state's lottery terminals. Since then Idaho, Kentucky, Maryland, Michigan, Missouri, North Carolina, and Texas have implemented their own electronic licensing systems and greatly streamlined the licensing process. Another 20 states, including Iowa, are

in the process of implementing an Automated Sportsman's Data System (ASDS) or are actively pursuing one.

The details of an ASDS vary from state to state because each has unique problems, traditions and legislative mandates to deal with. But they all have several features in common. The computer terminal, set up in a license agent's place of business, looks very much like the compact machines used for credit card purchases. The terminal is connected through a regular telephone line to a central database containing records of the customer's identification (name, address, date of birth, physical description, etc.), previous license purchases and eligibility information (for example, if the customer's hunting or fishing privileges have been suspended). When a hunter or angler desires to purchase a license, the license agent enters the customer's unique identification number and the type of license desired. The central database verifies the customer is eligible for that type of license, asks pertinent questions of the customer (such as the HIP questions



described), assigns additional stamps needed to hunt or fish, and assesses the appropriate fees. Once approved, the completed license is printed on site and the information is immediately available in the database. The process is not much different than purchasing gasoline with a credit card, except the end product is a license, not a cash register receipt.

Limited-quota hunts can be handled in a variety of ways. Some states have gone to first-come, first-served filling of quotas. Once the quota is reached, none of the terminals in the state will accept additional licenses and the hunter is free to make another choice. Other states use the terminals to accept applications and fees, capture the information from the database after an application period is over, and hold a drawing. Licenses are then mailed or hunters are told to return to any license agent to have their licenses printed. Special printers are used in many states to print durable tags for big game licenses similar to the ones used by Iowa deer and turkey hunters now.

An electronic licensing system has several advantages to the hunter and angler, license agent, and the DNR.

For the customer:

- Every type of license sold by the DNR would be available at every license agent at any time agents were open for business.
- The issuing process will take much less time.
- License agents will not run out of licenses.
- Only one license would be needed for all hunting and fishing privileges instead of the multiple pieces of paper now required.
- Habitat, duck and trout stamps would be eliminated as legal instruments, thus reducing the chances for an accidental violation such as failure to sign the stamp. Customers would still pay fees but have the privileges noted on the license.

- Deer and turkey licenses not subject to quotas could be available up to the start of the season.

- Limited quota licenses could be purchased with just one visit to a license agent, or at least would be available much sooner than now.

- Duplicates for lost or destroyed licenses could be obtained at any license agent.

For the license agent:

- Shorter time for clerks to spend issuing licenses.
- Writing fees on more licenses and stamps.
- No performance bond required to sell licenses.
- No time spent accounting for sales -- all license reports would be generated by the computer terminal.
- No checks to write or writing fees to calculate -- the agent's license account would be swept electronically each week or month to recover funds.

For the DNR:

- Vastly reduced printing, mailing and computer data entry costs.
- Much reduced staffing needs to issue licenses and answer customer complaints.
- Fewer complaints once customers and license agents are familiar with the system.
- Faster recovery of license revenue.
- Better law enforcement by locking out ineligible license buyers and providing a database conservation officers can check via cell phone to solve licensing problems directly in the field ("I don't understand officer, I'm sure my license was in my wallet...").
- Better information on who our customers are, allowing surveys to determine what they want for hunting and angling opportunities.

Obviously no licensing system is without some disadvantages. The biggest problem will be dealing with change. Hunters and anglers are a

conservative lot, used to dealing with the current license system, however cumbersome it may be. It will take time for them to adjust to any new system and to realize the many new benefits an ASDS will provide.

The DNR wants to finance the ASDS through cost savings achieved by abandoning the current paper licenses and by a modest 50 cent writing fee attached to licenses and stamps for which no current writing fee exists. Most hunters would have to pay 50 cents or a dollar more than they do now, but would find it much more convenient to obtain licenses. Hunters in states that have implemented an ASDS generally accept the fee increase once the advantages are realized.

For now an ASDS for the Iowa DNR is at least a year away. Minor legislative changes are needed before the system can be implemented. Those changes were adopted by the Iowa Senate last year, but await action in the House. If that occurs, an ASDS could be a reality by the 1999 license year or at least by 2000. Many details of how such a system would work must be left until legislative approval is received, a company is selected to run the system and DNR regulations can be adapted to fit such a system. In the meantime there is ample opportunity to ask questions and voice your opinions about an ASDS. The DNR is committed to improving its licensing services and wants to know what you like and don't like about licensing procedures your suggestions for change. Send your comments to: License Bureau, Iowa DNR, Wallace State Office Building, East 9th and Grand Ave., Des Moines, IA 50319-0035.

Terry W. Little is the wildlife research supervisor for the department in Des Moines.



The Cor
(CRP) of the
Agriculture
tremendous
and migrator
decade. Bac
USDA imple
paid farmers
out of agricu
thereby incre
received for
Farmers who
CRP had to p
grass and lea
planted to ag
years. low
two million
the CRP by
of the land a
The resp
this grass ha
astonishing.
wildlife spec
population d
intensity of f
The addition
grass into lo
a welcomed
resident and
CRP has ben
gamebirds (p

Article



The Conservation Reserve Program (CRP) of the U.S. Department of Agriculture (USDA) has been of tremendous benefit to Iowa's resident and migratory wildlife for the last decade. Back in 1985 Congress and the USDA implemented the CRP which paid farmers a rental rate to take land out of agricultural production and thereby increase the price farmers received for their crops, primarily corn. Farmers who enrolled their land in the CRP had to plant their corn fields to grass and leave them undisturbed (not planted to agricultural crops) for ten years. Iowa farmers enrolled more than two million acres of Iowa cropland into the CRP by 1991 or about six percent of the land area in Iowa.

The response by wildlife in Iowa to this grass habitat is nothing short of astonishing. Most of Iowa's grassland wildlife species were in long-term population declines because of the intensity of farming practices in Iowa. The addition of two million acres of grass into Iowa's farmed landscape was a welcomed relief for many of Iowa's resident and migratory wildlife. The CRP has benefited Iowa's upland gamebirds (pheasants, partridge, prairie

Research shows that a population of greater prairie chickens needs approximately 3,000 acres of grassland, pasture or undisturbed grass to sustain itself. The prairie chickens (far left) released in Ringgold County by the DNR are still maintaining their own a decade later, thanks to the Conservation Reserve Program.

THE CONSERVATION RESERVE PROGRAM

Benefits a Variety

chickens), nongame birds (short-eared owls, northern harriers, henslow sparrows, bobolinks), and our migratory waterfowl (blue-winged teal, mallards). How does changing six percent of Iowa's landscape from agricultural crops to grass benefit so many different wildlife species? There are many reasons, but the most important is the CRP provided undisturbed habitat for wildlife; it gave Iowa's wildlife a place to live.

For Iowa's upland gamebirds, pheasants and partridge, the CRP has provided abundant nesting and winter cover. Before the CRP the only nesting and winter cover available to pheasants and partridge over much of the state was found in roadsides and drainage ditches. These narrow grass strips provide relatively few acres of habitat and they are also very susceptible to disturbance by human activity and predation. And they provide very little cover in winter. The CRP has given pheasant and partridge large undisturbed areas to nest in and find refuge from Iowa's winters. With more birds hatching and surviving winters, pheasant and partridge populations in Iowa have increased dramatically since the CRP started in 1985. Pheasant populations in Iowa increased 30 percent during the first five years of the CRP in Iowa, while partridge popula-

tions increased 122 percent in the first five years of the program (Figure 1).

In 1987, the Iowa DNR reintroduced one of Iowa's extirpated upland gamebirds, the greater prairie chicken, to Ringgold County in southern Iowa. The DNR chose this site because it is close to where the last known prairie chicken was seen in Iowa and because of the abundant CRP in Ringgold County. Research shows that a population of greater prairie chickens needs approximately 3,000 acres of grassland, pasture or undisturbed grass to sustain itself. The DNR has released 254 prairie chickens in Ringgold County and surrounding areas and the birds are still maintaining their own a decade later. Iowa's released birds have even spread into northern Missouri, reestablishing prairie chickens in that state as well as Iowa. The restoration of these native prairie boomers would not have been possible without the Conservation Reserve Program.

Nongame grassland birds have experienced more consistent and more widespread population declines than any other group of birds in the last 25 years. For example, the number of bobolinks has declined by more than 90 percent since 1966. Dickcissels have taken a similar nose-dive in numbers -- the population has declined 1.7 percent per year since 1966. Other grassland

Article by Todd Bogenschutz, Lisa Hemesath and Guy Zenner • Photos by Roger A. Hill

dependent species such as the northern harrier and short-eared owl have such low population numbers that they are listed as endangered in Iowa.

Loss of habitat due to the conversion of fallow fields, hay fields and pastures to row crops leaves grassland birds with very few choices of where to nest in Iowa's intensively farmed landscape. Some species find marginal nesting habitat in Iowa's roadside ditches, but these linear habitats are excellent travel corridors for predators, resulting in high predation rates on nests. For species such as the dickcissel, nesting in roadside ditches is a total loss. Research at Iowa State University indicates dickcissels nesting in ditches rarely, if ever, successfully fledge young.

The CRP benefits nongame grassland birds by providing blocks of nesting habitat with reduced rates of predation, human disturbance and nest parasitism by cowbirds. Population densities of grassland birds in CRP are 10 to 100 times greater than on cropland. Nest success in these grassland blocks are considerably higher than in roadside habitat or on croplands. Dickcissels, whose nest success was zero percent in roadside habitat, averaged 23 percent nest success in CRP fields, according to one study. Other birds such as the bobolink, grasshopper sparrow and northern harrier, grassland-dependent species which don't nest in cropland or roadside ditches, have reappeared on the Iowa landscape, attracted to the large blocks of undisturbed grassland habitat provided by the CRP.

Waterfowl may not come to mind as an immediate beneficiary of the CRP, but ducks and geese nesting in Iowa benefit from the CRP in more ways than one. Waterfowl are generally thought of as wetland wildlife but grasslands are also essential for many ducks that nest on the ground, usually in dense grass cover. Prior to the CRP, ground-nesting ducks were relegated to nesting in grassy edges along roads and drainage ditches in most of Iowa's prairie pothole region. This made them easy prey for any raccoons, skunks and

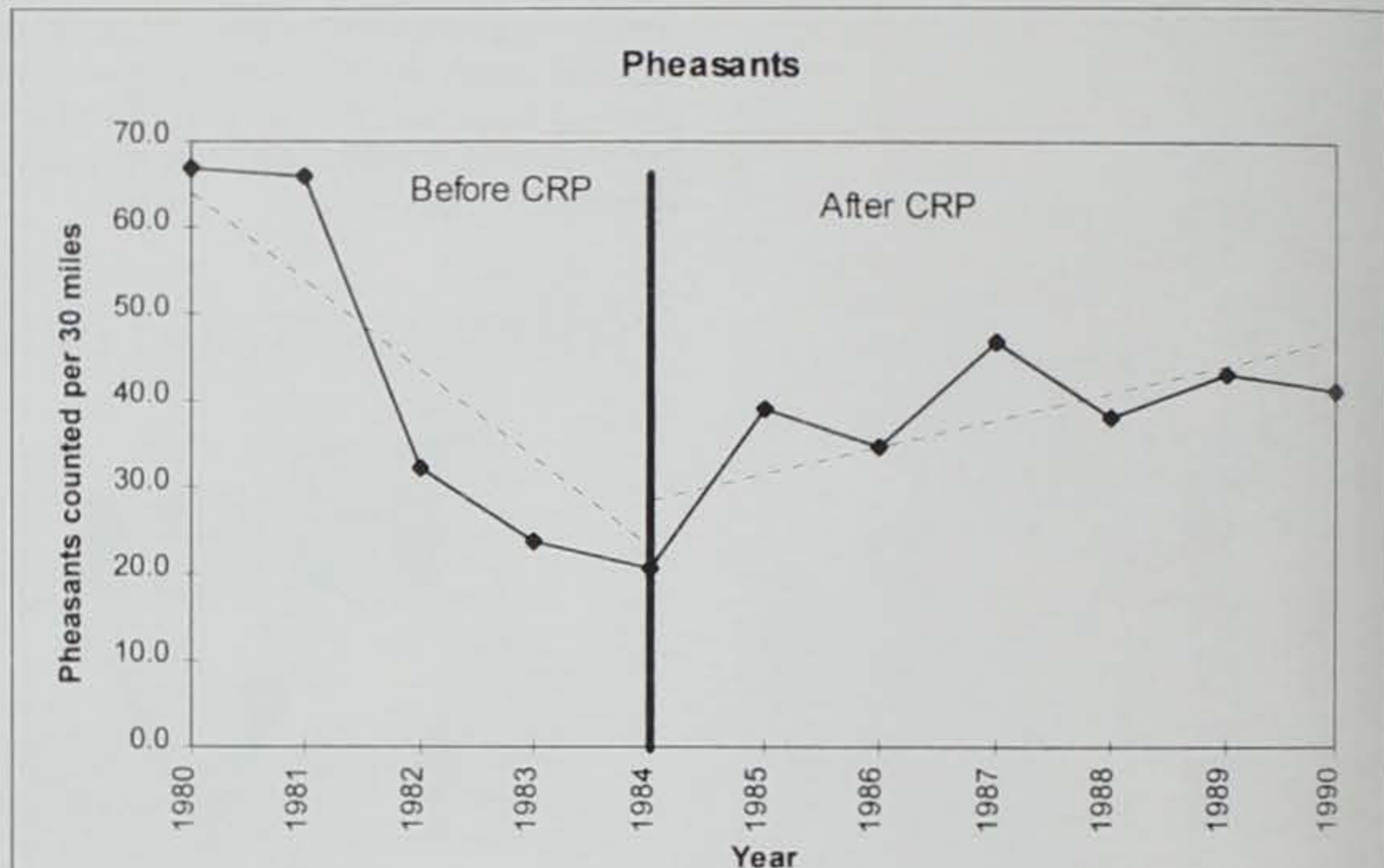


Figure 1. Average number of pheasants counted on DNR 30-mile survey routes, five years before and after CRP.

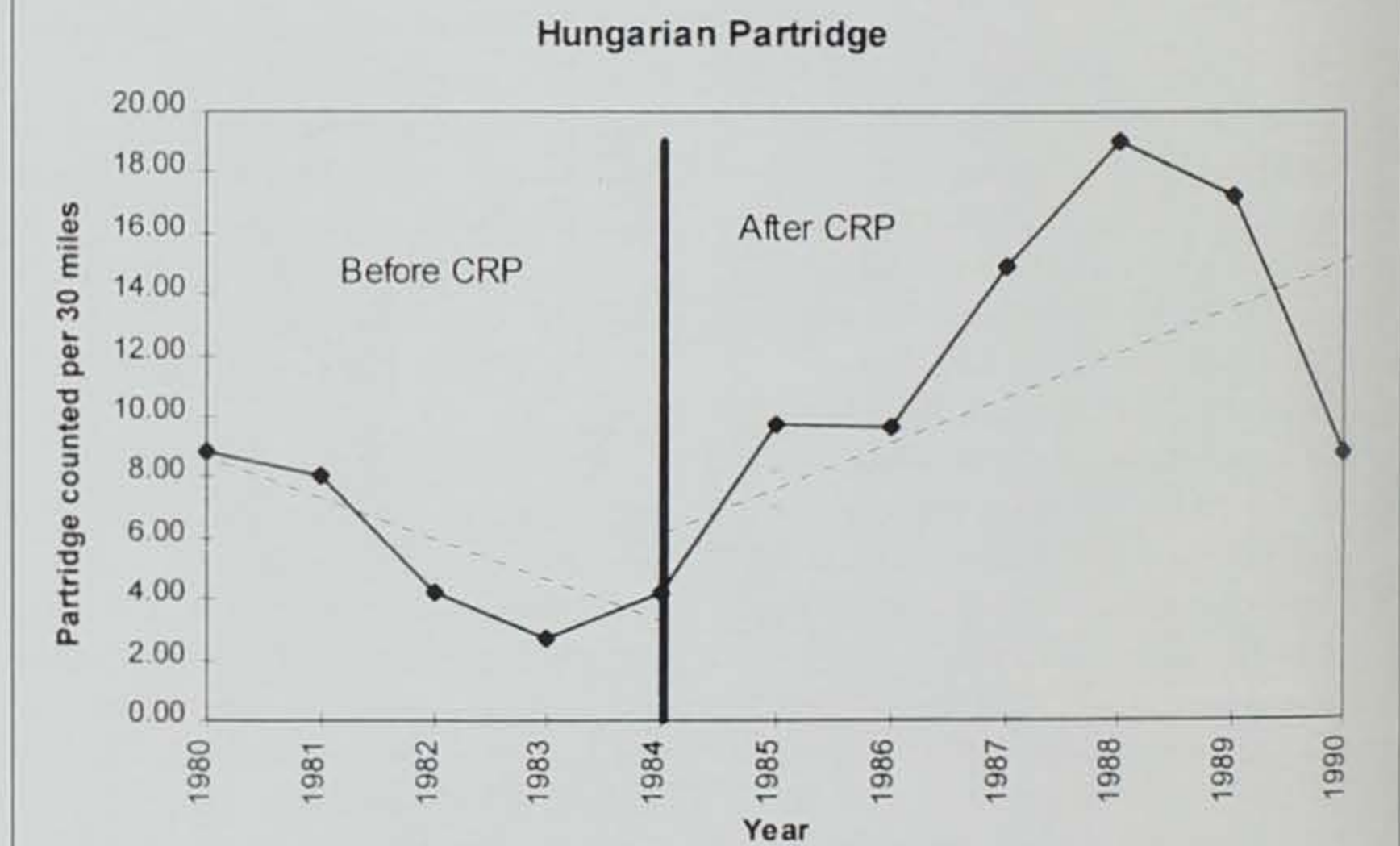


Figure 2. Average number of partridge counted on DNR 30-mile survey routes, five years before and after CRP.



foxes traveling
grass. The C
1985, when t
virtually und
blocks of 40
lished. The
this new-tou
brood counts
four duckling
restored wetl
Wetland
and geese, al
many prairie
acres. The p
real opportu
in Iowa and
this opportu
the U.S. Fish
the U.S. Dep
Natural Reso
Service to re
north-central
acres, during
predominant
mallards, blu
winged teal a
wood ducks
these new we
almost imme
With average
densities of r
two duck pai
acre of water
the breeding
it was obvio
these restore
wetlands wer
attractive and
welcome hab
Canada geese
used these ne
wetlands pro
one gosling f
about every f
acres of wetl
Although
new CRP wil
eliminate mo
the vital nest
cover from th
southern part
prairie potho
region in low
it will improv
and South Da
of ducks nest

foxes traveling these narrow strips of grass. The CRP changed all that in 1985, when thousands of acres of virtually undisturbed grasslands, in blocks of 40 to 320 acres, were established. The success of the ducks using this new-found cover is reflected in brood counts that averaged as high as four ducklings per acre of water on 56 restored wetlands in 1991.

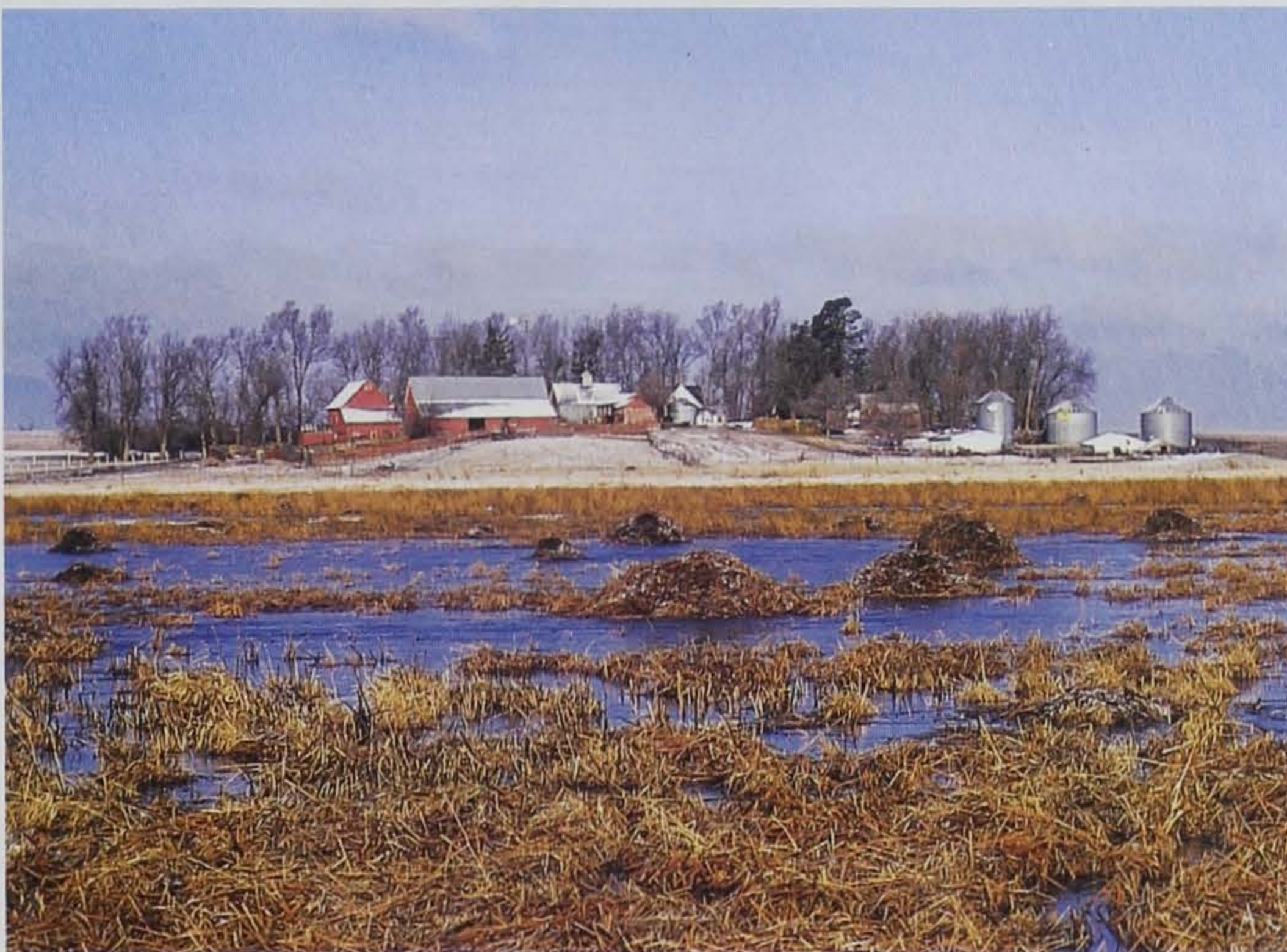
Wetland wildlife, including ducks and geese, also benefited from the many prairie potholes restored on CRP acres. The program provided the first real opportunity for wetland restoration in Iowa and the DNR took advantage of this opportunity by joining forces with the U.S. Fish and Wildlife Service and the U.S. Department of Agriculture's Natural Resources Conservation Service to restore some 900 wetlands in north-central Iowa, mostly on CRP acres, during 1987-93. Breeding ducks, predominantly mallards, blue-winged teal and wood ducks, used these new wetlands almost immediately. With average densities of nearly two duck pairs per acre of water during the breeding season, it was obvious that these restored wetlands were attractive and welcome habitat. Canada geese also used these new wetlands producing one gosling for about every five acres of wetland.

Although the new CRP will eliminate most of the vital nesting cover from the southern part of the prairie pothole region in Iowa and southern Minnesota, it will improve nesting cover in North and South Dakota where large numbers of ducks nest each year. In regards to



DeWayne Jackson

Birds such as the bobolink (left) and short-eared owl, grassland-dependent species which don't nest in cropland or roadside ditches, have reappeared on the Iowa landscape, attracted to the large blocks of undisturbed grassland habitat provided by the CRP.



Wetland wildlife, including ducks and geese, also benefited from the many prairie potholes restored on CRP acres. The program provided the first real opportunity for wetland restoration in Iowa.



Most wetlands restored on CRP lands would qualify to be enrolled in the Wetland Reserve Program or the U.S. Fish and Wildlife Service's Wetland Easement Program if landowners are inclined to maintain these jewels on the landscape. With average densities of nearly two duck pairs per acre of water during the breeding season, it was obvious that restored wetlands are attractive and welcome habitat.

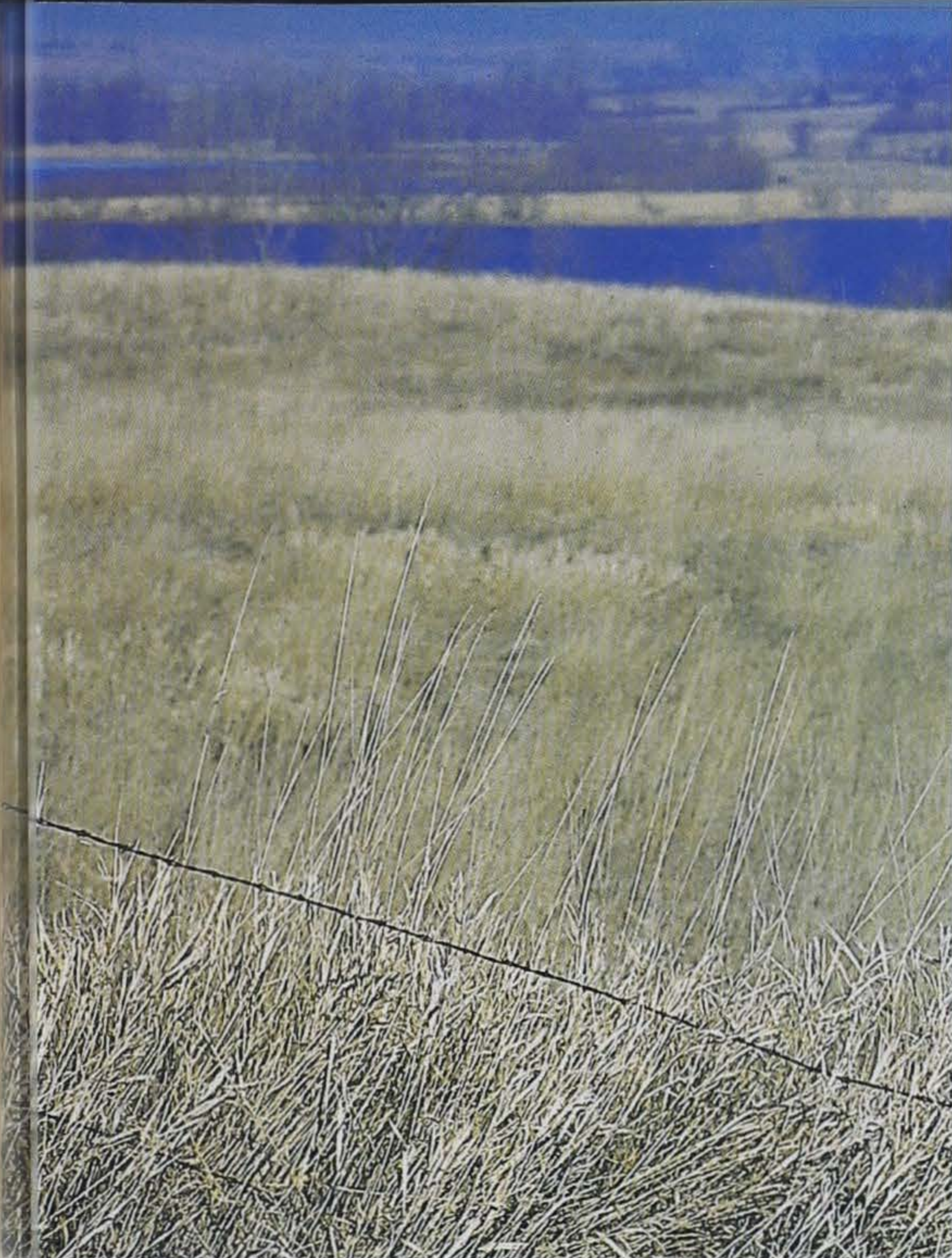
the wetlands that were restored on CRP lands in Iowa, most would qualify to be enrolled in the Wetland Reserve Program or the U.S. Fish and Wildlife Service's Wetland Easement Program if landowners are inclined to maintain these jewels on the landscape.

This program designed to benefit Iowa's farmers has also benefited Iowa's grassland wildlife as well. Both Iowa's farmers and outdoor enthusiasts have been very pleased with this program, something that can not be said about every government effort. The CRP has been so popular with farmers and sportsman alike that the program was reauthorized in the 1995 Farm Bill with both sides collaborating to ensure Congress continued this program for another ten years. This was great news

for Iowa's grassland wildlife because it meant our bird populations could continue to recover from their long-term declines.

Unfortunately things have not turned out so rosy for Iowa with the new CRP. Why? As usual, whenever the federal government is involved, politics play a role as well. With the new CRP, a new formula was developed to determine who could enroll in the program. The new formula gives a high ranking to farmers with cheap rental rates and a low ranking to farmers with expensive rental rates. Because Iowa is located in the cornbelt, Iowa farm ground has some of the highest rental rates in the country. In the last CRP sign-up (March 1997) Iowa farmers offered more land into the

CRP than any
but less than h
did Congress
severe disadva
Because agribu
cheap corn to
overseas mark
Congress, und
agribusiness le
farm ground in
Iowa getting a
So what d
the CRP and w
picture for mu
example, Aud
16,000 acres e
lost almost 10
habitat in 1997
acres will likel
Hancock Coun



Lowell Washburn

CRP than any other state in the nation, but less than half were accepted. Why did Congress put Iowa farmers at such a severe disadvantage in the new CRP? Because agribusiness needs lots of cheap corn to be competitive in overseas markets. Simply stated, Congress, under pressure from agribusiness lobbyists, did not want farm ground in the cornbelt states like Iowa getting accepted into the CRP.

So what does the future hold for the CRP and wildlife in Iowa? The picture for much of Iowa is grim. For example, Audubon County which had 6,000 acres enrolled in the CRP has lost almost 10,000 acres of grassland habitat in 1997. The remaining 6,000 acres will likely disappear in 1998. Hancock County had 9,500 acres in the

CRP, and of that, 6,000 acres were plowed in 1997. The remaining acreage will likely be plowed up in 1998. Marshall County had 18,500 acres of farmland enrolled in the CRP, 12,500 acres or more than 70 percent was plowed in 1997. All told, Iowa will lose more than one million acres of grassland habitat by the time this article goes to press. The impact of this loss on Iowa's grassland wildlife will be felt for decades to come.

The upward trends in Iowa's grassland wildlife (see Figures) will cease and once again begin their long-term plunge, all so we can sell corn cheaply overseas.

The changes in the new CRP that put Iowa's farmers at such a severe disadvantage over those in other states

has frustrated Iowa's farmers and wildlife enthusiasts alike. Can things be changed? Yes, they can, by contacting Congressional representatives and letting them know your feelings about the new program. For more information about the Conservation Reserve Program, contact your local USDA office or a biologist with the DNR.

Todd Bogenschutz is an upland game biologist for the department located in Chariton.

Lisa Hemesath is a wildlife diversity biologist for the department located in Boone.

Guy Zenner is a waterfowl biologist for the department located at Clear Lake.



What's For Dinner?

at Iowa's Fish Hatcheries

by Mike Mason

Manufactured fish feeds are a blend of many ingredients (above).

Today's appetizer is freeze-dried krill, a shrimp-like organism from the icy waters of the Antarctic. The krill, of course, were free-ranging, having fed on rich alga and zooplankton in their marine environment. The main course, shipped in from Oregon, is a semi-moist blend of fish meal, fish oil, spray-dried animal blood, krill meal, hydrolyzed poultry feathers, processed grain by-products, assorted vitamins and minerals all presented in a soft-textured pellet.

Sound mouth-watering? Hopefully, it is to some 60,000 largemouth bass. Delivered from rearing ponds at the Fairport Hatchery to the indoor tanks at the Rathbun Hatchery every summer, these tiny fish begin three months of intensive feeding and growth. Dinner is served to the finicky patrons every five minutes, all day long, to prevent the bass from diverging from the prepared menu and deciding to eat one another.

Alas, it's true, too many of the diners remember the adage "You are what you eat." The cannibalistic bass are plucked from the tanks and, when placed with others of the same size, most "cannibals" can be reprogrammed to eat the pelleted feed. If they stick to the diet offered, the bass will grow

from just over an inch to five inches in three months. They are then stocked into selected lakes where bass reproduction is poor. In these waters, the bass will return to their more varied diet of minnows and insects.

If you have visited one of Iowa's trout hatcheries at Manchester, Decorah, or Big Spring, then you know you can purchase a handful of fish feed from coin-operated "gumball" machines to feed the resident trout. The trout aggressively respond to these nugget-shaped snacks provided by visitors. Where does this pelleted feed come from and what's in it? How do the fish know it's food? How do hatchery employees know how much to feed?

The salmonids reared in Iowa's three state trout hatcheries all eat a prepared diet currently made at a feed mill in Utah. Iowa solicits bids to obtain the lowest delivered prices for fish feed meeting specific nutritional requirements. The sizes and protein amount of the feed vary according to the size of the trout. These complete feeds are formulated to contain all the vitamins, minerals, protein and energy needed by the fish. Protein requirements are higher in fry and decrease as fish size increases.

Newly hatched trout eat a starter diet that is 50 percent crude protein, 13 percent fish meal protein and 17 percent crude fat. As the fish grow, the fine particles that initially were fed the tiny fry are replaced by larger granule sizes that contain less protein and fat. At about four inches, the trout are offered larger pelleted feeds that are only 41 percent crude protein, 7 percent fish meal protein and 10 percent crude fat. Salmonids were one of the first family of fishes that scientists did extensive research on in order to develop their nutritional requirements and formulations for a commercially prepared ration. Iowa's hatcheries use data collected from production experiments at each



Lowell Washburn



Visitors to Iowa's trout hatcheries can purchase handfuls of pelleted feed for the fish to dine on.

facility to calculate amounts of feed to be fed and anticipated growth rates. After entering data, such as the current size of the fish and water temperature, into a computer program, all that needs to be done is to multiply the pounds of fish in a pond or raceway by the appropriate feed factor and the pounds of feed needed is calculated.

Most types of feed fed to the trout are sinking pellets. Sinking pellets are

Water fleas (below) are just one of the zooplankton maintained by pond fertilization and are a source of food for young fish.



J.E. Morris

Walleye and largemouth bass (below) are two species which start out on natural foods and are then switched to a manufactured pellet for further growth in hatcheries.



DNR

produced by forcing the ground and mixed dry-feed ingredients through a die of selected diameter under pressure in a pellet mill. Steam is applied to assist in the binding process. As the material leaves the die, a knife blade cuts the pellets into the desired length.

The channel catfish at Iowa's Rathbun and Fairport hatcheries are fed a diet similar to the manufactured trout diet. It also comes from the same feed mill in Utah. However, most of this feed is a floating pelletized feed. Floating pellets are manufactured using an extrusion process. The ground and mixed feed ingredients are forced through a die, but at a much higher temperature and

pressure than the pellet mill. As the feed exits from the die, the pressure drop causes the starches in the pellets to expand. Floating rations are somewhat more expensive than sinking diets because the extrusion process is more elaborate and uses more energy than does a pellet mill.

All of these feeds have one common ingredient -- fish meal. Fish meals are manufactured by cooking fish, pressing to remove water and oil, and then drying. Usually, menhaden or anchovy meals are used as they are high in protein (60-65 percent) and essential amino acids, particularly lysine. Another common ingredient is



soybean meal -- the major protein source in most commercial catfish feeds, often making up approximately 50 percent of the feed. Soybean meal is highly digestible and palatable to fish. Wheat, either as wheat meal or wheat bran is also used as an energy source in catfish feeds.

All fish reared in Iowa's hatcheries must be provided either manufactured diets or "natural" diets. Natural diets may include zooplankton, fathead minnows or other live organisms. Many times the natural productivity in a rearing pond must be stimulated, most commonly through fertilization, to provide the increased amounts of natural food organisms needed by the constantly feeding fish. The goal of the fish culturist is to provide sufficient food of proper quality to promote rapid growth in the target fish species. Some fishes do

not respond well to prepared feeds, while others accept them from the time of first feeding.

Currently at Iowa's hatcheries, all bluegill, northern pike and



J.E. Morris

Floating feed is fed to channel catfish (above and top right) to minimize waste and allow observation of feeding behavior.

Formulated feeds (right) are manufactured in the form of meals, granules, compressed pellets (sinking), expanded pellets (floating), and semi-moist feeds. As the fish grow, so does the size of the fish feed.



J.E. Morris



Ron Johnson

redeer sunfish are provided only natural foods. Walleyes and largemouth bass also eat natural foods after being stocked as small fry into ponds or rearing lakes at the hatcheries, but some are later removed and taken to Rathbun or Spirit Lake hatcheries to be acclimated to manufactured diets. Muskellunge are reared first on manufactured diets then switched to a diet of fathead minnows.

For the first 10 days in tanks, walleye and muskellunge reared intensively are fed a highly specialized starting feed imported from Japan costing more than \$7 a pound. After 10 days, a less costly manufactured feed is slowly substituted as the fish become adjusted to eating a prepared diet.

The Iowa Department of Natural

Resources has been recognized as a leader in the testing and development of manufactured feeds for walleye and muskellunge. In 1996, Iowa's diet-development work with walleyes was awarded an outstanding project designation by the fisheries administrator's section of the American Fisheries Society. Iowa's fish hatcheries are working hard to produce larger, higher-quality fingerlings for stocking in Iowa waters. This translates into much higher post-stocking survival of the fish reared to meet the fisheries bureau's goal of shortening the time between bites for Iowa anglers.

Mike Mason is a fisheries biologist and the manager of the Rathbun Fish Hatchery.

A good hatchery diet means higher survival of stocked fish and ultimately more bites for anxious anglers.



Ron Johnson

by Beth Hicks

The History of Waste



Ron Johnson

Garbage is as old as humankind. How much and what we do with it has changed drastically over the last few centuries. Waste generation reached a peak in 1970 with each person in the United States generating 5.32 pounds per day (as compared to 2.7 pounds per day in 1920 and 4.3 pounds per day in 1995). Open dumps have been replaced by sanitary landfills. The number of landfills in the United States and Iowa have decreased. Materials that were burned are now collected for recycling and made into new products. Follow the timeline of waste history to see how waste management has changed in Iowa and the rest of the world.

10,000 B.C. Nomadic tribes begin to settle. Now that they no longer travel from place to place, leaving their garbage behind, they must learn how to dispose of their trash. The challenge of what to do with waste begins.

500 B.C. Athens organizes the first municipal dumps in the western world. Local laws dictate waste must be disposed of at least one mile from the city walls.

1690 The recycled paper manufacturing process is introduced. The Rittenhouse Mill near Philadelphia makes paper from fiber derived from recycled cotton and linen rags.

1840s The peddler trade, among America's earliest entrepreneurialships, begins when people with backpacks and horse-drawn carts collect and recycle anything with resale value.

1865 The Salvation Army is founded in London, England, and begins collecting, sorting and recycling unwanted goods. The organization and its activities migrate to the U.S. in the 1890s.

1874 Curbside recycling begins in Baltimore, Maryland.

1892 The Sierra Club is founded in San Francisco by John Muir. It is the first national environmental organization.

1900 The era of the "Great Sanitary Awakening."

1904 The nation's first aluminum can recycling plants open in Chicago and Cleveland.

1916 The sanitary landfill was first tried in England in 1916.

1916-1918 Due to shortages of raw materials during World War I, the



federal government creates the Waste Reclamation Service with the motto "Don't Waste Waste -- Save It."

1920 Landfilling -- reclaiming wetlands with layers of garbage, ash, and dirt -- is introduced and becomes a popular disposal method.

1945 During World War II U.S. Army engineers experimented with sanitary landfilling to deal with the rapidly rising solid waste volume at military installations. Nearly 100 U.S. cities adopted sanitary landfilling techniques by the end of 1945.

Learn about waste management in Iowa through "The Delicate Balance: Human Values and Iowa's Natural Resources," a permanent display at the Iowa State Historical Building, Main Floor, Des Moines.

Number of Landfills in U.S.

1988 - 7,575 1995 - 2,892

Number of Landfills in Iowa

1988 - 84 1997 - 62

1965 The Solid Waste Disposal Act is passed by Congress, the first significant recognition of trash as a national issue.

1970 The first national Earth Day is held on April 22.

The U.S. Environmental Protection Agency is created as a government response to the public's growing environmental concerns. Its Office of Solid Waste begins examining the problems caused by generating and disposing waste.

1972 Iowa's first sanitary landfill permit is issued to Metro Park East Landfill in Des Moines.

Iowa's first unit-based pricing waste collection program is established in Estherville.

For additional information on waste management programs in Iowa, contact staff with the Waste Management Assistance Division at 515/281-4367 or your local recycling coordinator.

1976 The Federal Resource Conservation and Recovery Act is passed. Among other things, it mandates landfills be more closely monitored. The law emphasizes recycling and conserving energy and other resources, and launches the nation's hazardous waste management program.



Ron Johnson

Number of Recycling Programs in U.S.

1995 - More than 7,000 curbside recycling programs and nearly 9,000 drop-off centers

Number of Recycling Programs in Iowa

1997 - 563 curbside recycling collection programs and 279 drop-off recycling collection programs in Iowa.

1979 The Iowa Bottle Bill is established as a litter control measure. This 5-cent deposit has had significant recycling benefits, with a return rate of 85 to 95 percent on bottle bill containers.

1987 The Iowa Groundwater Protection Act is passed in response to

public and governmental concerns over the increased presence of contaminants in subsurface waters. The legislation provides funds and directs agencies to investigate groundwater contamination, provides for public education in the use and disposal of hazardous material, seeks alternatives to existing technologies, and establishes regulations for the use of hazardous material that may affect water supplies and the environment.

First Toxic Cleanup Days are held in Iowa.

1989 The Iowa Waste Volume Reduction and Recycling Act is established to reduce the amount of waste disposed of in Iowa landfills.

1990 Disposal of waste oil in Iowa's sanitary landfills is prohibited.

1991 Yard waste and whole waste

tires are banned from Iowa's sanitary landfills.

1994 The first permanent Iowa Household Hazardous Materials (HHM) facility is established in Bondurant by Metro Waste Authority.

Commercially generated fluorescent lamps are banned from Iowa's landfills.

1996 The first Iowa commercial construction and demolition recycling center is established in Des Moines.

Beth Hicks is a former pollution prevention coordinator with the Waste Management Assistance Division.

Pi
W
The
been w
protect
Pin
illustrat
wisdom
to Pine
Eldora f
Loc
vision a
reality.
financia
ful natur
was cre
Low
created

Pine Creek Water Quality Project



The people of this community pulled together in the 1920's to make the lakes a reality and have been working in this watershed since then. We must continue to be aware of changes we can make to protect the watershed and lakes in the best way we know how. These lakes are vital to our community.

Pine Lake in autumn illustrates the beauty and wisdom that has drawn visitors to Pine Lake State Park near Eldora for the last 75 years.

Local residents had a vision and carried it through to reality. Through land and financial donations, this beautiful nature and recreation area was created.

Lower Pine Lake was created in 1922 when a dam

was constructed across the outlet of Pine Creek to the Iowa River. It was Iowa's first state-owned artificial lake.

In 1934, a Civilian Conservation Corps camp was established in the area and created much of what exists around Pine Lake today, including the original Upper Pine Lake dam. They are credited with building the beautiful rock lodge on

Upper Pine Lake as well as cabins, foot bridges and trails. They also created the multiple stairstep rock chutes that control water runoff and prevent cropland runoff from forming gullies in several areas adjacent to the park and lake.

These were the first soil erosion control structures built to protect Pine Lake.

Improving Pine one practice at

Grade Stabilization Structures

These structures are used to control gully erosion. Some structures are built to store water much like a pond. They are built across gullies to guide runoff waters from one stabilized level to another. They can be constructed of wood, aluminum, concrete, or rock baskets called gabions.



Before



After

Grade stabilization structure - gabion baskets

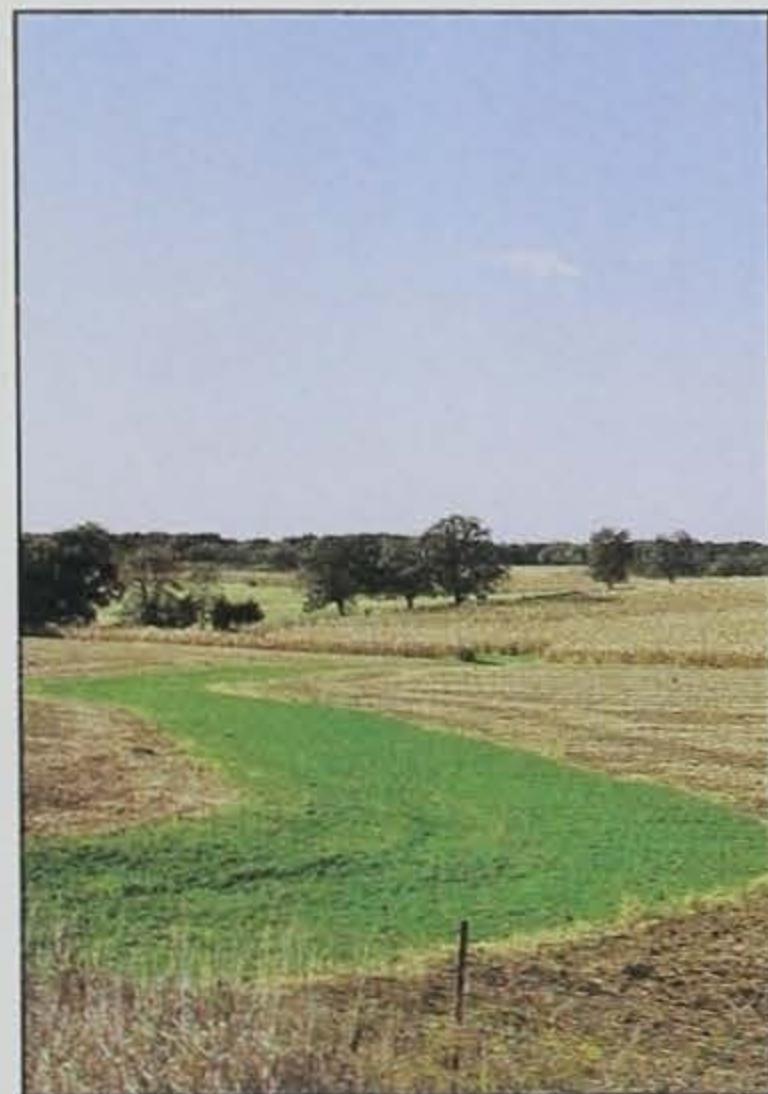
Ponds

Ponds reduce the erosive energy of runoff by ponding water over actively eroding areas. This earthen structure also can be used as a water supply source for livestock with a gravity flow system to a stock tank.

Streambank Stabilization

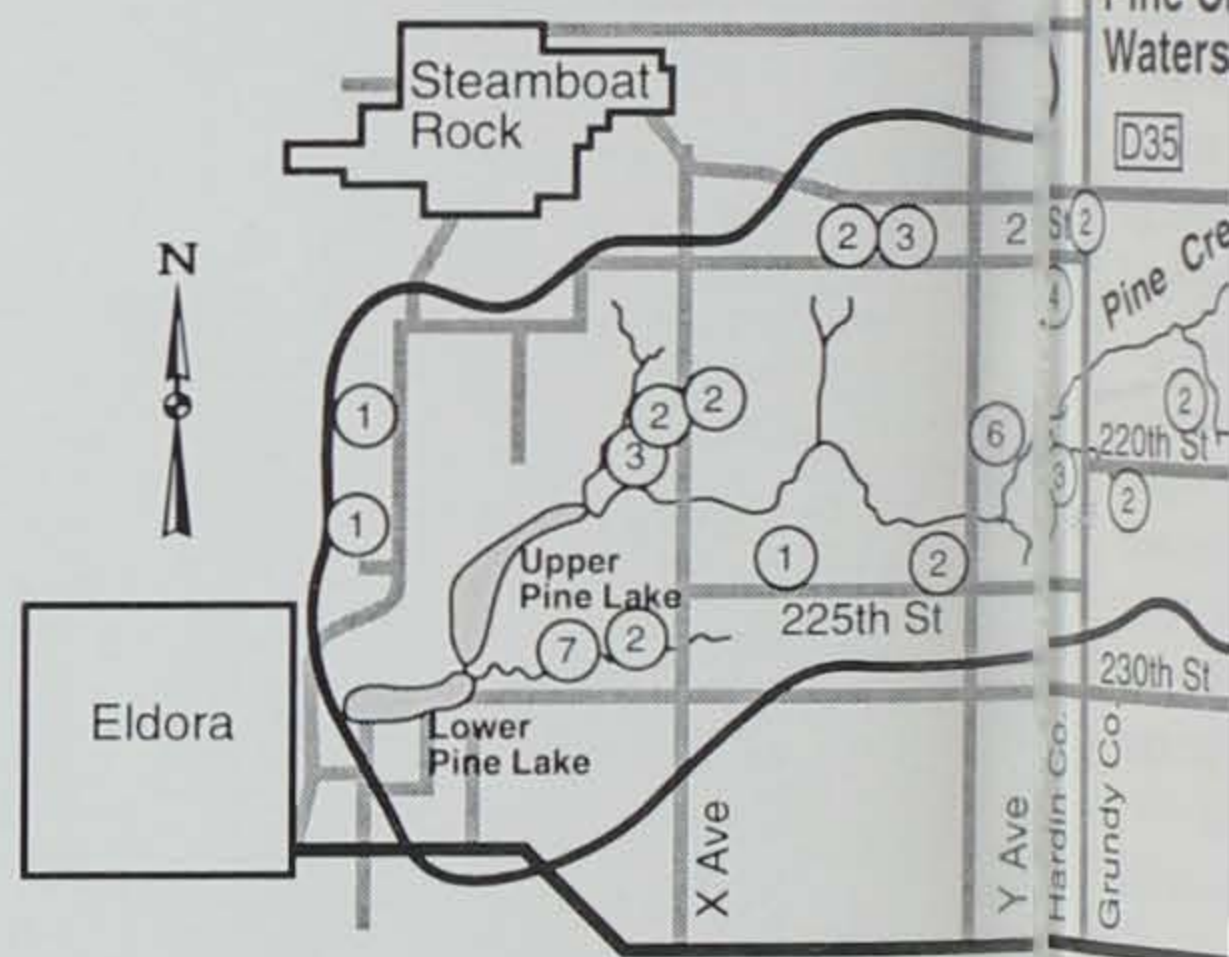
Eroding streambanks add sediment to streams and downstream waters. The banks can be shaped and seeded with protective grasses or protected with rock rip rap, willow trees, and other stabilizing measures.

Grassed waterway



Grassed Waterways

Rainfall that runs off fields often concentrates into small streams of runoff and erodes gullies if the soil is bare. Waterways are shaped and seeded with grass in areas of concentrated flow. The grass slows the water and guides it off the field, significantly reducing gully erosion.



Shallow Water Impoundments

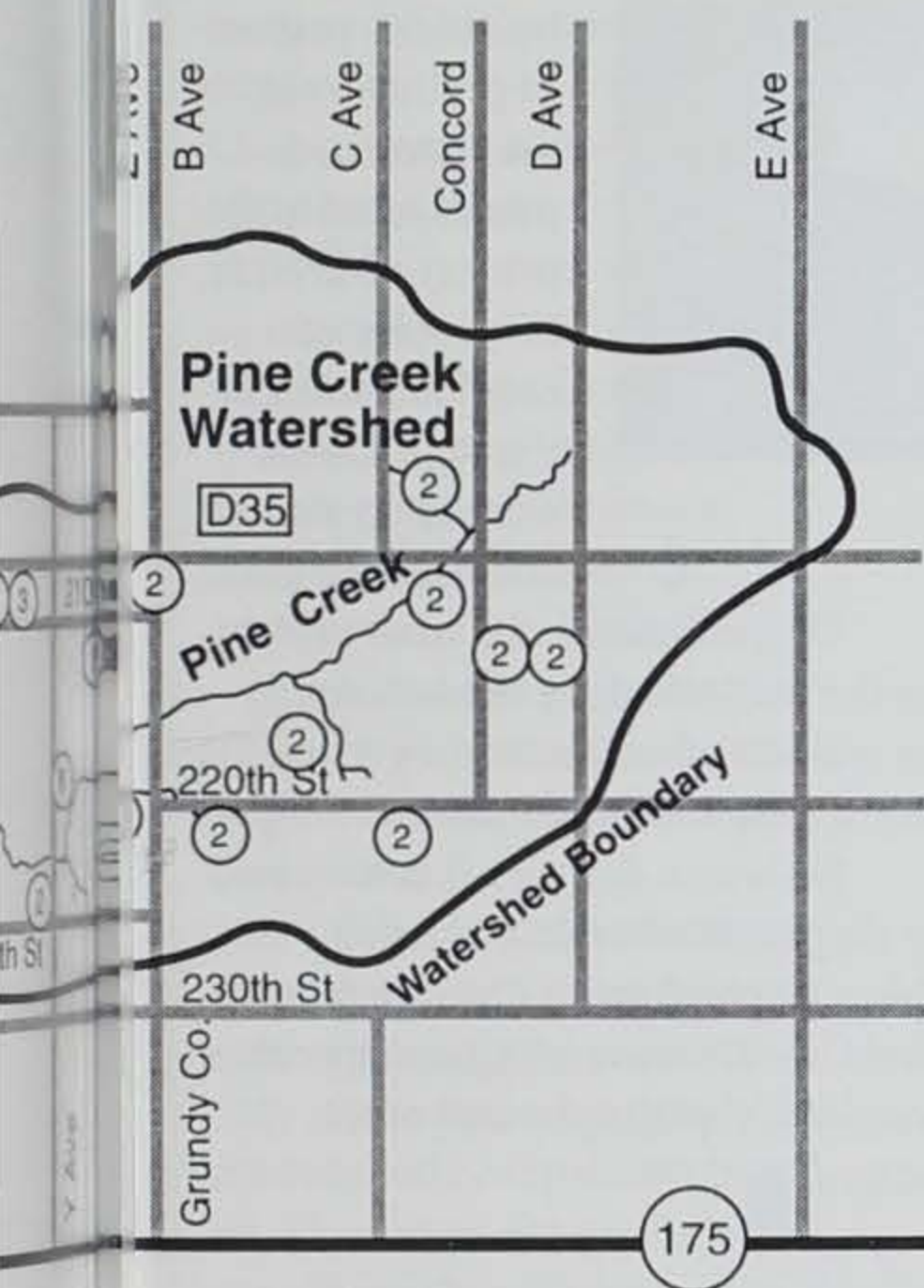
The erosive energy of water is reduced by ponding water over actively eroding areas. The water depth is usually less than six feet and pool size is dependent on the landscape.

These structures temporarily store and release runoff at a controlled rate after heavy rains, similar to the natural function of wetlands. Other wildlife benefits include waterfowl habitat and cover, wetland vegetation and food source.

Pine Lakes: at a time

The watershed map illustrates where many of the recently constructed erosion control practices are located, as well as terraces and other practices from previous efforts in the watershed. Take a drive through the watershed and view all the practices that reduce the erosion potential of the cropland. All these practices could be implemented in fields outside the Pine Creek watershed.

Since everyone lives in a watershed, all places will benefit from measures to protect the productivity of the soil for future years to come.



Scale
1 mile

Map legend

① Terraces	17,000 ft
② Grassed waterways	60,000 ft
③ Grade stabilization structures	11
④ Shallow water impoundments	2
⑤ Ponds	3
⑥ Streambank stabilization	3,500 ft
⑦ Water and sediment control basins	5

Construction of the streambank stabilization.



Water & Sediment Control Basins

Basins function similarly to a small dam or terrace to prevent gully erosion. They are embankments built across drainageways or depressional areas where water concentrates to run off a field. Basins store water temporarily and deliver it to underground tile.

Terraces

Terraces are grass-covered earthen ridges built on a hillside slope to catch runoff water and deliver it to an underground tile outlet at the bottom of the hill. The tile carries the runoff water to a non-eroding outlet.

Filter Strips

A filter strip or riparian buffer planting consists of a strip of grass, trees and shrubs or a combination along a stream that filters runoff water from farm fields. The vegetation slows runoff, allowing contaminants such as sediment and herbicides to collect in the vegetation. The strips also reduce the erosion on the streambank.

What is a watershed?

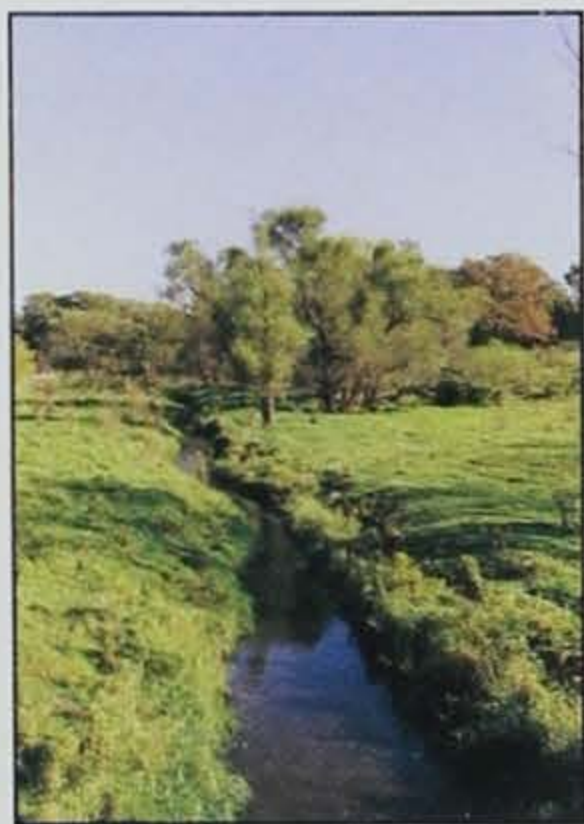
All of the land on earth is divided into watersheds. We all live in one.

A watershed is an area of land that water drains through on its way to the lowest point — a lake, river or stream.

Watersheds come in all shapes and sizes. The Mississippi River is one of the largest watersheds in the world with water draining from approximately 1.2 million square miles of land flowing into its banks. This watershed is made up of many smaller watersheds across several states.

The quality of water in a lake, river or stream is dependent upon the conditions within the watershed.

As rain falls, the water either travels over the surface or seeps down into the ground. Water that travels over the surface may pick up



Pine Creek

contaminants like sediment, chemicals and waste and deliver them to a water body.

Practices like those described in this publication protect the water from sources in the watershed like erosive cropland, unstabilized streambanks and runoff from agricultural chemicals and fertilizers.

This is the pollution prevention approach to water quality — reducing pollution throughout the watershed instead of cleaning up water after pollution has occurred.

Pine Creek Water Quality Project

In the first years after its creation, Lower Pine Lake near Eldora received a large amount of sediment from the agricultural-based watershed. Only eleven years after Upper Pine Lake was constructed, more than 30 percent of its original capacity had been lost to sediment.



Upper Pine Lake

Poor water clarity, summer algal blooms and fish kills also threatened the lakes.

Local land and water officials predicted if soil conservation practices were adopted in strategic locations in the 9,680-acre watershed, the lakes could be protected. If the water quality problems were not corrected, they determined, the lakes would deteriorate and no longer support their desirable uses such as fishing and swimming.

They were in need of help from the watershed's farmers and landowners.

The watershed has gently rolling topography and erosive soils. Approximately 78 percent of the watershed is cropland. Almost a third of that land is considered highly erodible land.


The first efforts to protect the lakes began in the 1930's. The most recent effort, the Pine Creek Water Quality Project, began in 1993.

The five-year project used the watershed approach to water quality improvement.

This approach integrates education and management techniques with technical and financial assistance for producers and landowners.

Approximately 80 percent of producers in the watershed participated in the project. Currently, 60 percent of cropland acres in the Pine Creek watershed are effectively treated.

Of these acres, the most critical for the watershed are determined by the amount of sediment they deliver to Pine Creek and Pine Lakes.

Sediment delivery is determined by the potential of soil to reach Pine Lakes, depending on distance from Pine Creek, surrounding conservation practices, topography and other factors. 

What is the impact downstream?

Although erosion is a natural process, growing corn and soybeans accelerates the rate of erosion.

Yet not all eroding soil will make its way into the lakes. Some areas are more critical because they deliver more sediment than others. One area in the watershed targeted by the Pine Creek Water Quality Project was a 240-acre subwatershed in the upper region of the watershed.

Before the project, this subwatershed delivered 272 tons of sediment to the lake every year. That would cover one acre with a one and a half-inch layer of soil.

Producers implemented grassed waterways, a grade stabilization structure and residue management systems to reduce the amount of sediment delivered to Pine Lakes by approximately 200 tons per year, a 73 percent reduction. Now, only 74 tons travel the route to the lakes.

Changing the watershed landscape

We think we have reduced erosion by 75 percent on our farm due to several changes like contour farming, no-till and the addition of grassed waterways and terraces." This is the feeling of landowner Wayne Paige and operator Chuck Smoldt about their farm adjacent to Pine Lakes.

"Many farmers in the watershed were active participants in the Pine Creek Water Quality Project," said Jennifer Welch, project coordinator. "Practices such as no-till, contour farming, buffer strips, and nutrient and pest management programs were voluntarily implemented by farmers and landowners."

Nutrient and pest management minimizes water contamination by applying pesticides only when economic thresholds are reached or fertilizers based on what crops are predicted to use. More than 50 percent of the watershed acres were enrolled in nutrient and pest management.

"By recognizing the benefits we are receiving from our manure application, we have reduced our use of phosphorous and potassium dramatically," said Bill and Billie Janssen.

Like the Janssen's, other producers in the watershed are now more conscientious of nitrogen use and monitor actual crop requirements through late spring soil and fall stalk tests.

Producers hired crop consultants to intensively manage their farming operation. Specific plans were created on a field-by-field basis to tailor fertilizer and pesticide programs to individual fields.

Two watershed producers have become proficient at

building grassed waterways. "We have designed and built machines to install fabric checks in newly constructed grassed waterways to prevent gully erosion before grass is established," said producers Rollin and Claus Primus.

Dredging is a "last ditch" effort for water bodies that have accumulated large amounts of sediment. In conjunction with watershed protection practices implemented through the Pine Creek Water Quality project, Upper and Lower Pine Lake is being dredged.

This process uses a floating barge to collect silt like a giant vacuum from the lake bottom. The dredged material is pumped in a slurry with lake water into a large basin. Once the sediment has settled to the bottom, the sediment-free water is returned to the lake.

This very expensive process fixes only the symptoms of sediment. The practices implemented on the land in the watershed do the real work of protecting Pine Lakes.

After the area was treated.



Gully erosion treated by a grade stabilization structure reduced sediment going into Pine Lakes by 65 tons per year.

So more grassed waterways are protected from erosion with fabric checks, the Primus' are now building and selling these machines with the assistance from a local welding shop.


Another watershed producer has been pleased with the results of strip tillage in his no-till management system. "I planted corn in bands where nitrogen had been applied in late fall. The nitrogen application created a darker residue-free strip that was warmer in early spring and gave my corn an earlier start," said producer Mark Balvanz. The undisturbed residue between the strips protected the soil from erosion and slowed weed growth.

Many of these management practices take a high degree of commitment from the producer. It is a commitment not only to their farm and the environment, but also to the community and

everyone that benefits from the lakes.

"The results of this project could not have been achieved without the

hard work and efforts of the farmers and landowners in this watershed," said Welch. "They have done the real work."

Through the help of local, state and federal partners, the producers in the Pine Creek Water Quality Project have changed the landscape of this watershed. 

What a difference we can make...

Streambank Restoration Project



Before streambank stabilization

A 3,000-foot section along Pine Creek was losing ground - literally. Pine Creek was cutting into the crop fields at this location and 80-100 percent of the sediment directly transported into Pine Lakes. Unlike soil erosion from upland crop fields, streambank erosion directly moves into the water flow downstream from Pine Creek into Pine Lakes.



After streambank stabilization

Restoration Steps

- Streambanks were shaped to reduce cutting and remove overhang to create stable slopes.
- Severe cuts on bends were stabilized with rock rip-rap.
- Willow posts and bundles were planted into the creek banks (willows will grow into a mat of vegetation to shelter the banks from flood waters).
- Shrubs were planted on the upper portion of the bank.
- Strips of trees, shrubs, and a switchgrass buffer were planted to restore the area.

"The cropland and travel lane disappearing into Pine Creek were especially apparent in years with significant rainfall events," said producer Mark Balvanz. "I knew that something needed to be done to stop it."

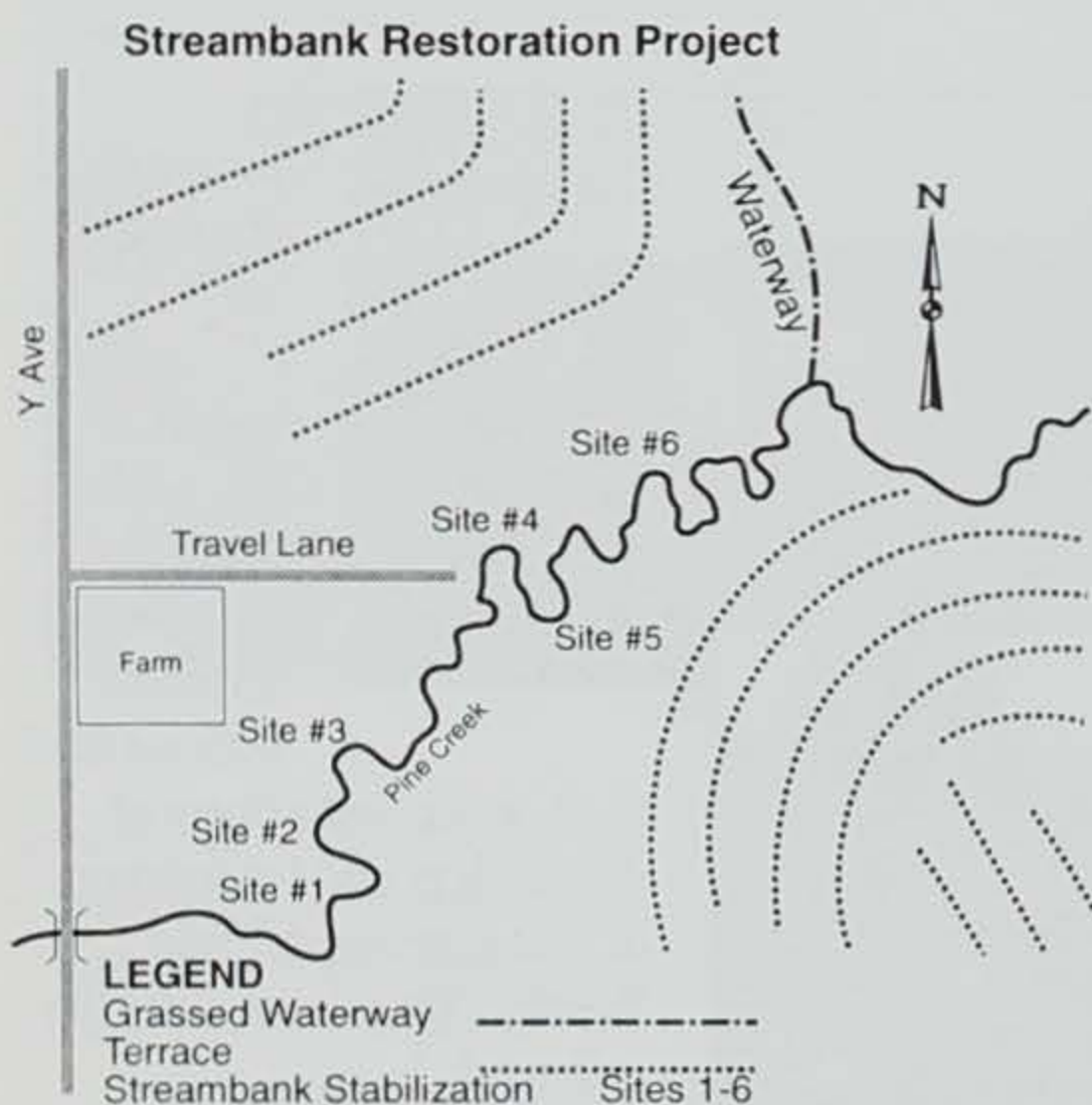
The streambank erosion from this area was approximately 456 tons per year. Approximately 90 percent of the sediment from streambank erosion was reaching Pine Lakes. That is until six sites along Pine Creek's streambank were stabilized with strips of trees, shrubs, grasses, and rock rip-rap. Now the erosion is less than 25 tons per year.

The project is a demonstration site to promote the use of streambank restoration practices. Buffer strips of

trees and grass along the streambank trap sediment and chemicals from cultivated fields before they reach Pine Creek. They transformed the site into a thriving wildlife eco-system similar to native conditions. These changes will slow the encroachment of Pine Creek into cropland and improve water quality by reducing streambank erosion and sediment and chemicals in cropland runoff water.

Riparian buffers are most effective when used in conjunction with sound management systems including terraces, grassed waterways, no-till and integrated crop management.

Willow post planted on streambank



At This Site

- Streambank stabilized: 3,000 ft
- Before: approx 456 tons/year of soil delivered to Pine Creek
- After: approx 25 tons/year

Shallow water impoundment structure



After

Several years ago, shallow water impoundment structures like this one built on the Schwarck farm were virtually nonexistent. Today, they are considered an innovative and effective conservation practice.

The erosive energy of water is reduced by ponding water over actively eroding areas. Runoff from heavy rains is temporarily stored and the velocity of the runoff is reduced by this structure, similar to the natural function of wetlands in the landscape. The pond also acts as a natural purification process where nitrogen is removed by wetland vegetation and pesticides can be immobilized and degraded.

This structure was finished in October of 1996 and completely filled with water within three months. It is located at the base of an 85-acre subwatershed, approximately 1,000 feet from Pine Creek.

Almost immediately after construction, several groups of migrating waterfowl were spotted using the pond.

"The kids and I saw 14 migrating Canada geese on the island before it was even full," said Garry Schwarck. "I was really excited to

Before



see wildlife using the pond so quickly."


Water depth is usually less than six feet and pool size varies according to the land-

scape. A special outlet structure allows the landowner to change the depth of the water during the year to mimic the wet/dry cycles of wetlands.

"We calculated that the amount of sediment being delivered into Pine Lakes has been reduced by 60 tons of soil per year through the use of this structure," said Jennifer Welch, project coordinator.

Approximately 90 percent of the sediment that was going into the lake is now being trapped and held by the structure.

"It is one of the most cost effective practices for reducing the amount of sediment delivered to Pine Lakes," said Welch.

In addition, the impoundment structure offers many wildlife benefits including waterfowl habitat and cover for offspring, food and water source, and wetland vegetation. 



Canada geese are attracted to the pond's small size, shallow depth and island for nesting.

What is nonpoint source pollution?

Non-point source pollutants are those contaminants swept into water bodies by heavy rains or carried into groundwater. Non-point source pollutants cannot be traced to a specific source.

A variety of land uses may contribute to this elusive contamination - chemical application to cropland, residential lawns or golf courses, soils disturbed by new construction, manure runoff from a livestock operation, and soil eroding from cropland are just a few.

Sediment is Iowa's biggest environmental threat to water quality. Sediment not only fills in thousands of cubic feet in Iowa's lakes, rivers and streams annually, but also destroys fish habitat and decreases recreational use.

For more information on this project, contact the Soil and Water Conservation District (SWCD) or Natural Resources Conservation Service (NRCS)
Grundy County (319)824-3634
Hardin County (515)648-3463

This is a reprint from a publication created by Jennifer Welch of the Natural Resources Conservation Service and Karen Meinders of the Iowa Department of Natural Resources.



Ron Johnson

Early to Bed, Early to "Fry"s

by Alan Moore

The walleye production season in the Iowa fish hatchery system normally runs from April 1 to October 1. During this time adult walleye are netted and eggs taken and hatched. Young walleye are then either stocked as small fry or grown in the hatchery to larger sizes prior to stocking. Growth in the hatchery during this five- to six-month period is good and walleye easily attain lengths of five to six inches at northern Iowa hatcheries and six to seven inches at southern Iowa hatcheries. The fish can be grown larger in hatcheries in southern Iowa because of the warmer water temperatures and longer growing season.

Studies of walleye populations and walleye fishing in many northern Iowa natural lakes indicated size was critical to the survival of stocked fish and the research showed seven- to eight-inch

fish produced the best fishing. These larger fish could not be grown during the normal production season in northern Iowa; therefore, an effort was made to lengthen the growing season by spawning walleye in February instead of April. Work to achieve this goal began at the Rathbun Hatchery in the fall of 1994. Walleye were successfully spawned in January 1995 and since that time the techniques have been perfected.

During October, 15 to 20 adult walleye are captured from Rathbun Reservoir. The walleye are held in concrete raceways at the Rathbun Research Facility and fed minnows. In late January, the walleye are brought inside the research building and placed in two 500-gallon round tanks which are surrounded with a black plastic curtain to keep out outside light.



Ron Johnson

Adult walleye are netted from Rathbun Reservoir (above and top) in October and held at the Rathbun Research Facility until January.

Following
guidelines o
Kayes and
water is hea
temperature
50°F over a
same time,
flood lights
artificially
per day to
changing th
daylight per
into thinkin
Approximat
brought ins
time" condi
spawn.
When t
to spawn, g
abdomen fo
the eggs wh
Similar pres
male fish ca
sperm and f
fertilized eg
solution to
together and
until hatchi
In late
of jar incub
young walleye
jar and colle
stocked into
at four days
feed. Appr
stocked in e
temperature
65°F over a



Ron Johnson

Pressure on the male walleye forces sperm onto the eggs for fertilization (below). Fertilized eggs are placed in hatching jars where water constantly flows up through the eggs (left). After 14 days, the eggs hatch.



DNR

Following lighting and temperature guidelines developed by Dr. Terry Kayes and Dr. Jeff Malison, the tank water is heated from the January temperature of 36°F to approximately 50°F over a five-day period. At the same time, using automatic timers and flood lights, the daylight period is artificially lengthened from 10 hours per day to 12 hours per day. By changing the water temperature and daylight period, the walleye are fooled into thinking that spring has arrived. Approximately 16 days after being brought inside and held in these "spring time" conditions, the fish are ready to spawn.

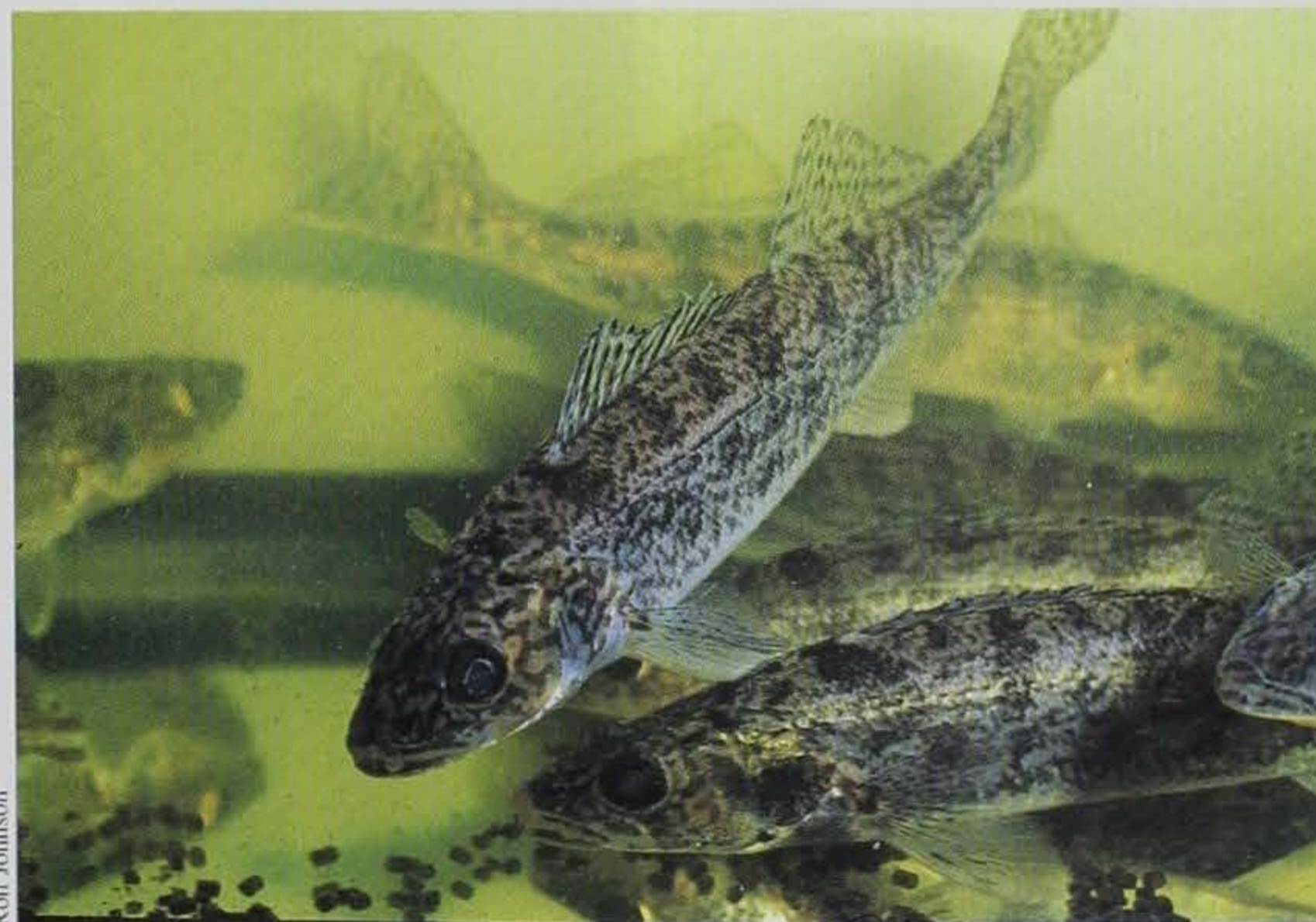
When the female walleye is ready to spawn, gentle pressure on the abdomen forces the female to release the eggs which are collected in a pan. Similar pressure on the abdomen of the male fish causes the male to release sperm and fertilize the eggs. The fertilized eggs are then stirred in a clay solution to keep them from sticking together and placed in a jar to incubate until hatching.

In late February, and after 14 days of jar incubation, the eggs hatch and the young walleye ("fry") swim out of the jar and collect in a tank. The fry are stocked into six 72-gallon round tanks at four days of age, and fed pelleted feed. Approximately 11,000 fry are stocked in each tank. The water temperature in the tanks is increased to 65°F over a four-day period to make



DNR

Growth by July 1 (above) -- a February-spawned walleye, bottom, compared to a walleye normally spawned in April, top. By late September, the walleye have grown to 7.5 to 8 inches and are ready for stocking (below).



Ron Johnson

the fry grow faster. The fry grow to about one inch after 30 days in the round tanks and are ready to be shipped to the Spirit Lake Hatchery in late March.

The young walleye are placed in rectangular raceways at the Spirit Lake Hatchery. Water is heated and maintained at 65 to 68°F until about mid-May when normal water temperatures become warm enough for good fish growth. The walleye are fed pelleted feeds until late September and will reach 7.5 to 9 inches in length. The fingerling walleye are freeze branded with liquid nitrogen for future identification and stocked in the natural lakes area. The stocked fish are being monitored by research biologists to evaluate survival and growth of these early-spawned walleye and to assess the benefit to the angler.

Information obtained to date indicates these larger fish are surviving and growing very well, and walleye fishing is improving. If this success continues, the best walleye fishing is yet to come.

Alan Moore is a fisheries research biologist for the department at Rathbun.



Joe Larscheid

Survival of stocked early-spawned walleye (above) will be monitored for several years because fish have an identifying mark (note vertical bars from freeze branding).

Ron Johnson



A

ABRA

The Be

When C

Well?

July/Au

B

BETTI

Uses of

Prehist

January

BISHO

At a Tu

of Our

Septem

BOGE

Upland

Septem

BONN

Iowa's

Makes

July/Au

BUCH

The Im

Septem

C

CALE,

A Drea

Sun's E

January

Iowa's

January

CARST

Will Hu

"Cut D

Septem

Index
Iowa Conservationist
Volume 56
January - December 1997

A

ABRAHAM, K.F.

The Best Laid Plans: What Happens When Conservation Efforts Work Too Well?

July/August, 4

B

BETTIS, E. ARTHUR III

Uses of Geologic Materials by Prehistoric Cultures

January/February, 20

BISHOP, RICHARD A.

At a Turning Point — Management of Our Wildlife

September/October, 24

BOGENSCHUTZ, TODD

Upland Game

September/October, 12

BONNEAU, DON

Iowa's Farm Pond Stocking Program Makes "Cents"

July/August, 22

BUCHER, TRACY

The Impact of Recycling

September/October, 44

C

CALE, PATRICIA S.

A Dream Fulfilled, Capturing the Sun's Energy

January/February, 30

Iowa's Energy Leaders

January/February, 43

CARSTENS, AMANDA

Will Hunting Opportunities Be "Cut Down"?

September/October, 41

CHRISTIANSON, JIM

Barging In On Spirit Lake

March/April, 22

CLASSROOM CORNER

Using Topographic Maps

January/February, 55

Aquatic Roots

March/April, 55

Whooo's For Dinner?

May/June, 55

Water Canaries

July/August, 55

Leaf and Seed Collecting

September/October, 55

D

E

ENERGY

A Dream Fulfilled, Capturing the Sun's Energy

January/February, 30

First Annual Iowa Electrathon —

The Little Engines That Could

September/October, 29

Iowa's Energy Leaders

January/February, 43

F

FARRAR, EUGENIA

Tadpoles in Your Cornfield?

May/June, 11

FISHING AND FISHERIES

1997 Fishing Forecast

March/April, 4

Ask Bernie the Biologist

January/February, 34

Bass Harvest Regulations —

Understanding the Rules

March/April, 43

Catfish On Old Man River —

They're Back

May/June, 44

Common Ground for Communicating

September/October, 36

Fairport Fish Hatchery — Prisoner of War Camp?

March/April, 34

Iowa's Farm Pond Stocking Program Makes "Cents"

July/August, 22

On Solid Ground

May/June, 24

Partnerships in Fish and Fishing

September/October, 37

New Research Facility at Rathbun Hatchery

May/June, 40

Rivers and Streams — Great Places to Get Started

September/October, 32

Take These Babies for a Spin

May/June, 28

Thank You, Uncle Sam!

January/February, 14

Try These Tips for Catching . . .

Jumbo Bluegills On Tiny Jigs

July/August, 40

FLAMMANG, MARK

*Bass Harvest Regulations —
Understanding the Rules*
March/April, 43

FORESTRY

*Will Hunting Opportunities Be "Cut
Down"?*
September/October, 41

G**GARNER, DALE L.**

*Spring "Turkey Fever" — Iowa Has
the Quality Cure*
March/April, 37

GEOLOGY

*Uses of Geologic Materials by
Prehistoric Cultures*
January/February, 20

*Field Travels of Early Iowa
Geologists*
May/June, 14

*Geologic Sources of Historic Stone
Architecture in Iowa*
July/August, 30

GREEN, WILLIAM

*Uses of Geologic Materials of
Prehistoric Cultures*
January/February, 20

GRITTERS, SCOTT

Take These Babies for a Spin
May/June, 28

H**HABITAT**

Barging In On Spirit Lake
March/April, 22

*The Party's Over, It's Time to Kiss
the Roosters Good-bye*
July/August, 44

HEMESATH, LISA

*Teaming with Wildlife: A Matter of
Dollars and Sense*
January/February, 4

HISTORICAL

*Uses of Geologic Materials by
Prehistoric Cultures*
January/February, 20

*Field Travels of Early Iowa
Geologists*
May/June, 14

*Geologic Sources of Historic Stone
Architecture in Iowa*
July/August, 30

HUMESTON, CHUCK

*Warden's Diary: Faux (Or Should I
Say "Fake") Wildlife*
January/February, 62

*Warden's Diary: Just Trying To Be
Friendly*
March/April, 62

*Warden's Diary: Real Southern
Fishing*
May/June, 62

Warden's Diary: A Summer Awaited
July/August, 62

*Warden's Diary: Observations On A
Duck Marsh*
September/October, 62

I**J****JEFFERIES, R.L.**

*The Best Laid Plans: What Happens
When Conservation Efforts Work Too
Well?*
July/August, 4

K**KJOLHEDE, JULIE**

Daily "Dos" for Conservation
March/April, 31

L**LANING, BRET**

Wrapping Up Iowa's State Parks
January/February, 24

LAWRENCE, ED M.

Great Lady Down
May/June, 22

LITTLE, TERRY W.

1997 Hunting Season Outlook
September/October, 4

*Spring "Turkey Fever" — Iowa Has
the Quality Cure*
March/April, 37

*Too Many Deer? What Do Farmers
Really Think?*
May/June, 32

M**MADISON, BOB**

Wrapping Up Iowa's State Parks
January/February, 24

MAROLF, DAVID

Thank You, Uncle Sam!
January/February, 14

MEINDERS, KAREN

On Solid Ground
May/June, 24

Losing Ground
July/August, 18

MOORE, ALAN

*New Research Facility at Rathbun
Hatchery*
May/June, 40

N**NELSON, GARY**

*Try These Tips for Catching . . .
Jumbo Bluegills On Tiny Jigs*
July/August, 40

O**OTT, JANET**

Adopt-A-Stream
July/August, 26

P**PARKS**

Wrapping Up Iowa's State Parks
January/February, 24

PARKS PROFILE

Wildcat Den State Park
January/February, 50

Walnut Woods State Park
March/April, 50

Lake Macbride State Park
May/June, 50

Dolliver Memorial State Park
July/August, 50

Lake of Three Fires State Park
September/October, 50

PESTONIK, JOE

Common Ground for Communicating
September/October, 36

PITLO, JOHN

*Catfish On Old Man River —
They're Back*
May/June, 44

**PRACTICAL
CONSERVATIONIST**

Winter Bird Feeding Tips
January/February, 53

*Stop the Spread of Eurasian
Watermilfoil*
March/April, 53

Wing Bone Turkey Call
May/June, 53

Creating New "Huck Finns"
July/August, 53

"Duckology" 101
September/October, 53

PRIOR, JEAN CULTER

*Field Travels of Early Iowa
Geologists*
May/June, 14

Q

R

RECYCLING

As Good As Gold
July/August, 14

Daily "Dos" for Conservation

March/April, 31

The Impact of Recycling

September/October, 44

Wrapping Up Iowa's State Parks

January/February, 24

ROCKWELL, R.F.

*The Best Laid Plans: What Happens
When Conservation Efforts Work Too
Well?*

July/August, 4

S

SCHLARBAUM, PAT

Oh, Give Me A Home
March/April, 26

*Teaming With Wildlife: The State
Initiative*

January/February, 9

SCHONHOFF, BERNIE

Ask Bernie the Biologist
January/February, 34

SCOTT, AMY

As Good As Gold
July/August, 14

SIEGWARTH, GARY

*Rivers and Streams — Great Places
to Get Started*
September/October, 32

SMITH, AMY

*Restoring Wetlands, Building
Community*
May/June, 18

SNYDER, KEN

*Fairport Fish Hatchery — Prisoner
of War Camp?*
March/April, 34

SPECIAL INSERTS

Water
January/February

1996 Fish Awards
March/April

STAMPS

1998 Stamp Designs
September/October, 28

T

TACK, JULIE

*First Annual Iowa Electrathon —
The Little Engines That Could*
September/October, 29

U

V

W

WARDEN'S DIARY

(See Humeston, Chuck)

WASHBURN, LOWELL

Larry Zach — One Hot Artist
March/April, 18

The Case of the Missing Frogs
May/June, 4

*The Party's Over, It's Time to Kiss
the Roosters Good-bye*
July/August, 44

Too Many Snow Geese
July/August, 10

From Rags to Riches
July/August, 12

WATER QUALITY

Adopt-A-Stream
July/August, 26

Losing Ground
July/August, 18

Partnerships in Fish and Fishing
September/October, 37

Special Insert
Water
January/February

WETLANDS

*Restoring Wetlands, Building
Community*
May/June, 18

WILDLIFE

1997 Hunting Season Outlook
September/October, 4

*At A Turing Point — Management of
Our Wildlife*
September/October, 24

*The Party's Over, It's Time to Kiss
the Roosters Good-bye*
July/August, 44

Upland Game
September/October, 12

DEER

1996 Record Deer Racks
January/February, 38

1997 Record Deer Racks
September/October, 18

Land of Trophy Bucks?
September/October, 17

*Too Many Deer? What Do
Farmers Really Think?*
May/June, 32

NON GAME

Great Lady Down
May/June, 22

Oh, Give Me A Home
March/April, 26

Tadpoles in Your Cornfield?
May/June, 11

*Teaming with Wildlife: A
Matter of Dollars and Sense*
January/February, 4

*Teaming With Wildlife: The
State Initiative*
January/February, 9

*The Case of the Missing
Frogs*
May/June, 4

The Mourning Dove in Iowa
July/August, 35

TURKEY

*Spring "Turkey Fever" —
Iowa Has the Quality Cure*
March/April, 37
*Thoughts from a Turkey
Hunter*
March/April, 42

WATERFOWL

Ducks and Geese
September/October, 14

From Rags to Riches
July/August, 12

*The Best Laid Plans: What
Happens When Conservation
Efforts Work Too Well?*
July/August, 4

Too Many Snow Geese
July/August, 10

WINN, MARK

Partnerships in Fish and Fishing
September/October, 37

WITZKE, BRIAN J.

*Geologic Sources of Historic Stone
Architecture in Iowa*
July/August, 30

X

Y

Z

ZENNER, GUY

Ducks and Geese
September/October, 14

ZOHRER, JIM

Land of Trophy Bucks?
September/October, 17

Thoughts from a Turkey Hunter
March/April, 42

1998 Winter Birdfeeder Survey

SPONSORED BY THE IOWA ORNITHOLOGIST'S UNION

On two consecutive days during January 22-25, 1998 observe your feeder and using this form, describe your feeder and record the birds that visited you. In the space provided, list the *highest number* of each species that you saw *together at any one time*. For example, if you saw 10 juncos at 9:00, 11 at 12:00 and 7 at 4:00, the number you should record is *11*. If males and females can be distinguished (cardinals, downy woodpecker etc.) record the combined total. For example, if you saw 3 male cardinals at 11:00 then 1 male and 2 females at 2:00, record 5 cardinals--the highest count for the males and the highest count for the females combined. Count only on the two consecutive days and record only the birds that you see *at your feeder, under your feeder, or in the trees around your feeder*. *Do not* count birds which just flew past your house and did not use your feeder area. We want information only about birds influenced by your feeders. If you cannot get an exact count, *record your best estimate*. An honest estimate is far more useful than 'umpteen' or 'too many to count.'

Mail the completed form to me by February 12, 1998:

R. J. Hollis
3351 Lower West Branch Road
Iowa City, IA 52245

If you would like a personal reply, please send a stamped, self-addressed envelope and be patient; it may take 12 months before I can get back to you. Look for results in the I.O.U. newsletter.



Ken Formanek

Birdfeeder Survey January 22-25, 1998

Please fill out carefully. Feel free to copy the form for friends and patrons. Thank you and enjoy yourselves!

1. Name _____
- 2A. Address _____
- 2B. County _____ 2C. City _____ 2D. Zip _____
3. The feeder survey period this year runs from *Thursday, January 22th to Sunday, January 25th*. Count birds on two consecutive days only. Please record which days you counted birds for us in the space below.
Check one: ___ Thursday (1/22) and Friday (1/23),
 ___ Friday (1/23) and Saturday (1/24), or
 ___ Saturday (1/24) and Sunday (1/25).
4. Is your feeder in Town (including suburbs) or in the Country? Circle T or C.
5. Check the ONE description which best describes the area within a 2-block circle around your feeder:
___ suburban, houses with shrubs and small trees but few trees wider than 20 inches.
___ suburban bordered by: (circle 1) timber, grass, field or row crop.
___ town, neighborhood has many mature shade and street trees.
___ downtown with mostly buildings, sidewalks, roads, parking lots, high rises
___ pasture
___ row crop (corn, beans, etc.)
___ timber
___ farmstead with mature trees and shrubs around house.
6. Type and number of feeders: ___ Thistle, ___ Sunflower(only), ___ Fruit, ___ Safflower, ___ Peanuts, ___ Mixed seed, ___ Peanut Butter, ___ Suet, ___ Cracked Sunflower, ___ Corn, ___ Millet(only), ___ unfrozen water, other _____
7. On what date did you start feeding during 1997-98? About _____
8. Comments or additional description of your feeder or yard:

HIGHEST NUMBER SEEN FOR EACH SPECIES DURING TWO CONSECUTIVE DAYS

- | | |
|-------------------------------|---------------------------------|
| ___ Ring-necked Pheasant | ___ Tree Sparrow (American) |
| ___ Rock Dove (Common Pigeon) | ___ Song Sparrow |
| ___ Mourning Dove | ___ White-throated Sparrow |
| ___ Red-headed Woodpecker | ___ White-crowned Sparrow |
| ___ Red-bellied Woodpecker | ___ Harris' Sparrow |
| ___ Downy Woodpecker | ___ Dark-eyed Junco (All races) |
| ___ Hairy Woodpecker | ___ Red-winged Blackbird |
| ___ Flicker (All races) | ___ Grackle (Common) |
| ___ Blue Jay | ___ Brown-headed Cowbird |
| ___ Crow (American) | ___ Purple Finch |
| ___ Black-capped Chickadee | ___ Common Redpoll |
| ___ Tufted Titmouse | ___ Pine Siskin |
| ___ Red-breasted Nuthatch | ___ Goldfinch (American) |
| ___ White-breasted Nuthatch | ___ Evening Grosbeak |
| ___ Brown Creeper | ___ House (English) Sparrow |
| ___ Robin (American) | ___ House Finch |
| ___ Cedar Waxwing | ___ (other) _____ |
| ___ Starling (European) | ___ (other) _____ |
| ___ Cardinal (Northern) | ___ (other) _____ |

___ TOTAL DIFFERENT SPECIES SEEN

- ___ I want to receive the free *Wildlife Diversity News*. (NEW SUBSCRIBERS ONLY)
___ I would like information about the Iowa Ornithologists Union which is a statewide bird organization.
If you see a rare or unusual bird, please report it to the Iowa birdline 319-338-9881.

Iowa Energy Leadership Awards

Becoming an Iowa Energy Leader: It's Just Good Business

The Department of Natural Resources proudly presents the 1997 Iowa Energy Leadership Awards, recognizing outstanding innovations in energy efficiency and renewables in the state.

This year's winners share an important characteristic. Whether a hospital or industry, school, utility or small business, they all believe that using energy wisely is just good business. That belief stems not just from the economic and environmental benefits that come from energy efficiency and renewable energy use, but also how easy it is for others to adopt their ideas. It just makes good business sense to reduce costs, while increasing comfort, beauty and even practicality. Each of our award winners have found creative, insightful methods of doing just that.

Article by Julie Tack
Photos by Ken Formanek

School Pride Atlantic Community School District

In many ways, Atlantic High School is just like any other school. Kids laughing on their way to class, locker doors banging, school colors plastered throughout the gym. But the differences in the school building are so impressive, they serve as a model for the entire state. Those differences are due to energy efficiency.

When Atlantic Community School District built its new high school, which opened its doors in the spring of 1996, energy efficiency was a major concern. Glenn Binfield, Business Manager for the school district, has spent 25 years overseeing the community's school buildings. "Using energy wisely has always been important to me. When the district decided to build a new school, it seemed like a great opportunity to look into efficient systems." His goal for the new facility was to integrate energy efficiency in a way that would maximize comfort and cost-effectiveness through the best technologies available.

The cornerstone of his energy efficiency plans is a geothermal heat pump system, which provides both heating and cooling to the school. With the help of Richard Stevens and John

Bilsten of Atlantic Municipal Utilities, and through a grant with the Iowa Energy Center, the district spent months researching the complexities of how to adopt geothermal heat pump technology at the school. Based on a feasibility study by Farris Engineering, the school board approved the project.

All their efforts culminated into the construction of one of the largest heat pump systems at a school in the Midwest. Using the earth's constant temperature as a heat source or sink (depending on the time of year) the



■ A section of the geothermal heat pump system. Water is pumped into the mechanical room to be either heated or cooled.



■ Glenn Binfield, Business Manager of Atlantic Community School District, proudly introduces the new high school, which opened its doors in 1996.

system consists of eight separate well fields, 480 bore holes each drilled to 133 feet, 67 heat pumps and 25 miles of piping.

In one year, Atlantic Community School District has realized substantial cost savings from the new heating system. It uses 55-60 percent less energy than traditional heating equipment, with the result being a mere \$.41 per square foot for energy costs. Because of their constant energy use, geothermal heat pumps eliminate the need for expensive peak electricity during cold months.



■ Students study hard in their high school's comfortably controlled temperatures.

In addition to the new heating and cooling system, Atlantic High School features energy efficient fixtures like T8 lamps, day lighting, low-flow toilets and shower heads, and efficiency controls.

A unique extension of the school's efficiency efforts is a real-time monitoring system, allowing the Iowa Energy Center to analyze the heat pumps' effectiveness from a long distance. This information, along with frequent tours by other schools and plans for a video, set the stage for allowing other communities to learn from Atlantic's project.

When visiting with Glenn Binfield and others involved with the new high school's design, the pride in their school is tangible. "Our school and

community have always had a commitment to the environment and education. This building represents all their efforts to achieve the best."

Iowa Student Energy Leadership Awards

Student leadership in energy resource management is pivotal to Iowa's future. Each year, the Department of Natural Resources selects two student projects, one in the middle school category and one in high school, for their impact on increasing energy efficiency or the use of renewable energy. These are the 1997 winners.

Middle School

Jenna Becker -- Seton Middle School, Algona, Iowa

Insulation Deficiency

Using thermometers and applying heat, Jenna displayed the effectiveness of three types of common insulation to determine heat transmission resistance.

High School

Corey Menning -- Algona High School, Algona, Iowa

Heat Reflection

Corey's experiment focused on analyzing different types of glass to find out how much heat transmission occurs with a common heat source.

Tools of the Trade

DPO Construction

"Build the envelope so tight, you *have* to ventilate it." That's the goal of Don Otto, owner of DPO Construction, every time he begins a new construction project. While traditional tools such as hammers and saws are integral to his work, the *important* tools of his trade — those he has a passion for — are energy efficiency techniques.

And while he knows it is probably impossible to build a house so airtight that leaks are completely eliminated, starting with that goal sets energy efficiency to the highest standard.

Don Otto's interest in energy efficient homes was sparked over 20 years ago, when he began correlating scientific concepts (his degree is in physiology) with construction. "The more I found out, the more I realized science is involved," said Otto. "For example, the outside wall [of the home] is like a big cell membrane. It's actually what keeps the comfort around us."

The construction techniques Otto uses include an emphasis on wall construction and insulation, window technology and using the most effective building materials and mechanical equipment. Otto's efficiency principles culminated into his construction of the first five-star home in the state (According to Iowa's Home Energy Rating System). Built in Iowa City, the Victorian-style home saves its owners 20% in annual energy bills compared to standard homes. His project received an award from the National Association of Home Builders EnergyValue Housing Competition.

"Most builders and homeowners look solely at the up-front cost of a new home. I want to show that by putting in a little extra effort, the payback will last a lifetime."

Otto has worked diligently to spread



■ Don Otto, owner of DPO Construction, incorporates energy efficiency into every aspect of his construction projects.

■ Iowa's first five-star home on the Home Energy Rating System (below), was built by Otto in 1995. The Victorian-style home features energy-efficient windows, leading-edge mechanical systems, and innovative insulation techniques.

this message across Iowa. Last winter, he testified in front of the state's Building Code Commissioner and Advisory Council about the importance of basement insulation in Iowa's Model Energy Code; basement insulation was in jeopardy of being eliminated from state requirements. His efforts helped preserve this section of the code.

In the future, Otto has two goals. The first is to continue to refine his understanding about energy transfer across the envelope. He plans to experiment with infrared cameras to determine where air leaks occur, and to research new insulation technology on the market. His second goal is to be an available educator to anyone who wants to know more about the tools of the trade for building energy efficient homes.

"A valuable lesson I



■ DPO Construction installs basement insulation, an important component for increasing residential energy efficiency.

have learned is that paying conscientious attention to detail can make almost any home energy efficient. Collectively, we can all make a difference."



The Care Givers Glenwood State Hospital-School

Intrinsic to the nature of those who work at Glenwood State Hospital-School is a rare level of appreciation and respect. It comes from assisting 400 adults and children with special needs who live at the facility, but is applied to so much more.

Glenwood State Hospital is situated in the Loess Hills of southwest Iowa, about 15 miles south of Council Bluffs. With over 1200 acres of land, the institution realized the need to more effectively manage and preserve its resources.

And so began Project Renaissance, a comprehensive conservation plan that encompasses every aspect of natural resource conservation — from soil protection, to water quality, to waste management. Energy efficiency is a pivotal part of that goal.

Jane Butler, Project Director for the hospital's Foster Grandparent and Senior Companions program was the driving force behind Project Renaissance. "Holistic resource management is very important. Everything we do has a ripple effect, and we must look at how resources relate to each other to be successful," said Butler.

Through partnerships with organizations across the country, Glenwood Hospital has established concrete strategies for protecting their resources, while saving money. The results in two short years have been astounding.

Energy efficiency is being achieved through unique strategies that decrease the facility's energy consumption. The key is a landscaping plan that creates no-mow areas through the cultivation of natural prairies and wildflowers. This reduction in mowing saves the facility 50 percent in fossil fuel consumption, and



■ Glenwood Hospital's Camp Peter Pan wildlife area is an example of the beautiful preservation techniques taking place on the grounds.

the expense of 2.5 full-time employees. Another tactic is tree planting for shade around residences; over 100 trees have been donated by outside organizations for this purpose.

In addition, Glenwood Hospital has displayed an ongoing commitment to energy efficiency in their buildings through projects such as replacing its boiler and updating other mechanical systems. It saves \$90,000 in annual energy costs through a contract with MidAmerican Energy to decrease peak usage.

The facility's endeavors serve as a model, especially to other public institutions, for effective resource management. Several national organizations have expressed interest in learning about Glenwood Hospital's plans. On an international level, Project Renaissance was presented at a European workshop in early October.

While Project Renaissance continues to succeed, the dedication to the hospital's residents shines. As an example, a group of middle school students from Glenwood joined together with boys who live at the facility to plant trees.

"Glenwood Hospital is leading the charge that public land and



■ Jane Butler, the driving force behind Project Renaissance, displays a wildflower area that eliminates the need for mowing.

resources need to be taken care of. They belong to everyone who lives here, and once they're gone, they're gone," said Butler.

At Glenwood Hospital, being a care giver is simply a way of life.



■ Tree planting at Glenwood brought together hospital residents and community members. These trees shade the homes of children and adults who live on campus.



■ Len Hadley (right), CEO of Maytag, and Lloyd Ward, president of Maytag Appliances, are confident about the success of Maytag's Neptune high-efficiency washer.

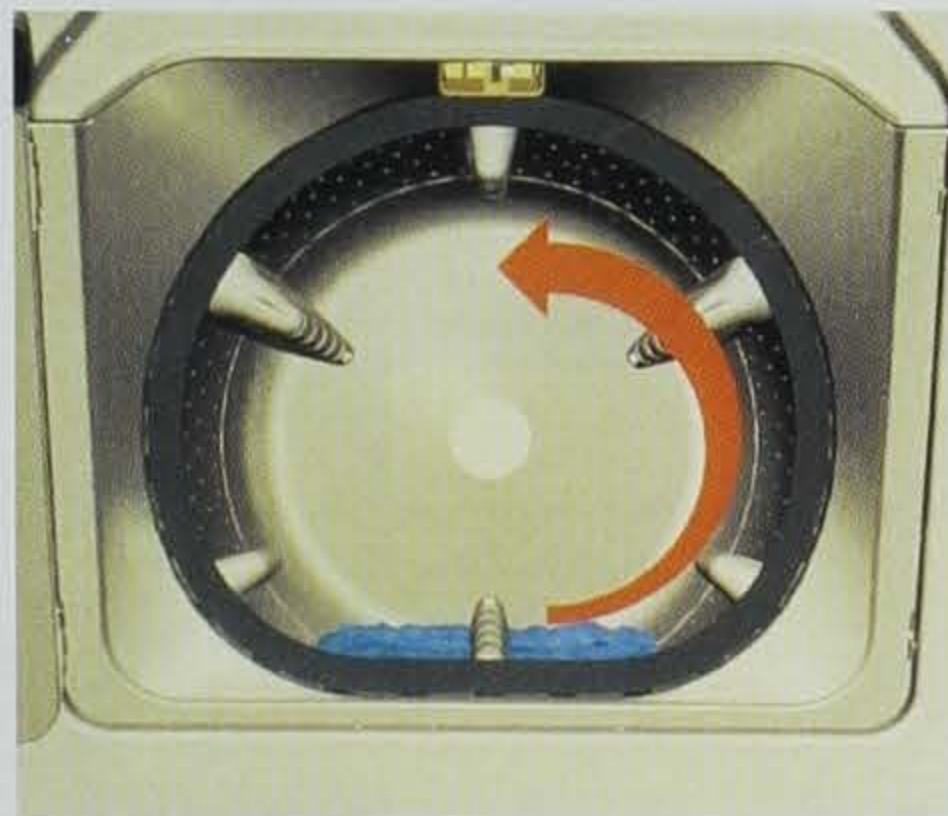
A Star is Born (Or Rather, a Neptune) Maytag

Maytag has set the stage for dazzling new developments in the design of home appliances. By redefining the standards to both its competition and for consumers — namely that appliances can be energy efficient *and* practical in the home — the company is leading the way toward decreasing energy use in the United States.

According to Curran Cotton, vice president of research and development for laundry products, it is Maytag's responsibility as laundry experts to keep improving the efficiency of washers, because water and energy will continue to cost more and be in shorter supply.

The Newton-based company's star energy efficient appliance is the Neptune washer. It uses up to 40 percent less water and up to 65 percent less energy

than a conventional washer, while reducing drying time by extracting 30 percent more water during the spin cycle. The energy savings is a result of several design modifications in the Neptune. Based on the amount and type of clothing placed in the washer, the Neptune automatically determines the necessary water level. It also has the



■ The Neptune washes clothes by tumbling them in one direction, then another, at regular intervals, lifting them in and out of a pool of water.

largest usable capacity of any residential washer on the market, allowing consumers to wash larger loads, and consequently, wash less often. Its unique front-load door and the elimination of an agitator also contribute to energy efficiency.

From a consumer standpoint, the Neptune is predicted to save an average household \$100 a year in energy and water costs. This is coupled with the washer's ability to clean clothes better and more gently.

The appliance company's faith in Neptune's efficiency was put to the test in the small town of Bern, Kansas. Frequently faced with water shortage problems, nearly every Bern household was given a new Neptune washer; residents recorded their washing habits for a three-month period. On Saturday, September 13, 1997, the town gathered for a "superwash party," celebrating a 38 percent savings in overall water usage and an energy savings of 56 percent — all due to the Neptune washer.

Maytag's contribution to energy efficiency is not limited to the Neptune. The company also designed the



■ **Maytag's Neptune has the largest capacity of any residential washer on the market.**

IntelliSense dishwasher, which uses sensors to determine the amount of water and cycle time for a washer load. Its refrigerators feature Airlock door seals and better insulation to help consumers save as much as \$113 per year on energy costs. In fact, because of their efficiency, these refrigerators were provided to low-income households in Massachusetts.

The company's efforts have been recognized and honored with several national awards. In regard to an award received last year, Dick Haines, Maytag's former vice president of manufacturing and engineering said, "We cannot, and will not, rest on our laurels of being 'the dependability people.' We will continue to develop products that are not only longer lasting, but open new vistas in the areas of technology and design."

Maytag's star quality shines brightly with the Neptune.

Field of Dreams Waverly Light and Power

Northeast of Waverly on a gravel road is a solitary wind turbine, rising above a cornfield. It's not the biggest in Iowa, and it wasn't the first. But it is arguably the most important. That's because it brought the dream of wind power to the state.

Waverly Light and Power, the first municipal utility in the Midwest to own a wind generator, first considered the possibility of wind generation nearly a decade ago. "Iowa had a very good natural resource and no one was doing anything about it," said Glenn Cannon, General Manager. "The question was — would it work in Iowa?"

The dream began with a grant to fund a feasibility study, to determine Waverly's potential for wind. Amid skeptics that included other power companies and even national organiza-

tions, Waverly Light and Power proved that wind was a viable resource in the state. The feasibility study was the first of its kind, the results of which have been the foundation for nearly every other wind project in Iowa. "We've probably mailed out over 1,000 copies of that study," said Cannon.

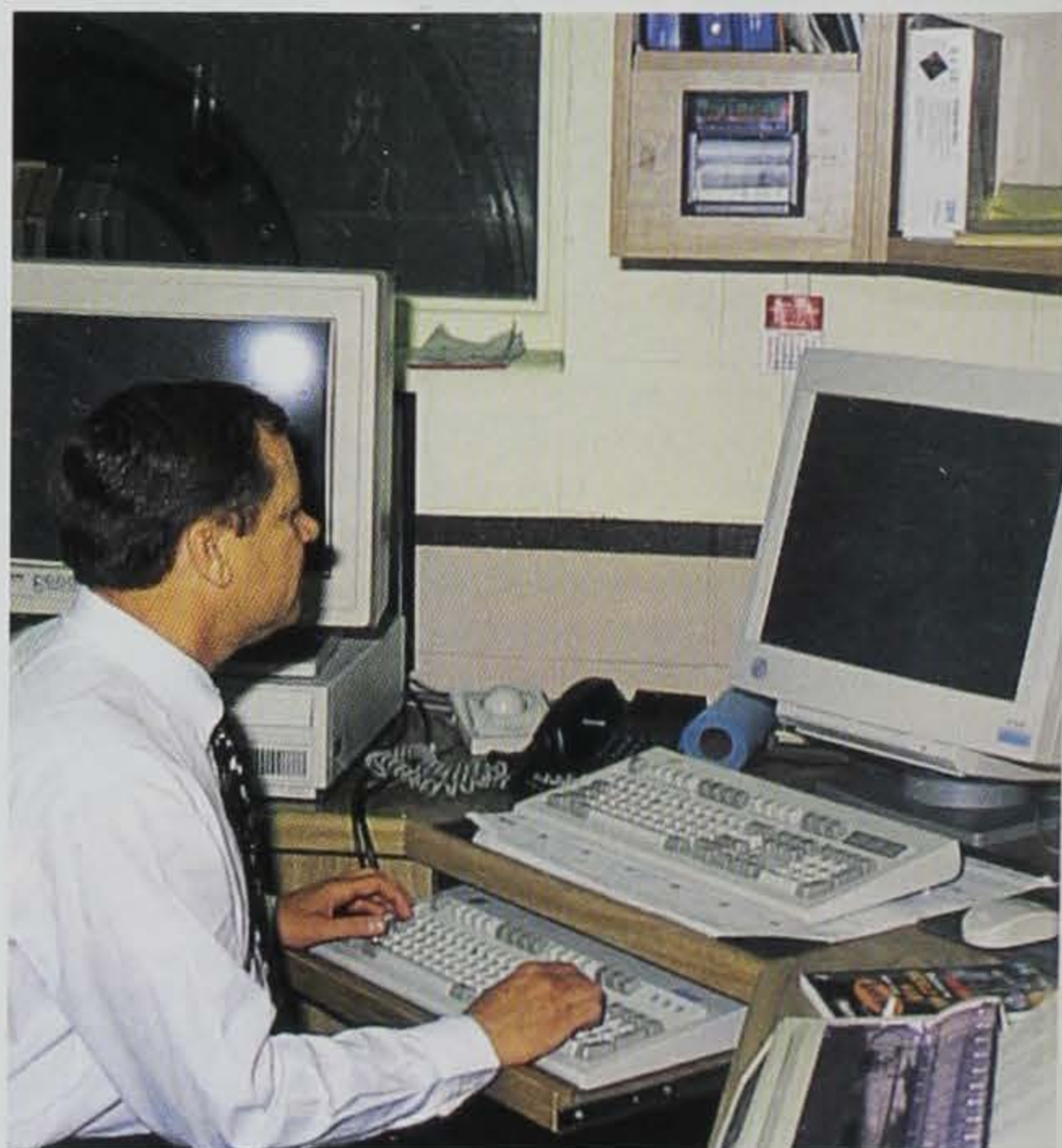
"We felt real strongly that as a power company, we wanted to be the ones to own, operate, understand and be responsible for wind generation," said Cannon. "We have the experience to manage it the way it should be managed."

This motivation led to the construction of Waverly's 80 kW wind turbine, providing electricity to the community. It was the first wind turbine owned and operated by a utility in the Midwest. Partnering with the University of Northern Iowa, they called their project the Midwest Wind Energy Program.

But that is only the beginning.

When other utilities began showing interest in wind power, Waverly Light and Power was more than happy to help get their projects off the ground. The

■ **Glenn Cannon, Business Manager, monitors wind generation in real-time.**



power company hosted a meeting for the Iowa Association of Municipal Utilities and its members, sharing its experiences about the technology. As a result, last spring a group of municipal utilities announced plans to build wind turbines near Algona.

MidAmerican Energy used Waverly Power's feasibility study for its own research. Now MidAmerican has a major project underway to purchase electricity from a large wind farm near Alta; Waverly Light and Power will own two 750 kW turbines that are near this project. "So far, over a \$200 million investment in wind energy is planned for this state. We can't help but think that our utility is important to that success," said Cannon.

Waverly Light and Power continues to be a driving force in wind power across the Midwest. Cannon has given over 30 presentations in 14 states about their endeavors, and the power company was asked to participate in the White House conference on Global Climate Change in Washington D.C. They also received a national Department of Energy award for the Midwest Wind Energy program.

Standing in the cornfield, looking up at the small wind turbine turning on a breezy day, Cannon said with a grin and a laugh, "It's a field of dreams, don't you think?"

Julie Tack is an energy information specialist with the department in Des Moines.



■ Waverly Light and Power's 80 kW wind turbine. The feasibility study for wind on this site was the first in Iowa to be conducted.

■ The sign of ownership at the wind turbine.

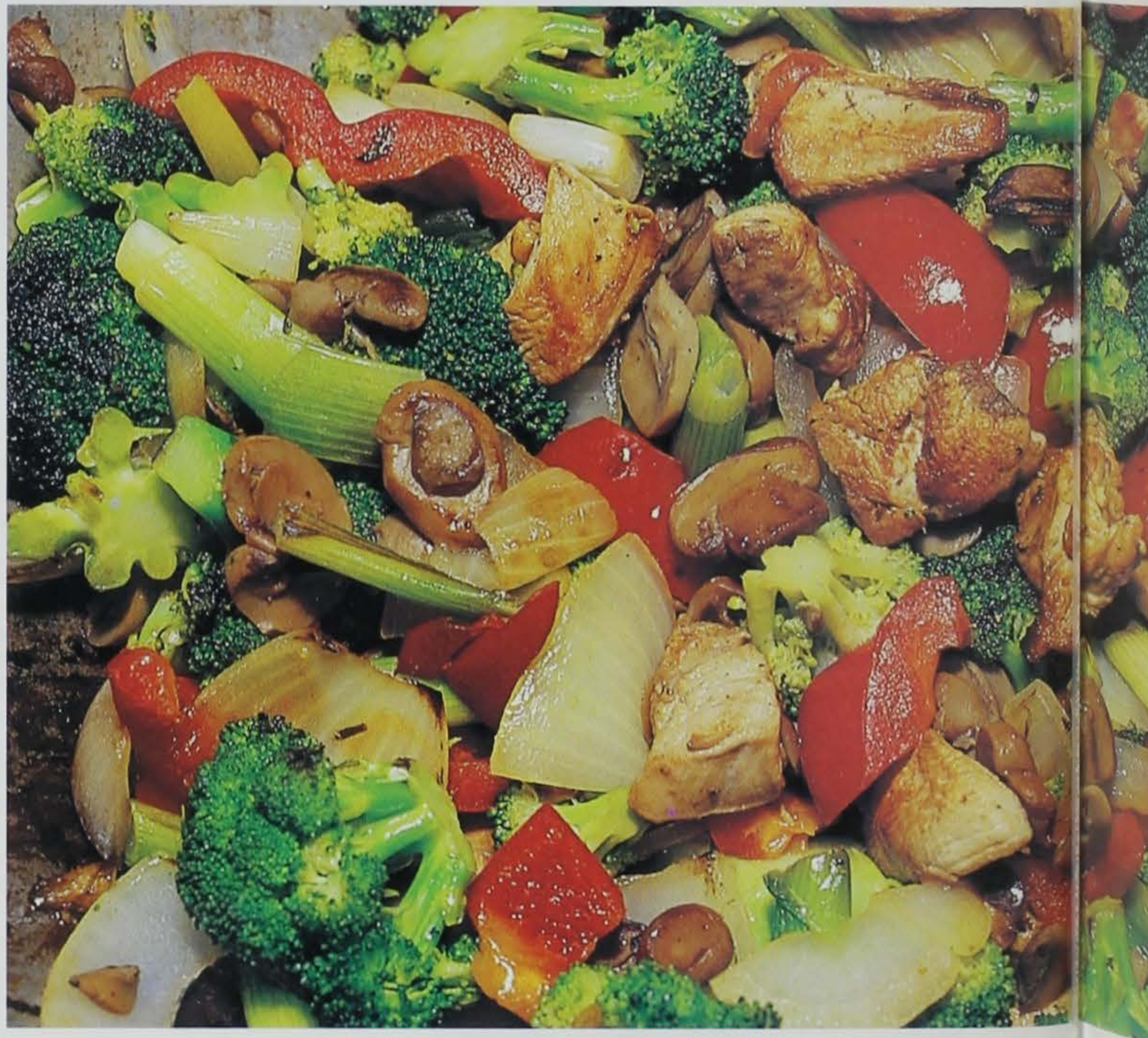


■ Waverly Light and Power Company; their new building was completed in 1993.

For additional information on the Energy Leadership Awards Program please write or call:
 Editor, Iowa Energy Bulletin
 Wallace Building
 Des Moines, IA 50319-0034
 (515) 281-8665
 (515) 281-8895 (fax)
 E-Mail: jtack@max.state.ia.us

No, It Isn't *“Just Like Chicken!”*

Article and photos by Lowell Washburn



Chinese Ring-neck
Stir Fry



As Americans, our heritage is rich in hunting tradition. For the early pioneers, a successful winter hunt could well mean the difference between life and death. During the 1800s, even those who did not hunt for themselves still used wild game as a frequent source of protein. About the only difference was that “store keeps and school marms” usually procured their venison from the local market rather than from the woods. Even today, there are more than a few old timers who can still recall when wild duck, pheasant, or rabbit was about the only meat to regularly grace the tables of cash strapped, Depression-era families.

Today, Americans no longer hunt to live. Nevertheless, the art of pursuing and procuring wild game remains a vital link to our cultural past and, for many of us, represents an integral part of our lifestyle. Many contemporary holiday banquets still have wild game as the meal’s central focus, such as wild turkey for Thanksgiving or wild goose for Christmas.

Unfortunately, many modern-day cooks [even some of the best] become simply petrified when confronted with the prospect of preparing a wild game dinner. One of the most common dilemmas is how to overcome that so called “wild taste.” In case you’re not familiar with it, that “wild taste” is any flavor associated with any form of meat that doesn’t come prefrozen and neatly shrink-wrapped from the local grocery.

Other than a bit of variance in size and shape, I doubt that you or I would see much real difference between a duck from the grocery store and one bagged at a local marsh. But that is not everyone’s perception. Frankly, I think you’d be highly amazed at what the sight of a dressed mallard or rooster pheasant can have on many otherwise rational cooks. In some

cases, the ensuing hysteria would almost be comical were it not so tragic. While under the influence of this Game Panic Syndrome, resident chefs frequently make two fatal errors.

The first mistake results from an all out attempt to obliterate the dreaded “wild taste.” This is generally accomplished by walking to the cupboard and then emptying the contents of the spice rack over whatever type of game happens to be on the menu. There is no question that this method works. Unfortunately, it not only destroys the wild taste, but also cancels any chance the meal once had of being edible. Believe it or not, the ultimate goal of wild game cooking is not to make everything taste “just like chicken.” If that’s what you want, the best thing to do is buy chicken in the first place.

The second common offense is overcooking. Many folks seem to have the impression that if you cook game hot enough and long enough that somehow everything will turn out all right. The final result is a meal that is about as tasteless as cardboard, and as tough as boot leather.

I once knew a guy who decided to cook a goose in a covered grill. After igniting an entire bag of charcoal, he placed the bird in the grill and let it cook until the charcoal was gone. He then added an additional 5 pounds of briquettes, replaced the goose, and let it cook until those coals were reduced to ash. The entire ordeal lasted more than four hours.

“I just don’t understand it,” he later lamented. “All that cooking, and the bird was STILL too tough.” [Reminds me of that joke about the carpenter who cut the board off twice and it was still too short.] It’s no wonder that wild game gets such a bad rap.

One complaint that is legitimate, however, stems from the sometimes strong taste of commercially processed deer meat. Unless you request other-



wise, most locker plant operators use a band saw when cutting roasts, steaks, and chops. This practice spreads sawed bone marrow across each cut; which results in a rather strong or bitter taste that some folks, myself included, find objectionable. There is an easy solution. This winter, simply ask your locker manager to bone out, rather than saw, the steaks and loins. Your taste buds won't believe the improvement.

If properly cared for both before and during the cooking process, most wild game has a flavor and texture that easily equals the finest domestic cuts. Wild game is produced in a cleaner environment than many domestic products and is comparatively low in fat and cholesterol - especially the white meat species such as rabbit and pheasant. As far as that so called wild taste goes, some is real. Most is imagined. Anyone, for example, who thinks they can detect even the slightest hint of a "wild" flavor in the white breast meat of ring-necked pheasant is simply being tricked by the power of a preconceived notion. In other words, it's all in their heads.

Fortunately, there are some simple tips that can help make anyone's game dinner the envy of the neighborhood.

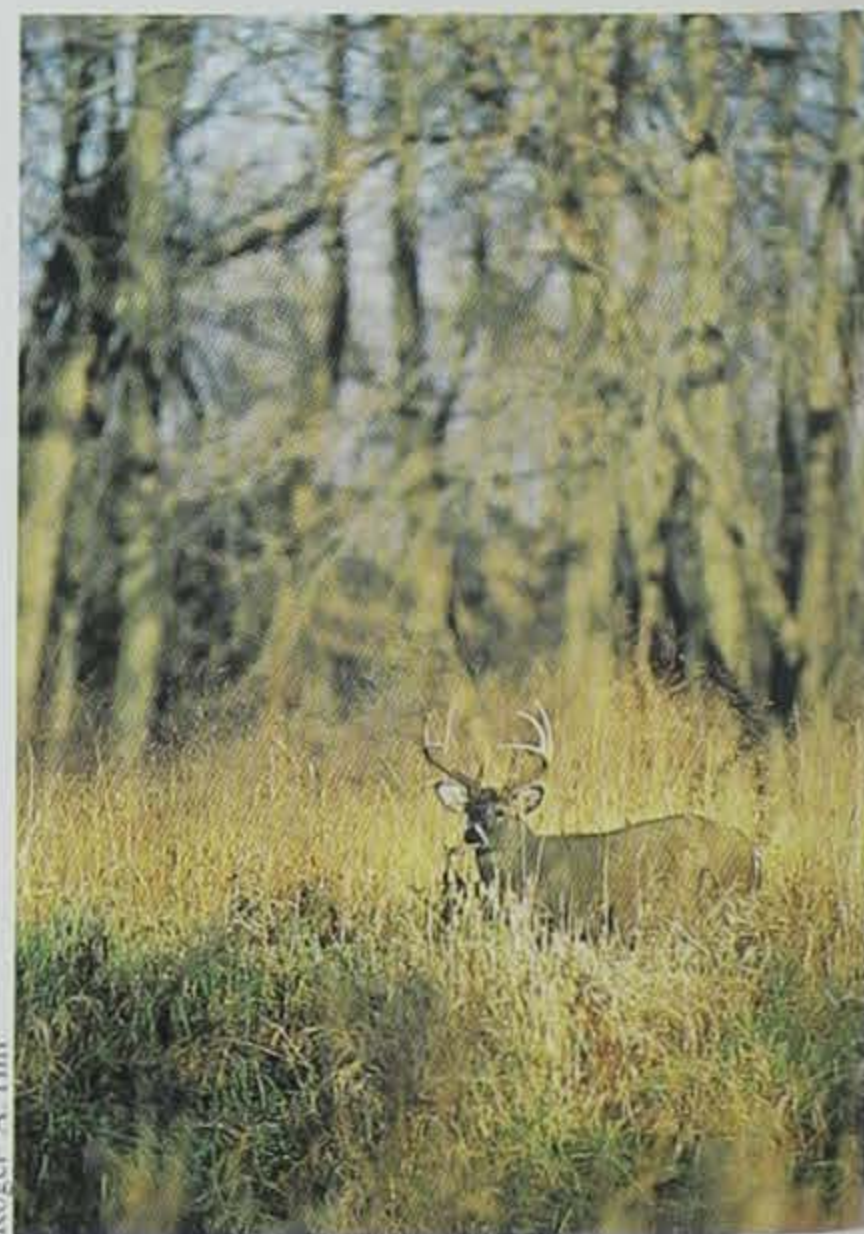
Regardless of the species or cut, all game preparation should be approached with the idea of enhancing, rather than destroying, the meat's natural flavor. Since game is leaner than domestic cuts, cooking times [except for wild ducks and geese] are generally much shorter. All game should be considered ready to eat as soon as the juices run clear. Anything beyond that is the road to disaster. Regardless of age, wild



game only becomes tough or dry when someone makes it that way. The only meat that was meant to be incinerated is a hotdog held over an open fire.

As you begin preparing a game dinner, don't be afraid to experiment. New recipes are fun to invent; and variety will add the spice of life to your hard-earned wild game entrees. But that does not mean that your dishes need to be complicated in order to be good.

The following is a collection of three easy-to-prepare recipes guaranteed to make your friends and family smile. If your supply of game becomes depleted, you can continue to use the same recipes by substituting the original ingredients with domestic fare, such as chicken instead of pheasant. Actually, I've found that chicken isn't all that bad. Especially once you figure out how to get rid of that "tame" taste.



Roger A. Hill

Texas Mesquite Grilled Venison (top)

Texas Me

1 1/2 pt
16 ounce
8 ounce
1/4 cup
1/4 cup
1 Table
2 Table
1 small
Cayenn

Cut ven
medallions.
of ingredien
[Cayenne is
friends won
Heat sauce.
grill over me
coals. Cook
Cook approx
care not to o
from grill. S
and serve.



Chesapeake Barbecued Canada Goose

- 1 whole, plucked Canada goose
- 1/2 pound butter
- 1/2 cup catsup
- 1 Tablespoon sugar
- 1 1/2 Tablespoons Worcestershire sauce
- 1 1/2 Tablespoons lemon juice
- 1 medium onion, chopped
- 2 cloves garlic, pressed [may sub. 1/8 tsp. garlic powder.]
- 1/4 tsp. Tabasco [optional]
- 1/2 tsp. salt
- ground pepper to taste

Bank two large beds of charcoal on opposite sides of covered grill. When coals are hot place goose, breast up, in center of grill and cover. Cooking time for a large Canada goose is approximately 1 1/2 hours [will vary slightly due to ambient temperature].

For sauce: combine the rest of ingredients and slowly simmer in sauce pan for five to ten minutes.

After an hour and twenty minutes begin testing goose with small probe. When juice runs clear, immediately remove bird from grill. Carve meat and place into covered dish. Smother in Chesapeake sauce. Serve with wild rice, cooked mushrooms, and red currant jelly on the side.

Chinese Ringneck Stir Fry

Many popular oriental dishes actually originated as pheasant recipes. While this one is a bit more complicated than the other recipes on this page, you'll find it well worth the extra effort.

- 2 pheasant breast fillets
- 1 med. or large onion, sliced
- 4 or 5 green onions, chopped
- 1/2 pound fresh, halved mushrooms
- 1 green pepper, sliced or chopped

[a red or yellow pepper will add color]

- 1 head cut broccoli
- 3 or 4 garlic cloves, chopped
- 1 or 2 cayenne peppers [optional]
- 6 ounces Chinese pea pods
- 4 Roma tomatoes, sliced lengthwise [optional]
- 2-Tablespoons brown sugar
- 2-tsp. corn starch
- 4 Tablespoons soy sauce
- 2 Tablespoons water
- 1 Tablespoon cooking oil

Cut pheasant breasts into one-inch cubes. For sauce: combine brown sugar, corn starch, soy sauce, and water. Set meat and sauce to side.

Preheat wok [very hot]; add cooking oil. Put 1/2 of garlic or cayenne in oil and cook for 20 or 30 seconds. Add green peppers. Cook for three minutes. Add pea pods and mushrooms. Cook for three or four minutes. [Add more oil as necessary during cooking.] Add broccoli. Cook for three minutes. Add all onions. Cook until all vegetables are crispy tender. Remove and place in covered dish. [If you're using tomatoes place them, uncooked, on top of vegetables in dish.]

Reheat wok [very hot]; add two tablespoons of oil. Place remainder of garlic or cayenne in oil; cook for 30 seconds. Place 1/2 of pheasant in wok and cook for three minutes. Add remainder of pheasant; cook approximately three minutes. Drain oil and cook meat under high flame until it begins to brown. [Be careful it does not dry out]. Push meat to side of wok. Add sauce. Stir until sauce is bubbly and begins to thicken. Reduce flame, quickly stir pheasant pieces into sauce. Add vegetables; stir thoroughly. Serve with brown rice or Chinese noodles.

Texas Mesquite Grilled Venison

- 1 1/2 pounds venison tenderloin
- 16 ounces catsup
- 8 ounces tomato sauce
- 1/4 cup Worcestershire sauce
- 1/4 cup lemon juice
- 1 Tablespoon liquid smoke
- 2 Tablespoons brown sugar
- 1 small onion, chopped
- Cayenne powder to taste

Cut venison tenderloin into 2-inch medallions, 3/4 inch thick. Combine rest of ingredients for barbecue sauce. Cayenne is optional, although my Texas friends won't like it if you leave it out.] Heat sauce. Place venison in covered grill over medium-hot bed of mesquite coals. Cook three minutes and turn. Cook approximately four minutes, taking care not to over do, and remove meat from grill. Smother venison in barbecue and serve.

Iowa DNR State Forest Nursery 1998 Seedling Order Form

To order by **phone** call **1-800-865-2477** or **515-233-1161**

To **FAX** your order call **515-233-1131**

Visit Our Homepage At

<http://www.state.ia.us/forestry>

MasterCard and Visa Accepted

Restrictions Plants must be ordered in units of 100 and the total order must be a minimum of 500 plants. (Wildlife and songbird packets may be ordered separately and may be added to in units of 100.) The nursery stock must be planted and used for establishing or improving existing forest, erosion control, wildlife or water conservation. Nursery stock cannot be resold or given away with roots attached, to any person, firm, corporation or agency, or planted for new windbreak, shade or ornamental purposes. All plantings must be protected from fire and domestic livestock grazing. All trees planted or used in violation of the above restrictions are subject to forfeit for destruction.

Payment DO NOT SEND MONEY with your order. A bill will be sent. For orders more than \$100, the nursery will bill you for 20 percent of the cost with the remainder to be paid by March 1, 1998.

Spring Delivery Orders are shipped via a state refrigerated truck to a drop-off point in each county.

Claims Claims for any cause must be made within 10 days after receipt of plants. We give no warranty, expressed or implied, as to the productiveness or life of the material, and we will not be in any way responsible for results or economic losses incurred or claimed by the consumer.

MAIL ORDER FORMS TO:

Iowa Department of Natural Resources • State Forest Nursery • 2404 South Duff • Ames • Iowa • 50010

Detach and mail to address above.

Iowa DNR Seedling Order Form

(Please Print)

(Landowner Name)

(Mailing Address)

(City) (State) (Zip)

(Area Code) (Phone Number)

I will pick up my order at the Nursery when notified.

Delivery to a drop-off point by refrigerated state truck. List county where seedlings are to be delivered.

County: _____

1. These trees are to be planted in _____
County.

2. Did you purchase plants from the Nursery last year?

Yes No

General Seedling Information

Plants must be ordered in units of 100 and the total order must be a minimum of 500 plants.

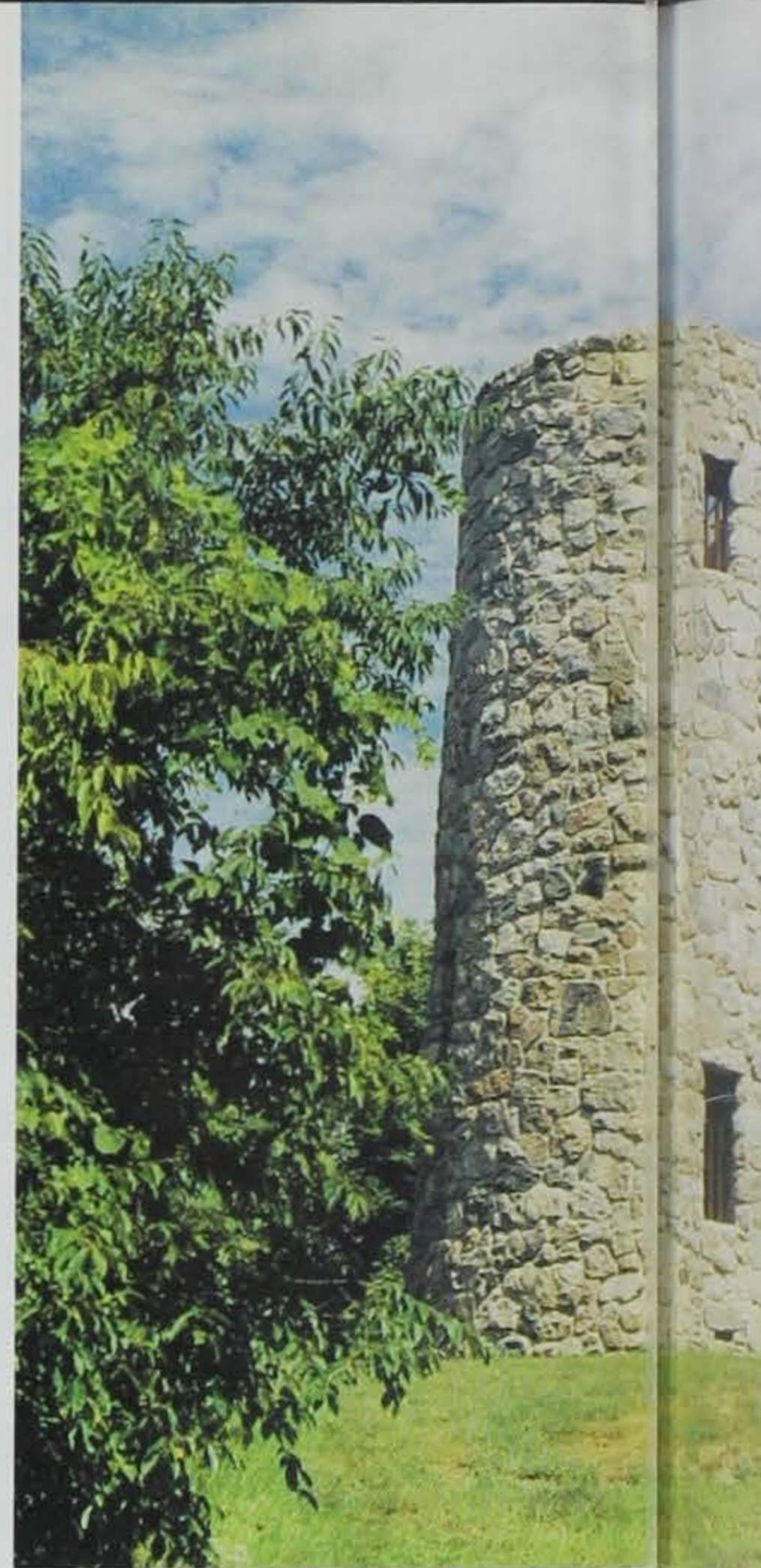
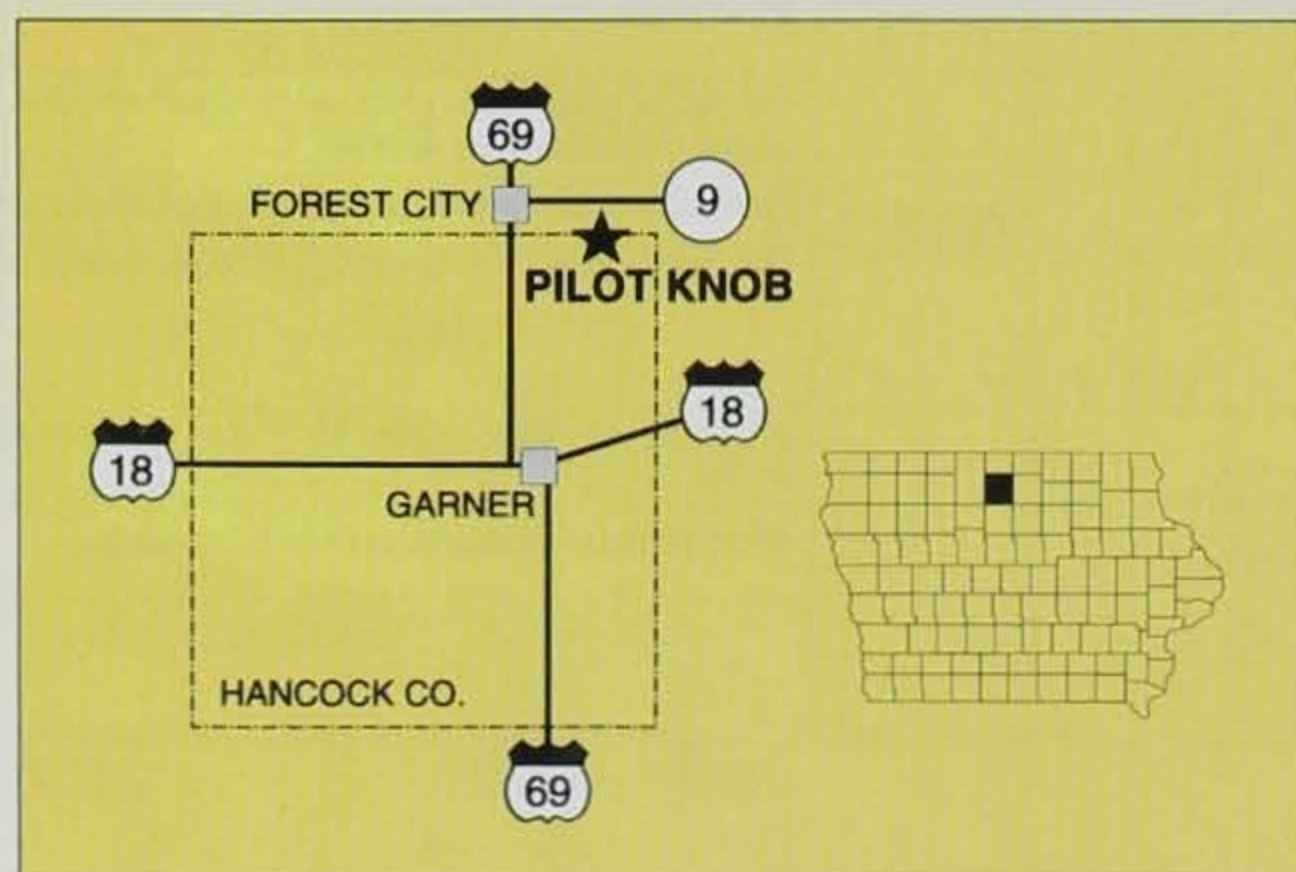
Wildlife and songbird packets may be ordered separately.

Code #	Species	Mature Size Range	Seedling Age (Years)	Seedling Height Range	Moisture			Light		Remarks	\$/100
					Dry	Well-Drained	Moist	Full Sun	Some Shade		
16.0	E. Red Cedar	40-50'	2	6-16"	x	x	x	x	x	Tolerates poor, gravelly sites. Prefers airy site. Very drought resistant. Good wildlife food and cover. Native.	\$15
30.0	White Pine	50-60'	3	10-18"		x	x	x	x	Intolerant of air pollutants. Good timber tree. Adaptable to most sites. Native to NE Iowa.	\$15
20.0	Scotch Pine	30-60'	2	12-17"	x	x		x		Hardy. Adaptable.	\$15
17.0	Red Pine	50-80'	2	10-18"		x		x		Requires cool sites. Good timber tree.	\$15
15.0	Ponderosa Pine	60-100'	2	8-12"	x	x		x		Recommended for western Iowa only.	\$15
10.0	Jack Pine	35-50'	2rp	10-18"	x	x		x		Hardy and adaptable. Good cover for coal spoil banks.	\$15
43.0	White Spruce	40-60'	3	8-16"	x	x	x	x		Good wildlife habitat. Medium growth rate.	\$15
13.0	Norway Spruce	40-60'	3	10-18"		x		x	x	Good wildlife habitat. Medium to fast-growth.	\$15
24.0	Black Walnut	50-70'	1rp	10-16"		x		x		Valuable wood products tree. Requires deep, rich, well-drained soil. Native.	\$24
24.1			2rp	17-24"							\$26
08.0	Green Ash	50-80'	SOLD OUT	8-16"		x	x	x		Valuable wood products tree. Very good firewood. Native.	\$23
28.0	White Ash	50-80'	SOLD OUT	8-16"		x		x		Valuable wood products tree. Very good firewood. Native to all but NW Iowa.	\$23
21.1	Silver Maple	60-80'	SOLD OUT	18"tp		x	x	x	x	Bottomland sites. Valuable wood products tree. Native.	\$25
83.0	Cottonwood	75-90'	SOLD OUT	8" Rooted Cutting	x	x	x	x		Good for fuelwood plantation. Very adaptable.	\$23
53.0	Poplar, Hybrid	40-60'	1	8" Rooted Cutting	x	x	x	x		Good for fuelwood plantation. Very adaptable.	\$23
86.0	Black Willow	40-60'	1	8" Rooted Cutting						Good for streambank protection and filtration.	\$23
37.0	Bigtooth Aspen	50-80'	SOLD OUT	8" Rooted Cutting			x	x		Very hardy, rapid growing. Valuable for fuelwood plantations.	\$23
41.0	Northern Red Oak	60-80'	SOLD OUT	10-16"			x	x	x	Valuable wood products tree. Excellent firewood. Native to all but NW corner of state.	\$24
41.1			SOLD OUT	17-24"							\$26
04.0	Bur Oak	70-90'	SOLD OUT	10-16"	x	x	x	x		Adaptable to various soils. Excellent firewood. Native.	\$23
04.1			SOLD OUT	17-24"							\$25
29.0	White Oak	50-80'	SOLD OUT	10-16"		x	x	x		Valuable wood products tree. Excellent firewood. Native to all but NW corner of state.	\$24
29.1			SOLD OUT	17-24"							\$26
33.0	Swamp White Oak	50-80'	SOLD OUT	10-16"	x	x	x	x		Good wildlife food. Native. Grows well on wet sites, as well as dry.	\$23
51.1	Mixed Oak	50-80'	SOLD OUT	10-16"						May contain red oak, white oak, bur oak and black oak in varying proportions.	\$23
79.0	Nanking Cherry	6-15'	SOLD OUT	17-24"	x	x	x	x		Hardy dense shrub. Good for wildlife food and cover. Flowers early, pink to white. Fruits are edible.	\$25
39.0	Common Chokecherry	20-30'	SOLD OUT	6-12"	x	x	x	x	x	Hardy. Good food for wildlife. Native.	\$23
55.0	Crab, Siberian	15-25'	SOLD OUT	6-12"		x		x	x	Good wildlife food and cover.	\$23
01.1	Honeysuckle, Amur	12-15'	SOLD OUT	13-18"	x	x		x	x	Occasional winter killing of branches in northern Iowa. Good wildlife habitat and food for birds.	\$23
47.0	Lilac, Common	8-15'	SOLD OUT	6-12"		x		x		Hardy. Shrub border or in groupings. Good wildlife habitat.	\$23
12.0	Ninebark	5-9'	1	8-16"						Very hardy. Good wildlife habitat. Native to most of state.	\$23
12.1			2	17-24"		x	x	x	x		\$25
96.0	Wildlife Packet									200 plants valuable to wildlife. 50 conifers, 50 hardwoods, 100 shrubs.	\$45
95.0	Songbird Packet									Mixed variety of 20 plants beneficial to songbirds.	\$15

tp = top pruned rp = root pruned

A Treasure From the North

Pilot Knob State Park



by Deb Coates

One of Iowa's "treasures" is located in north-central Iowa, four miles east of Forest City. Pilot Knob State Park was purchased in 1921 and dedicated in 1924. Originally called Pilot Mound State Park, the name was changed to Pilot Knob State Park to avoid confusion between Pilot Mound the park and Pilot Mound the town.

Pilot Knob is a kame (hill or mound of stratified drift deposited by glacial meltwater) surrounded by flat farmland. These protected acres are a perfect example of nature at its best. Pilot Knob has many natural features, some of which are very unique.

The 370-acre preserve, situated within the park's 528 acres, shelters the only living mat of sphagnum in the state. This four-acre sphagnum bog is home to the red-backed vole and the carnivorous sundew plant. The bog is studied by many biology students but



■ Without a doubt, the biggest attraction of Pilot Knob is the observation tower. The tower puts you high above the tree tops where, on a clear day, you can see a radius of 35 miles or four counties.

squirrels, opossum and an occasional grouse, pheasant or fox. Turkeys were introduced into Pilot Knob in the early 1980s and are growing in numbers every year. Many different species of nongame birds have been seen at Pilot Knob such as the pileated woodpecker, ruby-throated hummingbird, bohemian and cedar waxwing, scarlet tanager, rose-breasted grosbeak and many, many more.

One mysterious event observed each fall at Pilot Knob is the migration of the monarch butterfly. These fragile creatures of nature, gliding along on blankets of air, make a stop at Pilot Knob on their way south. Their numbers are often so great they fully cover trees and fill the sky like vibrantly colored autumn leaves.

Pilot Knob has many historical features as well. The Civilian Conservation Corps (CCC) built several

DNR

because of its delicate nature, special permission must be obtained to set foot on the floating mat. Adjacent to the sphagnum bog is Dead Man's Lake. The lake's name derives from an Indian who was ostracized from his tribe. The Indian lived out his life alone by the lake named by his former tribesmen 'Lake of the Dead Man.' When the Indian died, his tribesmen buried him in a cave near Dead Man's Lake, sealed the cave entrance and obliterated any evidence of the opening. No one has since discovered the cave, and probably never will, because Dead Man's Lake and the adjoining grounds are located within the preserve where digging is prohibited.

Pilot Knob is listed as one of the special places to observe wildlife in the *Iowa Wildlife Viewing Guide*. Pilot Knob's oaks, aspen, walnut, ash, hickory and thick understory make the perfect habitat for many types of wildlife. It is not uncommon to see whitetail deer, different species of



DNR

■ The open-air amphitheater, located near the east entrance of Pilot Knob State Park, is a popular venue for special events. Built in 1934 and renovated in 1994, it seats approximately 1,000 people.



Ken Formanek

■ During winter months, Pilot Knob State Park becomes a snowy playground for kids and adults alike.

■ Dead Man's Lake (below).



Ken Formanek

structures in 1934 that are listed in the National Register of Historic Places. These structures include three trail bridges, an open-air amphitheater, a stone shelter, four entrance portals and an observation tower. The amphitheater is located near the east entrance to the park in a beautiful wooded dell. It seats approximately 1,000 people and was renovated in 1994. It is a popular spot for weddings, church services, Boy Scout ceremonies and other get-togethers.

The stone shelter overlooks the sphagnum bog and Dead Man's Lake. This facility is always in high demand. Use of the stone shelter is on a first-come, first-serve basis, or it can be reserved by calling the park office.

There are two stone portals located at both the east entrance and the west entrance. Large wooden gates at each entrance prohibit automobiles during the winter. Instead, the closed-off two-mile road is groomed for cross country skiing and snowmobiling.

Without a doubt, the biggest attraction of Pilot Knob is the observation tower. From the parking lot, it is a short uphill hike to the second highest

point in Iowa. After reaching the 1,450-foot-above-sea-level summit, there is another 30-foot climb to the top of the tower. This ascent puts you high above the tree tops where, on a clear day, you can see a radius of 35 miles or four counties. With Pilot Knob having an annual attendance of 100,000 visitors, there are many people who get a chance to take in this panoramic spectacle.

Other features of Pilot Knob include trails for hiking/cross country skiing (13.5 miles), horseback riding and day-use-only bicycling/snowmobiling (7.8 miles). The campground contains 48 electric and 12 nonelectric sites. There is a shower building and dump station available for campers as well.

Pilot Knob State Park is truly one of Iowa's "treasures" that has been and continues to be preserved for generations to come. For more information about Pilot Knob State Park call (515) 581-4835.

Deb Coates is the park ranger for Pilot Knob State Park.



Ken Formanek

PANFISH Through the Ice

by Don Bonneau

Winter can be a challenge in Iowa; but for anglers, it offers a very special opportunity. In fact, winter fishing, specifically ice fishing, offers the best fishing of the year for bluegill, crappie and yellow perch. This great fishing is due to the willingness of these plentiful fish to bite under ice and the ability of anglers to find the fish. One or more of these factors, so important to the success of a fishing trip, is often lacking during fishing trips taken during spring and summer months.

Without a boat, most anglers are restricted to shoreline angling. This is fine if the fish are near shore. But all too often, this is not the case. During winter months, ice on lakes and ponds guarantees angler access to all parts of the lake. In addition, the crappie, bluegill and yellow perch have a tendency to congregate or "school," so once located, everyone can join the fun.

Even if you're new to the sport, it is easy to get in on the action. The local bait dealer will gladly provide you helpful information, or you can simply go to the lake and do your own survey of fishing activity. Heavy concentrations of anglers are a sure sign fish are in the area. Now you can rest, the difficult part is over and the thrill of fighting a fish through a small hole in the ice is about to begin.

Fish

Bluegill

These scrappy fighters, usually haunting deeper waters during winter months, make for a delicious meal. Favorite winter habitats of the bluegill are deeper areas of small ponds and waters 15 to 25 feet deep in larger lakes. Start with your bait or lure at or near the bottom, move up in one-foot increments until you catch a fish. Jig the bait slightly, then allow it to remain very still to increase your chances of a

catch. Repeat this procedure every one to two minutes. Don't be overly patient. Fish a spot for 10 to 15 minutes and then move if you fail to get a bite. Remember, the fish are congregated and this moving will allow you the opportunity to find a concentration of fish.

The hook you use should be small, size 10 or 12. Bait one of these small hooks or a tiny jig (teardrop) with a fresh insect larvae. The more common larvae available at bait stores are "wax worms," "mousies" and meal worms. Teardrop lures are weighted and come in a variety of colors but, should you choose to use a plain hook, the additional weight of a small splitshot will be helpful. Add a small foam bobber and you're ready for action.



Don Bonneau

Crappie

These fish tend to feed after dark. Crappie can be readily caught during daylight hours, but fishing at night is often more successful. They are generally located in deep water during daylight hours and tend to move off the bottom after dark.

Use a size 6 or 8 hook and bait it with a small live minnow. Place a small splitshot one foot above the minnow and

use a foam bobber to float the bait at the desired depth. Begin fishing one foot off the bottom and adjust the bobber occasionally to move the bait closer to the surface. Crappie, unlike bluegill can be found at any depth. Experimentation will help you find the best concentration of fish. Occasionally moving the bobber will cause the minnow to become lively and attract a hungry crappie. Crappie are like bluegill in that they are abundant, found in most lakes and are a schooling fish. If you find one crappie, more are likely nearby.

Yellow Perch

A close relative of the walleye, the yellow perch is abundant in only a few southern Iowa artificial lakes and northwest Iowa natural lakes. The best fishing for this tasty panfish is in Spirit Lake and the Okoboji lakes. Baits and lures used to catch perch through the ice are similar to those used to catch bluegill. Small teardrop lures baited with "wax worms" or "mousies" are preferred by many perch anglers. Location varies but favorite spots are the mouths of weedy bays and rocky structures in deep water.

Tackle

Panfish are small gamefish that often bite very softly, especially during winter months. Use very light tackle, light line and small bobbers and hooks. Inexpensive ice fishing rods are plenty adequate and four- to six-pound test line will more than do the trick. The rule is - the lighter the tackle, the more bites you'll get. This approach also adds an element of challenge to the sport of panfishing through the ice.

Other Equipment

An ice auger is used to drill a hole in the ice. It can be manually operated or gas-powered. When selecting a hand auger, stick to a smaller size (four- to six-inch blade) and keep the blades sharp. It is much easier to drill a small hole with sharp blades.

Practical Conservationist

Carry a hone or blade sharpener in case several holes need to be drilled. A solid steel spud bar also can be used to make a hole. This hole should be an inverted funnel shape with smooth sides so as not to catch and break the fishing line. Attach a rope to the spud bar. Wrap it around your wrist to make sure you don't lose it down the hole when you initially break through the ice. Do not make holes larger than 12 inches, these could be dangerous to other people walking in the area.

An ice skimmer (strainer-type instrument) is used to clear the hole of ice chips, allowing your bait or lure down the hole and keeping the hole from quickly freezing over.

Shelters

A wide variety of shelters have been designed for ice fishing. These range from those with a kitchen area and sleeping accommodations to a three-sided, one-person, canvas windbreak. The majority are designed for portability and constructed from a combination of wood, plastic and canvas. Shelters can turn a cold, windy, winter's day into an enjoyable time fishing. (See shelter design below.)

Ice Thickness and Quality

The best time to fish during winter is just after lakes and ponds freeze over and safe ice forms (early winter) and just before thaw (late winter). These are also times when the ice is the least reliable. Take time to check (and double check) the ice you are planning to fish and heed all safety precautions. Before venturing out on the ice, drill a hole in it from a dock or the shore to gauge the thickness and quality. Four inches of clear blue ice or eight inches of black, honeycombed ice will safely hold an adult-sized person. Five to six inches of clear blue ice is needed for snowmobiles, four wheelers, or groups of three or more people. Avoid ice that appears dark, this is "rotten ice" and can be unstable.

For a diagram about ice safety, please see Conservation Update on page 60.

Clothing

When planning an ice fishing trip, clothing is an important consideration. The best choice for winter clothing is layering; a T-shirt, turtleneck or long underwear shirt, a sweater, and then a coat. Coveralls tend to be warmer than a coat and insulated pants, eliminating the space that cold air can get through. *The outermost layer should be wind-proof.* Polypropylene or similar materials are best next to the skin. They keep perspiration away from the skin's surface and trap warm air inside. Wool is a unique material that retains its insulating ability even when wet, making it a material of choice for ice fishing socks. With three to four layers of clothing an angler can add or subtract layers and be comfortable the whole day, no matter what the weather does. Bring extra clothes in case you get wet and for an emergency.

Hats and gloves are essential. Seventy-five percent of a body's heat

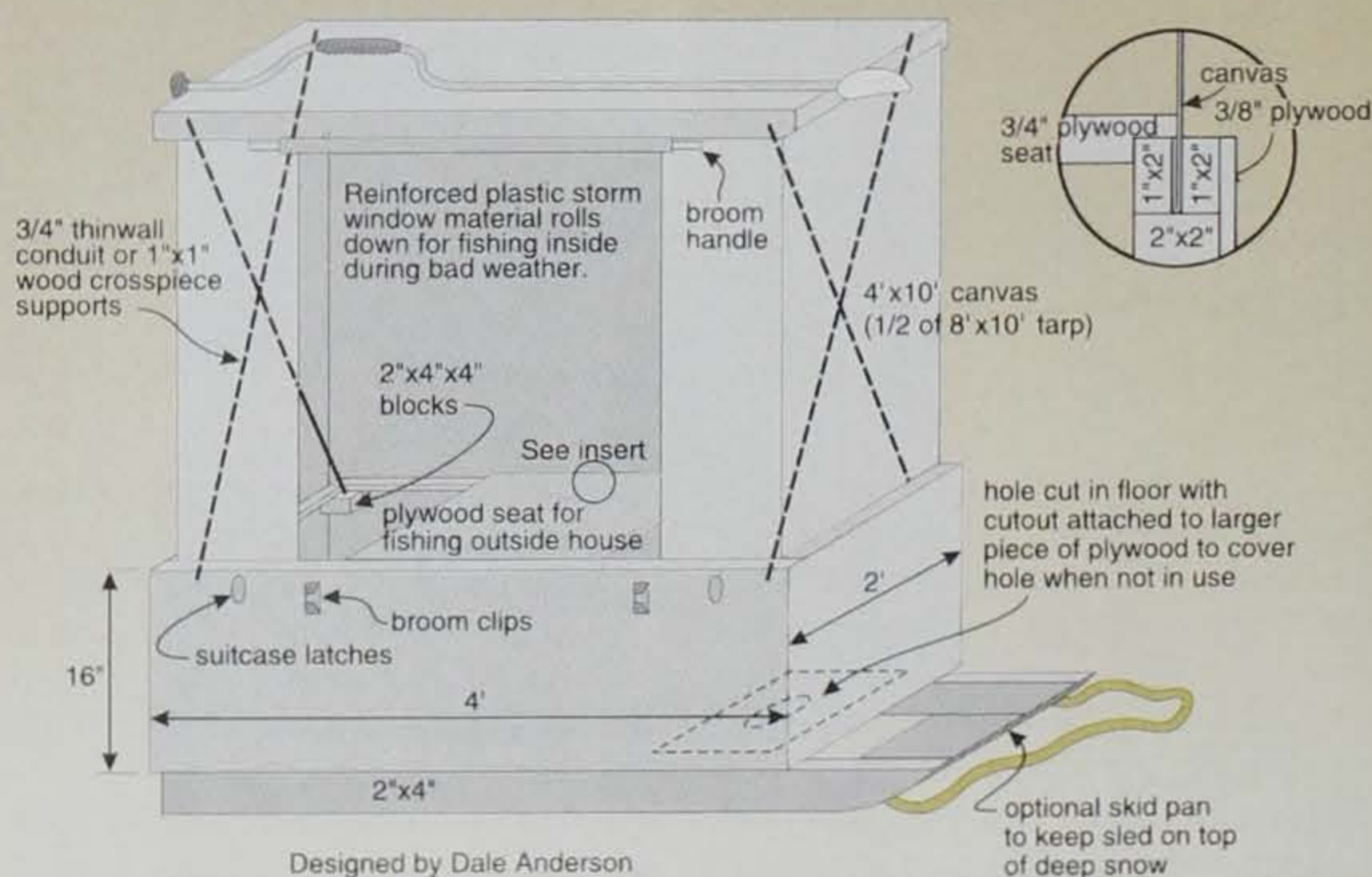
loss is through the head. With a hat in place, the angler will stay much warmer. Spare hats and gloves are a must in case gloves get wet or hats are misplaced.

Ice fishing involves close contact between feet and ice. When standing or even sitting in a chair, your feet will be on the ice. Wear warm socks and insulated boots, and bring a piece of carpeting or cardboard to stand on. This will guard against frostbitten toes. Boots should be waterproof to keep feet protected from the inevitable slush and water.

Hot Spots

Plan your fishing trip and improve your success. Contact other anglers, bait shops and DNR personnel. The DNR also publishes *Fish and Wildlife News* which lists ice fishing hot spots in its winter issue. This quarterly tabloid is available at county recorders' offices and other license outlets. Your local county conservation board personnel and conservation officers are other good sources for finding out where the fish are biting in your area. Good luck and good fishing!

To erect, lift top and stand inside holding top with back while installing crosspiece supports.



Animal Populations by AJay Winter

This activity was adapted from an activity written by Collette Huntley during the American Wilderness Leadership School located at the Springbrook Conservation Education Center. This program allows teachers the opportunity to experience a variety of outdoor skills and take those skills back to their classrooms and communities. It is sponsored by the Iowa Department of Natural Resources and the Iowa Chapter of the Safari Club International. If you would like more information about this program please call the Springbrook Conservation Education Center at (515) 747-8383

Background Information:

Wildlife requires habitat to survive. The parts that make up habitat are food, water, shelter, space and arrangement. The better the habitat is suited for an animal the more abundant and healthier that animal will be. As an example, ringneck pheasants require habitat in the form of seeds for food, streams or puddles for water, weeds or brush for shelter and enough space to allow them to move around. All this must be arranged so they always have access to these needed items in a safe and convenient manner.

Vocabulary:

Habitat — food, water, shelter, space, and arrangement

Population — the number of one type of life in a certain area

Limiting Factor — element that restricts population growth — food, water, shelter, space, disease, predation, climatic conditions, pollution, hunting, etc.



Roger A. Hill

Ringneck pheasant habitat consists of seeds for food, streams or puddles for water and weeds or brush for shelter.

Ages:

Grades 4 and up

Length of Activity:

30 minutes

Materials:

pieces of dry cereal (Cheerios, etc.)
picture of a ringneck pheasant

Objectives:

1. Identify the items needed by living things for survival in their habitat.
2. Experiment to discover the effects of population density on the habitat.

Classroom Corner



Roger A. Hill

Jackrabbit

Extension:

Repeat or discuss this activity using a different species of animal or plant.

Procedure:

1. Locate many small areas for the activity so groups of students can be isolated in a certain area. This can consist of markings on the floor, table tops, or any other area that is sectioned off. This will be used to simulate a certain amount of space the students have to live in.
2. Present the picture of a ringneck pheasant and ask the following questions:
 - a - What can you tell me about this bird?
 - b - Iowa is a very good place for pheasants. What things does a pheasant need for survival?
3. Instruct students to pair up and sit in the spaces you have provided for them.
4. Give each pair a small amount of cereal to eat. Explain that they have been successful in finding food, have enough space and haven't had any problems with predators. As a result the pheasant population will grow.
5. To represent this growth, have four students sit in every space rather than two. Allow them enough time to start complaining about lack of space.
6. Now it is time for them to find food again. Give each table two cereal for the four students. The students will be quick to observe there is not enough to go around.
7. Ask the students what happens in nature when something is in short supply. Do the animals share? In nature some of the animals either die, change their food source or move to a different habitat.
8. Which pheasants are most likely to survive? The healthy pheasants that are strong, quick and most capable of adapting to the conditions are the ones most likely to survive.
9. Have the hunter or predator (the teacher) take some pheasants from the population. Ask the students what this will do for the pheasants during the upcoming winter when there are hardships finding food and suitable shelter. It will allow the pheasants to have less competition for the available habitat.
10. Can you draw any conclusions about animal populations, predators and the role of hunting? This discussion should include the vocabulary terms (page 55) that accompany this activity.



Roger A. Hill

Predators, like this coyote, are elements of the limiting factor.

Your Kids Can Enter: The 1998 Iowa Energy Poster Contest!

Celebrate energy efficiency and renewable energy by participating in the Iowa Energy Poster Contest! Students can design posters that demonstrate the wise use of energy, or to promote the use of Iowa's homegrown energy resources such as wind, ethanol and switchgrass.

Posters will be judged on a variety of criteria, including accuracy of information; creativity and originality in design and color; and effectiveness. Effectiveness includes educating others about energy efficiency or renewable energy.

Two winning posters will be selected from each grade level. A trophy and a \$100 U.S. Savings Bond, sponsored by the University of Northern Iowa, will be awarded to each winner. Here are the details about the contest:

Who can enter:

Any Iowa student in grades one through six

Themes:

Energy efficiency *or* renewable energy

Poster size:

All entries must be 18" x 24," horizontal format only

Specific Rules:

- 1) Only one poster per student
- 2) Each student must create his or her own poster
- 3) Any materials can be used to create the poster
- 4) All entries will become property of the University of Northern Iowa
- 5) All entries must be submitted unfolded
- 6) All entries must have a label on the back lower right corner with the following student information:

- Name
- Grade level
- School
- Teacher's name
- Principal's name
- Mailing address
- Telephone number

Deadline:

Posters must be postmarked by March 15, 1998.

Please mail or deliver poster entries to:

1998 Iowa Energy Poster Contest
Center for Energy and
Environmental Education
University of Northern Iowa
Cedar Falls, IA 50614-0293

For additional information, please call (319) 273-6012.

Poster Contest Sponsors:

Center for Energy and Environmental Education at the University of Northern Iowa, Iowa Department of Natural Resources, Iowa Association of Electric Cooperatives, Iowa Utility Association, and Iowa Association of Municipal Utilities

From Rag Weeds to Riches

During 1996 and 1997, there were five workshops held in Iowa and Missouri about nontraditional forestry products. The workshops were sponsored by local Resource Conservation and Development Areas (RC&Ds) and other resource agencies to inform the public about the potential income from special forest products.

Dave Goering, plant manager of Pharmacia Upjohn (Allergon Division) presented information on collecting pollen to be used in allergy related medicines. He also conducted a training workshop on collecting giant ragweed and cocklebur pollen. This proved to be very successful for some southwest Iowa people because Pharmacia Upjohn paid out almost \$10,000 for pollen collection in the fall of 1997.

This year's Nontraditional Forestry and Agriculture Opportunities Workshop will be on March 14, 1998 at the Southwestern Community College in Creston. The workshop will be from 8 - 4:30 PM. The sponsors of the workshop include the Southern Iowa RC&D, Southwestern Community College Adult and Continuing Education, Iowa Department of Natural Resources (Forestry Division), USDA Forest Service and Natural Resources Conservation Service.

The workshop is designed for people who want to learn more about special forest and agriculture products, and want to generate more income from both their woodlands and croplands. The topics will include medicinal plants, pollen collection, wild seed collection, leased hunting, organic farming, and timber stand improvement and management. The instructor will explain how to grow, harvest and market specific products.

Registration for the workshop will be \$10 (includes lunch) and will be processed through:

Southwestern Community College
Adult and Continuing Education
1501 West Townline
Creston, Iowa 50801

For more information, please call (515) 782-7080. Registration deadline is March 2, 1998.

Record Deer Rack Correction

A top record in the "1997 Record Deer Racks" listing published in the September/October 1997 *Iowa Conservationist* was inadvertently listed in the wrong category. A rack shot by Don Boucher, taken in 1996 and scoring 245 3/8 should have been placed in the shotgun *non-typical* category instead of the shotgun *typical* category. This rack ranks in sixth place for all non-typical shotgun kills ever entered in the state record book.

Conservation Update

Snowmobile Titling Begins January 1, 1998

Snowmobiles acquired after Jan. 1, 1998, must be titled in Iowa. The \$10 titling fee is in addition to the \$25 registration fee assessed to all machines owned by Iowa residents.

"Commercial snowmobile retailers will do point-of-sale registration," said Janet Ott with the DNR. Individuals acquiring a snowmobile after Jan. 1, 1998, need to take a bill of sale and proof of ownership to their county recorder.

Revenues generated by this new program will be applied to the trail maintenance grant program and administration of the snowmobile program. A portion of the funds will also go to DNR law enforcement.

An End to Lyme Disease?

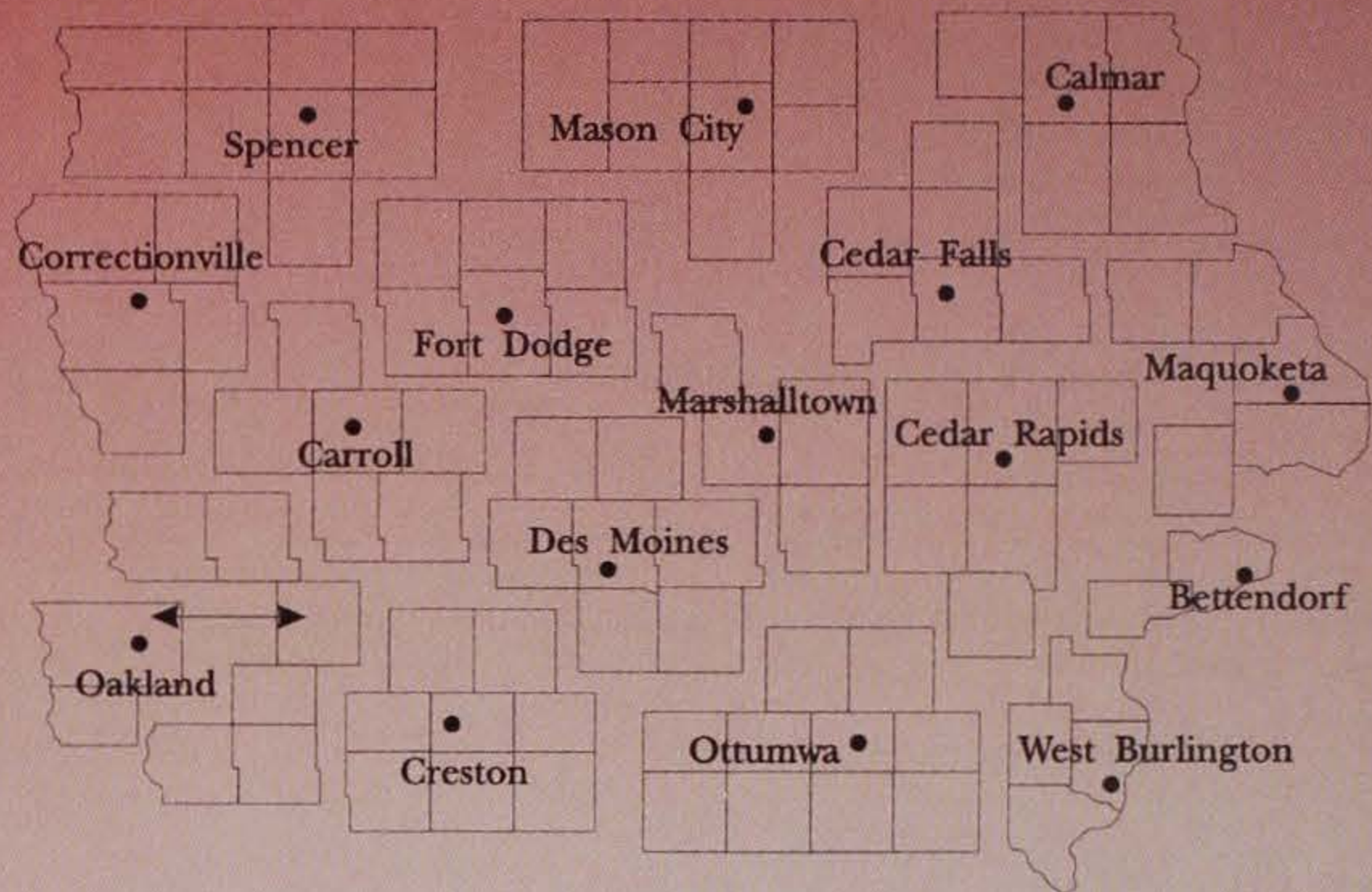
Three doses of the vaccine, marketed under the name ImuLyme, is 100 percent effective in preventing Lyme disease on women and men younger than 60, but only 67 percent effective on men 60 and older. Researchers are not sure why the vaccine is less effective on older men.

The vaccine was administered in injections one month apart, with a third dose a year later. Those tested experienced redness, swelling and soreness at the site of the injection, same as any other intramuscular vaccine. The vaccine was made using genetic engineering to produce a protein that stimulates the body's immune responses.

Lyme disease is deer tick-borne and causes a rash, arthritis and flu-like symptoms. If left untreated, it can lead to heart, nervous system and joint problems and even death.

Since 1982, 98,000 cases of Lyme disease have been reported to the federal Centers for Disease Control and Prevention, including about 14,000 last year.

Borders of REAP Assemblies (Council of Governments)



REAP Assemblies Are Upcoming

Public REAP assemblies, 16 in all, will be held throughout the state beginning in late January and running through March 1998. These meetings are held every other year and this will be the fifth time they've occurred since the program's initiation in 1989.

Grass roots public participation is an important element of Iowa's Resource Enhancement and Protection (REAP) program. People throughout the state will be given the opportunity at these public meetings to learn more about REAP and what it has accomplished during its first nine years of existence.

Also, plenty of time will be given during the meetings to allow those attending to express their feelings and ideas about REAP. Five people will be elected at each meeting to serve on the REAP Congress to be held in July 1998. This Congress will make recommendations on REAP to the Governor, state

legislature and state agencies.

Larry Wilson, Director of the Iowa Department of Natural Resources, calls the meetings to order and presents much of the information. The list shown on the following page includes the dates and locations for the assemblies. Use the list and the above map to locate the assembly nearest you and plan to attend. All assemblies will include a photographic display of REAP projects in that particular region. These displays will show firsthand the program's many accomplishments.

REAP is a multi-purpose program directed at enhancing and protecting our state's natural and cultural resources. Its basic elements are conservation education, open space development and acquisition, soil and water enhancement, historical resource development, roadside vegetation, and state park facility improvements. REAP receives its money from state general fund appropriations by the legislature and from sales of the natural resource vehicle license plate that features the goldfinch and prairie rose.

Conservation Update

1998 REAP Assemblies

All assemblies are scheduled for 7 - 9:30 PM, except for Region 11 in Des Moines which will be 1:30 - 4 PM

Region	City	Location	Date	Counties in Region
1	Calmar	Wilder Building Northeast Iowa Community College Hwy. 150, South of Calmar	Feb. 10	Allamakee, Clayton, Fayette, Howard, Winneshiek
2	Mason City	Public Library 225 Second Street, SE	Jan. 27	Cerro Gordo, Floyd, Franklin, Hancock, Kossuth, Mitchell, Winnebago, Worth
3	Spencer	Grace United Methodist Church Fellowship Hall 222 W. Fourth Street	Mar. 31	Buena Vista, Clay, Dickinson, Emmet, O'Brien, Osceola, Palo Alto, Sioux, Lyon
4	Correctionville	Community Center 716 - 5th Street	Jan. 29	Cherokee, Ida, Monona, Plymouth, Woodbury
5	Fort Dodge	ISU Extension Service 108 S. 8th Street (Second floor, Nation's Bank Building)	Mar. 12	Calhoun, Hamilton, Humboldt, Pocahontas, Webster, Wright
6	Marshalltown	Best Western Regency Inn Hwy. 30 & 14	Feb. 24	Hardin, Marshall, Poweshiek, Tama
7	Cedar Falls	Rotary Reserve Lodge 5932 North Union Road (northwest of Cedar Falls)	Feb. 17	Black Hawk, Bremer, Buchanan, Butler, Chickasaw, Grundy
8	Maquoketa	Community Center 506 S. Eliza Street	Mar. 3	Cedar, Clinton, Delaware, Dubuque, Jackson
9	Bettendorf	Bettendorf Public Library 2950 - 18th Street	Feb. 5	Muscatine, Scott
10	Cedar Rapids	Ballentine Auditorium, Cedar Hall Kirkwood College, Kirkwood Blvd. (south end of city)	Feb. 19	Benton, Iowa, Johnson, Jones, Linn, Washington
11	Des Moines	Izaak Walton League Clubhouse 4343 Valley Drive	Feb. 21 1:30 PM	Boone, Dallas, Jasper, Marion, Polk, Story, Warren
12	Carroll	Carrollton, Newton Room Hwy. 71 North	Feb. 12	Audubon, Carroll, Crawford, Greene, Guthrie, Sac
13 & 17	Oakland	Community Building Hwy. 6 Frontage Road (south of town)	Mar. 5	Cass, Fremont, Harrison, Montgomery, Page, Shelby, Mills, Pottawattamie
14	Creston	Room 220 (Auditorium) Southwestern Community College Hwy. 25	Feb. 3	Adair, Adams, Clarke, Decatur, Madison, Ringgold, Taylor, Union
15	Ottumwa	St. John Auditorium Indian Hills Community College	Feb. 25	Appannoose, Davis, Jefferson, Keokuk, Lucas, Mahaska, Monroe, Van Buren, Wapello, Wayne
16	West Burlington	Burlington Medical Center Center for Rehabilitation, Blackhawk Room 1401 W. Agency Street	Mar. 10	Des Moines, Henry, Lee, Louisa

Conservation Update

Turkey Hunter Wins Shotgun



Daryl McLaughlin, a U.S. Postal Service employee, is shown holding a Winchester Model 1300 "Turkey Hunter's Special" shotgun he won recently in a drawing conducted by the wildlife bureau. Spring turkey hunters that return their harvest survey cards promptly after their season is over are entered into a drawing for a shotgun donated by the Iowa State Chapter of the National Wild Turkey Federation. McLaughlin was the lucky winner for 1997. Pictured are (left to right) NWTF Regional Director David Whittlesey, McLaughlin, State Chapter President Sam Richmond and Allen Farris, administrator of the DNR's Fish and Wildlife Division.

Spring Turkey Season

Iowa's spring wild turkey season is just around the corner, and, according to DNR Forest Wildlife Research Biologist Dale Garner, 1998 promises to be a banner year. "We had an excellent hatch in 1997 so turkey hunting should be good for the next couple of years," he says.

The season's format will be the same as last year with four-, five-, seven-, and 12-day seasons. The first season will run April 13 - 16, season two, April 17 - 21, season three, April 22 - 28 and season four, April 29 - May 10. Applications are available in January and the first deadline is Feb. 6. There are 5,500 permits available for the first three seasons and an unlimited number for season four. A second application period will run from March 9 - 13, if all quotas are not filled.

Safety on the Ice

Ice fishing has begun.

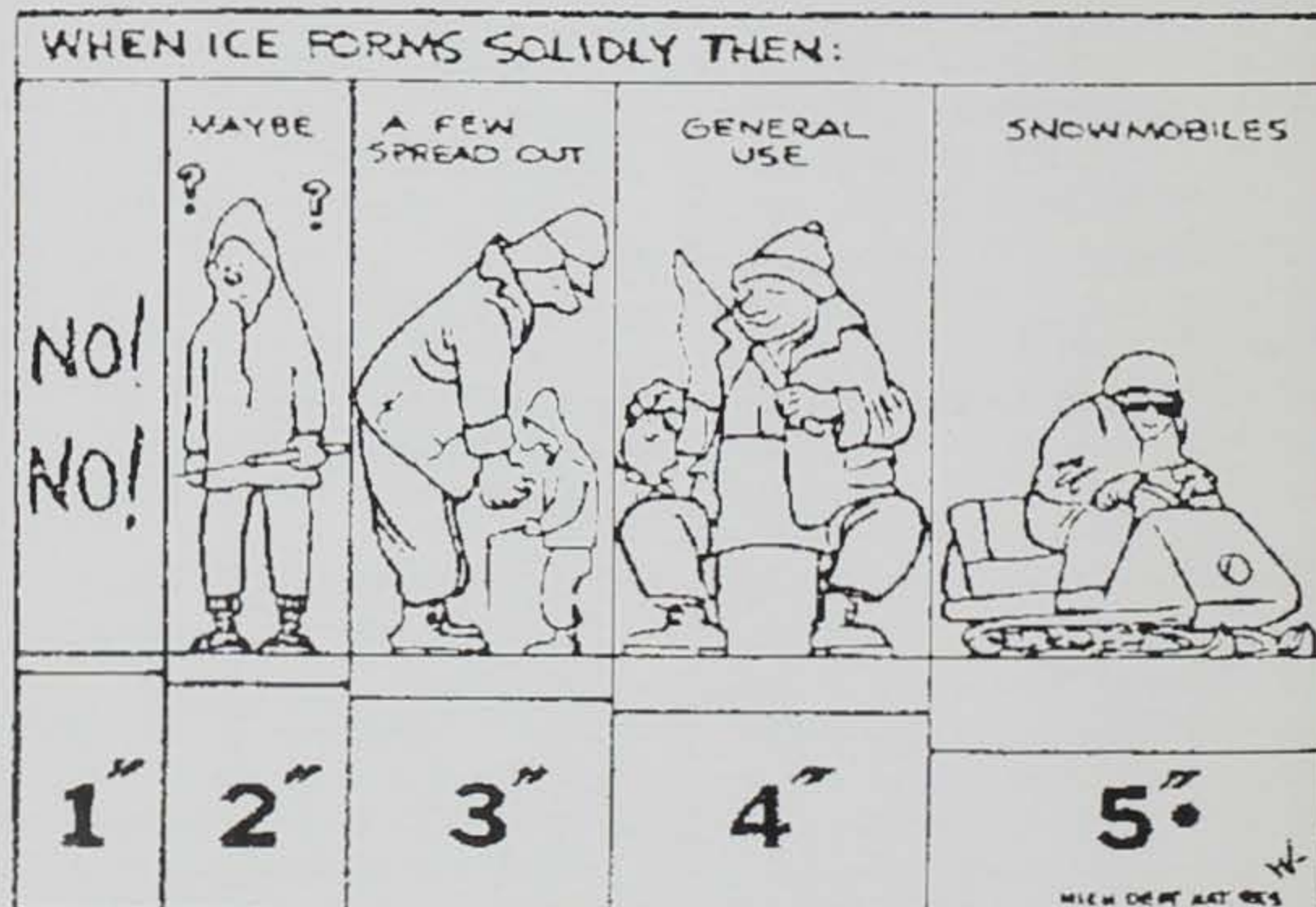
With that in mind, ice safety should be a primary concern to the sportsman. Early-season anglers should be wary of new ice, and remember, first ice is not necessarily safe ice.

"It takes prolonged freezing temperatures to produce solid ice," said Sonny Satre, DNR recreational safety coordinator. "Never assume the ice is safe, and always test the thickness with an auger or spud bar."

Anglers should avoid slush ice, clear or honey-combed ice, and dark spots in the ice, because it is not as strong as clear blue ice.

The following are safety tests for lake ice:

Inches of ice	Safe load
2"	one person on foot
3"	a group of people traveling
5"	snowmobile
7.5"	automobile (2-ton gross)
12"	heavy truck



Safari Club International, Iowa Chapter

The name Safari Club International conjures up images of hunting tigers in India from the back of an elephant, but this organization, with 30,000 members in 163 chapters, is very involved in conservation in the United States. The SCI (Safari Club International) motto is three-fold: conservation of wildlife, protection of the hunter and education of the people. The SCI has backed up its motto by investing more than \$24 million in wildlife conservation over the lifetime of the organization. These funds have supported projects both locally and internationally.

The Iowa Chapter of the Safari Club International was chartered in late 1992 with 25 members. The organization has grown with many members joining in the last couple of years, bringing the total to 110. While there are a few members who hunt worldwide, the typical Iowa Chapter member hunts whitetail deer in Iowa and occasionally takes a big game hunting trip out West.

The SCI's annual Banquet and Benefit Auction will be held on March 28 at the Des Moines Izaak Walton League. According to Steve Skold, president of the Iowa Chapter, these events are unique in that they have exhibitors from around the world and make available items such as fur coats, jewelry, hunting trips, guns and artwork. Of the funds generated, 70 percent are dedicated to Iowa projects, and when they are combined with matching grants from the national office, it is equivalent to all of the funds raised by the Iowa Chapter being spent in Iowa. Some of the projects supported financially by the Iowa Chapter are:

- Iowa American Wilderness Leadership School—This program allows teachers to have an outdoor experience and develop outdoor skills for use in their classroom. It is held at the Springbrook Conservation Education Center, north of Guthrie Center.

- Becoming an Outdoors Women—This program allows women the opportunity to learn the skills are needed to become involved in outdoor activities and is held at the Springbrook Conservation Education Center.

- Sponsorships to the National American Wilderness Leadership School—This program, located near Jackson Hole, Wyoming, allows students and adults the opportunity to experience various outdoor skills in a wilderness setting and learn about their surroundings in the process.

- The Springbrook Conservation Education Center received seven .22 caliber rifles for use in their shooting sports education program, allowing thousands of people their first exposure to firearms.

- Sponsorship for groups such as the Iowa Dove Coalition, a legislative effort to establish a dove hunting season in Iowa.

For more information on this growing organization please contact:
Steve Skold
1205 South 34th Street
West Des Moines, Iowa 50265
(515) 264-8420

Iowa Chapter



Upcoming NRC, EPC and Preserves Board Meetings

The dates and locations have been set for the following meetings of the Natural Resource Commission, Environmental Protection Commission and the Preserves Board of the Iowa Department of Natural Resources.

Agendas for these meetings are set approximately 10 days prior to the scheduled meeting date.

For additional information, contact the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034.

Natural Resource Commission:

- January
No Meeting
- February 12
Walnut Creek NWR, Prairie City
- March 12
Springbrook
- April
No Meeting

Environmental Protection Commission:

- January 20
Des Moines
- February 16
Des Moines
- March 16
Des Moines
- April 20
Des Moines

State Preserves

Advisory Board:

- March 10
Gilbertson Nature Center,
Fayette County

The Chameleon Game Warden

"I tell you, Chuck, he goes by here every day. Same guy, same pickup, same time. I know he's trying to take a deer."

When we ask for help, it didn't get much better than this. Time of day, description of driver, description of the vehicle. Man, catching this guy would be a chip shot. With this sort of information, even a rookie could get lucky.

So, why couldn't I catch this guy?

I tried everything. I hid my car and waited and waited. I waited at the appointed time. I waited in the morning. I waited in the afternoon. I waited at night. Nothing. Finally, one night after the end of shooting hours, just as I gave up and pulled out of my spot, who do you think I ran into?

I pulled him over and checked his license. Legal. Checked his shotgun. Legal. I drove away thinking, "Maybe there's no problem here." One more try.

It was time to blend in with the surroundings. Become part of the landscape. It was time to get cold.

It was the tail end of the deer season. You know. When the ground has taken on a couple of feet of white frosting. When the sunset casts a purple glow before the long shadows and your breath turns to crystals before your eyes.

I headed to an area where the road skirts a hill separating it from the expanse of a field below. So far, only the large grove of six-foot pines stood as sentry over the happenings in the valley. It was time to become part of the valley. Every evening the deer would cross the road from the hillside to the field, leaving their advantage of safety and cover. It was time to use those deer.

I arrived early. Thank goodness for four-wheel drive as the tires fought for traction up the hill. I parked by a set of buildings, hiding the truck from view, but also hiding the valley from my view. I started putting on all the extra clothes I could find. Remember how your mom used to dress you for school? You know, by the time you were out the door you had on so many clothes that if you had fallen over, you would have looked like a turtle trying to get up? That was me.

I put on a pair of military surplus Mickey Mouse boots and started crunching through the snow to the pine grove. I picked out a tree where I could see as much as possible and waited. I was the wind, I was the snow, I was the pine tree... Man, I was cold!

If you've been outdoors, you know the drill. Start flexing your toes in the boots. Clench your fists inside the gloves. Tighten up the scarf just a little more to block the wind. But after a while, nothing helps any more.

The sun was starting to set. It was beautiful just to look upon. I looked at my watch. The information about the suspect said shootings started usually around now. The deer were coming down the hillside. Wait! I could hear it. Tires on gravel moving this way, getting closer and closer.

I saw the pickup to my left just as the deer were crossing the road to my right. The motor roared as the driver hit the accelerator. The deer saw the flash of the pickup and bounded out of the ditch, clearing the fence easily, running into the field. The pickup raced around a curve, then gravel spewed as the brake lights came on. The door flew open and out came a gun barrel. KABOOM! KABOOM! Both shots were misses, but you can't chase deer with a pickup and you can't fire slugs from the road.

One problem. He was driving away while I was still standing behind a tree looking like a green Pillsbury Doughboy. I took off running, waddling for my truck. The snow crunched under the Mickey Mouse boots. My heart pounded. My breath rushed into the cold, like big clouds. He was driving away slowly. "Oh please, oh please," I whined to myself and to no one in particular. I'd worn too many clothes. Reaching the truck, I fell into the driver's seat. I kept missing the ignition with the key as I tried to get my breath. I'd worn so many clothes, the seat was jamming me up against the steering wheel. The motor roared to life, and the snow flew as I rolled down the hill and onto the road.

I passed where he fired. Two shells sat on the roadway. I decided to pick them up later. Where was he? I popped over a rise and saw brake-lights. He was moving slowly, looking for more deer. I got behind him and flipped on the red lights.

I was still trying to get my breath as I reached his door. He looked at me incredulously.

"Where did you come from?"

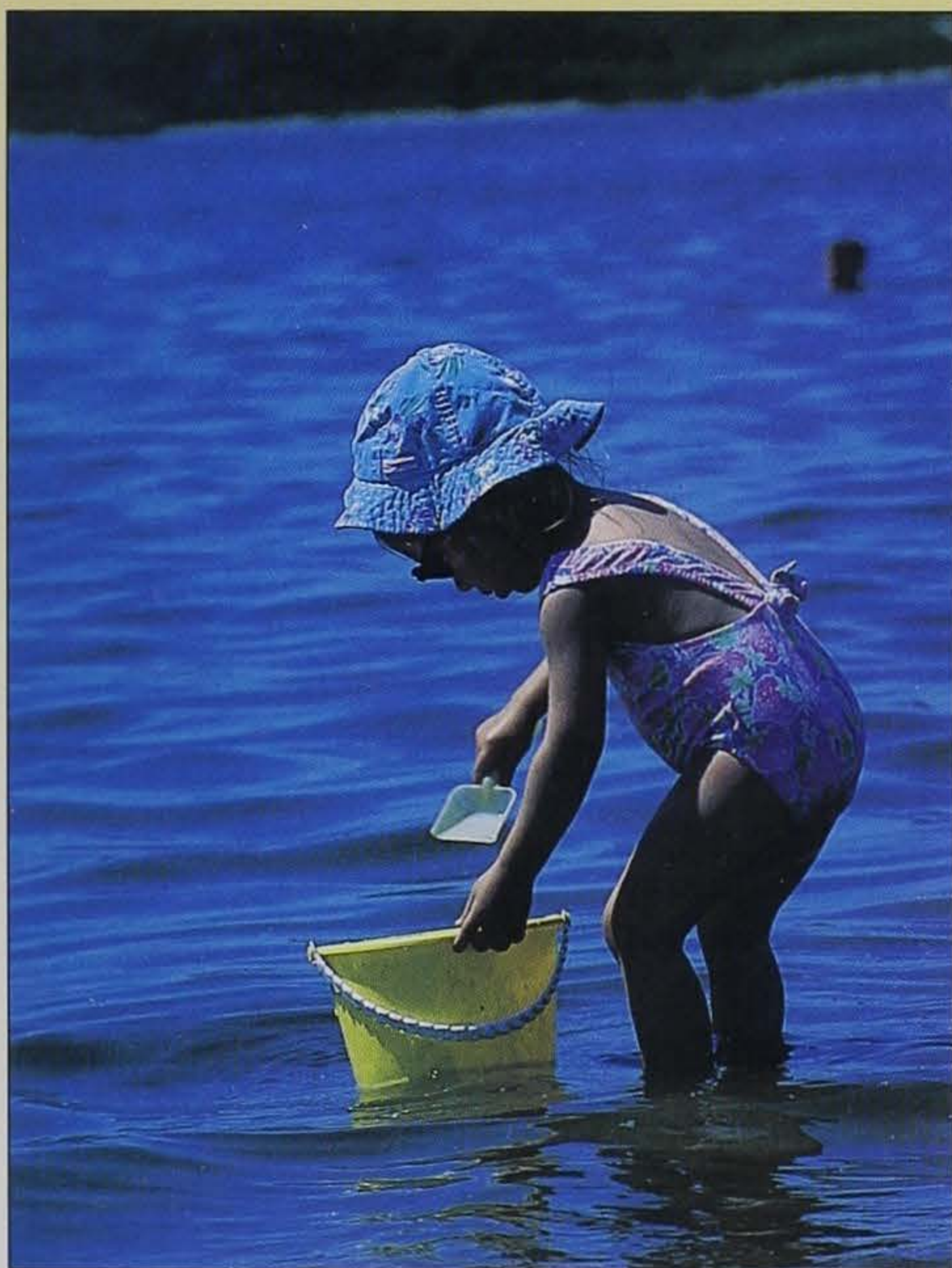
"Did you see that pine tree back there?" I replied.

"Yeah."

"That was me."

by Chuck Humeston

Parting Glance



Casey Gradischmig

It won't be long.

