Iowa CONSERVATIONIST

March/April 1994

Department of Natural Resources

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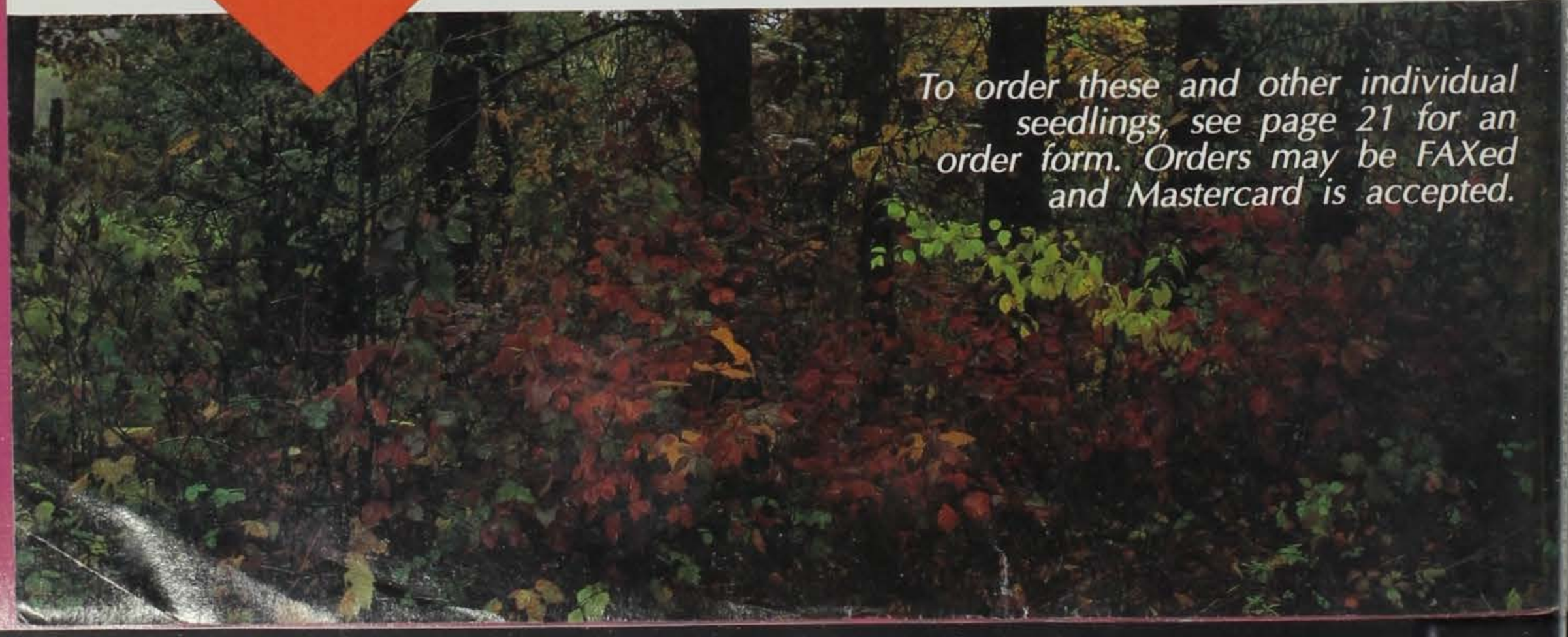

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Iowa Conservationist (ISSN 0021-0471) is published bimonthly by the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034. Second class postage paid in Des Moines, Iowa, and additional mailing offices. **Subscription 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 50319-0034.

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SPECIAL INSERT

At Home With Conservation

DEPARTMENTS

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COVER

Oak Ridge Monarch by Larry Zach. See back cover for details.

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1994 fishing FISHING

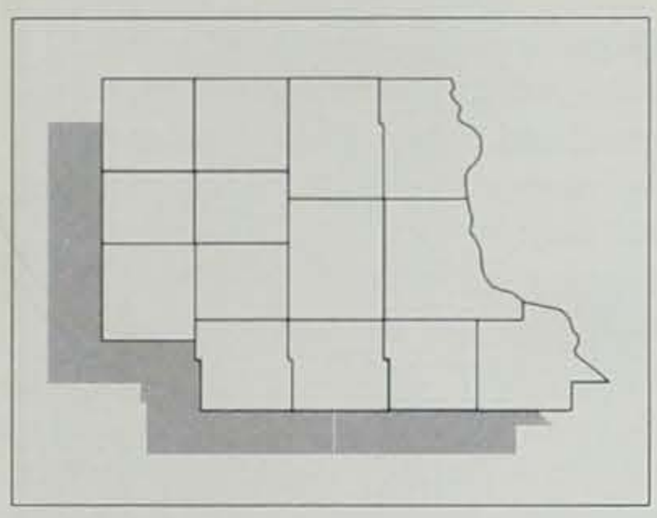
Northeast

NORTHEAST

by Dave Moeller
region fisheries supervisor, northeast Iowa

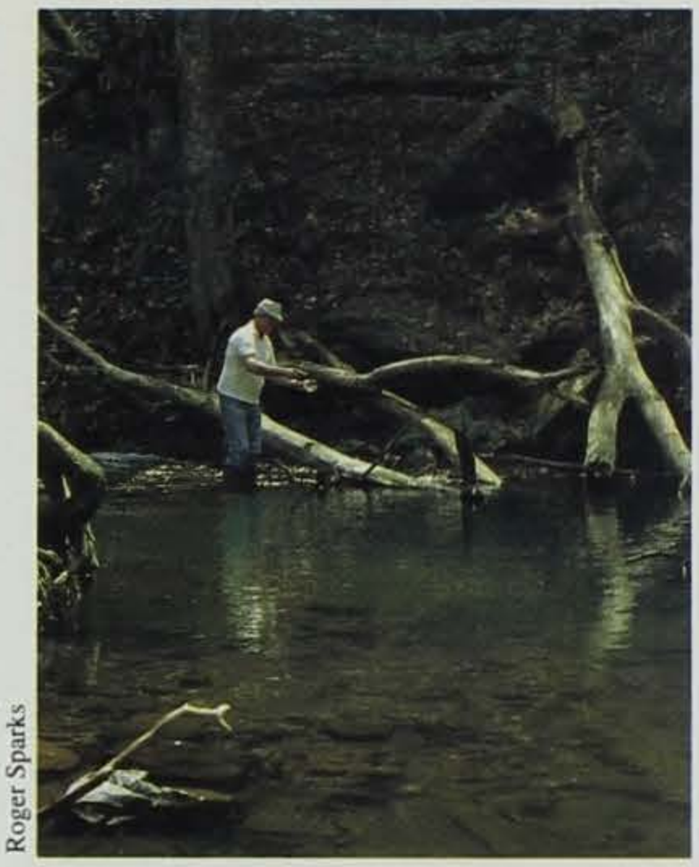
It seems quite ironic now that just four years ago in the 1990 Fishing Forecast, I discussed with you how a major two-year drought was affecting the fish populations in Northeast Iowa waters. I am sure many of you are now wondering how the prolonged and, in many cases, record flood levels of 1993 have affected our fish and fishing for 1994. We certainly do not have all the answers, but our biologists have determined some facts concerning impacts of the 1993 floods on our fisheries habitats and populations.

Species	Lake or Stream, *County*	Comments
Bluegill	George Wyth Lake, *Black Hawk*	Fair numbers of 6- to 7-inch fish; concentrate on stake beds and brush piles.
	Mississippi River, *Pools 9 through 14*	Good quantities of 6- to 7-inch fish; average size and numbers somewhat reduced apparently due to poor survival during drought years in late 1980s.
	Sweet Marsh, Segment B (Martins Lake), *Bremer*	The dike system that forms this marsh harbors good numbers of 6- to 7-inch fish.
	Volga Lake, *Fayette*	Large bluegills occasionally caught but plenty in the medium-size range; drift the old creek channels in the north and west bays.
Bullhead	Mississippi River, *Pools 9 and 10*	Excellent numbers of bullheads; best success in early spring using nightcrawlers in the backwaters.
	Lake Delhi (Hartwick Lake), *Delaware*	Abundant 9- to 10-inch bullheads.
	Sweet Marsh, Segment B, (Martins Lake), *Bremer*	Large numbers in the 1/2- to 3/4-pound range.
Channel Catfish	Cedar River, *Black Hawk, Bremer, Chickasaw & Floyd*	Tremendous population of catfish in the 3- to 8-pound class; try the mouths of tributary streams and backwaters during late spring and high water periods.
	George Wyth Lake, *Black Hawk*	Plenty of 3- to 5-pound fish; 21-pounder caught in 1992.
	Lake Hendricks, *Howard*	Cage rearing program on the lake provides many good catches.
	Lake Meyers, *Winneshiek*	Good population of "cats" as a result of the cage-rearing program.
	Maquoketa River, *Delaware, Jones & Jackson*	Good numbers of 1- to 3-pound fish; concentrate on deep holes and brush.
	Mississippi River, *Pools 9 through 15*	Tremendous population of 12- to 20-inch fish; best along channel borders and on wing dams in summer and early fall; strong 1991 year class will ensure good angling next several years.
	Shell Rock River, *Butler*	High numbers of 1 to 3 pound fish available.
	Turkey River, *Clayton*	Try below Elkader along rocky shorelines and below snags; many new holes to try as a result of 1993 high water.
	Upper Iowa River, *Allamakee*	Another excellent catfish stream; try below the lower dam along rocky shorelines or below riffles for many 2- to 6-pound fish.



The relatively few lake resources in Northeast Iowa have fared fairly well. Turbid water conditions were certainly more frequent than normal and hampered fishing success in 1993. Coupled with this increase in turbid water was a slight increase in sedimentation. However, the impacts of this shallowing of the lake depths on fish populations will not become serious in most lakes for many years to come. Reproduction of both largemouth bass and bluegill was generally good in our lakes in 1993. Overall our lake resources have fared quite well and the 1993 floods should have no negative impacts on your lake fishing success in 1994.

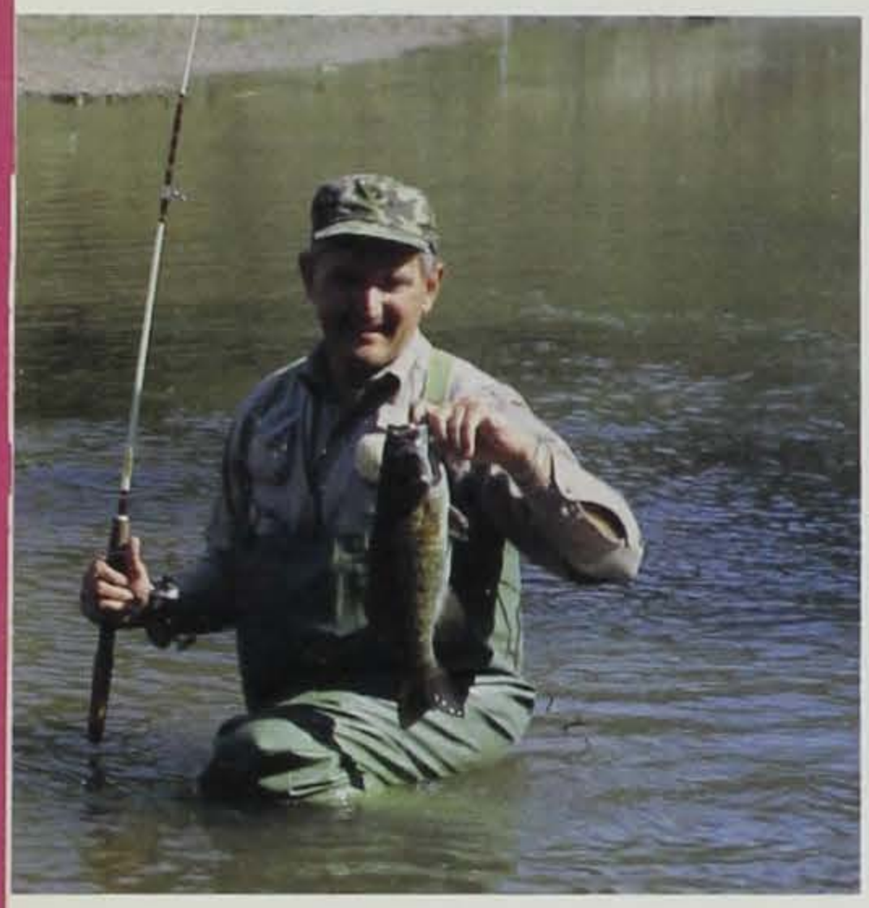
The coldwater trout streams also came through 1993 fairly well. Again, there were more days when these streams were "unfishable" due to dirty water. However, they cleared up fairly quickly and stream flows and conditions were actually excellent for much of the year. As is true with any high water event,



Roger Sparks

Northeast

	Volga Lake, *Fayette*	Lake should provide excellent catch of catfish in 1994; some very large fish.
	Wapsipinicon River, *Buchanan*	Best below Independence with high numbers of catfish present.
Crappie	George Wyth Lake, *Black Hawk*	Fair numbers of 8- to 9-inchers.
	Lake Meyer, *Winneshiek*	Good fishing for moderate-size crappie; try over the old creek channels or near the dam on the west end of the lake.
	Mississippi River, *Pools 9 through 15*	Numbers of large fish reduced the last two years; May and October best with minnows or small jigs in brushy habitat in deep, quiet water.
Largemouth Bass	George Wyth Lake, *Black Hawk*	Abundant 10- to 15-inch fish; concentrate on brush piles and stake beds.
	Koutny Pond, *Buchanan*	Good numbers of bass up to 20 inches.
	Lake Hendricks, *Howard*	Best chance for trophy bass in this corner of Iowa; try along steep shores and riprap.
	Lake Meyers, *Winneshiek*	Many bass at or near the 15-inch limit; try the steep shores or along the dam.
	Meyer Lake, *Black Hawk*	Fish the flooded willows and stake beds; bass up to 20 inches caught yearly.
	Mississippi River, *Pools 9 through 14*	The largest bass population in the state; best during the pre-spawn in May and the fall months near backwater structure; 14-inch length limit.
	Sweet Marsh, Segment B (Martins Lake), *Bremer*	Many fish over the 15-inch size limit; heavy vegetative growth makes it tough to fish during the summer.
	Volga Lake, *Fayette*	Most bass just under the 15-inch size limit; best success along steeper shorelines or along the dam riprap.
Northern Pike	Cedar River, *Black Hawk & Bremer*	Good numbers of 2- to 5-pound fish with a few large lunkers; look for slack water habitat close to shore.
	George Wyth Lake, *Black Hawk*	Good numbers in the 2- to 3-pound range.
	Maquoketa River, *Delaware*	Population still increasing from annual 2-inch fingerling stockings; pike more than 10 pounds present.
	Mississippi River, *Pools 9, 10 and 11*	Very strong populations with many fish 5 to 8 pounds, some up to 15; fish the shallow backwaters in the spring and near the mouths of cool water tributaries in the hot summer.
	Shell Rock River, *Bremer*	Numerous fish in the 4 to 8 pound range; good natural reproduction in recent years.



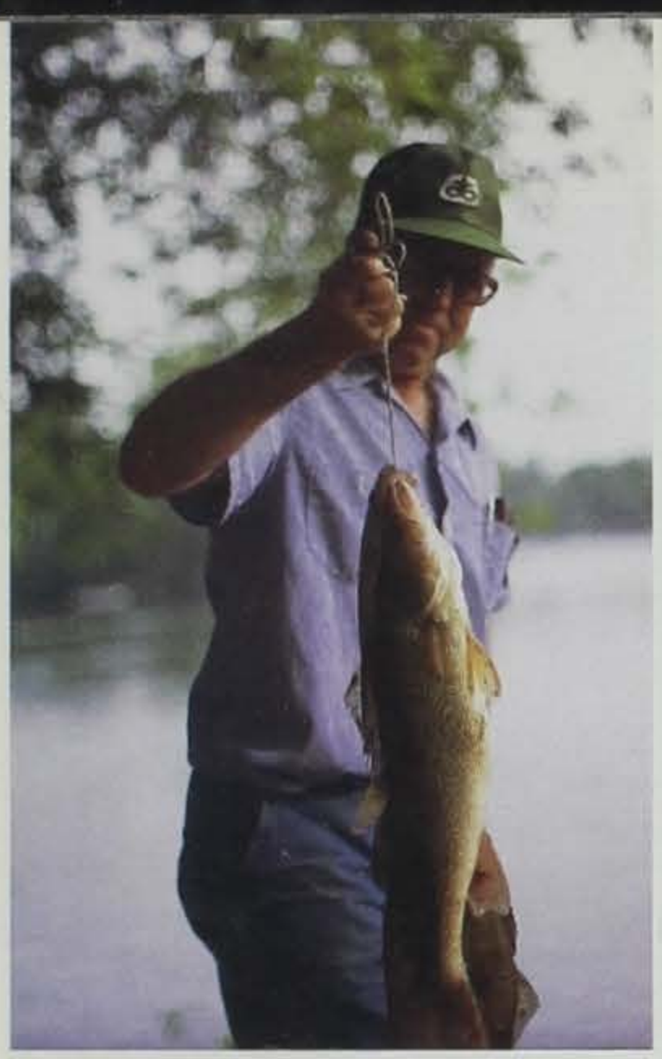
Don Muhm

some "holes" filled in while others were created. The habitat improvement structures came through the floods with very little damage. Good to excellent stream flows coupled with ample numbers of brown and rainbow trout being reared at our three trout hatcheries equals an excellent prognosis for trout fishing this year.

After seeing many of our larger interior warmwater rivers and tributary streams at record or near-record flood stages, many people truly believed that virtually all the fish in those streams were "flushed" downstream to the Mississippi River, or at least to points far downstream. This belief is certainly understandable, however, few if any fish were pushed downstream by flood waters. Many fish species do make definitive and intentional movements both up and downstream at various times of the year; but, they are not unintentionally pushed downstream by flood waters. The high stream flows of 1993 actually benefited some species. Fish surveys have shown excellent reproductive success for northern pike on our inland rivers. On the other hand, however, smallmouth bass reproduction generally ranged from poor to very poor. Anglers should not become too concerned about this as it is not necessary to have successful reproduction each and every year to have good angling success. I think you will find that your fishing success on the inland rivers this year will

Northeast

	Sweet Marsh, Segment B (Martins Lake), *Bremer*	Abundant vegetation harbors fish up to 35 inches with some real trophies
	Wapsipinicon River and Tributaries, *Buchanan, Black Hawk & Bremer*	Large population of northerns, most under 5 pounds but lots of action; trophy fish possible.
Smallmouth Bass	Cedar River, *Black Hawk*	Rock- or brush-type habitat holds good numbers of smallies.
	Cedar River, *Mitchell & Floyd*	Excellent smallmouth bass population; larger fish above Osage but more numerous below town; try the new catch-and-release area from Otranto Dam to St. Ansgar.
	Maquoketa River, *Delaware*	Catch-and-release regulation below Delhi Dam; increasing numbers and excellent fish size; many fish more than 18 inches being caught.
	Mississippi River, *Pools 9, 10 and 11*	Increasing population; best on rocks, riprap and wing dams in late summer and fall; use crawdads or imitating lures.
	Shell Rock River, *Butler & Floyd*	A lightly fished population; concentrate on river areas with high quality rock bottom.
	Turkey River, *Fayette*	High water again in 1993 improved quality of bass habitat; try Elgin-Clermont areas or below Elkader to Garber.
	Upper Iowa River, *Howard, Winneshiek & Allamakee*	Most scenic bass stream in Iowa; better canoeing upstream but best fishing success below lower dam
	Volga River, *Fayette*	Smaller stream but excellent population of bass; be prepared to wade in many areas; very scenic.
	Yellow River, *Allamakee*	High rate of fall; fish eddies or quiet water; one of the best smallmouth waters in Iowa.
Trout	Bloody Run, *Clayton*	One of Iowa's largest trout streams; contains a special regulations segment with a 14-inch length limit on browns and artificial lure only.
	Ensign Hollow, *Clayton*	Catch-and-release regulation is resulting in good numbers of fish up to 16 inches; population still increasing.
	Little Mill Creek, *Jackson*	Stocked only with catchable browns; walk-in area; habitat improvement planned for 1994.
	Pine Creek, *Allamakee & Winneshiek*	Stocked with catchable brown trout from April through November; walk-in access in a very scenic and wild valley.
	Richmond Springs, *Delaware*	Located in Backbone State Park; very scenic stream with excellent facilities; stocked with catchable rainbow trout from April through October.



Sonny Satre

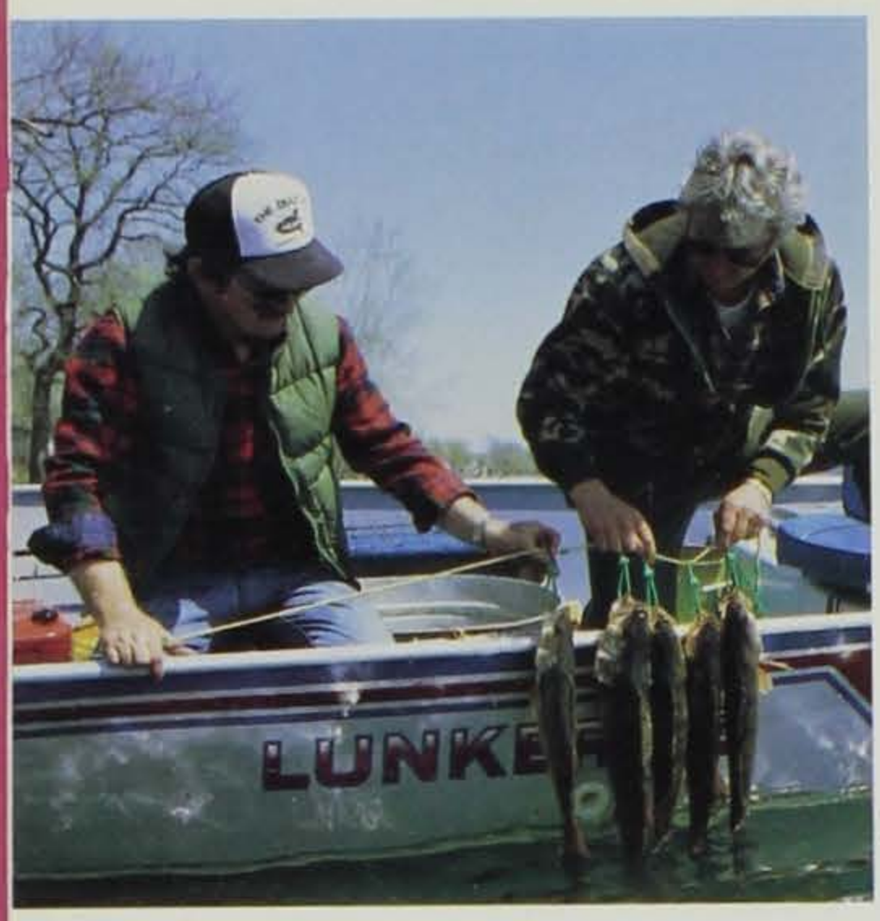
have had very little impact from the floods of 1993.

The 1993 floods may have done considerable damage to the Mississippi. While many people believe the high flows should have flushed out and deepened this river system, quite the opposite undoubtedly occurred. While a few of the major side channels probably did scour and result in greater water depths, tremendous quantities of materials dropped out in the already-shallow backwater lakes and sloughs. Some people believe up to eight or ten years of normal sedimentation rates occurred in 1993 alone! This severe shallowing of these vast backwaters will make many of these areas less productive and actually uninhabitable at times of the year for fish species that rely on these lake habitats, such as bluegill, largemouth bass and crappie. Reproductive success in the Mississippi also varied in 1993. Walleye, sauger and largemouth bass reproduction was poor to very poor, while channel catfish success was slightly better than average. Bluegill reproduction was fairly good but late.

What does it all mean for 1994? Forecasting fishing success is always a tricky business. Hopefully we won't see a continuation of prolonged flooding this year. Even though the 1993 floods had pluses and minuses on fish populations, northeast Iowa anglers will not see a real decline in fishing success.

Northeast

	Sny Magill, *Clayton*	Sny Magill is a long stream with good flows and excellent access. North Cedar Creek is a small tributary stocked with browns from May through November with walk-in access.
	Spring Branch, *Delaware*	Habitat improvement work is continuing on this stream; 14-inch length limit extended to all trout beginning in 1994; stream-reared browns, rainbows and occasional brook trout.
	Trout Run, *Winneshiek*	Located on grounds of Decorah Trout Rearing Station; excellent angler access.
	Twin Springs, *Winneshiek*	Located in a Decorah city park; stocked with catchable trout from April through November; excellent angler access.
	Waterloo Creek, *Allamakee*	One of Iowa's best trout streams; numerous insect hatches; popular fly fishing stream.
Walleye	Cedar River, *Black Hawk, Bremer, Chickasaw & Floyd*	Concentrate below dams in the spring and on deep pools in fall and winter; noted for its trophy fish; population has been enhanced by fingerling stocking the last five years.
	Maquoketa River, *Delaware*	Fish up to 3 pounds below Delhi Dam resulting from annual plants of 2-inch fingerlings.
	Mississippi River Tailwaters, *Pools 9 through 15*	Good from November through April; best for lunkers (up to 12 pounds) just after ice-out; 15-inch length limit; very strong 1992 year class will bolster success the next few years.
	Mississippi River Wing Dams, *Pools 9 through 15*	Best from May through October at low flows; slow troll crawlers, leeches or plugs bumping the rocks; 15-inch length limit.
	Wapsipinicon River, *Buchanan*	Expanding population from walleye fingerling stockings; awesome concentrations of 2- to 3-pounders; concentrate efforts below Independence.
	West Fork Cedar River, *Butler*	Fish are caught in large pools near confluence with Shell Rock River and in brush piles upstream to Big Marsh.
Sauger	Mississippi River Tailwaters, *Pools 9 through 15*	Schools of abundant saugers congregate in dam tailwaters from October through April; taken on same baits and lures as walleye; 1992 year class is strong and entering the fishery; no minimum length limit on sauger.
Yellow Perch	George Wyth Lake, *Black Hawk*	Very abundant 7- to 8-inch fish; excellent on the table.



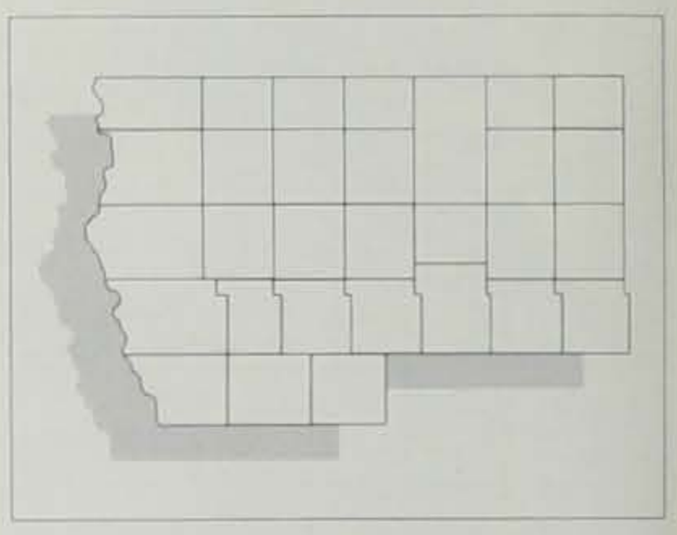
Ron Johnson

NORTHWEST

by Thomas W. Gengerke, regional fisheries supervisor, northwest Iowa

Natural lakes and small impoundments. Great border rivers and smaller prairie streams. Waters that run deep and those that keep your ankles dry. Different things to different people.

All of these contrasts contribute to our perception of a quality natural resource and all of these contrasts are available within northwestern and northcentral Iowa. So what's the commonality? I think it's diversity. Diversity of landforms and species all



contribute to the profound richness of natural systems and resource experiences available to us.

From an angler's viewpoint, we have to marvel at the variety of opportunities. We can fish for rainbow trout during the winter months at Blue Pit,

Northwest

Species	Lake or Stream, *County*	Comments
Walleye	Clear Lake, *Cerro Gordo*	Good opportunity for a fish more than 5 pounds. Smaller 1 to 2 pounders showed up in the creel in 1993. Work the rock reefs in the spring and fall and troll the artificial weed beds during summer and early fall.
	Lake Cornelia, *Wright*	Expanding population. 1993 survey showed good numbers of 14- to 20-inch fish.
	West Fork Des Moines River, *Humbolt*	Best spot for river walleyes in north-central Iowa. High water has reduced harvest in recent years.
	Storm Lake, *Buena Vista*	Creel census, spawning operations and fisheries surveys all suggest that Storm Lake will be one of the top walleye fishing lakes in Iowa in 1994. Trolling crank baits in May and June account for lots of 15-inch plus fish.
	Silver Lake, *Dickinson*	This lake has been a consistent producer of nice walleyes and will continue to produce in 1994.
	Spirit Lake, *Dickinson*	Fishing should be good for legal sized 14-inch walleyes in 1994. Catch-and-release will also be a big part of the 1994 season.
	Five Island Lake, *Palo Alto*	Walleye fishing in 1993 was excellent and will continue for 1994 season.
	East Okoboji, *Dickinson*	Weed beds and rock piles will produce good walleye numbers in 1994.
	Lost Island Lake, *Palo Alto*	The 1993 season was good and 1994 should be equally good.
	West Fork Des Moines River, *Emmet*	Populations are good and good overwinter survival should combine to make 1994 an above-average season.
	Little Sioux River, *Dickinson & Clay*	High water has distributed walleyes throughout this river reach and good fishing will be the story for 1994, especially if good water levels are maintained throughout the season.
Yellow Perch	Lake Cornelia, *Wright*	Two dominant year classes -- 1990 and 1992. 1990 fish are catchable-size;
	Spirit Lake, *Dickinson*	Excellent numbers of 9- to 11-inch perch should provide excellent open-water and winter fishing.
	East Okoboji, *Dickinson*	Weed bed cover definitely holding more fish for the angler -- numbers continue to improve.
	West Okoboji, *Dickinson*	Numbers are improving and should result in some very good 1994 angling.
	Trumbull Lake, *Clay*	Good numbers of large perch. Winter fishing should be very good.
Bullhead	Black Hawk Lake, *Sac*	This lake has a large population of 8- to 10-inch fish. Spring is the prime time for bullhead fishing.

Lowell Washburn

Northwest

	Crawford Creek, *Ida*	A good population of 9- to 11-inch bullheads. Shallow bays early in the spring yield a lot of fish.
	Spirit Lake, *Dickinson*	Numbers are increasing. This should be a moderate to good year. Start early in April and May.
	Center Lake, *Dickinson*	Excellent population of 8- to 10-inch fish, producing some very good angling.
	Silver Lake, *Dickinson*	Excellent numbers; consistently good.
	Lost Island Lake, *Palo Alto*	Numbers are tremendous and size will be 8 to 10 inches. Excellent angling will result in 1994.
	East Okoboji, *Dickinson*	Spillway fishing will produce, if adequate flows are maintained throughout the spring and early summer.
	Clear Lake, *Cerro Gordo*	Fish will be larger in 1994; 9-inch average size.
	Lake Cornelia, *Wright*	Excellent numbers of 9- to 10-inch fish. Fish jetty and north shore in May.
	Beeds Lake, *Franklin*	8-inchers are plentiful. Five jetties and the causeway provide excellent access.
Channel Catfish	East Okoboji, *Dickinson*	4- to 6-pound fish common; has been consistently good fishing for the past three years. 1993 produced some real nice 15-to 20-pound cats.
	Big Sioux River, *Lyon, Sioux & Plymouth*	Large number of small (1/2 t 2 pounds) fish are abundant and if river conditions are good, some excellent catfishing will result in 1994.
	Little Sioux River, *Dickinson & Clay*	Traditionally good catfishing, especially for the 1- to 3-pound fish; 1994 should be a banner year after the high water of 1993.
	Lake Pahoja, *Lyon*	Surveys indicate large numbers of 3- to 6-pound cats present.
	Clear Lake, *Cerro Gordo*	June and July were the best months in 1993. Stink bait and chicken liver are favorite baits.
	Lake Cornelia, *Wright*	1- to 2-pounders typical. Fish after dark for best success.
	Boone River, *Hamilton*	Fish below Webster City in snags and deep holes on outside bends.
	Des Moines River, *Kossuth & Humboldt*	Flood of 1993 left many new snags and cutbanks to fish.
	Black Hawk Lake, *Sac*	Excellent growth rates. Plenty of action
	Storm Lake, *Buena Vista*	Large numbers of good-sized fish.
	Little Sioux Park Lake, *Woodbury*	Good cage-fish program. Lots of pound and a half fish available.
Muskellunge	Clear Lake, *Cerro Gordo*	Several 30-pounders taken in 1993. May and September provide the best chance to catch a wall-hanger.

near Mason City, or we can enjoy the large numbers of 8- to 10-inch bullheads currently available at Lost Island Lake (*Palo Alto County*). We can catch fish to eat, such as the bluegills, which are bountiful in West Okoboji and Little Wall Lake (*Hamilton County*) or we can fish for fun by catching and releasing largemouth bass in Lake Smith (*Kossuth County*) or smallmouth bass in West Okoboji. We can fish for small fish, big fish, fish that are easy to catch, as well as those that are more difficult.

We can fish in groups while we locate yellow perch or we can seek solitude while in the pursuit of trophy muskellunge or riverine walleye. The combinations are enormous. There are so many permutations for so many different fish. If you have never experienced fishing the natural lakes, small impoundments, great border rivers and small prairie streams of northwest and northcentral Iowa, it's time to give it a try. For those of us who live in the region -- let us appreciate the unique and diverse resources "sitting in our own backyard."

Ron Johnson

Northwest

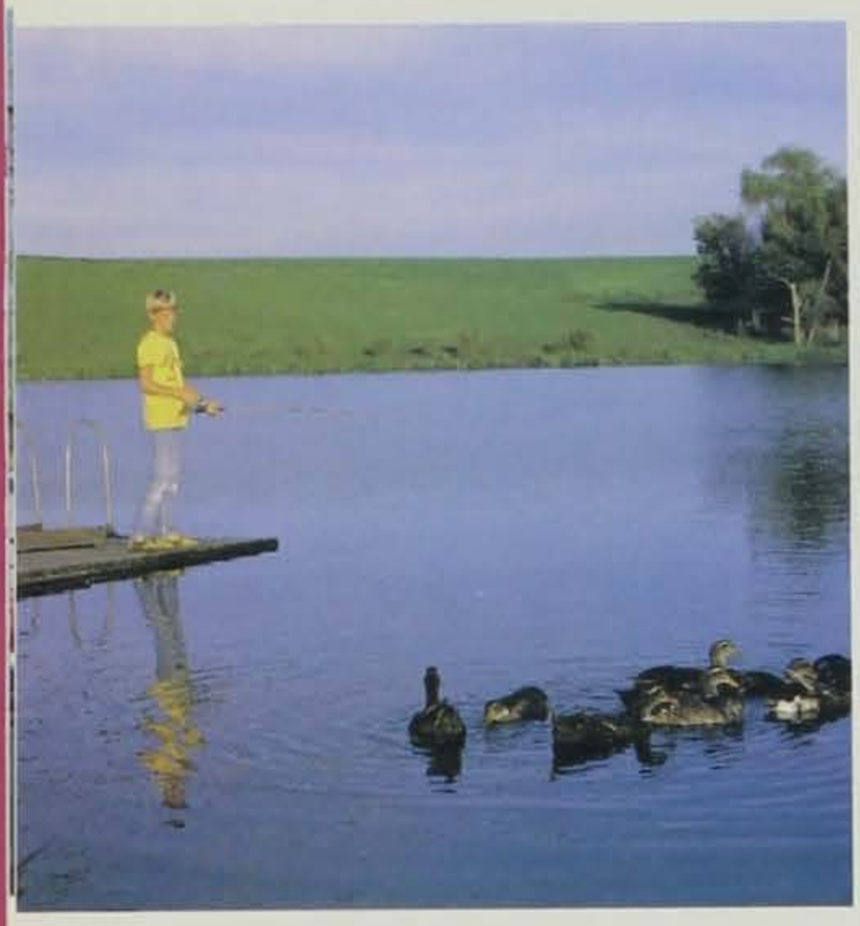
	West Okoboji, *Dickinson*	Most consistent producer. Late summer and fall. The numbers of sub-legal fish are increasing and should produce some good activity along with the legal fish caught.
	Spirit Lake, *Dickinson*	The population is improving and a 49-pounder was netted in 1993. The state record is there for the anglers.
Bluegill	Upper Pine Lake, *Hardin*	Renovated in 1991. Excellent growth and high density.
	Little Wall Lake, *Hamilton*	Tremendous harvest in 1993. Good shoreline fishing in May before submergent vegetation gets too thick.
	Indian Lake, *Hancock*	7- to 8-inchers are the dominant size. Good winter fishery.
	West Okoboji, *Dickinson*	The 1993 harvest was excellent for large bluegills and 1994 should be good.
	Minnewashta and Upper Gar, *Dickinson*	Usually good but was affected by high water in 1993. Return to normal water conditions will prove beneficial for 1994.
	Lake Pahoja, *Lyon*	Weather conditions will dictate harvest; good numbers of "gills" present.
	Dog Creek, *O'Brien*	Survey indicates good numbers of 6-inch-plus fish available; harvest should be good for 1994; fish weed edges and any obvious structure.
	Blue Lake, *Monona*	Since a renovation in 1990, the bluegill growth has been impressive; 1994 should see lots of 7- to 9-inch bluegill in Blue Lake.
	Spring Lake, *Cherokee*	Excellent fishing for 8- to 10-inch bluegill. Angling for these big plate-sized gills during the spawn creates a lot of excitement.
Crappie	Black Hawk Lake, *Sac*	Has a good population of 8- to 10-inch crappies. Early spring finds these crappie moving into the warmer waters of the marina. Fall crappie fishing is also good.
	Center Lake, *Dickinson*	Excellent numbers of fish in the 8-1/2- to 9-inch range should provide some good open-water and winter angling in 1994.
	Ingham and High lakes, *Emmet*	Surveys still indicate good numbers of large fish (10 to 12 inches). The trick is to locate the fish; think shallow in late May and early June.
	Interstate Park Lake, *Franklin*	Good fishing the past two years. Fish average 8 inches.
	Lower Pine Lake, *Hardin*	Excellent density of 8-inch fish. Fish the shallows in May and drift fish above the thermocline throughout the summer.
Northern Pike	Silver Lake, *Worth*	Fish up to 5 pounds. 2- to 3-pounders common. Try the edges of the cattails in spring and fall.
	Beeds Lake, *Franklin*	Good winter fishery. Variety of sizes; up to 8 pounds. Use large minnows or chubs.

Bob Runge

A seasonal
fishing forecast
is available
April 1 through July 30.
The forecast is updated
each Wednesday.
To get the
recorded forecast
call 515/281-5145,
then 1 and 45423.

Northwest

	Little Wall Lake, *Hamilton*	Fish shortly after ice-out. Spinner baits produce well.
	Spirit Lake, *Dickinson*	Consistent producer; small to medium 2- to 5-pound fish. Springtime best above the developing weed beds and emergent rushes in Anglers Bay.
	High Lake, *Emmet*	Good numbers are indicated from surveys and contract fishing results. Fish in the 3- to 8-pound range; early spring is the time.
	Trumbull Lake, *Clay*	The 1993 survey resulted in good numbers; try early spring in areas of running water.
Smallmouth Bass	Spirit Lake, *Dickinson*	Spring and early summer fishing have been good the last couple of years; 1994 season should be good if weather conditions are stable.
	West Okoboji, *Dickinson*	Consistent producer throughout the spring and summer. Rock structures hold a variety of sizes with state-record potential always present.
	Iowa River, *Hardin*	Rock substrates predominate between Alden and Eldora; 10-inch average, with many fish over the 12-inch length limit.
	Boone River, *Hamilton*	Best habitat below Webster City. Recent survey showed fish of a variety of sizes up to 17 inches.
Largemouth Bass	Dog Creek, *O'Brien*	Bass alert! This out-of-the-way small impoundment could provide some excellent bass angling in 1994 for the boat and bass enthusiast.
	Lake Pahoja, *Lyon*	The 1994 survey indicated good numbers of bass, some take-home size but please practice catch-and-release.
	West Okoboji, *Dickinson*	Consistent producer for the knowledgeable angler, spring through fall.
	Blue Lake, *Monona*	Lots of largemouth bass between 13 and 15 inches.
	Crystal Lake, *Hancock*	Excellent population of fish exceeding the 15-inch minimum length limit. Fish the weed edge early and in weed pockets later on.
	Lake Smith, Kossuth	Big bass! Several seen more than 5 pounds in 1993 and up to 7 pounds.
	Briggs Woods Lake, *Hamilton*	High density of bass with a variety of sizes available. 12 to 15 inches the dominant size in 1993 survey.
White Bass	Storm Lake, *Buena Vista*	Has an abundant population of white bass. "Silvers" in the 1- to 1-1/2-pound category are fairly common.
	West Okoboji, *Dickinson*	Nice-sized fish (1 to 3 pounds). Try them through the ice in deep water (50 to 60 feet).
	East Okoboji, *Dickinson*	Feeding frenzy at north end if the spillway is running; boat and wader anglers using plastic body jigs are very successful.
Freshwater Drum	West Okoboji, *Dickinson*	Rocky points and rock piles fished with a crawdad tail are dynamite for the sheep-of-the-deep.

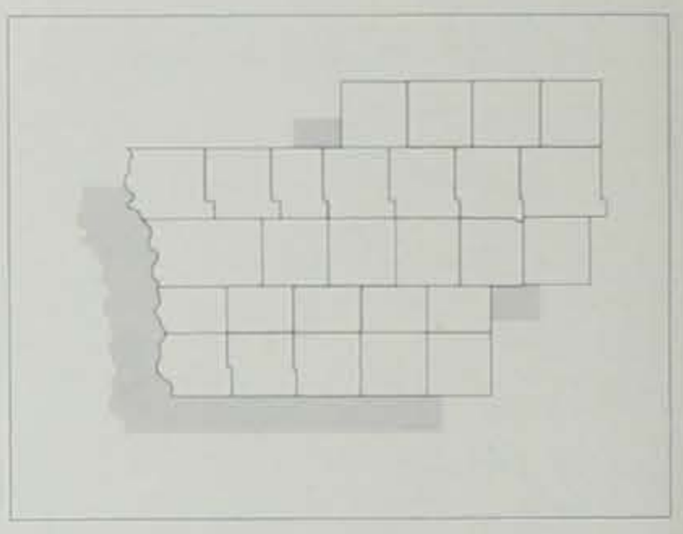


Ron Johnson

SOUTHWEST

by Joe Schwartz
regional fisheries supervisor,
southwest Iowa

Rain, rain and more rain was the standard weather for the 1993 spring and summer fishing season in southwest Iowa. Each rainy week I would anticipate a dry weekend and a chance to go fishing -- all for nothing. I don't think it ever stopped raining. All of our streams were high, bank full or flooding most of the summer. Many of our lakes were high and turbid. Conditions were terrible and our fishing pressure was a reflection of those conditions. Few people fished all summer.

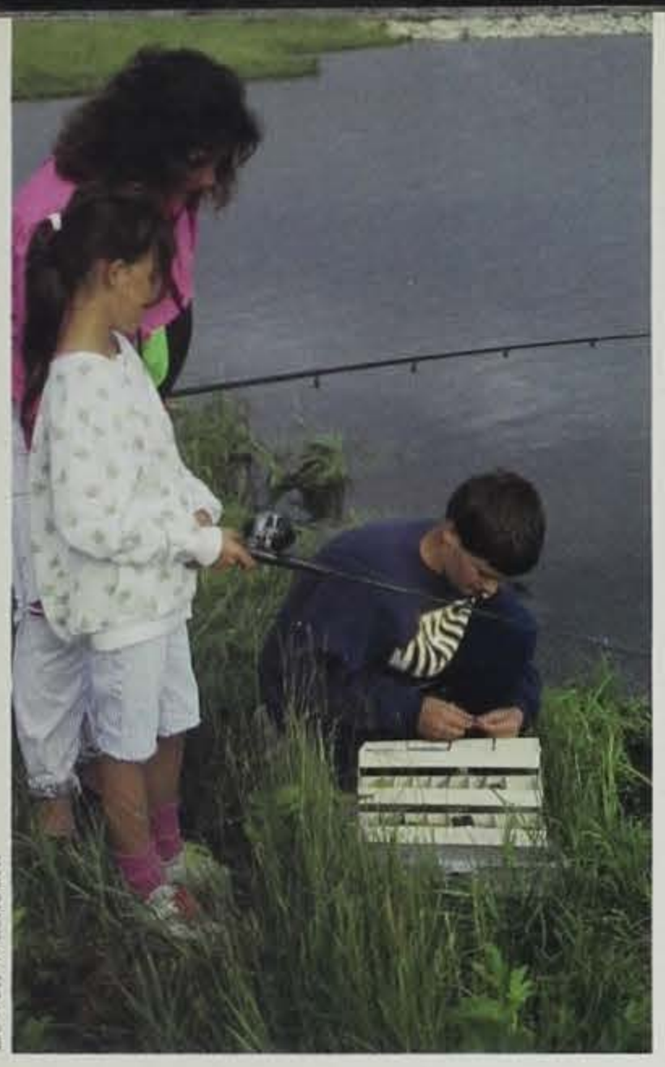


Fortunately, fall fishing took a decided upturn at many lakes. All of our lakes cleared up nicely when it finally stopped raining. Big Creek had excellent crappie and bass fishing and Little River's crappie bit well. Although few people fished, October proved to be dry, warm

Lowell Washburn

Southwest

Species	Lake or Stream, *County*	Commnets
Bluegill	Lake Anita, *Cass*	6- to 8-inch fish are frequently caught.
	Badger Creek, *Dallas*	7- to 8-inch fish plentiful.
	Beaver Lake, *Dallas*	Fish are growing fast in this new lake. This year will be the best yet.
	Big Creek, *Polk*	Large numbers of 6- to 7-inch fish.
	Green Valley Lake, *Union*	7- to 8-inchers coming on.
	Greenfield Lake, *Adair*	Medium-sized fish are abundant; 6-1/2 to 8 inches.
	Hickory Grove, *Story*	7- to 10-inch fish. Lake will be drawn down through the summer. Won't be able to get a boat on the lake.
	Lake Icaria, *Adams*	Nice looking 7- to 8-1/2- inch fish with some up to 9-1/2 inches.
	Little River, *Decatur*	7- to 9-inch fish are common.
	Meadow Lake, *Adair*	Good fish 6 to 9 inches. Redear are dandys.
	Nine Eagles, *Decatur*	Try marked fish reefs. Good redear are present.
	Pony Creek, *Mills*	8-inch fish common. Shoreline fishing only.
	Prairie Rose, *Shelby*	Average 8 inches. Population increasing. Best looking bluegills in a long time.
	Twelve Mile Lake, *Union*	8- to 9-inch fish are common. Try around flooded trees.
	Viking Lake, *Montgomery*	8-inch fish common. Best in spring and early summer.
Crappie	Lake Anita, *Cass*	First crappie lake to start in the spring. Nice fish 8-1/2 to 10-1/2 inches. Numerous smaller fish moving into the fishery.
	Badger Creek, *Madison*	Nice fish 8 to 9 inches. Don't see many fish in surveys, but those seen are nice fish.
	Big Creek, *Polk*	Most fish will be 7 to 9 inches this year. A few 10-inch-plus. Looks to be better because of shad reduction.
	Don Williams Lake, *Boone*	Nice, but inconsistent on catches.
	Easter Lake, *Polk*	6 to 8-inch fish common; few fish up to 11 inches.
	Green Valley Lake, *Union*	7- to 10-inch fish. Good springtime fishing from jetties.
	Greenfield Lake, *Adair*	Try the face of the dam in spring. Has been slow last few years.
	Lake Icaria, *Adams*	Fish are up to 1 pound; try fishing riprapped areas. Good number of 8- to 10-inch fish.
	Little River, *Decatur*	Try around flooded trees. Lots of 8- to 12-inch fish.
	Lake Manawa, *Pottawattamie*	Good early fishing in lagoons. Fish are smaller this year.



Lowell Washburn

Sonny Satre

Southwest

	Meadow Lake, *Adair*	Strong year class of 9- to 10-inch fish.
	Orient, *Adair*	Always turbid water, but still good crappie fishing; 8 to 9 inchers.
	Prairie Rose, *Shelby*	Fish are 8 to 9 inches. Good in spring.
	Lake Red Rock, *Marion*	Big fish. Fish when water is clear, try feeder streams.
	Saylorville Lake, *Polk*	Excellent-sized fish.
	Slip Bluff, *Decatur*	8- to 9-inch fish.
	Twelve Mile Lake, *Union*	7 to 12 inches, and better numbers than in past.
	Viking Lake, *Montgomery*	9- to 10-inchers; best in spring.
Largemouth Bass	Lake Anita, *Cass*	Perennial favorite. Bass up to 6 pounds.
	Beaver, *Dallas*	Good catch-and-release fishery for less than 15-inchers.
	Big Creek, *Polk*	Great June of 1993 bass fishing. Most fish below size limit.
	Easter Lake, *Polk*	Up to 3-1/2 pounds.
	Farm Ponds	Many private ponds in southwest Iowa have good bass.
	Green Valley Lake, *Union*	A new 22-inch length limit here. Any keeper will be a real trophy.
	Little River, *Decatur*	Great fishing. Try fishing submerged brush and trees. Good numbers of 2- to 3-1/2-pounders.
	Mariposa Lake, *Jasper*	Good catch-and-release fishery.
	Meadow Lake, *Adair*	Good small bass lake.
	Nine Eagles, *Decatur*	Good numbers of small fish; an occasional large fish.
	Prairie Rose, *Shelby*	Fish the stake beds and brush piles.
	Rock Creek, *Jasper*	Good number of 2- to 4-pounders.
	Twelve Mile Lake, *Union*	Excellent for 12- to 18-inch fish.
	Viking Lake, *Montgomery*	Good population of 12- to 15-inch fish.
	West Lake Osceola, *Clarke*	Good summer bass fishing.
Walleye/Saugeye	Des Moines River, *Polk or Boone*	Fish below flood-control Corps dams, low head dams, and gravel riffles.
	Lake Icaria, *Adams*	Fish are up to 10 pounds. Little slower than in past years.
	Little River, *Decatur*	Average fish are 14 to 18 inches. 7-1/2 pounds the biggest so far.
	Lake Manawa, *Pottawattamie*	Was good in 1993, looks good for 1994.
	Saylorville Lake, *Polk*	Fish sandy points, old river channel.
	Twelve Mile Lake, *Union*	Fish artificial reefs. Fish are 14 to 17 inches. Up to 4 pounds. Best walleye lake for numbers in southwest Iowa.

For last year's record fish awards, see the special insert in this issue.

and for those who tried, fishing was good.

The accompanying tables list the better lakes in southwest Iowa and how fishing for each species will be. I hope the weather will be more cooperative. It sure couldn't be much worse than last year.

I asked each fisheries biologist in southwest Iowa where they would fish in mid-May if they had only one or two favorite places to go. In central Iowa, Dick McWilliams said try Big Creek for crappies, or with good water conditions, Red Rock for slab crappies. Mike McGhee said to fish bluegills and crappies at Little River in southern Iowa. Viking Lake in southwestern Iowa was Jerry Hudson's choice for panfish. If you try any of these places, I'm sure you will have a successful trip.

Ron Johnson

Southwest

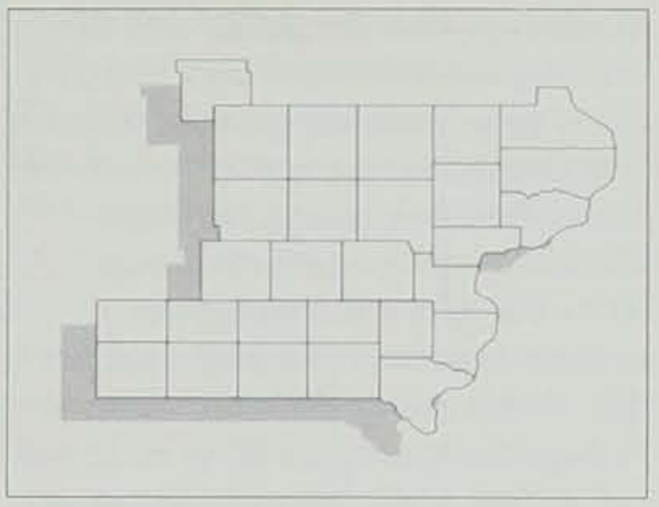
Bullheads	Beaver Lake, *Dallas*	New lake, good growth, good catches.
	Green Valley Lake, *Union*	11- to 13-inch fish. Numbers are down some.
	Little River, *Decatur*	Nice fish, big catches.
	Lake Manawa, *Pottawattamie*	Nice size fish. Average 1 pound and 12 inches.
	Prairie Rose, *Shelby*	Fish continue to grow. They now average 10 inches.
	Rock Creek Lake, *Jasper*	Fish are definitely keepers.
	Springbrook Lake, *Guthrie*	Medium-sized, but lots of them.
	Twelve Mile Lake, *Union*	Nice fish, slowing down some, but still good.
Channel Catfish	Big Creek, *Polk*	Really nice fish, lots of them and not many catfish anglers.
	Easter Lake, *Polk*	Excellent for fish up to 4 pounds.
	Green Valley Lake, *Union*	Starting to see 3- to 5-pounders again.
	Lake Icaria, *Adams*	All sizes up to 5 pounds, an occasional 15-pounder.
	Little River, *Decatur*	Fish small bays in mid-summer. Area biologist was really impressed with catfish seen in 1993 survey. Many 3- to 10-pounders.
	Littlefield Lake, *Audubon*	Fish north shore on strong south wind.
	Lake Manawa, *Pottawattamie*	Good numbers; most 2 to 6 pounds.
	Meadow Lake, *Adair*	Fish are 2 to 6 pounds.
	Mormon Trail, *Adair*	Good numbers.
	Orient, *Adair*	Stocked every year.
	Saylorville Lake, *Polk*	Excellent channel and flathead fishing. Lots of 2-to 4-pound fish.
	Slip Bluff, *Decatur*	1-1/2 to 2-1/2 pounds common.
	SW Rivers	Catfish are abundant in all of our rivers. Will see more big fish because of the floods.
	Twelve Mile Lake, *Union*	Cats 1 to 3 pounds common; good early.
	Viking Lake, *Montgomery*	All sizes to 6 pounds. A few big ones.
	Willow Lake, *Harrison*	Abundant 12- to 14-inch cage-reared fish.
Yellow Perch	Lake Anita, *Cass*	Abundant 8- to 9-inchers, easily caught on worms.
Yellow Bass	Carter Lake, *Pottawattamie*	Lots of small fish.
	Lake Icaria, *Adams*	6 to 9 inches. Hard hitters, good eating.
	Lake Manawa, *Pottawattamie*	Lots of small fish, but an occasional pounder.

SOUTHEAST

by Steve Waters
regional fisheries supervisor,
southeast Iowa

Between the locks and dams that assist the movement of commercial barge traffic on the Mississippi River, lies an exciting and exceptional angling resource. Largemouth bass, panfish, catfish, white bass, walleye, and sauger are the more popular sport fish sought by this river's anglers.

Although the great flood of 1993 kept many anglers off the Great River, biologists report that the river fish fared very well and angling in 1994 should be



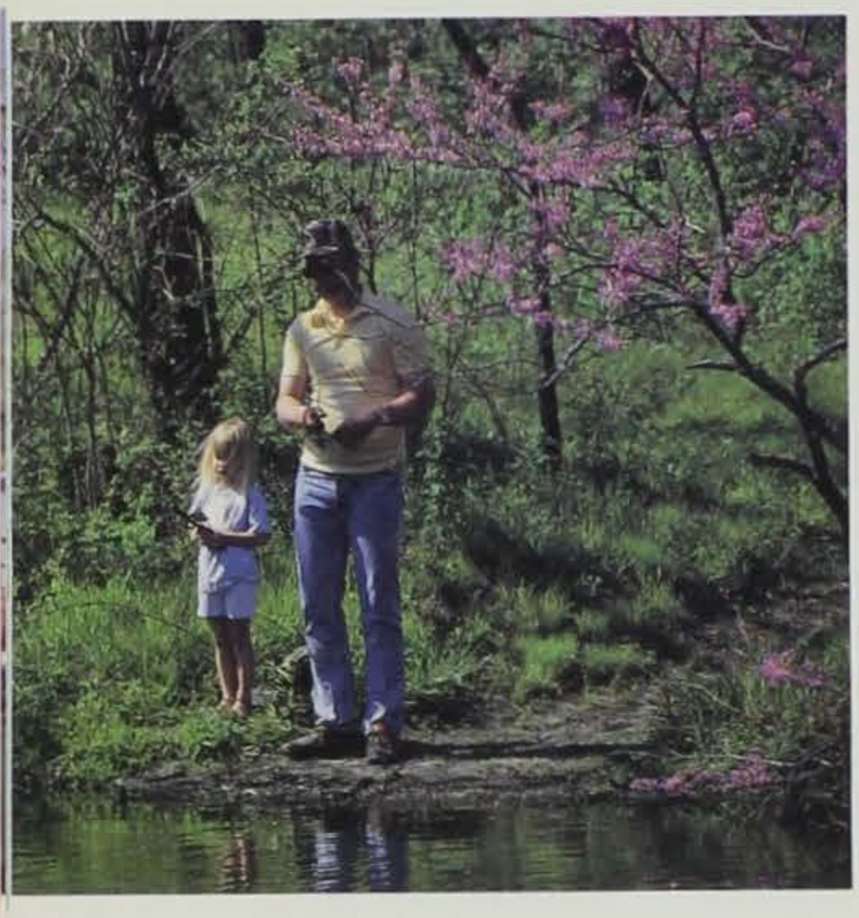
excellent. Biological surveys showed an excellent reproductive year which translates into great angling opportunities in future years as well.

The Mississippi River's protective minimum size limit on largemouth bass (14 inches) has meant a greater number and larger size of bass to interest the angler. Fall electrofishing surveys at the Big Timber Area (now a larger area due to the completed restoration project) showed excellent numbers of 12- to 15-inch fish. Other top producing areas in Pool 17 include Cleveland Slough, Hidden Acres and Bogus Island. Huron Island and lower Burnt Pocket backwaters in Pool 18; and Burlington Island, riprap shorelines and stream mouths in Pool 19 are also favorite hot-spots of bass anglers. Radio-tagging studies have shown that backwater bass love structure. Therefore, fish right on top of brush, logs and stumps for great bass fishing action.

Crappie and bluegill angling on the

Southeast

Species	Lake or Stream, *County*	Comments
Bluegill	Mississippi River	*See narrative.*
	Casey Lake, *Tama*	Good numbers of big bluegills, but locating them can be difficult so try different areas until you find them.
	Lake Odessa, *Louisa*	Average harvest size 7 to 8 inches.
	Farm Ponds	Exceptional angling throughout southeast; best chance for a trophy.
	Pleasant Creek, *Linn*	Average harvest size 6 to 8 inches.
	Lake Geode, *Henry*	Average harvest size 6 to 8+ inches.
	Lake Miami, *Monroe*	Average harvest size 6 to 7 inches.
	Hannen Lake, *Benton*	Average harvest size 6 to 7 inches.
	Hawthorn Lake, *Mahaska*	Average harvest size 6 to 8 inches.
	Kent Lake, *Johnson*	Average harvest size 6 to 7 inches.
	Iowa Lake, *Iowa*	Average harvest size 6 to 8 inches.
	Lake Keomah, *Mahaska*	Average harvest size 6 to 9 inches.
	Diamond Lake, *Poweshiek*	Average harvest size 6 to 7 inches.
	Lake Red Haw, *Lucas*	Average harvest size 6 to 8 inches.
Channel Catfish	Mississippi River	*See narrative.*
	Inland Rivers	*See narrative.*
	Casey Lake, *Tama*	Good numbers caught in spring and early summer.
	Lake Rathbun, *Appanoose*	Exceptional fishery. All sizes available.
	Coralville Lake, *Johnson*	Exceptional fishery. A variety of sizes.
	Otter Creek, *Tama*	Lots of 14- to 18-inch fish.
	Diamond Lake, *Poweshiek*	Average harvest size 12 to 16 inches.
	Kent Lake, *Johnson*	Excellent fishery; 13 inches average.
	Lake Miami, *Monroe*	Good for a variety of sizes.
	Lake Macbride, *Johnson*	Good for a variety of sizes.
	Lake Darling, *Washington*	Good for a variety of sizes.
	Lake Geode, *Henry*	Average harvest size 15 to 18 inches.
	Bob White, *Wayne*	Average harvest size 12 to 20 inches.
	Iowa Lake, *Iowa*	Average harvest size 16 to 18 inches.
Crappie	Lake Rathbun, *Appanoose*	Average harvest size 9 inches; trophy fish available.
	Mississippi River	*See narrative.*
	Coralville Lake, *Johnson*	Average harvest size 9 to 12 inches.



Ron Johnson

Mississippi River for quality-size fish will be good in the same backwaters where good bass fishing can be found. Fish tight to stumps, logs and brush. At areas where deep holes exist (Big Timber), crappie can be caught suspended in open water during the summer months and ice-anglers report fine catches during the winter months. Perhaps the Mississippi River is the best catfish hole of all. This is reflected in the generous catch limits -- all you can carry. Mr. Whiskers can be caught in nearly all parts of the river, but best bets are above and below wing dams, and riprapped heads of islands where there is a current. Stump fields and riprapped shorelines are hot spots during the spawning period.

Fantastic walleye and sauger angling also exist on the Big River. The navigation lock and dam habitat produces great catches in late winter, early spring and late fall. Wingdam fishing during summer and early fall will also produce stimulating action. Try backtrolling crank baits or 3-way nightcrawler rigs on the upstream side of wingdams. Slow trolling on the bottom in the tailwaters with bright-colored jigs tipped with minnows or 3-way minnow rigs works well too. Jigging sonars below the navigation dams is an effective technique late fall through early spring. A 15-inch size limit is in effect for walleye.

Rivers in southeast Iowa are great places to catch catfish. The Wapsi, Skunk,

Southeast

	Casey Lake, *Tama*	Good numbers of quality fish present; can be difficult lake to fish so try different locations until you find them.
	Lake Odessa, *Louisa*	Average harvest size 8 to 10 inches.
	Lake Geode, *Henry*	Average harvest size 8 to 10 inches.
	Iowa Lake, *Iowa*	Average harvest size 8 to 9 inches.
	Otter Creek, *Tama*	Average harvest size 8 inches.
	Lake Darling, *Washington*	Average harvest size 8 inches; trophy fish available.
	Lake Miami, *Monroe*	Average harvest size 8 inches.
	Diamond Lake, *Poweshiek*	Average harvest size 7 to 8 inches.
	Lake Macbride, *Johnson*	Average harvest size 7 to 10 inches.
Largemouth Bass	Mississippi River	*See narrative.*
	Farm Ponds	Best chance for a trophy.
	Casey Lake, *Tama*	Many greater than 20 inches caught and released in 1993; excellent numbers of all sizes present.
	Lake Odessa, *Louisa*	Variety of sizes.
	Lake Miami, *Monroe*	Good numbers; various sizes.
	Pleasant Creek, *Linn*	Known for its bigger fish.
	Iowa Lake, *Iowa*	Slot size limit of 12 to 16 inches.
	Hawthorn Lake, *Mahaska*	Slot size limit of 12 to 16 inches; bigger fish available.
	Lake Darling, *Washington*	Variety of sizes.
	Lake Geode, *Henry*	Good catch-and-release.
	Lake Macbride, *Johnson*	Average size 12 to 16 inches.
	Coralville Lake, *Johnson*	Average size 13 to 16 inches.
	Union Grove Lake, *Tama*	Good catch-and-release.
	Lake Sugema, *Van Buren*	18-inch size limit; good catch-and-release.
Walleye	Mississippi River	*See narrative.*
	Rathbun, *Appanoose*	Best angling late spring-summer.
	Macbride, *Johnson*	Good numbers of 12- to 14-inch fish; trophy fish available.
	Des Moines River, *Wapello*	Hot action below the Ottumwa hydropower dam.
White Bass	Mississippi River	White bass anglers should look to the same walleye/sauger habitats to catch this numerous and spirited fish.
	Lake Rathbun, *Appanoose*	Lots of 12- to 15-inch fish.
	Coralville Lake, *Johnson*	Lots of 12- to 16-inch fish.

Cedar, Des Moines, and Iowa rivers all produce excellent numbers and a variety of sizes of catfish. Float fishing from one access to another, checking brush piles, lower ends of sand bars, and rocky riffles will produce lots of fish and lots of fun.

Many Iowans enjoy fishing for flathead catfish. The Skunk (*Keokuk, Washington, Jefferson, Henry, and Des Moines counties*) Iowa (*Louisa County*), Cedar (*Louisa County*), and Wapsipinicon (*Clinton and Scott counties*) rivers are favorites for flathead catfish anglers. Large dead chubs (6 to 8 inches) or a gob of worms work well. Fish deep holes in summer and fall, and around bridge pilings for trophy fish. Bank lines fished with live sunfish or bullheads can be very productive. Anglers should take note of some fabulous channel catfish fishing in the early spring, soon after ice-out . When water temperatures reach about 50°F, these fish go on a feeding spree, feeding on fish that have died during the winter. Plan to use a sour fish bait such as cut shad, and fish in the shallower, warmer portion of the lake or river. The best areas for early spring catfish angling are lakes Rathbun, Coralville and Darling, and all river systems.

Farm pond fishing for largemouth bass, bluegill and channel catfish is so productive that it warrants special attention. These mini-lakes produce more trophy-size fish than any other water area. Because of their small size, they are the first areas to warm up, thus, they are great places to begin the new fishing season. Keep in mind, you will be fishing on private property, which requires the owner's permission and the utmost respect is due the landowner and the property.

Size limit regulations on black bass and other species will certainly benefit the angler by protecting more fish. This will produce higher catch-rates and improve size quality. However, size limits can only help produce desirable predator populations if anglers comply with the regulation and practice catch-and-release fishing with legal-size fish as well.

Southeast

	Lake Macbride, *Johnson*	Average harvest size 12 to 16 inches.
	Des Moines River, *Wapello*	Hot action below the Ottumwa hydropower dam.
Carp	Mississippi River	Good angling on all pools.
	Inland Rivers	Good angling in major rivers.
	Lake Rathbun, *Appanoose*	High number of smaller sizes.
	Coralville Lake, *Johnson*	A variety of sizes available.
	Lake Odessa, *Louisa*	A variety of sizes available.
	Lake Darling, *Washington*	A variety of sizes available.
	Lake Macbride, *Johnson*	A variety of sizes available.
Flathead Catfish	Inland Rivers	*See narrative.*
Wipers	Iowa River, *Johnson*	2- to 4-pound fish taken below low-head dams in Iowa City. Trophy fish available.
	Coralville Lake, *Johnson*	Tailwaters best; fish up to 10 pounds caught.
Saugeye	Iowa River, *Johnson*	Average harvest size 12 to 16 inches.
	Coralville Lake, *Johnson*	Fish up to 5 pounds.
Redear Sunfish	Hawthorn Lake, *Mahaska*	Average harvest size 8 inches.
	Iowa Lake, *Iowa*	Average harvest size 8 inches.
	Lake Geode, *Henry*	Average harvest size 8 inches.
	Diamond Lake, *Poweshiek*	Average harvest size 8 inches.
Bullhead	Mississippi River	7- to 12-inch fish in backwater areas.
	Lake Darling, *Washington*	8- to 10-inch fish.
	Lake Odessa, *Louisa*	8- to 11-inch fish.
	Lake Keomah, *Mahaska*	10 inches average.
	Lake Macbride, *Johnson*	Best in shallow arms in spring.

Taking Inventory

by Mike Brandrup

When we think of Iowa we think of many things. To many, Iowa conjures up thoughts of our prairie heritage to others its our agriculture-based economy with our nationally recognized leadership role in the production of corn, soybeans and hogs.

But Iowa is also noted for its forest resource. Iowa is known for its high quality hardwoods. Many states produce more hardwood timber but few produce higher quality hardwood timber than Iowa. We can also see the impact of Iowa's forest land when we look at the success stories of deer and turkey populations in the last 20 to 60 years. Without forestland these increases would have been impossible to obtain.

Iowa's forest land has changed dramatically in less than 160 years. The original land survey took place between 1832 and 1859, and based on those surveys, it is estimated that Iowa had seven million acres of forest land.

By 1954, when the first U.S.D.A. Forest Service inventory was completed, Iowa's forest acreage had declined to 2.4 million acres. Over

Bruce Morrison

this 100-year period, an average of 46,000 acres of forest land were lost each year. During this same time period, Iowa became one of the nation's top agricultural states.

In 1974, when the next Forest Service survey was completed, another 34 percent of the state's forest land was lost, bringing the state total forest land to 1.6 million acres.

Changes in agricultural policies and practices over this 140-year period, contributed greatly to Iowa's loss of forest land. Although some land was converted directly from forest land to crop land, much of the land went through a progression of timber to timber pasture to improved pasture to crop land. As more land went to crop land, more timber land was converted to pasture to support the state's expanding cattle industry.

The state's forest land has proven to be a very enduring and resilient natural resource.

The Forest Service completed its last forest inventory in 1990, and for the first time Iowa saw an increase in forest land. Iowa's forest acreage is now estimated to be 1.9 million acres, a 33 percent increase from the 1974 inventory.

Although a number of things such as low-cost seedlings from the state forest nursery, cost-share tree planting programs, the 10-year CRP program, free technical assistance, and other state and federal tree planting programs contributed to the increase in forest acreage, a decline in cattle numbers and a decline in need for pasture has allowed many acres of pasture ground to revert to forest land.

The 1990 Forest Service survey reveals some interesting information about our existing timber.

Iowa's timber is predominantly hardwood stands with 46 percent being oak-hickory timber type. The other timber types would break out as follows: 25 percent maple-basswood, 25 percent elm-ash-soft maple, and all others four percent. It is interesting to note that the maple-basswood forest type increased 74 percent from 282 thousand acres in 1974 to 491 thousand acres in 1990. This timber type has shown the largest percentage increase during the 16-year period.

How old is Iowa's timber? Again, based on the 1990 survey, 32 percent is in the age class of under 40 years old, 45 percent is between 41 and 80, and 23 percent is more than 80 years old.

What size is our timber? Measuring diameter at 4 1/2 feet above the ground, 15 percent is less than five inches in diameter -- classified as seedling/ saplings. Twenty percent is between five inches and 11 inches, or classified as pole sized. And 65 percent is larger than 11 inches or classified as sawtimber.

Who owns Iowa timber? Private ownership accounts for 92 percent (1.8 million acres) of forest land, while only eight percent is in public ownership. The private owners of forest land are made up predominantly of farmers and private individuals, while private corporations own only six percent of the state's timber land.

The public ownership is held mostly by state and local governments, with the federal government owning only 44 thousand acres of forest land in Iowa.

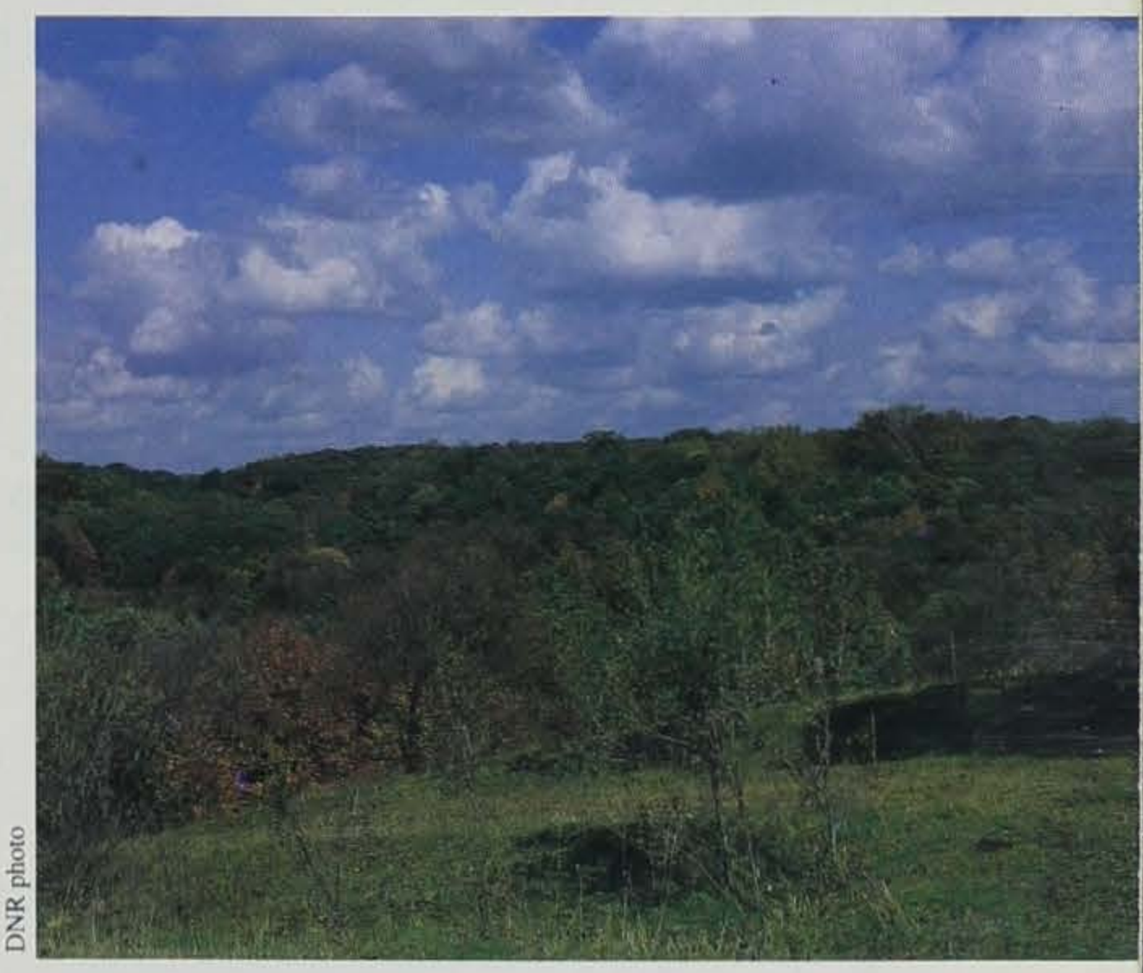
Are we harvesting more timber than we are growing? In most species, sawtimber growth is almost twice the removals. However, the inventory also indicates the quality of the state's saw timber has declined since the 1974 inventory.

Putting all of this information together can give us a picture of our forests in Iowa today.

We know our forests are getting older, 63 percent of all our forest land has trees more than 40 years old and a total of 23 percent of all forest land has trees more than 80 years old. This same information is reflected in another area when we see 65 percent of all forest land has trees which are classified as sawtimber, while only 35 percent of our forest land has trees in the seedling/sapling- and pole-size classification.

The species composition is also changing. In 1974 the maple-basswood timber type represented only 18 percent (282,000 acres) of our forest land. Today, the maple-basswood component represents 25 percent (491,000 acres)

Ron Johnson



DNR photo

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The U. S. Forest Service completed its last forest inventory in 1990, and for the first time Iowa saw an increase in forest land. Iowa's forest acreage is now estimated to be 1.9 million acres, a 33 percent increase from the last inventory in 1974.

As indicated previously, this is the fastest changing component of our forest land.

Maple and basswood are shade-tolerant species that grow well in the shade of existing trees. Red oak, white oak and walnut need full sunlight to establish themselves, and do not grow well in the shade of existing trees. Thus maple and basswood establish themselves well under existing stand, and when a forest disturbance occurs, such as a blow down by wind, death of an existing tree caused by insects or disease (elms or oak), logging or fire, the maple and basswood will capture that site and become the climax species for that site. This is a naturally occurring progression of events called natural succession. Consequently, even if we choose not to manage existing forest land the natural move to a larger component of maple and basswood will progress.

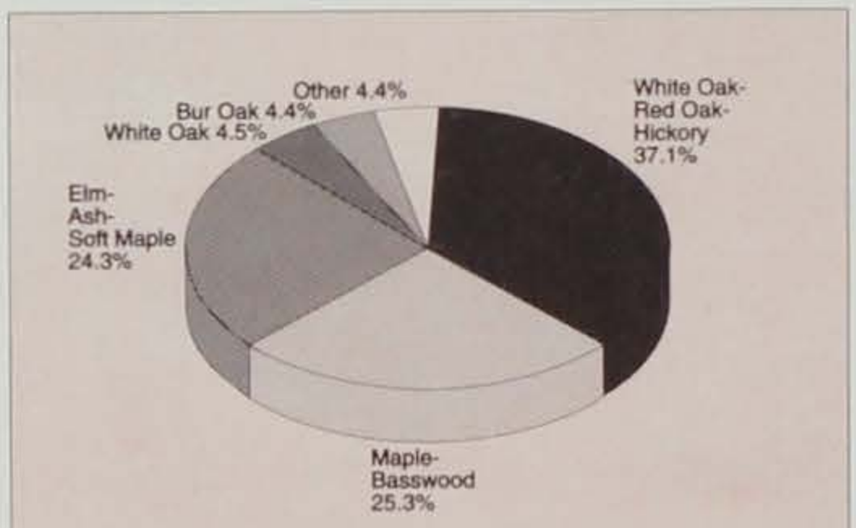
Basswood and hard maple are good forest species and should be a viable component of our forest stands. We must realize, however, some of the implications if they replace a major portion of the shade-intolerant oak-hickory component.

Deer and turkey depend on the oak-hickory timber type for part of their food source. If we lose the oak-hickory component in our forest stands, it may have an adverse impact on those wildlife species.

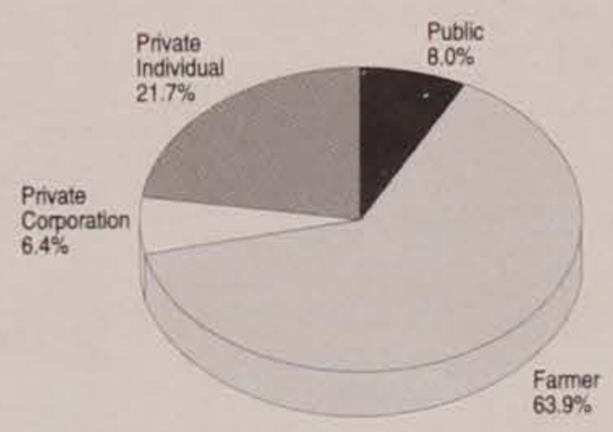
It is also important to maintain the shade intolerant species such as red oak, white oak and walnut as they are, in terms of dollars, the most valuable component of our forest stands. If we want to continue to maintain our forest industry in the future, we must maintain the oak component of our forests.

Although not a large component of Iowa's economy when compared to agriculture, the wood industries of the state employ approximately 6,000 people with an annual payroll of $125 million. These industries input $287 million into the Iowa economy in value added manufacturing.

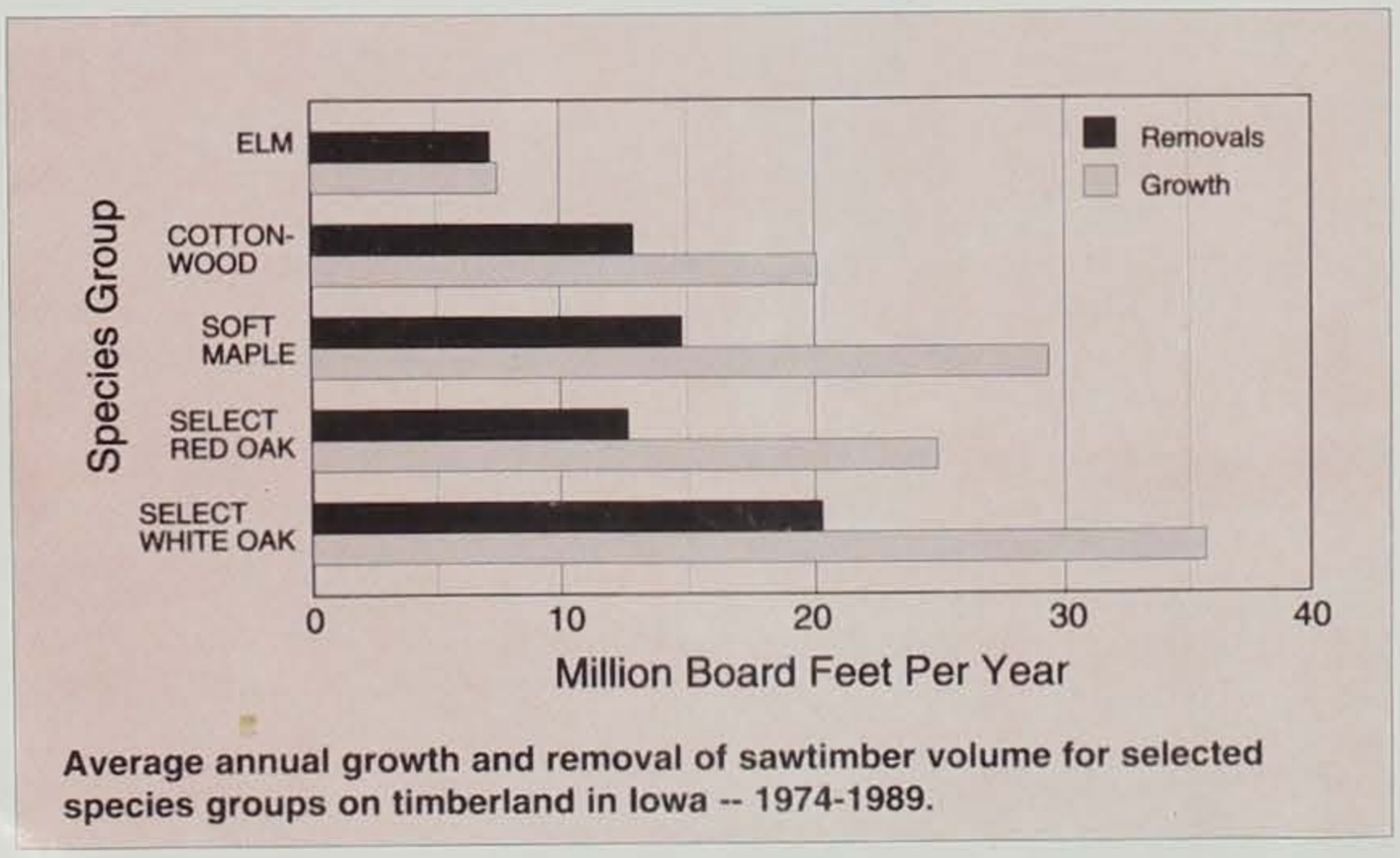
With good, professional forest management we can work within the forest community to maintain the oak-hickory forest type as a component of future forests, but it will take extra effort.



Distribution of forest types on Iowa timberland in 1990.



Ownership of Iowa timberland in 1990.



Average annual growth and removal of sawtimber volume for selected species groups on timberland in Iowa -- 1974-1989.

As we look to the future, our past can give us some clues of future challenges. Our forest land has been important to Iowan's, but alternative land uses for our forests will continue to be a major influence on the size of our forest acreage. Our forests are constantly changing and will continue to do so. Sound forest management programs, such as the Forest Sewardship Program which was established under the forestry title of the 1990 Farm Bill, are available through the Forestry Division of Iowa DNR to help Iowan's manage their woodlands for the goals and objectives they set forth.

The key to effective management will be the ability to work with private forest land owners, as they hold the key to Iowa's future forests.

Mike Brandrup is the chief of the department's forestry services bureau in Des Moines.

Help Rebuild Our Forest Resource

To order by phone call 515/233-1161

Twenty percent down for orders more than $500

1. Fill in the number-wanted column.

PLANTS AVAILABLE

Wildlife and songbird packets can be ordered separately.

Packet		Cost/Packet	Code	Packets Ordered
Wildlife	Contains 200 plants	$35.00	96	
Songbird	Contains 20 plants	$15.00	95	

(Do not order less than 500 plants and order in units of 100)

	Height	Cost/Hundred	Code	Plants Ordered
White Pine	8-14"	$ 14.00	30	
Scotch Pine	8-14"	14.00	20	
Red Pine	8-14"	14.00	17	
Ponderosa Pine	6-12"	14.00	15	
Jack Pine	8-14"	14.00	10	
White Spruce **SOLD OUT**	8-14"	14.00	43	
Norway Spruce	8-14"	14.00	13	
Red Cedar **SOLD OUT**	6-14"	14.00	16	
Black Walnut	10-18"	22.00	24	
Green Ash	8-18"	22.00	08	
White Ash **SOLD OUT**	8-18"	22.00	28	
Cottonwood	8"	22.00	83	
Silver Maple	8-18"	22.00	21	
Red Oak	8-14"	22.00	41	
Bur Oak	6-14"	22.00	04	
White Oak	6-14"	22.00	29	
Mixed Oak	6-14"	22.00	51	
Wild Plum	8-18"	22.00	31	
Autumn Olive (Cardinal strain)	6-14"	22.00	03	
Nannyberry	6-12"	22.00	11	
Amur Honeysuckle	8-16"	22.00	01	
Ninebark	6-14"	22.00	12	
Gray Dogwood	6-12"	22.00	07	
Osage Orange	8-18"	22.00	14	
Common Lilac	6-12"	22.00	47	
Chokecherry	8-16"	22.00	39	
Hybrid Poplar (rooted cutting)	8"	22.00	53	
Highbush Cranberry	6-12"	22.00	80	
Siberian Crab	6-12"	22.00	55	

DNR 1994 ORDER FORM

2. Address
(Please Print)

(Landowner Name - Please Print)

(Mailing Address)

(City) (State) (Zip)

(Area Code) (Phone Number)

3. Check One Box

☐ 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

4. Please Answer Each Question

1. These trees are to be planted in

_____ County.

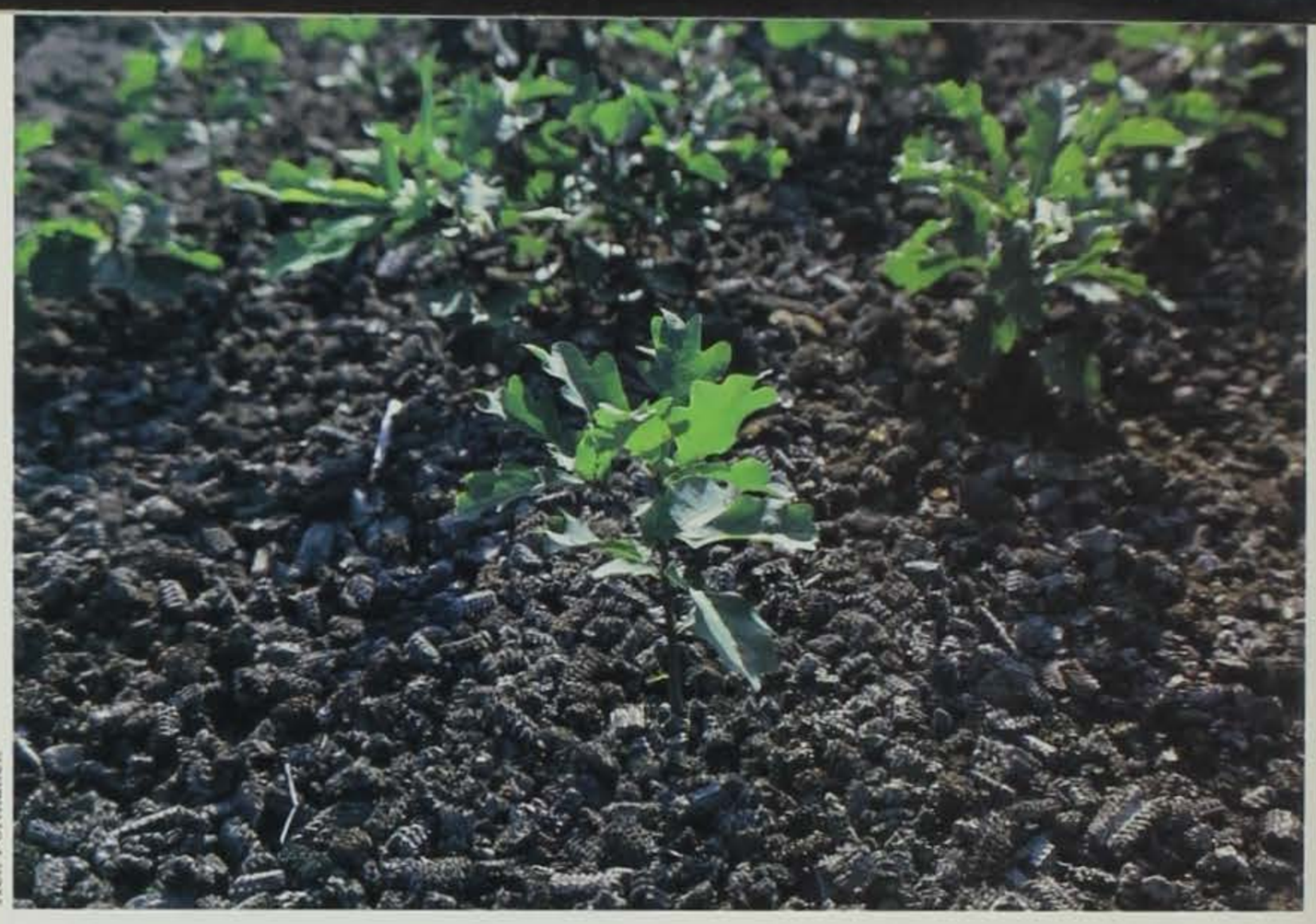
2. Did you purchase plants from the Nursery last year?

☐ Yes ☐ No

To order by phone call 515/233-1161

To FAX your order call 515/233-1131

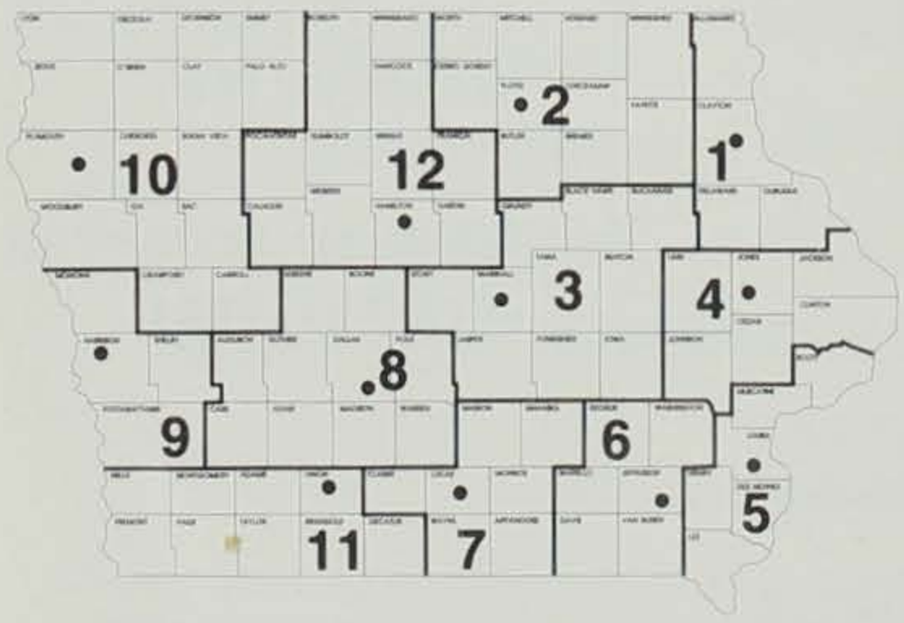
Help rebuild our forest resource by ordering your spring seedlings today!



Ken Formanek

To Help You Order

Phone Orders	For your convenience use our phone order system to order your plants. Just call the State Forest Nursery at 515/233-1161 to place your order. To FAX your order call 515/233-1131.
Mail Orders	To mail, send your order to State Forest Nursery, 2404 S. Duff, Ames, IA 50010.
Payment	For orders more than $500, the nursery will bill you for 20 percent of the cost with the remainder to be paid by March 1. **DO NOT** send money with your order.
Spring Delivery	Orders are shipped via a state refrigerated truck to a drop-off point in each county in April.
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 customer.
Restrictions	The nursery stock must be planted and used for establishing or improving existing forest, erosion control, game or water conservation. These restrictions apply: These plants 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.
Refunds	No refunds after March 1.
Suggested Spacing	Conifers -- rows 8 feet apart; plants within rows 6 feet apart = 908 plants per acre Walnuts and other hardwoods -- rows 8 feet apart; plants within rows 8 feet apart = 681 plants per acre Shrubs -- rows 8 feet apart; plants within rows 3-5 feet apart



District Forester Addresses

1. Elkader	Box 662, 52043	(319) 245-1891
2. Charles City	Box 4, 50616	(515) 228-6611
3. Marshalltown	2501 S. Center, Ste 1, 50158	(515) 752-3352
4. Anamosa	Box 46, 52205	(319) 462-2768
5. Wapello	515 Townsend Ave., 52653	(319) 523-8319
6. Fairfield	Box 568, 52556	(515) 472-2370
7. Chariton	Box 119AA, Ste 4, Route 5, 50049	(515) 774-8733
8. Adel	1918 Greene St., 50003	(515) 993-4133
9. Pisgah	Box 158, 51564	(712) 456-2924
10. Le Mars	1100A 12th St., S.W., 51031	(712) 546-5161
11. Creston	500 E. Taylor, 50801	(515) 782-6761
12. Webster City	Box 232, 50595	(515) 832-3585
State Forest Nursery		(515) 233-1161

Iowa Tree Farmer of the Year

Article and photo by Stan Tate

"I'm an optimist!" Gary Wagner was trying to explain to me why he was a tree farmer, and how he and his wife Judith started on the remarkable whirlwind journey that earned them the prestigious Iowa Tree Farmer of the Year award.

I was trying to understand -- what in the world would possess a couple to devote so much of their personal resources to an adventure in which in a period of five years they would purchase more than 1,500 acres of rough agricultural land, plant 600 acres of trees and 200 acres of native prairie, create 38 acres of marshlands, build six ponds and improve 340 acres of existing forest land by pruning and thinning. Gary also had time left to become a certified Master Woodland Manager and spend hundreds of hours helping other landowners with forest management.

Gary and Judith, who live outside of Burlington, are professional children and family counselors in private practice. "We see so many children who are pessimistic, and who see no hope for the future . . . but we believe in the future," said Judith. "We are investing in the future when we plant trees."

We stood quietly, soaking up the calm cool shade of a magnificent stand of white pines. The trees towered more than 90 feet straight into the sky. "Judith and I planted these trees just 32 years ago . . . just because we like trees." said Gary. "We planting an acre or two, and discovered a real joy in watching these trees grow."

"Three years ago we thinned these trees again," Gary explained, "cutting only the smallest, poorest trees in order to give the best trees more room to grow. We measured one of the trees, and it was 85 feet tall! Trees are amazing, aren't they? Our children and our entire family love this little grove of pines. It was the magic spun watching this little grove grow, that helped launch us into our present projects."

We wandered back along a shady trail and headed for the Wagner's big oak timber. The white oak trees that dominate the 80 acres of rolling hills are big, but not yet mature. Scattered along the ridges are big limby white oak trees that witnessed the early settlement of the area by pioneers. Many of these trees are 130 to 150 years old.

We looked at the results of a timber stand improvement project that the Wagners had completed two years before. Decades ago cattle had grazed this forest, eating the oak and walnut seedlings. These valuable species disappeared from the understory and were replaced by ironwood. For decades the ironwood dominated the understory and excluded all new oak growth. Without young oak, their oak forest had no future. Now thousands of oak seedlings are beginning to reoccupy the understory after the Wagners had killed tens of thousands of the ironwood saplings.

"I describe myself as a good businessman and a smart investor, said Gary. "Forestry is definitely a business investment, but it is definitely long-term. Few long-term investments are as good as forestry, and none are as much fun."

Why would a family invest so heavily in long-term forestry, an investment which would not yield its full value until Gary and Judith were only fond memories to their grandchildren.

"The forests are the lungs of the earth, and the marshes are the kidneys," said Gary, after he pondered a bit. "We have been so richly blessed, it would be unthinkable to not make an effort to improve things if we are able." He paused a second and grinned. "And besides, what better place could you find to raise a family than an operating tree farm? Our kids learned the value of work, the joy of play and the beauty and reality of nature. Our family has already had a huge return on our investment."

"I guess," he added, "every person wants to leave something of value for their children and for the world -- to make it a better place. By nurturing the land with good conservation practices, we can leave something behind that is better than money."

I had my answer.

Stan Tate is a district forester for the department in Wapello.

Trees for Kids and *Trees for Teens* Programs
Working Because of

Successful Partnerships

by John Walkowiak

Imagine the typical school grounds with a play area and blacktop, green grass, and if we are lucky, maybe a few trees. However, few or no trees is the problem around most of our schools. Trees reduce energy costs by providing shade in the spring and fall, making the buildings more pleasant for students and teachers. Trees are also ready-made learning tools right in the school yard. Every fourth and fifth grader knows about tropical deforestation, but few know what they can do right here in Iowa for our environment. Plant trees, like the thousands of kids and teens who have participated in the past with their teachers in Iowa's *Trees for Kids* and *Trees for Teens* programs.

Initially established to celebrate the 20th anniversary of Earth Day in 1990, the *Trees for Kids* and *Trees for Teens* programs, are statewide educational and planting programs for elementary to secondary school students. *Trees for Kids/Teens* is a cooperative venture between the Iowa Department of Natural Resources, Iowa Nursery and Landscape Association (ILNA), Iowa Bankers Association (IBA), Telephone Pioneers, Peoples Natural Gas, Midwest Gas and the Iowa Wood Industry Association. In 1993, more than 3,200 teachers and 300,000 students participated, with more than 64,500 seedlings and landscape trees planted. *Trees for Kids* was honored during 1993 by the National Arbor Day Foundation with its only education award.

The *Trees for Kids/Teens* teacher's packets of educational materials are designed and distributed by the DNR. The materials are provided free to teachers statewide upon request. Cooperating INLA nurseries provide landscape-sized trees at wholesale or below cost to participating teachers and IBA bankers, and others pick up the remaining costs to make the tree free of charge for school plantings. In 1993, the value of donated trees by all partners exceeded $620,000. Bill Wichman of Earl May Nurseries in Shenandoah and an active INLA member has supported the *Trees for Kids* program from the start. "All of Earl May's Garden Centers have been asked by top management of support *Trees for Kids* anyway possible," Wichman said. "We see *Trees for Kids* as a way to educate youth today and encourage future customers." According to Sherry Jorgensen, vice president of First Bank and Trust in Spirit Lake, their bank supports *Trees for Kids* because they feel kids are Iowa's most important resource and want their local kids to learn how important trees are and how much fun it is to plant them.

The Telephone Pioneers volunteer their personal time to assist the *Trees for Kids* program by matching teachers with local, cooperating nurseries and banks. According to Steve Brom, Pioneer manager of the Hawkeye Chapter of the Telephone Pioneers, the Pioneers are pleased to be one of the partners in *Trees for Kids*, it allows their members to be active in their local communities and schools.

In the past, funding for the continuation of *Trees for Kids/Teens* has come from federal and state grants, but since 1992, the funds for printing and distribution of education materials has come from Peoples Natural Gas. In 1994, Midwest Gas, the Iowa Nursery and Landscape Association and the Iowa Wood Industry Association joined Peoples Natural Gas in program funding. This will make a new project, involving production and distribution of a five-minute video tape, possible. The tape, titled "Young People Caring About Trees" will be available to all school libraries statewide this spring. Jim Landers of Peoples Natural Gas said that they believe that the *Trees for Kids* and *Trees for Teens* programs were successful in promoting energy efficiency and tree planting during 1992 and 1993, and the company will back the program in the

Ken Formanek

◄

Not only community partnerships, but the the students make the *Trees for Kids* and *Trees for Teens* programs successful. Last year more than 300,000 students and 3,200 teachers participated in the programs. Phillips School in Des Moines.

▼

Students from Fairview Elementary School in Spencer and their tree.

(bottom) *Trees for Teens* participants from Dubuque Walhart High and their tree.

future. Doug Howe of Midwest Gas stated "Midwest Gas is committed to leading efforts to improve the natural environment of the communities we serve, and we see our involvement in *Trees for Kids/Teens* as part of that commitment."

Many local volunteer tree planting committees in Iowa have supplemented their local education efforts with *Trees for Kids/Teens* materials and still others have informed local teachers about *Trees for Kids* opportunities. *Trees for Kids/Teens* is a major success story . . . successful because of the unique partnerships and the involvement of kids.

"Planting trees at Lucas Elementary is a privilege that all students want," said Sandy O'Brien, principal. Jerry Davenport, a counselor at Woodrow Wilson School in Cedar Rapids, found tree planting through *Trees for Kids* "a wonderful way for students to gain ownership in the trees and feel good about their school." Students thought planting trees was just plain "fun."

For additional information on *Trees for Kids* or *Trees for Teens*, contact John Walkowiak at 515-242-5966 or write to the forestry Division, Iowa DNR, Wallace State Office Building, Des Moines, Iowa 50319-0034.

John Walkowiak is the department's urban forester located in Des Moines.

DNR photo

DNR photo

Composting Questions & Answers

by Reza Khosravi

Do you remember what you did, as a homeowner, with the arrival of last autumn? It is highly possible that you started a yearly ritual of raking leaves, trimming trees and shrubs and removing plants and weeds from a harvested garden and flower beds. Also you tried to maintain your lawn for a few more weeks and finally the trimmings and cuttings were bagged and hauled to either your backyard for composting or to the curbside for collection and delivery to a centralized composting facility.

Today, many homeowners have joined an increasing number of Americans who have realized the environmental and economic benefits of backyard composting. Backyard composting can be attractive to many homeowners since it can be adapted to fit their life style, income, yard size and overall ambition. At the same time it may be frustrating if things go wrong during the composting process.

Remember it is spring time now and nature is resuming an active life. Bacteria like many other plants and animals have been waiting for the arrival of the spring to complete their mission of working on leaves and yard clippings you compiled last autumn. With this in mind, here are some answers to most frequently asked questions about backyard composting.

Why shouldn't organic materials (yard waste) go to the landfill?

In a landfill, organic matter reacts with other materials and creates toxic leachate that may contaminate the nearby streams or groundwater. Plus landfilling yard waste is a waste of energy and creates a burden on landfill capacity.

Do I need a bin to make compost?

No. Compost can be made in open piles. However, bins help keep piles neat, retain heat and moisture and are appropriate for many urban situations.

How long does it take to make compost?

The composting process can take as little as one month or as long as 12-14 months. Factors include technique used, seasonal temperature, the balance of brown and green materials and moisture levels.

How much time is needed to compost?

This should take no more than 15 minutes per week.

What is the difference between compost and mulch?

Compost is a ready-to-use soil enricher. Mulch is any material used to cover soil in order to retain moisture and suppress weeds.

What does ready-to-use compost look like?

Compost is dark brown or black, crumbly, humus-rich topsoil with a sweet aroma of good earth.

Is compost considered a fertilizer?

Compost can contain varying amounts of nitrogen, phosphorous and potassium. However, the amounts are lower than those found in common fertilizer. Compost is more aptly described as a soil amendment or conditioner.

How does compost benefit the soil?

Compost properly applied to the soil, can affect several important soil properties. Compost improves soil structure and aeration as well as increasing its water-holding capacity. Compost improves the permeability of clay soils, and the water retention of the sandy soils. Adding compost to the soil will also make nutrients more available to plants.

Does the compost pile have a smell?

Fresh compost has a pleasant aroma. Foul odors only occur where there is a lack of oxygen or too much wet, green material and too little brown material. Odors can be alleviated by turning or poking the pile and mixing green and brown materials together.

What are the criteria for judging compost quality?

There are several important criteria which should be used to evaluate compost quality. Among these are maturity, organic matter content, pH, particle size, moisture content and nutrient levels.

How is compost maturity determined?

Compost maturity refers to the final stage of the composting process where the materials exhibit a relatively constant temperature and decomposition rate.

Why is moisture content important?

Moisture content is one of the critical factors in achieving the maximum rate of decomposition. Too much moisture impedes biological activity and decomposition can not take place. Still, the moisture content must reach a minimum level to begin and sustain the process. An optimum moisture level, about 50 percent, must be maintained throughout the composting process because the compost can be dehydrated by the heat generated during processing and by aeration. The pile should be as wet as a squeezed-out sponge.

Why is temperature important during composting?

Achieving and maintaining certain minimum temperatures during the composting process is essential for destruction of pathogenic organisms and weed seeds which may be present in materials used for composting. The optimum temperature range is usually around 100-140° F.

Is turning the compost pile a requirement?

Composters believe that turning the compost helps to achieve the optimum rate of decomposition. Turning aerates the compost, reduces particle size and re-moistens the materials maintaining a high degree of biological activity.

Is the addition of microbial stimulators necessary?

No. Microbes that are naturally present in the compost are responsible for the biological breakdown of organic materials during the composting process. Once this process begins, its rate is determined by maintaining the proper level of moisture, oxygen and temperature.

What are bulking agents and when are they used?

A bulking agent is a material, commonly sawdust or wood chips, added to compost. For certain types of yard waste composting -- especially grass clippings -- it is important to bulk the compost with a material that allows for adequate structure of the pile in order to maintain aerobic conditions.

How does the climate affect the composting process?

Extremes in moisture and temperature can affect the process and should be minimized by covering or enclosing the active composting area.

Are there any brochures or videos on composting available?

Yes. The DNR's Waste Management Division has a number of articles and brochures on composting. There is also a video available on backyard composting. For more information please call 1-800-DNR-1025.

Reza Khosravi is an environmental specialist with the department's Waste Management Assistance Division in Des Moines.

▼
Good compost will have an earthy smell and be dark brown or black in color. It will also be crumbly and about as damp as a squeezed-out sponge.

Ron Johnson

Economic Mineral Resources

by Jean C. Prior

The variety and extent of the state's mineral resources became better known as the counties were systematically investigated and a basic framework of glacial and bedrock deposits was developed. Over the years an interesting combination of mineral products has been mined and quarried in Iowa, based on studies done by the Geological Survey. The work of extracting and processing these natural resources has provided generations of Iowans with raw materials for building and construction, agricultural needs, and valuable export commodities. The state's supplies of industrial minerals are in need of further assessment, particularly in areas where urban expansion limits extraction of these materials. Also, there is more to learn about Iowa's potential for commercial oil and gas production, especially from deeply buried deposits where few wells have penetrated. The increasing demand for mineral resources information will require a more detailed level of geologic mapping than now exists.

Reprinted from *Iowa Geology 1992, Centennial Edition, 1892-1992.*

Jean C. Prior is a geologist for the DNR in Iowa City and is the editor of Iowa Geology.

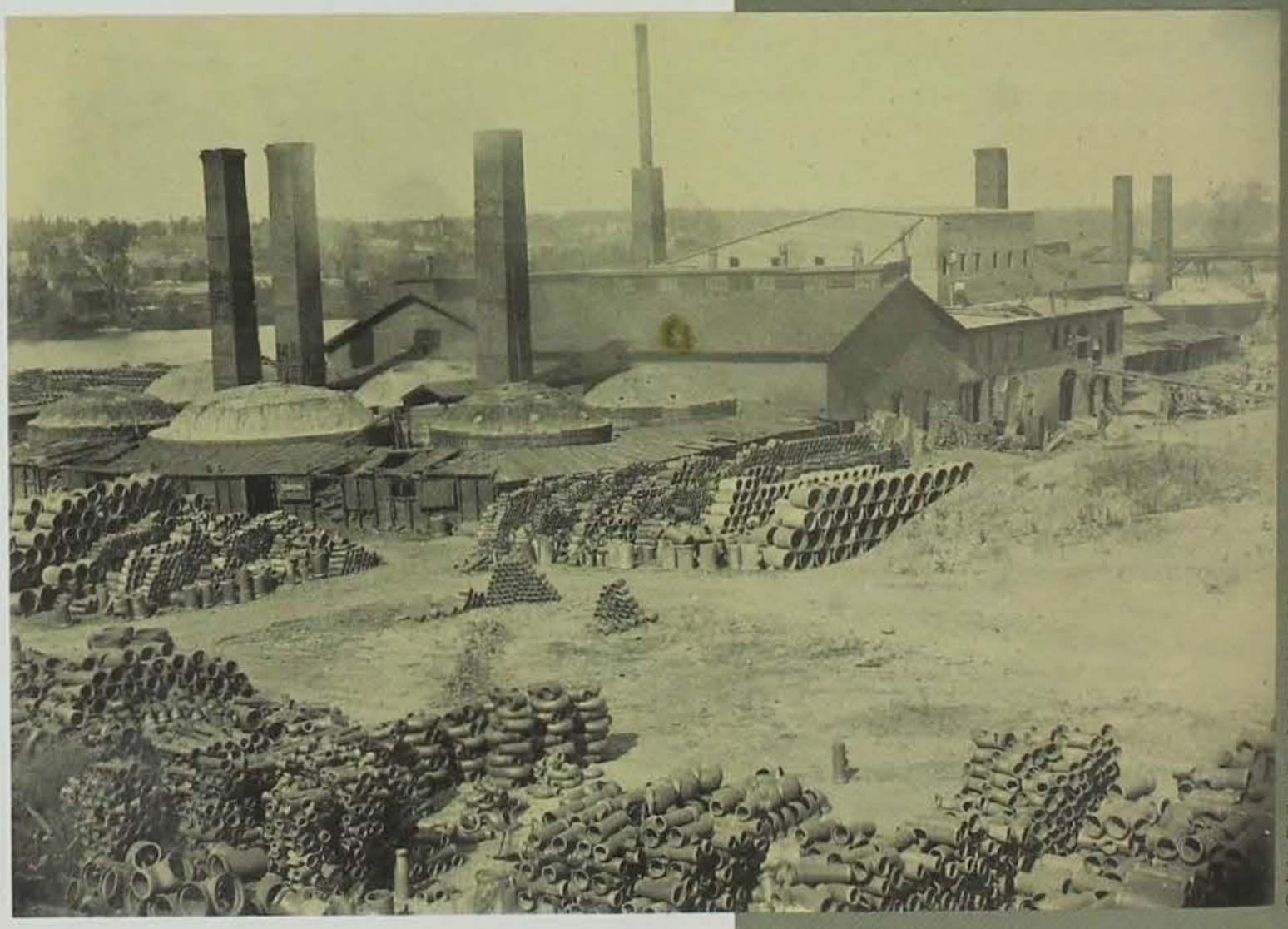
Mineral Production in Iowa

by Robert M. McCay

Lead and Zinc: Indians and French voyageurs were probably the first to extract the heavy, metallic-gray lead ores in the Dubuque area along the Upper Mississippi River valley sometime prior to 1650. They began a lengthy period of mining lead and zinc ores that peaked between 1830 and 1860. The last of the Dubuque area mines closed in 1910.

Iron: Iron ore from the Waukon area in Allamakee County is the only other metallic mineral ever commercially mined in Iowa. The Iron Hill deposit was explored in the 1870s and was first mined in 1899. Operations were suspended in 1901 until the Missouri Iron Company of St. Louis acquired the deposit in 1906, and an ore beneficial plant was built which sporadically produced and shipped ore concentrate until 1918.

Clay: In 1900 there were 381 clay-products companies operating in 89 counties. Clay was mined from shale bedrock, river alluvium, and glacial drift and turned into drain and sewer tile as well as several grades of



Calvin Collection, University of Iowa

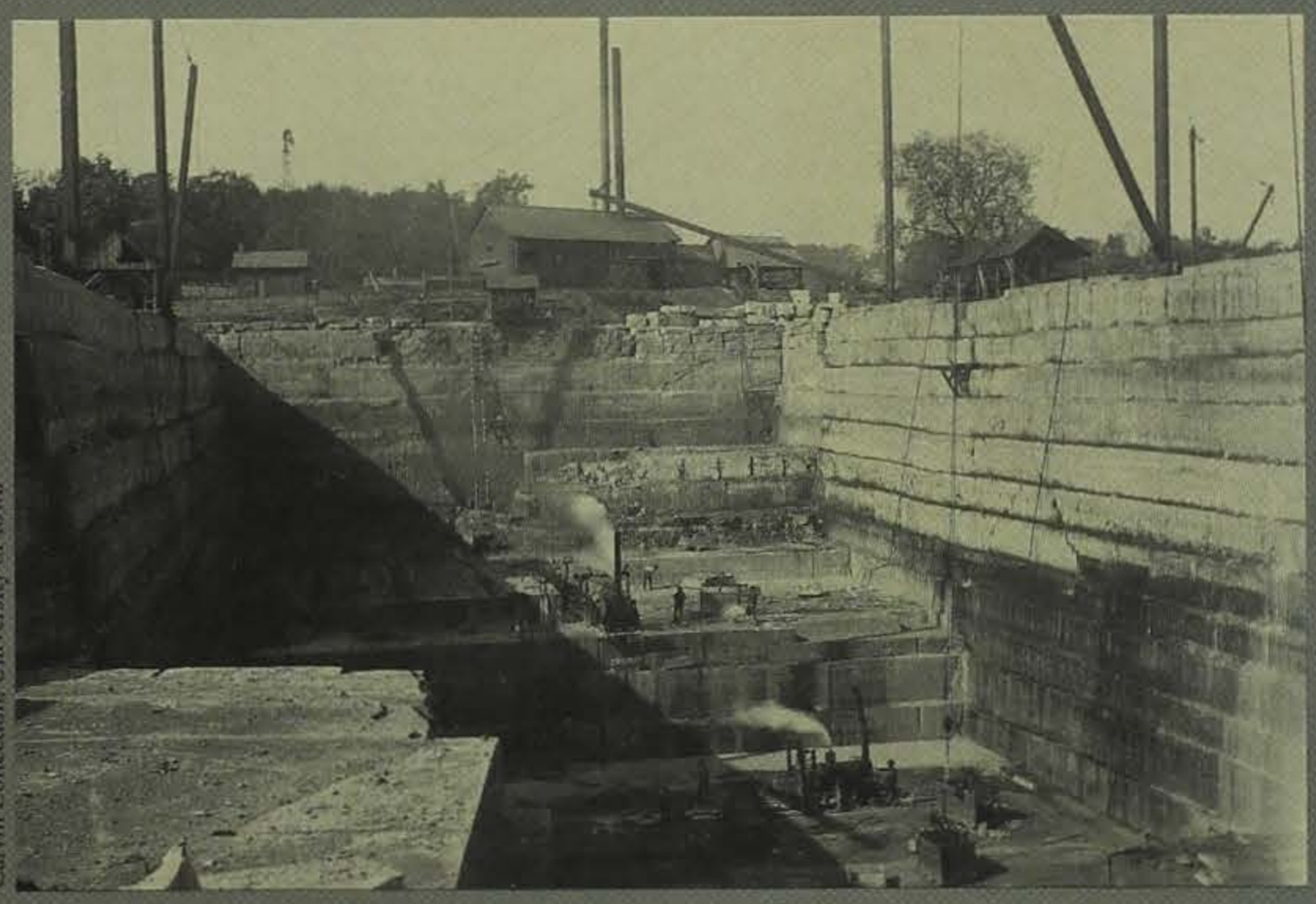
Kilns, sheds, and neat stacks of finished clay products are shown at the Iowa Pipe and Tile Company plant in Des Moines about 1896.

brick. By 1920 Iowa was the leading producer of drain tile. By 1938, however, the number of active firms had dwindled to 12 plants in eight counties. Today, only three firms in Dallas and Woodbury counties produce clay products, primarily facing brick.

Cement: Simple cements were produced by burning limestone or dolomite in kilns fired by wood, coal, or oil. Many small 19th-century towns had kilns that produced lime for mortar used by local builders. Engineers, architects, and builders preferred lime burned from Silurian-age dolomites in Cedar and Jackson counties. This lime was desirable because of the hardness and durability of its mortar and its slow setting time, giving masons and plasterers longer to work. The dominance of these cements was pre-empted by the rapid acceptance of a new cementing product — Portland cement.

Made in Iowa

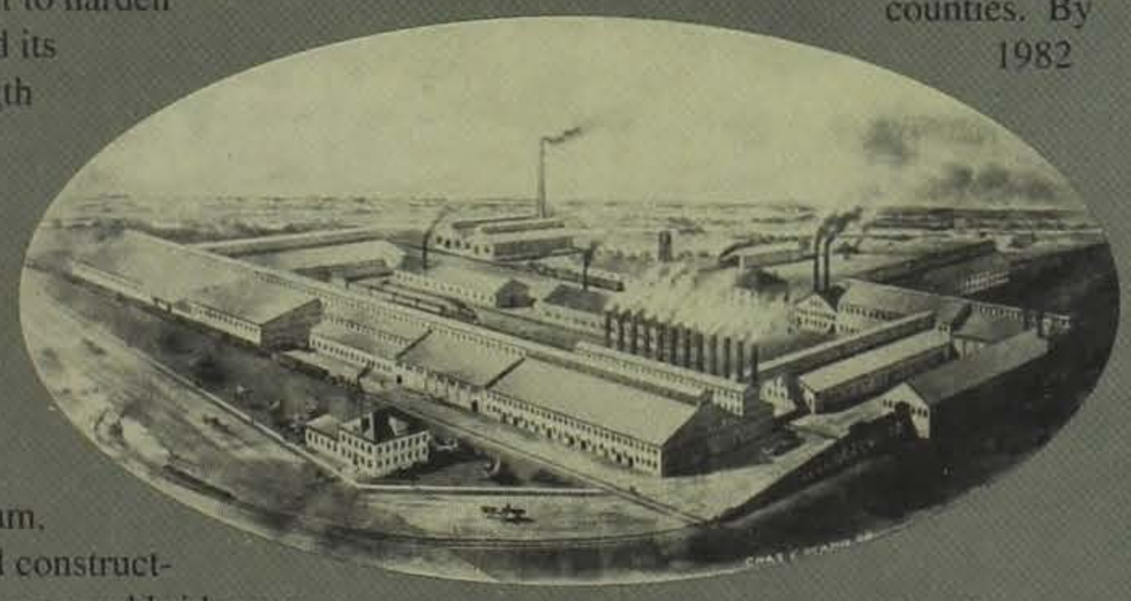
Portland cement: The ability of Portland cement to harden under water and its finishing strength make it a superior cementing product. By 1928, Iowa was in the midst of an extensive road building program, which involved constructing cement culverts and bridges as well as paving miles of roads. Industry output peaked in 1973 and remained brisk through 1979. Today four plants operate in Cerro Gordo, Polk, and Scott counties accounting for about 37 percent of the total value of mineral production in Iowa.



Calvin Collection, University of Iowa

▲ **The Bealer Quarries in Cedar County were famous for their mechanization and output of stone for bridge abutments and piers (ca. 1900).**

Stone: Many of Iowa's 19th-century bridges and buildings were built of limestone in towns along major rivers, where rock exposures were common. The growth of railroads, the need for improved highways, and the increased use of ag-lime required sources of crushed stone. Prominent production districts included Cedar, Jones, Des Moines, Marshall, Lee, Madison, Jackson, and Scott counties. By 1982 the value of crushed stone surpassed cement and became the leading mineral commodity, accounting for 41 percent of the state's total mineral value. By 1990 there were 460 registered quarry sites in Iowa.



▲ **The Northwestern States Portland Cement Co. in Mason City is shown in this turn-of-the-century illustration.**

Cement illustrations from State Historical Society of Iowa

Gypsum: Gypsum, one of the softest minerals known, was discovered in Iowa in the 1850s near Fort Dodge and quarried as building stone. It is best known today as the principal ingredient in the manufacture of wallboard or sheet-rock. Ground gypsum is also a component of Portland cement and is used as a soil conditioner. Current production is from four surface mines in Webster County and two underground mines in Des Moines and Marion counties.

Sand and Gravel: Sand and gravel constitute an important resource used in every Iowa county for maintenance of the gravel road system as well as for aggregate to be mixed into concrete. Most large dredge and dragline operations are located along Iowa's major stream valleys where these deposits were originally sorted and concentrated by stream flow.

Iowa Coal: Fuel for a New State's Growth

by Mary R. Howes

Iowa's coal resources played an important role in the state's social and economic history. The westward expansion of railroads made it easier for people to move into Iowa and have access to supplies. Steam locomotives required large amounts of coal, and the mining industry grew along with the rail network.

Small quantities of coal were first mined in the 1840s near Fort Des Moines to fuel the post's blacksmith forge and from shallow seams along the lower Des Moines River to power coal-fired steamboats. In 1854 the Rock Island Railroad reached the Mississippi River, and by 1860, 500 miles of track existed in Iowa. By 1876 the North Western Railroad reached Council Bluffs, and Iowa was the leading coal producer west of the Mississippi and fifth in the U.S. By 1914 the state's rail network included 9,216 miles of track, and by 1918 annual coal production in Iowa peaked at 9.3 million tons. Production declined thereafter and the industry shifted from underground to surface mining operations.

Many of the larger companies constructed camps to house miners and their families. A few of these camps, such as Hiteman in Monroe County and Beacon in Mahaska County, have persisted as small communities, but most left little evidence of their existence. Buxton was one of the best known of these and included among its population African-Americans recruited from the South in 1873. It was a thriving community with schools, stores, a YMCA, a municipal band, and a baseball team. Children went on to become doctors, lawyers, and teachers. Eventually, the coal was mined out, and in 1927 the last of the mines closed with many residents resettling in Des Moines where their descendants live today.

Ottumwa Coal Palace

Erected in 1890 with the backing of local businessmen and 12 coal-producing counties, this impressive structure resembled a medieval fortress, featuring a 200-foot tower with a dance floor near the top. The building was veneered with coal and was brightly decorated inside with sheaves of wheat, oats, sorghum, and corn. It boasted a 30-foot waterfall, a solarium of tropical plants, and a 6,000-seat auditorium where concerts, plays, and operas were performed. It also enclosed a functioning reconstruction of an underground coal mine.

◄ **Ponies and small mules were used to pull carts loaded with coal through the low-roofed mines. Iowa's last pony mine, in Appanoose County, was closed in 1971.**

◄ **The main street of Buxton, a thriving community in 1915, is lined with homes of coal miners, including many African-American families.**

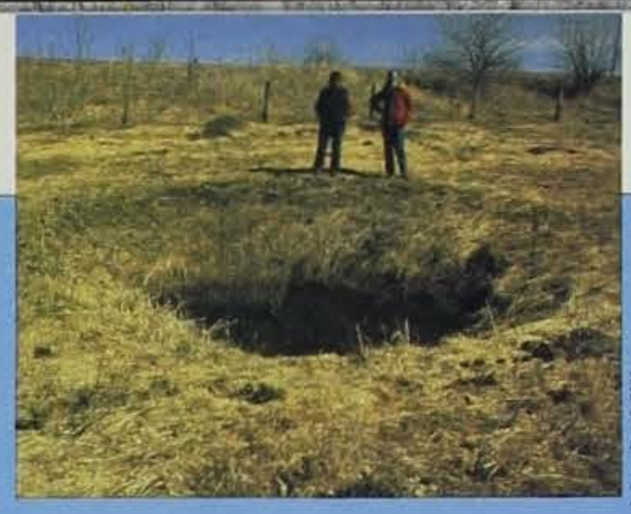
Photos and lithograph from State Historical Society of Iowa

Ground Collapse Over Abandoned Mines

by Paul E. VanDorpe

Underground coal mines can cause collapse of the land surface, resulting in problems that range from annoying nuisances to serious, costly hazards. These problems in any area depend on various geologic and past mining conditions.

Since 1840, coal mining in Iowa has left approximately 6,000 mines underlying 80,000 acres, 3,800 of which are urban. Most areas with histories of underground mining have experienced some collapse (subsidence) problems. Well documented cases in the Des Moines area resulted in damage to structures and utilities, and periodic problems are likely to continue. In the What Cheer area (Keokuk County), subsidence craters have damaged roads, yards, pastures, row crops, and utilities. Geologic and mining conditions differ in the Centerville area (Appanoose County) and few subsidence incidents are known, though the potential for them exists. In Oskaloosa (Mahaska County) the extent of mining is not well documented. Some minor property damage may be attributable to this cause. Subsidence in rural areas affects pasture and row crops, and reduces the land area available for agriculture.



Marsha Miller

▲ This Keokuk County crater resulted from ground collapse into an abandoned coal mine.

This environmental legacy from our historic use of a geologic resource will be with us for decades to come. We need to be more aware of the problem, document subsidence events when they occur, take remedial action where possible, and utilize available information in land-use planning.

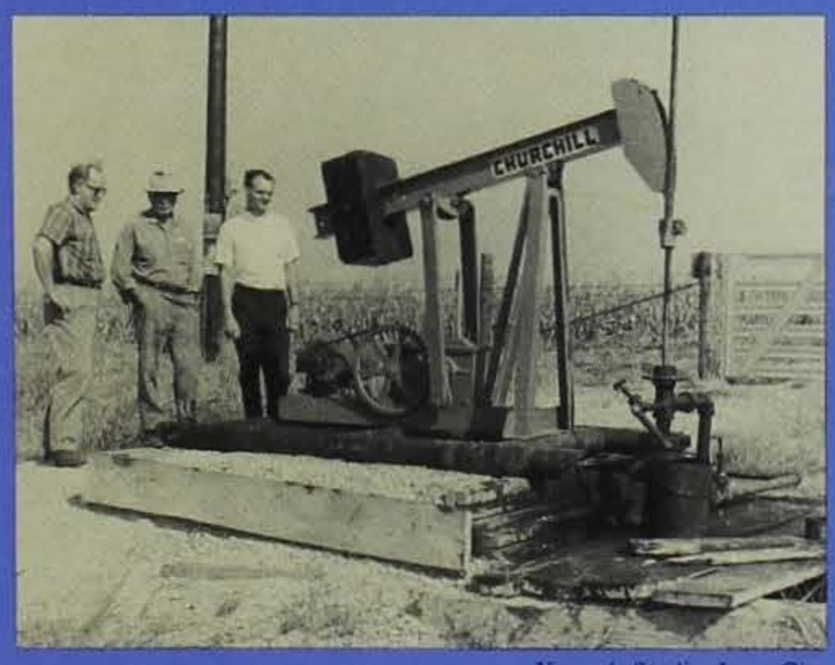
Oil Exploration in Iowa

by Raymond R. Anderson

As early as 1901 Calvin cautioned those who were "... ready to stake their own fortune and that of their nearest friends on the belief that oil and gas are everywhere underneath the surface." Efforts to coax oil from the ground in Iowa have included exploding nitroglycerine to induce oil flow, salting with crank case oil to induce investors, using radar salvaged from a WWII bomber, and visions of a psychic from Massachusetts.

Of the 123 known exploration wells in Iowa, three have yielded oil, all in Washington County. Others have yielded encouraging signs and valuable information. The state's first show of oil was from a well in Fremont County in 1925. The deepest oil test yet drilled was to 17,851 feet in Carroll County in 1987, and while no petroleum was found, thick black shales suggest past formation and migration of potentially large volumes of oil.

The best prospects for oil in Iowa are in: 1) southeast Iowa where local structures may have preserved small quantities of oil that migrated from the Illinois Basin in southern Illinois; 2) southwest Iowa, which includes the northern limits of the Forest City Basin (centered in north-western Missouri); and 3) the deep flanks of the Mid-continent Rift, a 100-mile wide belt from the central Minnesota border to the southwest corner of Iowa.



Young's Studio, Iowa City

▲ Iowa's first oil production (370 barrels) was from Washington County in 1963.

Underground Storage of Gas

by Donald L. Koch

Liquefied Petroleum Gas (LPG), is a compressed by-product of petroleum distillation. While Iowa is not a producer of petroleum or natural gas, it does store large volumes of liquefied butane, propane, and ethane in excavated "caverns" deep beneath the land surface. LPG products arrive in Iowa via pipeline from Wyoming, Utah, and Canada and are injected into these underground facilities, which provide safety, economy, and operating flexibility.

The storage caverns were excavated from shale or shaly limestone into rooms about 20 feet wide and 20 feet high with 45-foot wide pillars left for support. Two LPG storage caverns are located in southeast Johnson County at depths of 490 feet and 770 feet. They both began operation in the 1960s. In Polk County, three storage caverns were excavated at depths of 375 feet, 595 feet, and 1,410 feet beneath a single tract of land at the southeast edge of Des Moines. These became operational between 1967 and 1970.

Peat Production and Protection in Iowa

by Carol A. Thompson

Peat deposits do occur in Iowa, though most people tend to associate them with Ireland or the more northern states and Canada. A site in Linn County was producing peat as early as 1866. The story of peat in Iowa, however, was foretold in an 1899 geological report on Worth County which noted, "Although of value as a fertilizer and in some localities used for fuel, the peat bogs ... are generally regarded as impediments to agricultural purposes and much is being done to eliminate them."

In the early 1900s, coal miners' strikes in the East and advances in mechanical harvesting methods renewed interest in peat as a fuel. The industry was short-lived however, as Iowa's peat has a high ash content and low combustible carbon and thus does not make a high-Btu fuel.

No further mention was made of peat in state mineral reports until 1934-39 when one producer was listed, Colby Pioneer of Hanlontown in Worth County. Established in 1929, this business remains in operation today. A fascinating history written by founder John W. Colby describes some early uses for their peat, including packing around "ice-less ice cream shippers" and refrigerated lockers, as well as for shredded chick litter. He describes securing an Irishman experienced in cutting peat on the bogs of Kilarney, to supervise harvesting. In the 1930s and '40s, blocks of peat were still being cut by hand and transported by mules. It was shipped by rail to many other parts of the country, including California. During World War II when help was scarce, a bus load of 36 German prisoners from a camp in Algona arrived each day to help harvest the peat crop. Colby described them as good workers who enjoyed being out on "the moor" and he had many letters after they returned home, thanking him for his courtesy.

By the late 1940s to early '50's, the focus of Iowa's peat industry shifted to horticultural uses. The state presently produces about 15,000 tons of peat annually, a minor amount compared to Michigan, which produces more than 300,000 tons, a third of the nation's total.

Because many peat deposits occurred in shallow basins on prime agricultural land, most have been drained. A recent search of county soil maps and high-altitude air photos revealed that all peat deposits listed by survey geologist S.W. Beyer in 1908, representing more than 15,000 acres, have been drained and are under agricultural production. Only those in public marshes or those less suitable for farming remain today.

In recent years, emphasis has shifted from utilization of peat to its conservation, with more attention being given to the state's smaller deposits. Many of these sites, called fens, occur on hill slopes and are associated with springs or seeps. Drainage is impractical because of the continual flow of groundwater supplying the fens. Often only one or two acres in extent, these unusual hydrologic sites harbor many rare plants, and recognition of their biological value and the need for their preservation is growing.

▲ **Experimental vacuum equipment for picking up and loading peat is tested in 1959.**

◄ **Hand-cut peat blocks are trucked from a field during the 1930 harvest.**

Photos courtesy of Colby Pioneer Peat Co.

1993 Fish Awards

The listing below includes the top 10 entries and released of each species taken during 1993. Current state records are highlighted.

WEIGHT/LENGTH	DATE	ANGLER/HOMETOWN	LOCATION/COUNTY
BASS, LARGEMOUTH (MINIMUM -- 7 LBS. OR 22")			
10 lbs. 12 ozs. 23-1/2"	5/1984	Patricia Zaerr, Davenport	Lake Fisher, Davis
9 lbs. 3 ozs.	8/ 9	Shad Millikan, Red Oak	Farm Pond, Mills
8 lbs. 14 ozs.	6/ 6	Ron Carter, Fairfiel	Pond, Jefferson
8 lbs. 13 ozs.	10/20	Tim Massey, Hamilton	Mississippi River, Lee
8 lbs. 10 ozs.	4/10	Randy Bunn, Marshalltown	Hawthorn Lake, Mahaska
8 lbs. 8 ozs.	6/20	Todd W. King, Council Bluffs	Farm Pond, Mills
8 lbs. 8 ozs.	7/21	Tito Trevino, Ft.Dodge	Farm Pond, Dallas
8 lbs. 8 ozs.	10/23	Matt Truman, Lacona	Farm Pond, Warren
8 lbs. 6 ozs.	6/28	Eldon Rowlett, Omaha, NE	Viking Lake, Montgomery
8 lbs. 5 ozs.	6/ 9	Joe Morrison, Waterloo	Casey Lake, Tama
8 lbs. 2 ozs.	5/22	Arlie Vander Hoek, Pella	Red Rock Lake, Marion
8 lbs. 2 ozs.	7/18	Paul John Prichard, Arcadia	Halletts Pit, Sac
Released -- 26-3/4"	8/28	Robert Craig Fox, Sidney	Farm Pond, Fremont
Released -- 22"	10/24	Mark G. Backstrom, Woodburn	East Lake Osceola, Clarke
Released -- 23-1/2"	9/ 4	Roger Buchholtz, Waterloo	Lake Ponderosa, Poweshiek
Released -- 22-1/2"	6/16	Vince Jauron, Harlan	Shelby
Released -- 23"	4/22	Jerry Peterson, Council Bluffs	Viking Lake, Montgomery
Released -- 23"	6/20	Tom Leehy, Alta Vista	Lake Hendricks, Howard
Released -- 23-1/4"	7/29	Matt Truman, Lacona	Farm Pond, Warren
Released -- 23-1/2"	9/29	Roger D. Buchholz, Waterloo	Lake Ponderosa, Poweshiek
Released -- 22"	7/13	James R. Caulkins, Indianola	Lake Ahquabi, Warren
Released -- 22"	5/15	Mike Schermer, Charles City	Lake Hendricks, Howard
Released -- 23-1/2"	5/20	Loren Underwood, Omaha, NE	Farm Pond, Mills
Released -- 23"	5/27	Joe Morocco, Spirit Lake	West Lake, Dickinson
Released -- 22-1/2"	7/28	Matt Truman, Lacona	Farm Pond, Warren
Released -- 22"	3/28	Steve Walker, Red Oak	Pond, Montgomery
Released -- 22-1/4"	9/19	Steve Philby, Red Oak	Farm Pond
Released -- 22-1/2"	8/14	John McDonald, Council Bluffs	Farm Pond, Montgomery
Released -- 22-3/4"	8/ 8	Steve Philby, Red Oak	Pond, Montgomery
Released -- 22-1/4"	10/ 3	John McDonald, Council Bluffs	Farm Pond, Montgomery
Released -- 22-3/4"	5/29	Tammy McDonald, Council Bluffs	Farm Pond, Montgomery
BASS, OCEAN-STRIPED (MINIMUM -- 5 LBS.			
9 lbs. 4ozs. 29"	7/1983	Richard Pauley, Mystic	Lake Rathbun, Appanoose
No 1993 entries.			
BASS, ROCK (MINIMUM -- 1 LB.)			
1 lb. 8ozs. 10-1/2"	6/1973	Jim Driscoll, Dubuque	Mississippi River, Dubuque
1 lb. 6 ozs.	10/17	Carl Hutchens, Mason City	Shell Rock River, Floyd

BASS, SMALLMOUTH (MINIMUM -- 4 LBS. OR 20")

7 lbs. 12 ozs. 22-3/4"	9/1990	Rick Gray, Dickinson	West Okoboji, Dickinson
5 lbs. 13 ozs.	4/24	Rory J. Bright, Anamosa	Wapsipinicon River, Jones
5 lbs. 13 ozs.	8/21	Tim Ryan, Omaha	West Okoboji Lake, Dickinson
5 lbs. 1 oz.	10/15	Mark Woods, Lakewood	West Okoboji, Dickinson
5 lbs.	10/14	Gary L. Engelkes, Sibley	Spirit Lake, Dickinson
4 lbs. 15 ozs.	9/ 9	Bob Fitzgerald, Milford	West Okoboji Lake, Dickinson
4 lbs. 15 ozs.	10/22	Dean Taylor, Sioux City	West Okoboji, Dickinson
4 lbs. 12 ozs.	4/24	Darwin Wackerbarth, Spirit Lake	Big Spirit Lake, Dickinson
4 lbs. 12 ozs.	5/ 2	Rick Petersen, Spencer	Big Spirit Lake, Dickinson
4 lbs. 12 ozs.	10/22	Dean Taylor, Sioux City	West Okoboji, Dickinson
4 lbs. 10 ozs.	5/12	Dale Ackerman, Sibley	West Okoboji, Dickinson
4 lbs. 10 ozs.	9/ 6	Ron Creswell, Spencer	West Okoboji Lake, Dickinson
Released -- 20"	10/17	Bob Fitzgerald, Milford	West Okoboji, Dickinson
Released -- 20"	4/24	Dwane Krogman, Lismore, MN	West Okoboji, Dickinson
Released -- 20"	7/31	Scott C. Drown, Mt. Lake	Spirit Lake, Dickinson
Released -- 20-1/4"	10/25	John L. Manderscheid, Davenport	Maquoketa River, Jackson
Released -- 20-1/2"	10/ 6	Jeff Lenz, Milford	West Okoboji, Dickinson
Released -- 20"	7/31	Todd Drown, Mt. Lake	Spirit Lake, Dickinson
Released -- 20"	8/10	Rick Petersen, Spencer	Spirit Lake, Dickinson
Released -- 20"	2/ 1	Jeff Duis, Sibley	West Okoboji, Dickinson
Released -- 20-1/2"	6/11	Ronald Wasmund, Spencer	West Okoboji, Dickinson
Released -- 20"	5/ 6	Erwin Wackerbarth Jr., Orleans	Spirirt Lake, Dickinson
Released -- 20"	5/22	Ken Hanson, Milford	West Okoboji, Dickinson
Released -- 20"	8/29	Mark Mitchell, Estherville	West Okoboji, Dickinson
Released -- 21"	6/19	Ron Seibel, Walcott	Maquoketa River, Jones
Released -- 20"	11/25	Dick Crail, Algona	Spirit Lake, Dickinson

BASS, WHITE (MINIMUM -- 2-1/2 LBS.)

3 lbs. 14 ozs. 20"	5/1972	Bill Born, Milford	West Okoboji, Dickinson
3 lbs. 1oz.	4/18	Kevin Scuffham, Storm Lake	Storm Lake, Buena Vista
3 lbs. 1 oz.	10/ 3	Doug Chambers, Altoona	Red Rock Tailwaters, Marion
2 lbs. 12 ozs.	4/18	Bill Ferns, Spirit Lake	East Okoboji Lake, Dickinson
2 lbs. 10 ozs.	1/20	Bill Ferns, Spirit Lake	East Okoboji Lake, Dickinson
2 lbs. 9 ozs.	5/16	Kirk Ewen, Arnolds Park	East Okoboji, Dickinson
2 lbs. 8 ozs.	9/25	James J. Buettner, Sioux City	Miniwashta Lake, Dickinson
2 lbs. 8 ozs.	4/ 9	Chris Ommen, Hinton	Storm Lake, Buena Vista

BASS, WIPER (MINIMUM -- 4 LBS.)

17 lbs. 5 ozs.	11/1993	Joseph F. Kafer, Des Moines	Des Moines River, Polk
13 lbs. 3 ozs.	12/ 2	Steve Zamzow, Grimes	Des Moines River, Polk
12 lbs. 12 ozs.		Sidney Simpson, Des Moines	Des Moines River, Des Moines
11 lbs. 8 ozs.		David W. McConnell, Boone	Des Moines River, Boone
9 lbs. 15 ozs.	10/16	Kristopher Krebs, Maxwell	Saylorville Lake, Polk
9 lbs. 12 ozs.	10/17	Kory Krebs, Maxwell	Saylorville Lake, Polk
5 lbs. 12 ozs.	10/ 4	David Zaehringer, Muscatine	Mississippi River, Muscatine

BASS, YELLOW (MINIMUM -- 3/4 LB.)

1 lb. 9 ozs. 14-1/2"	4/1991	Bill Campbell, Council Bluffs	Lake Manawa, Pottawattamie
1 lb. 3 ozs.	5/ 3	Steve Philby, Red Oak	Sand Pit, Montgomery
1 lb. 3 ozs.	4/ 2	Josh Osheim, Elliott	Sand Pit, Montgomery
1 lb. 2 ozs.	5/14	Dewayne A. Buhr, Clive	Blackhawk Lake, Sac
1 lb. 2 ozs.	4/25	Bill Hott, Lake View	Blackhawk Lake, Sac
1 lb. 1 oz.	6/ 6	Steve Philby, Red Oak	Sand Pit, Montgomery

1 lb.	6/22	Gary L. Driver, Council Bluffs	Lake Manawa, Pottawattamie
1 lb.	6/22	Pat Driver, Council Bluffs	Lake Manawa, Pottawattamie
15 ozs.	6/ 6	Rollin Olerich, Carroll	Lake View, Sac
15 ozs.	5/25	Mike Zimmerman, Sac City	Blackhawk Lake, Sac
15 ozs.	5/25	Mike Zimmerman, Sac City	Black Hawk Lake, Sac
15 ozs.	5/15	Michael L. Philby, Red Oak	Rock Quarry, Montgomery
15 ozs.	4/25	Bill Hott, Lake View	Black Hawk Lake, Sac

BLUEGILL (MINIMUM -- 1 LB.)

3 lbs. 2 ozs. 12-7/8"	7/1986	Phil Algreen, Earlham	Farm Pond, Madison
2 lbs. 5 ozs.	5/30	Danny Keene, Macedonia	Bedford Pit, Taylor
2 lbs. 4 ozs.	8/28	Chanda Charlene Fox, Sidney	Farm Pond, Fremont
2 lbs. 4 ozs.	6/ 5	Jolene Fry, Urbandale	Red Haw Lake, Lucas
2 lbs.	5/ 2	Kenny Rabideau, Oskaloosa	Farm Pond, Mahaska
2 lbs.	5/ 4	Les Martin, Oskaloosa	Farm Pond, Mahaska
1 lb. 14 ozs.	7/17	Steven L. Reynolds, Indianola	Farm Pond, Wayne
1 lb. 9 ozs.	4/17	Dean Willadsen, Des Moines	Farm Pond, Madison
1 lb. 9 ozs.	4/11	Howard Joseph Cooney, II, Villisca	Golf Course Pond, Montgomery
1 lb. 9 ozs.	8/ 8	Mike Lang, Des Moines	Pond, Polk
1 lb. 8 ozs.	9/17	Tom Morkin, Marshalltown	Green Castle Lake, Marshall
1 lb. 8 ozs.	9/18	James D. Carlson, Windsor Heights	Farm Pond, Madison
1 lb. 8 ozs.	6/10	Cory Rochford, Fredericksburg	Farm Pond, Chickasaw
1 lb. 8 ozs.	5/15	Joey W. Buckley, Ft. Dodge	Briggs Woods, Hamilton
1 lb. 8 ozs.	8/ 3	Timothy A. Shinkle, Anita	Farm Pond, Adair
1 lb. 8 ozs.	6/18	Brian Brueggeman, Harris	Farm Pond, Dickinson
1 lb. 8 ozs.	6/ 9	David Duede, Atlantic	Farm Pond, Cass
1 lb. 8 ozs.	12/16	Mike Satzman, Granville	Big Spirit Lake, Dickinson

BOWFIN/DOGFISH (MINIMUM -- 5 LBS.)

10 lbs. 12 ozs. 31"	6/1992	Craig L. Carlson, Columbus Junction	Lake Odessa, Louisa
8 lbs. 7 ozs.	4/18	Amy Waterman, Peosta	Green Island, Jackson
6 lbs. 12 ozs.	4/24	Brian Waterman, Peosta	Green Island, Jackson

BUFFALO (MINIMUM -- 20 LBS.)

51 lbs. 45"	4/1986	Jeff Duis, Sibley	East Okoboji Lake, Dickinson
35 lbs.	4/26	Howard Cress, Troy Mills	Wapsipinicon River, Linn
35 lbs.	5/ 9	Ryan Shackleton, Clear Lake	Clear Lake, Cerro Gordo
30 lbs. 6 ozs.	5/21	Gary Lee Burmood, Estherville	East Lake Okoboji, Dickinson
30 lbs.	5/ 9	Jeremy Rausch, Hartley	Silver Lake, Dickinson
29 lbs. 7 ozs.	6/ 6	Jason Van Gelder, Ocheyedan	Little Sioux River, Dickinson
24 lbs. 11 ozs.	5/10	Bill Ferns, Spirit Lake	East Okoboji Lake, Dickinson
24 lbs. 8 ozs.	5/10	Ryan Shackleton, Clear Lake	Clear Lake, Cerro Gordo
24 lbs.	4/28	Jerome K. Paulson, Wallingford	High Lake, Emmet
21 lbs.	6/ 9	Brian Duis, Ocheyedan	Big Spirit Lake, Dickinson
21 lbs.	9/18	Scott Steamblock, Mason City	Willow Creek, Cerro Gordo

BULLHEAD (MINIMUM -- 2-1/2 LBS.)

5 lbs. 8 ozs. 22"	1989	Michael Hurd, Elsworth	Farm Pond, Hamilton
4 lbs. 6 ozs.	5/14	John Block, Pocahontas	Five Island Lake, Palo Alto
3 lbs. 4 ozs.	5/21	Jim Blom, Pella	Farm Pond, Mahaska
3 lbs.	6/15	Bob Lawrence, Des Moines	Farm Pond, Marion
2 lbs. 12 ozs.	6/ 6	Kenny Shineflew, Des Moines	Farm Pond, Polk
2 lbs. 8 ozs.	9/ 4	Todd M. Edwards, Des Moines	Badger Creek, Madison

CARP (MINIMUM -- 25 LBS.)

50 lbs. 44"	5/1969	Fred Houghland, Glenwood	Glenwood Lake, Mills
40 lbs. 6 ozs.	6/ 5	Nick Larsen, So. Sioux City	Spirit Lake, Dickinson
30 lbs. 4 ozs.	5/14	Gary Lee Burmood, Estherville	East Okoboji Lake, Dickinson
30 lbs. 4 ozs.	5/11	Gary Lee Burmood, Estherville	East Okoboji Lake, Dickinson
29 lbs.	3/27	Troy William Lubahn, Waukon	Allamakee
27 lbs. 7 ozs.	5/ 2	Gary Lee Burmood, Estherville	Big Spirit Lake, Dickinson
27 lbs. 7 ozs.	5/25	Gary Lee Burmood, Estherville	East Okoboji Lake, Dickinson
27 lbs. 1 oz.	5/18	Chris Lansing, McGregor	East Okoboji Lake, Dickinson
25 lbs. 9 ozs.	5/ 2	Gary Lee Burmood, Estherville	Big Spirit Lake, Dickinson
25 lbs. 9 ozs.		Gary Lee Burmood, Estherville	East Okoboji Lake, Dickinson
25 lbs. 9 ozs.		Gary Lee Burmood, Estherville	Big Spirit Lake, Dickinson

CATFISH, BLUE (MINIMUM -- 20 LBS.)

40 lbs.	6/1989	John DeLong, Jr., Missouri Valley	Missouri River, Harrison

No 1993 entries.

CATFISH, CHANNEL (MINIMUM -- 15 LBS.)

36 lbs. 8 ozs.	8/17/1993	Ronald D. Godwin, Earlham	Middle Raccoon River, Dallas
28 lbs. 2 ozs.	5/ 9	Gilbert Hanson, Fostoria	Lower Gar Lake, Dickinson
25 lbs. 6 ozs.	6/ 7	Gary Lee Burmood, Estherville	East Okoboji, Dickinson
25 lbs. 4 ozs.	6/ 9	Michael A. Roth, Milford	East Lake Okoboji, Dickinson
24 lbs.	5/13	Barry Janvrin, Colo	East Okoboji, Dickinson
22 lbs. 12 ozs.	7/14	Darin G. Yauslin, Cedar Rapids	Pleasant Creek, Linn
22 lbs.	9/ 3	Earle Van Ornum, Sioux City	Farm Pond, Plymouth
21 lbs. 3 ozs.	5/30	Danny L. Rigby, Spencer	East Okoboji Lake, Dickinson
21 lbs. 2 ozs.	9/ 5	Ricky L. Carlson, Janesville	George Wyth Lake, Black Hawk
21 lbs. 1 oz.	7/ 9	Tom Fleming, Cedar Rapids	Pleasant Creek Lake, Linn

CATFISH, FLATHEAD (MINIMUM -- 20 LBS.)

81 lbs. 52"	6/1958	Joe Baze, Chariton	Lake Ellis, Lucas
54 lbs.	2/ 7	Marvin W. Wente, Toledo	Iowa River, Johnson
51 lbs. 4 ozs.	9/ 2	Wade Franklin Pettyjohn, Bussey	Des Moines River, Mahaska
45 lbs.	5/27	Chad Christensen, Calamus	Wapsipinicon River, Clinton
45 lbs.	5/27	Terry Wulf, De Witt	Wapsipinicon River, Clinton
43 lbs. 9 ozs.	6/ 4	Jeff Duncan, West Des Moines	Sand Pit, Polk
43 lbs.	2/ 4	Theodell Pickart, Norway	Iowa River, Johnson
42 lbs.	9/20	Kevin Robert Carson, Marshalltown	Iowa River, Marshall
41 lbs.	5/16	Ken Martin, Farmington	Des Moines River, Lee
39 lbs.	7/23	Steve D. Cunningham, Sr., Evansdale	Cedar River, Black Hawk
35 lbs.	7/ 1	Dale Pretzer, Newton	Des Moines River, Marion

CRAPPIE (MINIMUM -- 2 LBS.)

4 lbs. 9 ozs. 21-1/4"	5/1981	Ted Trowridge, Marshalltown	Green Castle Lake, Marshall
4 lbs. 1 oz.	6/27	Calvin L. King, Centerville	Centerville Reservoir, Appanoose
3 lbs. 3 ozs.	3/ 3	Don Selzer, Spencer	Pond, Clay
3 lbs. 1 oz.	5/28	Edward L. DenBeste, Huxley	Ballard Country Club, Story
3 lbs.	9/24	Norman Kennedy, Knoxville	Lake Red Rock, Marion
2 lbs. 14 ozs.	6/10	Tyler Roetman, Breda	Pond, Carroll
2 lbs. 9 ozs.	5/21	Larry Kinney, Iowa Falls	Farm Pond, Hardin
2 lbs. 9 ozs.	10/23	James Forest, Rock Island, IL	Odessa, Louisa
2 lbs. 8 ozs.	9/ ?	Greg Campbell, Des Moines	Farm Pond, Adair
2 lbs. 8 ozs.	5/29	Darren Fanning, Cedar Falls	Sand Pit, Black Hawk
2 lbs. 8 ozs.	6/28	Randall C. Johnson, Red Oak	Viking Lake, Montgomery

At Home With Conservation

An Idea Book Of Home Conservation Techniques

The recycling symbol is used with suggestions you and your family can use to help perpetuate the recycling chain. Look for it in many areas of this guide, especially in the kitchen.

This symbol indicates areas where water consumption can be eliminated or reduced. You will also see it near parts of your home where water contamination is possible.

Controlling household waste is a problem we all need to deal with effectively. For information on what may be put in your trash and tips for reducing the amount of waste going to the landfill, look for the trash can symbol.

Because energy is used in nearly every area of the home, at all times of the day, it is easy to waste. See this symbol displayed near ideas for reducing use and waste of all types of energy in the home.

Wise use and care of our home vegetation and plants will guarantee their heath and productivty. This leaf symbol will be found with information to help you properly manage and care for your lawn, garden, and other subjects relating to vegetation.

Chemical hazards are many around the home. Look for this symbol to alert you to proper handling, storing and disposal methods of household harardous materials.

Table of Contents

Information in this publication is arranged by common rooms or areas in the home. Other special sections are included to cover some topics that warrant more information or discussion, like Alternative Recipes on page 15 and The Recycling Loop on pages 20 and 21.

This handbook is designed to help you make intelligent, informed decisions about the way you live. Your actions really do have an impact on the environment -- from the way you shop to the chemicals you put on your lawn. Here in the Midwest, we are blessed with many natural resources, including fertile soil, fresh water and plentiful wildlife. It is our responsibility to conserve these resources. With this booklet as a guide, you can begin to make changes in you lifestyle that someday we'll all be able to feel.

Written and designed by Jason Rutten,
Information and Education intern, 1994
Photos by Ken Formanek

The Kitchen

As one of the busiest areas of your home, the kitchen is a great place to start learning energy saving tips.

Purchase an Energy Efficient Refrigerator.
If you're in the market for a new fridge, compare EnergyGuide labels for efficiency ratings. A wise decision here will save you hundreds of dollars over the life of the fridge. Oh, and when you install it, make sure it's away from the hot-headed dish-washer!

Vacuum Refrigerator Coils to Increase Efficiency.
Even the most efficient refrigerator can turn on you if you don't vacuum the coolant coils at least twice a year. And you might want to check the door seals while you're at it. To do this, close the door on a dollar bill. If the bill pulls out easily, you need to have it resealed by your local dealer.

Spending to Save.
When purchasing new appliances, spend as much as your budget will allow. If two models are equal in price , choose efficiency over features. High quality appliances will reward you with higher energy efficiency, longer lasting construction, and longer warranties. Then take good care of your appliances, including regular maintenance and cleaning. A little attention will yield longer service, better performance and less energy waste.

Rinse All the Food for a Meal at the Same Time.
Cleaning vegetables and meat at the same time will save water, and hungry mouths will like the shortened prep time!

Are Your Conservation Efforts Going Down the Drain?
Be careful what you pour down the drain or disposal. Household cleaners and other "under-the-sink" products shouldn't be dumped into drains.

Culinary Correctness.
Everyone has their own way of cooking, but by using the proper appliance during food preparation, everyone can cut energy waste in the kitchen. *Take a look at the chart on page 5 for the most efficient methods of cooking.*

A Kettle a Week Keeps the Plumber Away.
Pour a kettle of boiling water down the drain weekly to melt fat that may be building up, eliminating the need for chemical drain cleaners.

The average Iowan indirectly purchases about 600 pounds of packaging per year. And it accounts for ten percent of the grocery bills!

A Hot (Warm) Tip for Cleaning Your Oven.
To avoid using caustic oven cleaners, wipe out your oven while warm.

***Pre*cycling While You Shop.**
Packaging makes up 30 percent of our nation's trash, so when you buy something in "family size" and "economy" packages, you're not only saving money, but the environment as well! By not purchasing disposable, over-packaged, combination-packaged, or otherwise unrecyclable items, you reduce the amount of household waste headed for the landfill. Many products, especially household cleaners, are offered in refillable containers or dispensers. Try buying in bulk or from a farmer's market to further reduce packaging waste. *Read more about recycling on pages 20 and 21.*

Pack a Lunch, but Don't Sack It!
Giving your kids 'sack' lunches is a great way to give them what they'll eat, reducing lunchroom waste. (One school estimates nearly 2000 pounds of untouched food is discarded yearly in their lunchroom.) Make sure food brought from home is in reusable containers, not throw-away packages.

Cooking Efficiently

ENERGY COSTS OF VARIOUS METHODS OF COOKING:

Appliance	Temp.	Time	Energy	Cost
Electric oven	350	1 hour	2.0kWh	16¢
Convect. oven	325	45 min.	1.39kWh	11
Gas oven	350	1 hour	.112 therm	7
Frying pan	420	1 hour	.9 kWh	7
Toaster oven	425	50 min.	.95 kWh	8
Crock Pot	200	7 hours	.7 kWh	6
Microwave	"High"	15 min.	.36 kWh	3

This table uses 8¢/kWh for electricity and 60¢/therm for gas.

The table above compares several ways of cooking the same casserole. As you can see, how you make your food can make a big difference in energy and money savings. Ironically, the quickest and easiest way to cook many foods is also the least expensive -- the microwave oven. It's also best to use in the summer months because it radiates little heat, cutting down on air conditioning costs. When cooking larger portions, or if slower cooking times are desired, it's often better to use a larger oven, preferably a convection type. Here are some more tips to think about when you prepare your meals; you may even want to post this in your kitchen.

Keep the burner pans clean and shiny so they'll reflect more heat.

Use a crockpot for foods that require longer cooking times.

Match the pan-size to the element size -- a larger burner will waste more than 40 percent of its heat.

Always cook with lids on your pans. For example, cooking spaghetti without a lid can take three times as much energy.

With gas burners, make sure you're getting a bluish flame. If the flame is yellow, the gas may not be burning efficiently.

Make more than what you plan to eat and freeze the rest. Reheating takes less time and energy than cooking.

Source: Alex Wilson and John Morrill, ***Consumer Guide to Home Energy Savings***, 3d ed. (Berkeley: Edwards Brothers, Inc, 1993)

Don't Touch That Dial . . .

. . . After you've set your fridge at the proper temperature, that is. Health officials advise that fresh food be kept at 38° F and frozen food at 5° F.

Run Your Dishwasher Only When It's Full.

Dishes rinsed with cold water first can stay in the dishwasher until you have a full load. If your machine has energy-saving features, (like no-heat drying), use them!

Show Table Scraps to the Door . . .

. . . well, some of them anyway. Fruit and vegetable scraps, coffee grounds and filters, egg-shells, tea bags and spilled or unused baking ingredients can be added to your outdoor compost pile. *Turn to page 13 for more on composting.*

Glass is Good!

Glass food and beverage containers are among the easiest products to recycle, provided they're prepared properly. Glass containers should be rinsed out, and metal or plastic lids removed. Check with your local recycling center about sorting by color. *See pages 20 and 21 for more on recycling.*

An EPA study showed it takes households a little more than two minutes a day to recycle.

Cut Down on Disposable Wraps.

It's easy to wrap up left-overs in foil or plastic wrap, but the fact is they'll soon turn into garbage. Instead, use resealable, reusable containers. If you do use disposable packaging, make sure you recycle it.

As a Symbol of Your Environmental Affection.

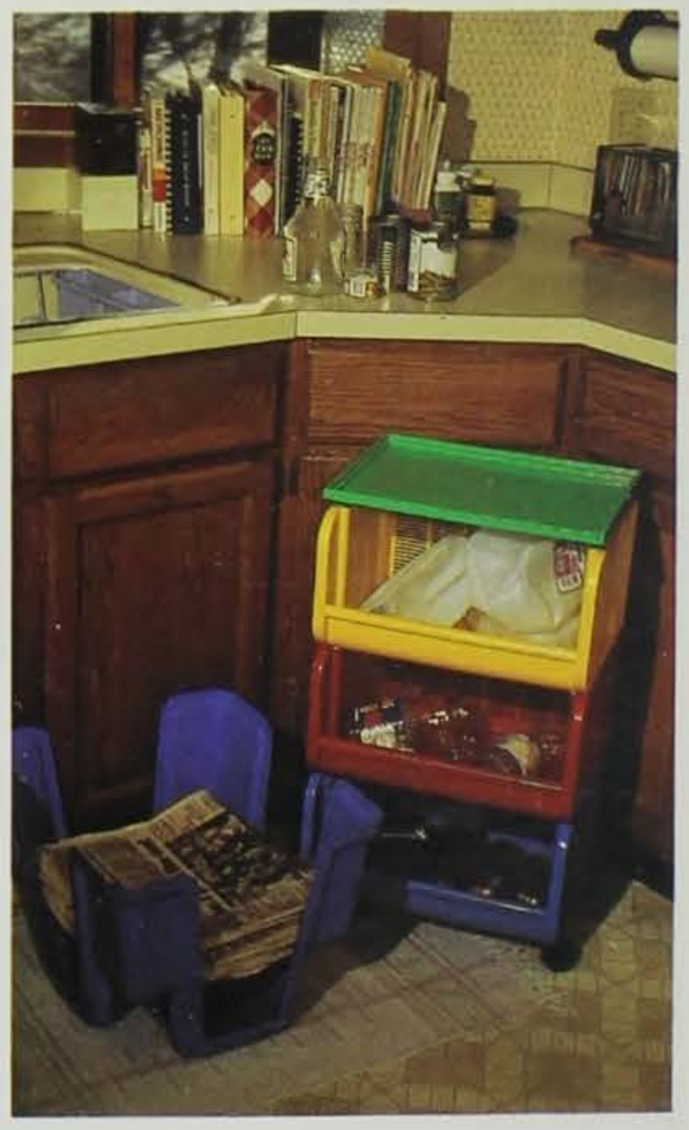
Most plastic food and beverage containers can be readily recycled, but check with your local recycler to be sure. Like glass, these containers need to be rinsed well and lid-less. Look for a recycling symbol and resin type (number) often found on the bottom of the object. *See page 23 for a chart explaining the symbols, resin types and their recyclability.*

Air Out Your Faucet

Installing an aerator on your kitchen faucet will save you gallons! By forcing air along with the water, these devices cut water usage while increasing water pressure.

Never Use Ovens for Home Heating Purposes.

Electric ranges and ovens are inefficient and hazardous when left open. Gas models are even more dangerous. High levels of carbon monoxide may accumulate, causing health problems, while natural gas build-ups may reach explosive levels.



▲

Three steps are involved in glass and plastic recycling -- lid removal, rinsing and proper sorting.

The Bathroom

In this room, you can sure take a bath in energy bills if you let the little things get the best of you.

Waste Not.
Don't leave the water running while you brush your teeth or shave. About two gallons of water is wasted each time you do.

White Paper, Please!
Buy plain white, recycled toilet paper, tissue and paper towels. Dyed paper pollutes and is hard on septic systems.

Drop That Drip.
Fix any leaks or drips in your faucets as soon as they appear. A moderate drip can waste as much as 4,000 gallons of water in a single month.

Taking Baths . . . And Getting Soaked!
If you love showering but feel guilty about using a lot of water, cheer up! The average five-minute shower uses only about 20 gallons of water, while baths can use as much as twice that. A better step is to install aerators or low-flow devices on your faucets and showerheads. These will give you great high-pressure shower, while saving water. In fact, a family of four can save 14,000 gallons of water per year, not to mention the energy required to heat it. *See more "low-flow" information at right.*

Potty Training.
Hey, no one likes cleaning the toilet, but it doesn't have to take dangerous chemicals to get the job done quickly. An average-size community dumps 3.75 tons of toilet bowl cleaner into drains every month. Using a toilet brush with a little baking soda or borax or soaking the bowl in white vinegar will clean and deodorize in about the same time as commercial products, without the nasty chemicals. Also, try replacing your old toilet with a low-flow model.

What are "low-flow" products and who needs them?

One of the most effective ways we can save energy and resources in our homes is by using less water, particularly hot water.

Right now, the average Iowan uses about 200 gallons of water every day. By installing low-flow showerheads, faucet aerators and toilets, that figure can be cut nearly in half.

How to Tell If You Need Them

To determine if your home's fixtures are wasteful and in need of replacement, you need to find out their flow rate. To do this, turn them on to your normal water pressure while catching the flow with a bucket. Time how long it takes to fill to a one-gallon mark. If it's less than 20 seconds, your flow rate is more than three gallons per minute (gpm), making your fixtures good candidates for replacement. Most regular faucets put out 4-7 gpm (toilets, 3.5-7 gallons per flush), and should be retrofitted when output is more than 2.5 gpm and 1.6 gpf, respectively. By adding low-flow and low-flush fixtures, you'll save hundreds and maybe thousands of gallons of water a year!

Don't Be Scared Away . . .

Don't worry -- installing a low-flow showerhead or faucet doesn't mean showering or rinsing under a weak trickle or mist. Installed properly, these products deliver a forceful, satisfying spray by injecting air with water, forcing the water out at a higher pressure. Low-flow toilets work by using less water during flushes.

The Living Room

Relaxing in your living room will feel even better after you've acted on some of these tips!

What's Wrong With Silence?

Little things like forgetting to turn off the lights, leaving the TV, VCR and stereo on are all energy wasters. And they all contribute to stressful indoor noise pollution. So instead of paying to be distracted, turn these devices off. It's a hard habit to break, but when you do, you'll notice the savings on your energy bills and maybe even your disposition. If you like to leave some music on to keep your pet company, use a portable radio, and not the stereo system.

▲ *Installing glass doors on your fireplace not only adds beauty, but prevents heat loss as well.*

A Hole in Your Home.

Your chimney is a "hole" in your home, allowing outside air to come in and out at will. When you're not enjoying a fire, make sure your fireplace damper is closed, preventing warm air from escaping. For further energy conservation, install glass doors across the front of your fireplace, and keep them closed while burning.

▶ *Blinds and drapes are stylish and convenient items for reflecting sun in warmer months.*

Ashes to Ashes.

If you think the garbage can is the end of the line for your fireplace ash, think again! Remember, ash is natural wood waste and can be added to your compost pile. Because it contains some pH-disrupting chemicals, though, it should be used sparingly between brown and green waste layers. *See more on composting on page 13.*

Furniture Football.

You may not have a quarterback in your living room, but your furniture can do a great job of blocking -- vents, that is! Check to make sure rugs, curtains and furniture aren't blocking vents or registers. Blockages not only reduce the amount of cool or warm air being circulated, they make your heating or cooling system work harder.

One day's junk mail could produce enough energy to heat 250,000 homes!

Right Back at Ya!
Use blinds, shades and drapes to regulate heat gain and loss. Close them on hot sunny days to reflect heat and on winter nights to keep the heat in. Open them on sunny winter days for passive solar heat.

Stop Reading Garbage!
All those old newspapers and most non-glossy magazine and tabloid publications can be saved from the garbage and promoted to the recycling bin. If you've got a junk-mail problem, write the Mail Preference Service, Direct Marketing Association, 6 E. 43rd Street, New York, NY 10017-4646 to be removed from mailing lists.

Newspaper as Animal Bedding.
Demand for newspaper as animal bedding is high in Iowa, especially when crop conditions suffer. If your community does not recycle newspaper, call the county extension office for a drop-off location near you. Bossie needs your news!

The Rise and Fall of Ceiling Fans.
Ceiling fans are a great way to move air around your home. In the winter, they help distribute heat evenly by pushing rising warm air back down to the floor. During the summer months, the added air movement cools the skin through evaporation. Room or window fans may be a good idea if you're staying in one room or area.

Compact Fluorescents: A Very Bright Idea!

Did you know that more than 90 percent of the energy used by a regular (incandescent) light bulb is wasted as heat ? That's not a very efficient way to light your home . . . or heat it! Instead, try compact fluorescent lights. On the average, they will last ten times longer, produce one-fourth the pollution, and use one-fourth the energy as regular bulbs. Check out the chart below for wattage comparisons.

Incandescent Wattage	Compact Fluorescent
25 Watts	5 Watts
40 Watts	7 Watts
50 Watts	9 Watts
60 Watts	15 Watts
75 Watts	18 Watts
100 Watts	26-28 Watts

When shopping for compact fluorescent lights, be prepared to spend about $14 a light. For those used to paying a dollar a bulb for incandescents, this may seem expensive, however, the money saved by not replacing constantly failing incandescents, plus the savings from increased energy efficiency will actually total an average of $25 over the life of the compact fluorescent! Look for these lights in specialty stores, in the home improvement sections of many department stores, and in some environmentally conscious catalogs. It should be noted that many utility companies offer rebates on the purchase of compact fluorescents. See page 22 *for other notes on energy rebates.*

The Garage and Automobile

As a home's traditional environmental culprit, this area needs special care.

It Keeps Going, and Going and Going . . .
If you're looking at new cars, put good gas mileage at the top of your "want list." Right now, 35 miles per gallon is a good goal to shoot for. Also, limit the number of options that might lower your gas mileage.

A Cell for a Cell.
Return old car batteries when buying new ones. Retailers are required by law to accept them, and some will give you a modest discount toward the purchase of a new one. *See page 14 for more information on household hazardous waste disposal.*

Inflate Those Tires.
Believe it or not, keeping your tires at the recommended pressure can increase gas mileage by 10 percent, and save a lot of wear and tear on your vehicle, and maybe even some costly repairs. This means less junked cars, less discarded tires and less fossil fuel consumption. What a difference a little a little air can make!

A gallon of used oil can produce 2.5 quarts of re-refined oil that is equal in quality to new oil.

Driveway Cleanup.
Don't hose off any fluids leaked from automobiles into the streets, sidewalks or gutters. Clean up oil, antifreeze and gas spills with an absorbent material like kitty litter or sawdust. This can then be discarded at a hazardous waste management disposal site. For larger spills, collect the material in a container and take it to a filling station for recycling. *See page 14 for more household hazardous waste disposal information.*

Concrete Alternatives to Concrete.
When re-paving driveways or sidewalks, consider using permeable pavements, like interlocking tiles or porous asphalt. These surfaces allow water to pass through them into sand or gravel, where potential pollutants are suspended. This helps control groundwater contamination.

Close Garage Doors.
An attached garage is part of your home. Leaving the garage doors open on cold days sucks warm air from the house, driving up heating bills and wasting energy. Good insulation between the garage and house is crucial to efficient heating, but you should still keep the doors closed. *For more on insulation, see pages 18 and 19.*

Indoor Stockpiling. Keep a small pile of fireplace wood in your garage if you burn often. Take wood from this pile instead of making energy-wasting trips outside. Make sure your pile is completely rotated weekly, though, to prevent insects from getting into your home.

Americans currently throw away 220 million tires every year. Iowans dispose of 2.7 million used tires annually!

DNR photo

Clean Machine? If you wash your car at home, do it only when it's really needed. Try to time it for the cooler hours of the day, like morning and early evening, when evaporation is low. Don't leave the hose running. Use a bucket and spray off in short spurts. Use biodegradable, environmentally safe soap to protect vegetation, pets, children and water sources.

▲ *More frequent trips to local collection sites will ensure the amount of hazardous chemicals in your garage is kept to a minimum.*

Pedal Pushing – Not Just for Children. On nice days, why not ride a bike or walk to do errands? It gives the environment a break, and you get to enjoy the out-of-doors . . . instead of watching it pass you by. If your destination is too far away to walk, use public transportation.

The Bottom Line on Ethanol

When you pull up to the pump, make sure you fill 'er up with an ethanol-blend fuel. You're not only helping out Iowa's corn farmers, you're contributing to a cleaner environment. Here are some hard facts on ethanol use and answers to some questions you may have concerning ethanol, the economy and the environment:

*** Ethanol-blend fuel burns cleaner than regular unleaded fuel, reducing carbon monoxide pollution.**

*** All automobile manufacturers approve the use of ethanol in their vehicles, and some even encourage it.**

*** Ethanol can be used for any application that requires unleaded gasoline. This includes chainsaws, lawn mowers, generators, ATVs, outboard engines and snowmobiles.**

*** The quality and composition of ethanol is far more consistent than that of gasoline. In fact, an ethanol blend is actually a high-octane, premium fuel!**

*** Ethanol-blend fuel is less expensive than unleaded fuel not because it is lower in quality. Rather, it is because ethanol qualifies for a one-cent per gallon exemption from state gasoline taxes to encourage market growth.**

*** Ethanol production generates $1.5 billion in economic activity for Iowa.**

*** Ethanol burns cleaner and cooler than gasoline, keeping your engine and fuel injectors free of residue.**

The Lawn And Garden

"Weed out" your home's outdoor environmental problems!

You Can Water a Lawn, but You Can't Make It Drink!

Midwestern lawns usually get an adequate supply of water through nature's sprinkler -- rain. If you do water your lawn, do it only during very dry periods, giving it only as much as it can absorb. Saturate the soil in your lawn to a depth of only about four to six inches. Avoid frequent, shallow waterings. This causes shallow grass rooting and promotes weed growth.

Landscape For Beautiful Conservation.

The way your yard is landscaped can play a big role in home conservation efforts. You can cut home heating and cooling costs substantially by planting trees to give your home maximum shade in the summer and to allow passive solar gain in the winter. Establishing tree and shrub windbreaks can prevent erosion as well as heat-robbing wind.

Which is Best – Catching and Pitching or Running and Gunning?

The way you mow your lawn and the frequency you do it makes a difference in what you do with the clippings. While grass clippings make a great addition to any compost pile, it is often best to leave them on the lawn where they'll decompose and act as a natural fertilizer. This is especially true if you have a mulching mower. However, if you mow less frequently and have longer clippings, this isn't the case. When these longer clippings are left on the ground, they can choke the remaining healthy grass, blocking water from entering the soil -- producing more runoff. The clippings can also be blown or washed away, clogging storm sewers. Pick these longer trimmings up and add them to your compost pile!

Mow, Mow, Mow Your Lawn, Differently Every Time.

Mowing is a great way to keep your lawn healthy and looking good. Most residential grasses in the Midwest should be kept from two to four inches high, and should be cut often enough so that no more than a third of the leaf area is removed. To keep your turf tuff and standing tall, try mowing in different patterns.

Of the 100 gallons or more of water we each use daily, only four are really necessary. We can decrease our water consumption by 15 to 20 percent with little inconvenience.

Pet Patrol...

Help keep our water supplies free from germs and bacteria by picking up your pet's manure and burying it in the yard or flushing it down the toilet. Do not put feces on your compost pile! Harmful parasites and bacteria can be transmitted to humans during compost handling.

Try a Downspout Diversion

If you've got downspouts that empty directly onto paved surfaces, divert their flow to your yard or other grassy area. The same goes when draining waterbeds or hot tubs.

Kill Lawn Chemical Use.

Chemical pesticides, which include herbicides, insecticides, fungicides and rodenticides, along with artificial fertilizers, have long been used to kill unwanted insects, weeds and other pests and to promote plant growth. The danger of pollution from these chemicals to water supplies, both through underground leaching and surface runoff, along with their

Home Composting: How to Do It and What It Gives You

Home composting is a source reduction method that takes advantage of the natural decomposition of plant and vegetable matter.

Compost is actually a dark, crumbly matter, made up of decaying vegetable and plant material, with a small amount of soil. As the organic matter breaks down, it turns into a substance called humus. It's this humus that can be spread on the ground in vegetable and flower gardens and on lawns, increasing the soil's organic content and water-holding capacities.

The main ingredient in most household compost piles is yard waste. This includes sticks, twigs, garden greens, grass clippings, hedge trimmings, leaves and weeds. For faster decomposition, it may be a good idea to add farm manure or commercial fertilizer to your pile. Adding dirt and turning the pile will eliminate odors produced by all this decaying stuff!

To start making your own humus, you first need to set up a compost pile. While there are some commercial composting containers on the market, all that's really required is an out-of-the way area and some sort of enclosure to keep the pile manageable. The only other requirements are that the pile be accessible to indirect sunlight and water to keep it warm and moist. Too much sunlight will dry out the compost, while too much water will leach away its valuable properties, so try and locate the pile accordingly.

For best results, material should be added in alternating layers of plant material and soil, possibly with some sand mixed in to improve drainage. With a little practice, you'll be turning your yard and degradable household waste into a usable soil conditioner, and saving our diminishing landfill space as well. By state law, yard waste is banned from Iowa's public landfills, making home composting even more crucial than ever!

In addition, as much as 30 percent of the household refuse we throw away that's headed for the local landfill can be turned into a soil conditioner for the lawn, garden, and flower beds through composting. Peels, cores, leaves, sawdust, vacuum cleaner lint and table scraps of vegetables may all be included, adding to the nutrient content of your compost pile. Meat scraps and bones, while not particularly harmful to the compost, should not be added to the pile, as they don't decompose easily and attract unwanted animal visitors!

Despite the fact that items, like glass, plastic and metal containers, need to be taken to appropriate recycling centers, as you can see, much of the household waste we throw away can be used right at home . . . in the compost pile!

▲
Building and managing a home composter is easy, and one of the best designs is shown above. This three-compartment enclosure provides a large surface area and plenty of ventilation to hasten decompostion. The first two sections hold fresh material, while the contents of the third is nearly ready for use as a soil enhancer.

toxicity to soil, people and pets, warrants caution in their use, and avoidance where possible. *See this page for more on protecting our water resources.*

Some Alternatives to Keep Your Lawn and Garden Healthy and Insect-free:

1. *Use a slow-release, organic fertilizer* to distribute nutrients to vegetation evenly and thoroughly. (This ensures proper root growth and water retention.)

2. *Use mulch around garden plants*, especially on bare spots to prevent erosion and reduce heat loss.

3. *Manually weed gardens* and watch for weed growth in larger areas.

4. *Keep lawns well aerated and mowed.* This will often be sufficient to produce a nice stand of grass, crowding out weeds, which prefer sparse, densely packed soil areas.

5. *Try introducing predator insects* like ladybugs, ground beetles and preying mantises on your lawn and garden. These insects feed on destructive pests.

6. *Use insecticidal soap* sprayed directly on leaves. These can either be commercial or homemade. One recipe calls for two tablespoons of dish washing liquid to two cups of water. *For other natural ways of deterring insects, turn to page 15.*

7. *Construct insect or rodent barriers* out of wire-mesh or screen. For cutworm prevention, try wrapping exposed stems in aluminum foil.

This label, required by Iowa law, indicates to the consumer that the product must be used and disposed of carefully and safely. Look for it near household hazardous materials. If you don't see this shelf label on store shelves, ask the store manager to cooperate and comply with Iowa's law. The DNR publishes a Household Hazardous Waste Wheel ® that identifies such wastes, advises on their proper disposal, and offers suggestions for less toxic alternative products. To receive an HHW Wheel, send $1.25 to the Waste Management Assistance Division, Wallace State Office Building, Des Moines, Iowa 50319-0034.

Household Hazardous Waste Management

Believe it or not, your home is a big producer of hazardous chemicals. Most cleaners, solvents, paints, auto products, lawn chemicals and batteries are all potentially damaging to the environment. These products should not be put in the trash, poured down the drain or storm sewer, or on the ground, where they may find their way back into our water supplies. To properly collect and dispose of these materials, many communities now offer Toxic Clean-up Days to give people a chance to get rid of their hazardous wastes. These have been so successful the state has now taken preliminary steps to establish regional hazardous waste collection sites around Iowa. These sites will provide citizens with convenient, safe and permanent collection facilities.

While solvents, paints, cleaners and other chemicals are harder to recycle, motor oil, batteries, antifreeze and oil filters have an easier route. These products, though nasty to the environment, have a good side -- they're all readily recyclable. Since the Waste Reduction Act of 1989, all car battery retailers must accept used batteries for recycling. All oil retailers must at least post signs stating where waste oil may be taken. These policies make it convenient for everyone to participate in cleaning up the environment. These products are also disposable at any hazardous waste collection site or Toxic Clean-Up Days.

If you need to know the location of the nearest collection centers, dates on the next Toxic Clean-Up Days or have any other questions involving the disposal of hazardous wastes, call 1-800-DNR-1025.

Recipes for Alternative Products

Chemical companies and advertisers would like to have you think that their products are indispensable -- that your home and yard would be a disaster area without them. Yet the truth is, if people continue to overuse and discard these products improperly, a disaster area is exactly what our communities will become.

Before the use of household cleaning chemicals became widespread, people used natural, environmentally safer products to get the job done. Following is a list of tried and true recipes for all kinds of household maintenance products. They all work great and will make your home a healthier environment.

All-Purpose Household Cleaner
1 quart warm water
1 tsp. liquid soap
1 tsp. borax
squeeze of lemon or
splash of vinegar
This solution can be used for a multitude of cleaning jobs including countertops, floors, walls, rugs and upholstery.

Glass Cleaner
1/4 cup vinegar in 1 quart warm water. (Do not use this as a windshield wiper solution as it may damage the pump.)

Mildew Cleaner
Scrub with baking soda or borax; for extended mold inhibition, do not rinse off.

Toilet Bowl Cleaner
Scrub with baking soda or mild detergent.

Oven Cleaner
Wearing gloves, scrub with 2 Tbsps. or more of baking soda or borax in 1 gallon of water, using very fine steel wool (0000). For baked-on spots, try scrubbing with pumice (available at hardware stores). As a last resort, use a pump oven cleaner that says , "No caustic fumes" and "No lye."

If you have a self-cleaning oven, use caution with chemical oven cleaners -- read the owner's manual for manufactuers'' suggestions.

Rug and Upholstery Cleaner
Use the All-Purpose Household Cleaner.

Floor Cleaner
Vinyl floors: 1/2 cup vinegar or 1/4 cup borax with 1 gallon of water. Polish with club soda.

Wood floors: Damp mop with mild vegetable oil soap.

Degreaser (engine and tool)
Use a water-based cleaner in place of kerosene, turpentine or commercial engine degreasers.

Degreaser (kitchen)
Use a nonchlorinated scouring powder with abrasive scouring pad or fine steel wool.

Scouring Powder
Use baking soda or a nonchlorinated commercial scouring powder.

Spot Removers
All-Purpose: 1/4 cup borax in 2 cups cold water; soak the stain prior to washing as usual.

Blood: Pour 3 percent hydrogen peroxide solution directly on the stain, rinse with water and wash as usual.

Ink: Apply a paste of lemon juice and cream of tartar; allow it to dry, then wash as usual.

Silver polish
Boil 2 to 3 inches of water in a shallow pan with one teaspoon of salt, one teaspoon of baking soda and a sheet of aluminum foil. Totally submerse silver and boil for 2 to 3 more minutes. Then simply wipe away tarnish. Do not use this method on antique silver knives.

Rug Deodorizer
Sprinkle dry carpets with liberal amounts of baking soda. Let sit for 15 minutes and vacuum.

Drain Opener
1/2 cup baking soda
1 cup vinegar
boiling water
Dissolve baking soda and vinegar in boiling water, and pour the solution down the drain. Continue to flush with hot tap water until the clog breaks.

Disinfectant
Use 1/2 cup borax in 1 gallon of hot water. To inhibit mold and mildew, do not rinse off borax solution.

Furniture Polish
1 pint mineral oil with a few drops of lemon juice.

Air Freshener
Leave open boxes of baking soda in refrigerators, closets and bathrooms.

Open doors and windows for good ventilation. Use stove fan when cooking.

Use flowers, herbs and spices to add subtle fragrances to indoor air.

Soak a cotton ball in vanilla extract and place on a saucer.

Use cedar chips instead of mothballs.

Insecticides
Use chili powder to hinder ants' entry. To kill roaches, mix baking soda and powdered sugar.

Flea and Tick Repellent
Add brewer's yeast or garlic to your pet's food; sprinkle fennel, rue, rosemary or eucalyptus seeds or leaves around animal sleeping areas.

The Workshop

Your shop is a great place to begin "constructing" a more environmentally friendly lifestyle.

Paint and Paint Cans

Paint and paint cans containing paint are a real problem to the environment. But there are a few things you can do to help dispose of them properly.

1. *Always buy latex instead of oil-based paint.* It washes off with water and contains less harmful chemicals.

2. *Try to use up opened cans.* If you can't, give it to friends or organizations, take it to a regional collection center for recycling or to a Toxic Clean-Up Day.

3. *Latex paint cans* can be thrown in the trash if all the paint is gone and the can is dried out.

4. *Choose non-aerosol paints* when the job allows, instead of spray paints. The packaging is more efficient.

Reuse Thinner.

Paint thinner and turpentine may be reused again and again, if handled properly. First, let the solid particles settle to the bottom. Next, slowly pour the liquid spirits through a very fine sieve or cloth. Take the left-over solids to the local waste collection site.

Don't be so Possessive.

It is a good idea to rent or borrow tools that are expensive or infrequently used. Offer to do the same for your friends. You'll save money, be a nice neighbor and have nothing to waste!

Sidetrack Your Sawdust.

Sawdust makes a great addition to any compost pile. It's light, fine and decomposes easily.

Use scrap lumber instead of new for small projects. Birdhouses, small shelves, compost bins and even mailboxes can be made without spending a dime – or creating more waste.

Heating and Cooling Systems

Inspecting and adjusting these systems can make your home more efficient and pleasant to live in.

Experiencing a Setback.

Use an automatic setback thermostat to turn down the heat when you're not home and at night. Also, raise your air conditioner's thermostat to 78° F.

Fling That Fried Filter.

Furnace filters should be checked about every 30 days, and changed when clogged or dirty. Bad filters severely limit furnaces from running at peak performance.

Comfort That Water Heater with a Blankie.

One of the simplest, most effective and energy-saving projects you can do is to wrap your water heater with insulation, saving you from four to nine percent off your water heating bills. Specially designed blankets are among the best wraps. Also, set your water heater at 120° F for safety and energy conservation.

Make Room for Space Heaters.

Use space heaters for small work areas, but be careful. Ensure adequate ventilation if you're using fuel-burning heaters.

EnergyGuide Labels: What They Mean and How to Use Them.

EnergyGuide labels are designed to provide detailed cost and efficiency information on certain large household appliances. Federal law requires labels to be affixed to new refrigerators, freezers, waterheaters, dishwashers, clothes washers, room and central air conditioners and heat pumps. Left is an example of an actual EnergyGuide label. The energy information and product's performance ranking is clearly displayed to help you choose products that fit your needs.

DNR photo

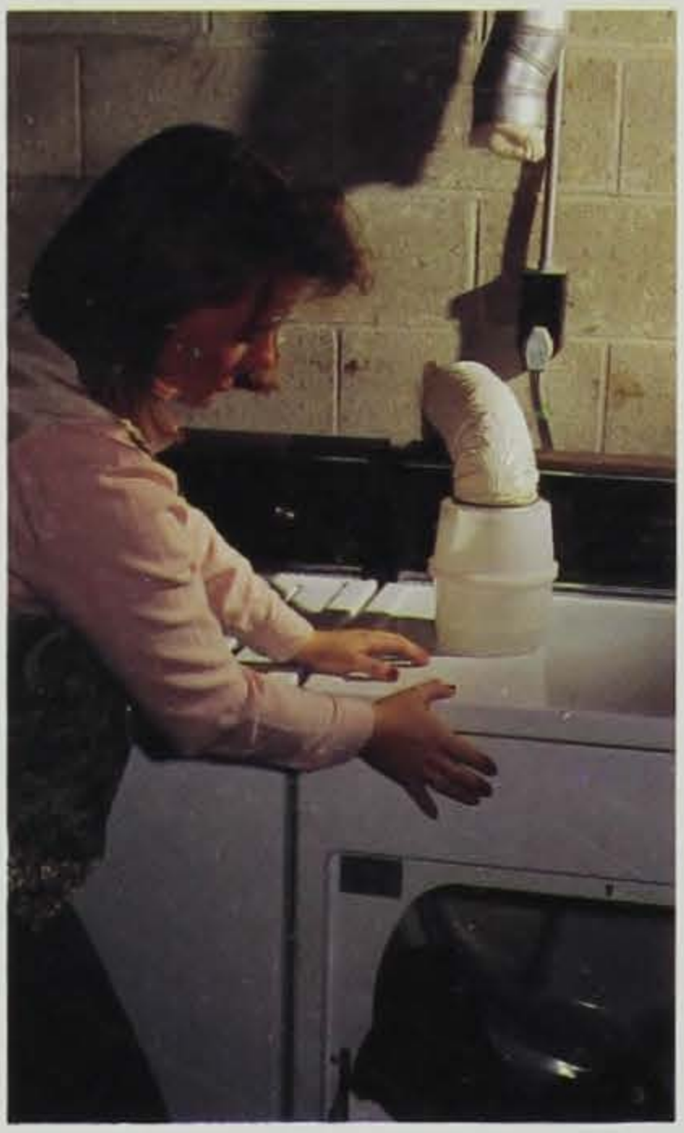
The Basement and Laundry Room

Taking steps here can make your whole house more comfortable and efficient.

Dehumidifiers and Water Recycling.
If you use a dehumidifier, use the collected water to add to household plants. They'll put it back into the air as healthy oxygen.

Dirty Laundry.
Always fill the washer and dryer before using them.

Insulating your basement can turn a cold energy waster into a comfortable living area.



Air-Dry Small Batches.
Air-drying damp clothes costs nothing, and can be done outside in the summer or on a drying rack in the winter. This is a great way to introduce moisture to humidity-starved living spaces.

Rerouting your Spout!
If you have an electric clothes dryer, try venting its warm air back into your home. Ask your local appliance dealer on information to do this easily and safely.

Tightening Up Your Home:

Everyone enjoys a comfortable home, especially when they know their energy dollars are being used as efficiently as possible. Insulating and sealing your home can provide big benefits to you, your family and the environment. A tighter home prevents warm air loss in the winter and cool air loss in the summer.

Get Audited!

If you think your home may be a good candidate for an energy tune-up, you may want to start by arranging an energy audit. These inspections are done by trained professionals and are often available through your local utility company free of charge or for a modest fee. Using sophisticated equipment and thorough visual inspections, they can pinpoint your home's problem areas and offer suggestions on how to increase efficiency. A good auditor will check for air leaks in the walls, attic, basement and in your heating and cooling systems. If you're a renter, encourage your landlord to have an audit conducted -- it's in both your interests!

On Your Own...

After you've had an audit, or have done some inspecting and investigating of your own, start "buttoning up" some areas of your home. Of course new duct work, furnaces, cooling units and wall insulation should be installed by a professional, but here's a few things you can do to really make a home energy efficiency difference:

The Attic and Walls

Increase your home's insulating ability, and donate your clutter with a visit to the attic.

Have You Insulted Your Attic?

Chances are, if you have less than a foot of insulation in your attic, you've been insulting your home's heating intelligence! While your attic is not the only place that needs insulation, it is probably one of the easiest to access for do-it-yourselfers. It's recommended that ceilings be insulated to a rating of R-40, (approximately 12 inches of fiberglass insulation.) The R-value denotes the insulation's resistance to air flow. Other *minimum* R-values for various areas are given below:

Walls	***R-25***
Band Joist	***R-25***
Foundation Walls	***R-12***
Floors over unheated spaces	***R-30***
Windows	***R-3***
Doors	***R-10***

Insulation.
As a favorite place for heat to make its escape, your attic needs to be tightly sealed, yet adequately vented for the summer months.

Be a Second-hand Conservationist.
Give unwanted, usable clothes, books, appliances, blankets and cleaning products to friends and relatives, or to a local charity instead of throwing them away. Consider a garage sale if you've got a lot of items. They won't do anyone any good in the landfill.

Narrowing the Gap

Air leaks in your home are some of the largest areas of heat loss, especially in older homes. Many of these leaks can be detected by sight or by listening when the wind blows hard. To seal gaps and leaks less than one-quarter-inch wide, a tube of 20-year caulk will do nicely. For larger holes, try expanding polyurethane foam. Both products can be found at hardware or department stores, and can be easily applied according to the product directions. Other gaps like outlets, and attic accesses may require molded foam products also found at most hardware stores. Here's some common places leaks occur:

*** Penetrations through insulated floors and ceilings**
*** Chimney penetrations through insulated ceilings and exterior walls**
*** Along the sill plate and band joist at the top of foundation walls**
*** Fireplace dampers**
*** Attic access hatches**
*** The tops of interior partition walls where they intersect with the attic space**
*** Recessed lights and fans in insulated ceilings**
*** Wiring penetrations through insulated floors, ceilings, and walls**
*** Missing plaster**
*** Electrical outlets and switches, especially on exterior walls**
*** Window, door and baseboard moldings**
*** Dropped ceilings**
***Kneewalls in finished attics, especially at access doors and built-in cabinets and bureaus.**

The Recycling Loop

For many people, the extent of their participation in the recycling process ends at can redemption. But to truly become an avid home conservationist, it is important to understand that recycling is not just an act, but a system. This concept is demonstrated by the familiar three arrow recycling logo, where each arrow represents a stage of the recycling loop: reduction, re-use and collection, re-manufacture by companies for resale, and return of these products to the market for purchase by consumers. It is up to us to fuel the recycling industry by providing it with properly sorted, clean material to facilitate re-manufacture and distribution. It is also important that we follow up these efforts by buying recycled products to further encourage market growth. With a little effort, we can keep the recycling loop going.

Ron Johnson

*When considering the purchase of a recycled product, there are a few things you should strive for. First, try to buy materials that contain post-consumer waste -- waste that's already been used and is diverted from the landfill. This way, you'll be completing the recycling loop by buying previously used material. Pre-consumer waste is the recoverable by-product that comes from making brand new items. Know that when you buy it, you're not actually performing one of the three recycling steps until you make sure it gets deposited back into the loop when you're finished with it.

*Always look for products containing the highest amounts of recycled material. But be warned; many of the words and "green" packaging claims can be misleading. Here are some frequently used terms to become familiar with:

Recycled: The product and/or its packaging contains *some* amount of waste materials. Look to see exactly how much is recycled waste, and whether it is a post-consumer waste.

Recyclable: The product and/or its packaging is potentially recyclable. This does not mean it is being recycled in your community. For

Ron Johnson

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Identifying plastic resin types is the first step in the recycling process. These code numbers are often found on the bottom of products inside the recycling symbol (top).
Recyclables are then collected and sorted for processing (middle).
Products made form recycled plastic are returned to the marketplace where we, as consumers, may complete the recycling loop (bottom).

example, before you buy a plastic item, find out what types of plastic resins are being processed in your area (*see chart on the inside back cover*).

Degradable: The product will break down when exposed to certain conditions. However, few, if any, items degrade in a well-operated landfill.

Natural: This product or its ingredients are naturally found in the environment. This *does not* mean the item is completely safe.

Nontoxic: This product is not poisonous to humans. It may, however, adversely affect plants, animals, insects or bacteria in the soil.

A good way to ensure you're buying quality, earth-saving items is to look for the "Green Cross" and "Green Seal" logos on paper, plastic and wood products, These independent labeling programs are designed to help consumers know what items are the most environmentally friendly.

How We're Doing...

Though we've still got a long way to go down the road to creating a completely recyclable product loop, we've taken some great steps in the right direction and are gaining momentum. The popularity of recycling is growing, and to prove it, here's a quick report on the success of some industrial recycling programs:

* Since Iowa's beverage container deposit law was enacted in 1979, aluminum cans now have a 95 percent redemption rate. Demand for recycled aluminum is high because it takes 95 percent less energy to produce an aluminum can from recycled material than it does to make a new one.

* Glass is another product that has enjoyed a high re-use rate. This, too, is probably due to the 1979 deposit law, which ensures that more than 95 percent of the returnable bottles end up in the recycling chain. On the average, every bottle and jar now made in the United States is made of 30 percent recycled class pellets (called *cullet*). This cullet has also been used to make "glasphalt," a hybrid paving compound.

* The paper industry is rapidly becoming one of the foremost contributors to the recycling movement. By 1995, it expects to achieve a 40 percent recovery rate of paper products. New re-uses for waste paper are also being explored, like animal bedding, internal packaging, fuel supplements, mulch, insulation and construction material. There is even a new product for countertops and trim made from newspaper and soybean flour. This material is harder than oak and looks like marble.

* Plastic, one of the most prevalent and versatile materials in our society, is coming on strong in its popularity and practicality as a recyclable product. Each plastic type has its own applications (see the seven resins types on the inside back cover). These seven make up about two-thirds of all plastic sales, and each has a different degree of recyclabity, rising in difficulty from number one to seven. In Iowa, most recycling programs only accept numbers one and two -- the two most common types. In 1992, the nationwide recycling rate for class one containers jumped up 28 percent from 1991, mostly due to curbside recycling programs. Why are these containers in such high demand? Their ability for use in construction materials is one reason. Recycled plastic is now being used to make carpet, plastic lumber and flooring materials. Contact local builders for availability of materials made from recycled products.

* Steel, a long-time recycling favorite, is growing in demand as steelmakers are using less virgin iron ore and creating less scrap during the steel-making process. Because nearly all major appliances, and most vehicles, are made from steel, its recycling is big business. Steel cans, another common steel product, are easy to recycle and return to the product loop. Depending on the can-making process, new steel cans contain either 25 percent or 100 percent recycled steel.

* A recent, award-winning development in Iowa's recycling efforts is the BAWSS program. The By-product And Waste Search Service is designed to link business and industry through the exchange of waste and product material. If you own or work for a company that you believe may benefit from such a program, call the By-product And Waste Search Service at 1-800-422-3109.

Ron Johnson

Here and There

Conscientious ideas you can practice throughout your home.

Stock Options?
If you own stock or are planning to invest in a company, check out their environmental "track record." If you find it unacceptable, write the company, and then invest elsewhere.

Celebrate Conscientiously.
When it's time to have a party or celebration, heading to the rental center or borrow from friends. Party items like tables, chairs, centerpieces, linens, dishes, glasses and silverware may be rented or borrowed to reduce day-after clean up and waste. Remember to pack your picnic with the environment in mind. Use reusable containers instead of disposables.

I Like My Juice Fresh, Thanks.
Use rechargeable batteries anywhere you're currently using regular ones. You can go one step further by purchasing a solar-powered battery charger rather than an electrical one. The initial cost of the batteries and charger may be a little more, but they'll pay for themselves in a short time. Since no batteries, including old rechargeables, are accepted at landfills, they should be taken to a Toxic Clean-Up Day or a regional collection center.

Detect Your Defective Detector.
Check your smoke detectors and replace batteries and vacuum the lint from sensors as needed. If a detector gets broken or becomes unusable, send it back to the manufacturer for replacement or a refund. Many detectors contain small amounts of radioactive material and shouldn't be put in the trash -- take them to a Toxic Clean-Up Day or to a hazardous waste collection center.

Shop 'Til They Drop!
By refusing to buy items that are not friendly to the environment, you are reducing the demand for more harmful products. Consumer buying power really does affect what goes on store shelves.

Storm Windows.
Adding storm windows and doors to your home in the winter will greatly reduce the amount of cold air coming into your home. A less-expensive alternative is plastic window covering. It's easy to cut and install on odd-sized windows.

If Nobody Appreciates You.
Reduce heating and cooling costs by closing off uninhabited or unused rooms in your home. Close or block the heat vents in these rooms, but first consult the owners manual of your heating and cooling systems for recommendations to avoid overloading or backing up.

Rebates: What's offered and how you can qualify.

Conscientious buying of efficient appliances is an excellent way to save money and energy in your home. In addition, many utilitiy companies will also reward your good sense by extending you energy rebates. It's their way of saying "thanks" for doing your part to ease the demand for your community's resources. To see if such rebate programs exist in your area, contact your local utility company.

Ron Johnson

CODE

Plastic Resin Types and Product Uses

PETE

Poly-Ethylene Terephthalate (PET)

The most common type of plastic, PET is used in soft drink bottles and containers for ice, water, liquor, cooking oil, food condiments, mouthwash and cleaning products. May be recycled into food containers, filling for jackets and sleeping bags, bathtubs and swimming pools and other plastic items.

HDPE

High Density Polyethylene

Another plastic with many uses, this type is often found in milk jugs and yogurt and film containers, grocery bags, gasoline tanks, detergent bottles, toys, pipes and 55-gallon drums. May be recycled into toys, plastic lumber, mud flaps, flower pots, grocery bags, sheet plastic and containers.

But what does it all mean?

By law, most plastic products are required to display a code denoting the kind of plastic resin used in their production. This code is a number placed inside the familiar three-arrow recycling symbol, and is often found near the bottom or underside of an item. The purpose of this number is to identify the composition of the product, while serving as a guide for proper sorting for recycling efforts. Though nearly all plastic is recyclable, keep in mind that resin types 1 and 2 are most commonly accepted at recycling facilities. In many communities, simple economic feasibility hinders the collection of resin types 3 through 7. If this is the case, choose products made from or packaged with other materials. Check with local facilities to find out more about plastic recycling in your area.

V

Polyvinyl Chloride (PVC)

Though frequently used, PVC is more difficult to recycle than numbers 1 and 2. Pressure pipe, surgical gloves, clear food packaging and house siding are all made from this plastic.

LDPE

Low-density Polyethylene

This plastic type is often seen as bread packaging, frozen food bags, toys, paint can lids and milk bottle caps.

PP

Polypropylene

Polypropylene plastic is widely used in food containers, yarns and fabrics, upholstery, luggage and car seats.

PS

Polystyrene

With a very wide range of uses, this resin is used to make everything from video cassettes and TVs, to egg cartons and fast food packaging.

OTHER

All Other Resins

Various other resin types and multi-layered material form this last group.

Printed on Recycled Paper

IOWA DEPARTMENT OF NATURAL RESOURCES

Wallace State Office Building
Des Moines, Iowa 50319-0034

2 lbs. 8 ozs.	5/21	Thomas D. Fleming, Cedar Rapids	Pleasant Creek, Linn

FRESHWATER DRUM (MINIMUM -- 15 LBS.)

46 lbs. 38-1/2"	10/1962	R. F. Farra, Clarion	Spirit Lake, Dickinson
15 lbs. 5 ozs.	5/ 1	Larry Goranson, Manchester	Mississippi River, Clayton

GAR, LONGNOSE (MINIMUM -- 6 LBS.)

17 lbs. 8 ozs.	9/1992	Kevin Patrick Riley, Cedar Rapids	Mississippi River, Van Buren
7 lbs. 8 ozs.	5/10	Timothy A. Shinkle, Anita	Missouri River, Pottawattamie

GAR, SHORTNOSE (MINIMUM -- 2 LBS.)

3 lbs. 8 ozs.	7/26/1993	Mark D. Sprouse, Beacon	Des Moines River, Mahaska
3 lbs. 3 ozs.	5/10	John Bambara, Oskaloosa	Des Moines River, Marion
2 lbs. 4 ozs.	7/ 1	Jason Webber, Estherville	East Okoboji Lake, Dickinson

GOLDEYE/MOONEYE (MINIMUM -- 1-1/4 LBS.)

2 lbs. 4 ozs.	4/1992	Mark Ekle, Farmington	Des Moines River, Van Buren
1 lb. 8 ozs.	5/10	G.D. Trumpold, Marion	Indian Creek, Linn

MUSKELLUNGE (MINIMUM -- 15 LBS. OR 40")

40 lbs. 5 ozs. 50-1/2"	6/1991	Dennis Dean Heidebrink, Rushmore, MN	West Okoboji Lake, Dickinson
35 lbs. 13 ozs.	9/11	Dick Crail, Algona	West Okoboji Lake, Dickinson
35 lbs. 4 ozs.	5/ 1	Mark Feldhacker, Graettinger	Big Spirit Lake, Dickinson
32 lbs. 15 ozs.	5/ 9	Ben MacMillan, Spirit Lake	Big Spirit Lake, Dickinson
31 lbs. 12 ozs.	4/24	Richard A. Johnson, Humboldt	Little Sioux River, Dickinson
31 lbs. 4 ozs.	9/ 8	Vern Larson, Clear Lake	Clear Lake, Cerro Gordo
29 lbs. 10 ozs.	8/31	Randy Spilman, Clear Lake	Clear Lake, Cerro Gordo
25 lbs. 2 ozs.	5/22	Joel D. Becker, Clear Lake	Clear Lake, Cerro Gordo
20 lbs. 12 ozs.	9/25	Todd Jafvert, Perry	Little River Lake, Decatur
17 lbs. 8 ozs.	8/ 8	Gary M. Cox, Iowa Falls	Beeds Lake, Franklin
15 lbs. 3 ozs.	7/ 3	Dennis Wicker, Madrid	Big Creek Lake, Polk
Released -- 41"	6/25	Mark Mitchell, Estherville	East Okoboji Lake, Dickinson
Released -- 44"	8/19	Mike Crabb, Denison	West Okoboji Lake, Dickinson
Released -- 42-1/2"	6/ 5	Dusty Solem, Spirit Lake	Spirit Lake, Dickinson
Released -- 51"	9/11	Shannon Green, Spencer	West Okoboji, Dickinson
Released -- 42"	9/18	Dick Crail, Algona	Spirit Lake, Dickinson
Released -- 50"	5/ 6	Erwin Wackerbarth, Jr., Orleans	Big Spirit Lake, Dickinson

MUSKELLUNG, TIGER (MINIMUM -- 15 LBS. OR 40")

27 lbs. 2 ozs. 47"	8/1989	Shannon Green, Spencer	West Okoboji Lake, Dickinson
20 lbs. 12 ozs.	9/25	Todd Jafvert, Perry	Little River Lake, Decatur

NORTHERN PIKE (MINIMUM -- 10 LBS. OR 34")

25 lbs. 5 ozs. 45"	2/1977	Allen Forsberg, Albert City	West Okoboji Lake, Dickinson
19 lbs. 7 ozs.	7/29	Jay Forsyth, Rockford	West Okoboji Lake, Dickinson
19 lbs. 4 ozs.	9/18	Dean Willadsen, Des Moines	Des Moines River, Polk
18 lbs. 2 ozs.	11/ 4	Barb Lutz, Sherburn	Tuttle Lake
18 lbs.	12/30	Mell Berryhill, Milford	West Okoboji, Dickinson
17 lbs. 8 ozs.	10/30	Jan Tyler, Greene	Lake Despair, Butler
17 lbs. 8 ozs.	10/30	Melvin Yerkes, Greene	Lake Despair, Butler
17 lbs.	10/24	Ronnie Davis, Clarion	Iowa River, Wright
17 lbs.	3/29	Matt Annis, Troy Mills	Wapsipinicon River, Linn
16 lbs. 9 ozs.	1/11	Ryan Brockmeyer, Waverly	Sweets Marsh, Bremer
16 lbs. 5 ozs.	8/14	Gary Haynes, West Des Moines	West Okoboji Lake, Dickinson

Released -- 35-1/2"	4/17	Marty Harlan, Milford	Little Sioux River, Dickinson
Released -- 35-3/4"	11/21	Mary Murray, Waterloo	Cedar River, Black Hawk
Released -- 39"	8/ 9	Lila Epline, Hudson	West Okoboji, Dickinson
Released -- 36"	4/10	Barry Hanson, Milford	Little Sioux River, Dickinson
Released -- 35"	7/10	Frank Staskiewicz, Jr., Omaha, NE	West Okoboji Lake, Dickinson
Released -- 39"	5/ 1	Greg Musser, Spencer	West Okoboji, Dickinson
Released -- 34"	10/ ?	William Dramer, Monmouth	Green Island, Jackson
Released -- 34-1/2"	8/25	Kurt Maas, Coggon	Mississippi River, Clayton
Released -- 36"	6/13	Dick Crail, Algona	Center Lake, Dickinson

PADDLEFISH (MINIMUM -- 25 LBS.)

107 lbs. 69-1/2"	3/1981	Robert Pranschke, Onawa	Missouri River, Monona
65 lbs. 4 ozs.	10/30	Rick Folluo, Tulsa, OK	Mississippi River, Lee

PERCH (MINIMUM -- 1 LB.)

1 lb. 15 ozs. 14-3/4"	9/1974	John Walz, Estherville	Spirit Lake, Dickinson
2 lbs. 8 ozs.	8/15	Lance Hartman, McCook Lake, SD	Snyder Bend, Woodbury
2 lbs.	8/15	Lance Hartman, McCook Lake, SD	Snyder Bend, Woodbury
1 lb. 12 ozs.		Dan Crowell, Clearfield	Farm Pond, Taylor
1 lb. 6 ozs.	3/24	Ken Schirmer, Sanborn	Big Spirit Lake, Dickinson
1 lb. 5 ozs.	12/ 7	Jade Furman, Arnolds Park	Lower Gar Lake, Dickinson
1 lb. 5 ozs.	1/29	Scott Johnson, Albert City	Silver Lake, Palo Alto
1 lb. 5 ozs.	5/15	Rick Holman, Milford	West Okoboji Lake, Dickinson
1 lb. 4 ozs.	12/21	Kirk Knox, Estherville	Spirit Lake, Dickinson
1 lb. 4 ozs.	2/ 7	Gary Heinbuch, Fontanelle	Farm Pond, Adair
1 lb. 4 ozs.	1/24	Norman Larson, Red Oak	Silver Lake, Dickinson
1 lb. 4 ozs.	7/ 1	Tom Fleming, Cedar Rapids	Pleasant Creek Lake, Linn

SAUGER (MINIMUM -- 2-1/2 LBS. OR 18")

6 lbs. 8 ozs. 25"	10/1976	Mrs. W. Buser, Sloan	Missouri River, Woodbury
4 lbs. 8 ozs.	6/10	Betty Sandvig, Iowa City	Pond, Johnson
4 lbs. 8 ozs.	2/28	Lennie Lewin, Earlville	Mississippi River, Clayton
4 lbs. 8 ozs.	9/17	Kevin James, Keokuk	Mississippi River, Lee
4 lbs. 7 ozs.	10/31	Michael L. Schroeder, Sergeant Bluff	Missouri River, Woodbury
4 lbs. 2 ozs.	3/18	Thomas G. Digman, Dubuque	Mississippi River, Dubuque
4 lbs.	11/13	Allen Barker, Maquoketa	Mississippi River, Jackson
3 lbs. 12 ozs.	4/18	Thomas G. Wunder, Dubuque	Mississippi River, Dubuque
3 lbs. 11 ozs.	11/ 2	William J. Laugesen, Dubuque	Mississippi River, Dubuque
3 lbs. 9 ozs.	11/29	Joseph Olinger, LeClaire	Mississippi River, Scott
3 lbs. 9 ozs.	10/12	Henry K. Gertz, Bellevue	Mississippi River, Jackson
Released -- 19"	11/17	Chuck Super, Ft. Madison	Mississippi River, Pool 20
Released -- 19-1/2"	11/ 4	Greg Buckendahl, Manchester	Mississippi River, Clayton
Released -- 18-1/2"	2/14	Chad Machart, Sherrill	Mississippi River, Jackson
Released -- 19-1/2"	3/ 5	Gerry Oberbroeckling, Holy Cross	Mississippi River, Clayton
Released -- 19"	11/ 6	Todd J. Rudden, Iowa City	Dubuque
Released -- 19"	11/27	Richard W. Ruden, Dubuque	Mississippi River, Dubuque
Released -- 20"	11/ 8	Richard W. Ruden, Dubuque	Mississippi River, Dubuque
Released -- 19-1/2"	11/20	Richard W. Ruden, Dubuque	Mississippi River, Dubuque
Released -- 18-3/4"	4/14	Jon O. Dietzel, Muscatine	Mississippi River, Muscatine
Released -- 19-1/2"	11/20	Richard W. Ruden, Dubuque	Mississippi River, Dubuque

SAUGEYE (MINIMUM -- 6 LBS. OR 25")

6 lbs. 9 ozs. 26"	10/1990	Kirk Daily, Ottumwa	Des Moines River, Wapello
6 lbs.	11/21	Jeffrey L. Krumbholz, Cedar Rapids	Iowa River, Johnson

Released -- 26"	9/29	Kraig E. Hultman, Des Moines	Des Moines River, Polk

STURGEON, SHOVELNOSE (MINIMUM -- 3 LBS.)

12 lbs. 33"	4/1974	Randy Hemm, Douds	Des Moines River, Van Buren
6 lbs. 6 ozs.	6/ 6	Michael N. Kirsch, Dubuque	Mississippi River, Dubuque
4 lbs. 3 ozs.	5/ 5	John H. Reimers, Omaha	Missouri River, Pottawattamie
4 lbs.	5/30	Mark Schnitker, Omaha	Missouri River, Pottawattamie
3 lbs. 4 ozs.	6/28	John H. Reimers, Omaha	Missouri River, Pottawattamie

SUCKER (MINIMUM -- 4 LBS.)

15 lbs. 1 oz. 32-1/4"	9/1983	Glen E. Dittman, Onawa	Missouri River, Monona
5 lbs. 8 ozs.	5/ 2	Kory J. Huber, Cresco	Upper Iowa River, Winneshiek

SUNFISH (MINIMUM -- 1LB.)

1 lb. 13 ozs. 10-1/4	9/1967	Dale Cornick, Burlington	Lake Geode, Henry
1 lb. 5 ozs.	5/15	Gianni Beer, Clive	Farm Pond, Shelby
1 lb. 8 ozs.	5/29	Michael L. Philby, Red Oak	Farm Pond, Montgomery
1 lb. 2 ozs.	5/29	Steve Philby, Red Oak	Pond, Page
1 lb. 2 ozs.	9/14	Carl Hutchens, Mason City	Blue Pit, Cerro Gordo
1 lb.	1/25	Jon J. Allen, Shell Rock	Farm Pond, Bremer
1 lb.	6/17	Julius DeMaris, Mason City	Blue Pit, Cerro Gordo
1 lb.	9/22	Otto K. Johnson, Council Bluffs	Viking Lake, Montgomery

TROUT, BROOK (MINIMUM -- 1 LB. OR 13")

3 lbs. 3 ozs. 19-1/2"	7/20/1993	Melvin J. Yerkes, Greene	Lake Despair, Butler
2 lbs.	7/29	Dale S. Barth, Independence	Richmond Springs, Delaware
1 lb. 10 ozs.	11/ 4	John Kuba, Jr., Cedar Rapids	Spring Branch, Delaware
1 lb. 10 ozs.	11/29	Lawrence B. Henry, Decorah	Trout Run, Winneshiek
1 lb. 9 ozs.	7/30	Melvin Schumacher, III, Dubuque	Bankston Creek, Dubuque
1 lb. 8 ozs.	10/22	John Kuba, Cedar Rapids	Spring Branch Creek, Delaware
1 lb. 6 ozs.	6/ 4	Bryan Timmerman, Waterloo	Fountain Springs, Delaware
1 lb. 6 ozs.	2/19	Lawrence B. Henry, Decorah	Trout Run, Winneshiek
1 lb. 6 ozs.	7/17	Kevin Flynn, Dubuque	Bankston Creek, Dubuque
1 lb. 5 ozs.	7/22	Nathan Crotser, Decorah	Twin Springs, Winneshiek
Released -- 14-1/2"	9/ 2	Mark Winn, Cedar Rapids	Little Turkey River, Delaware
Released -- 13"	5/16	Jeremy Knutson, Waterloo	Backbone State Park, Delaware

TROUT, BROWN (MINIMUM -- 3 LBS. OR 18")

15 lbs. 4 ozs. 31"	7/1984	Fred Daugs, Minneapolis, MN	French Creek, Allamakee
9 lbs.	9/18	Alvin F. Petersen, Maquoketa	Big Mill, Jackson
6 lbs. 5 ozs.	5/ 4	Michael Justin Johanns, Osage	Turtle Creek, Mitchell
6 lbs. 5 ozs.	4/10	Ned Gleason, Charles City	Turtle Creek, Mitchell
5 lbs. 12 ozs.	6/25	Chris Johnson, Jr., Fairfield	Maquoketa River, Delaware
5 lbs. 10 ozs.	11/13	Bob Schroeder, Postville	Bloody Run, Clayton
5 lbs. 2 ozs.	3/27	Kevin R. Keeling, Mason City	Coldwater Creek, Winneshiek
5 lbs. 1 oz.	5/ 2	Kevin Foreman, Cedar Rapids	Spring Branch, Delaware
5 lbs.	5/27	Jeremy Geisler, Monona	Waterloo Creek, Allamakee
5 lbs.	5/ 2	Michael L. Tonn, Charles City	Cedar River, Floyd
5 lbs.	7/31	Gary D. Keefe, Decorah	Waterloo Creek, Allamakee
Released -- 21"	5/ 2	Michael L. Tonn, Charles City	Cedar River, Floyd
Released -- 18"	12/11	Bob Schroeder, Postville	Turkey River, Clayton

TROUT, RAINBOW (MINIMUM -- 3 LBS. OR 18")

19 lbs. 8 ozs. 35"	7/1984	Jack Renner, Waterloo	French Creek, Allamakee

12 lbs. 8 ozs.	5/ 8	Glenn R. Sears, Waterloo	Joy Spring, Clayton
12 lbs. 5 ozs.	7/ 6	Scott Schwier, New Hampton	Bigalk Trout Stream, Howard
12 lbs. 5 ozs.	7/23	Mike Amundson, Waterloo,	Trout, Rainbow, Allamakee
12 lbs. 4 ozs.	9/17	Walter E.J. Hilberg, Sr., Decorah	Upper Iowa River, Winneshiek
12 lbs. 1 oz.	5/10	Ervin J. Zweibohmer, Ossian	Hickory Creek, Allamakee
12 lbs.	6/15	Jerry Baker, Ottumwa	Trout Run, Winneshiek
11 lbs. 8 ozs.	5/15	Glen R. Sears, Waterloo	Silver Lake, Winneshiek
11 lbs. 7 ozs.	5/15	Curt Saland, Waterloo	Richmond Springs, Delaware
11 lbs. 7 ozs.	10/ 2	Cal Schreckengast, Cedar Rapids	French Creek, Allamakee
11 lbs. 1 oz.	6/ 1	Ronald A. Dreier, Davenport	Big Mill Creek, Jackson
Released -- 20-3/4"	9/ 6	Mary Thede, Mason City	Wapsipinicon River, Mitchell
Released -- 26"	8/ 1	Alan Burr, Dyersville	Spring Branch Creek, Delaware

WALLEYE (MINIMUM -- 8 LBS. OR 28")

14 lbs. 8 ozs. 30-1/2"	9/1986	Gloria Eoriatti, Ankeny	Des Moines River, Polk
12 lbs. 1 oz.	11/11	John S. Price, Pleasant Hill	Des Moines River, Polk
11 lbs.	7/ 8	Karl J. Walters, Mason City	Winnebago Lake, Cerro Gordo
10 lbs. 13 ozs.	10/ 1	Pete Breitbach, Gilbertville	Cedar River, Black Hawk
10 lbs. 11 ozs.	4/25	John Rigby, Spencer	Lost Island, Palo Alto
10 lbs. 9 ozs.	3/ 6	Chuck Harris, Mason City	Mississippi River, Allamakee
10 lbs. 8 ozs.	10/24	Bill Ginter, Dubuque	Mississippi River, Clayton
10 lbs. 6 ozs.	4/18	Dick Janssen, Arnolds Park	Little Sioux, Dickinson
10 lbs. 6 ozs.	10/21	Ben Swisher, Waterloo	Mississippi, Allamakee
10 lbs. 6 ozs.	10/27	Merrill Sunde, Estherville	Lost Island, Palo Alto
10 lbs. 4 ozs.	5/ 5	Ed Hilbert, Hartley	West Okoboji Lake, Dickinson
10 lbs. 4 ozs.	4/12	Jason Albright, Waterloo	Lake Rathbun Tailwaters, Appanoose
10 lbs. 4 ozs.	10/24	Rod Clark, Brandon	Cedar River, Benton
10 lbs. 4 ozs.	10/16	Mark D. Sutton, Cedar Rapids	Iowa River, Johnson
Released -- 29-3/4"	5/14	Mike Langhurst, Sprinville	Coralville Reservoir, Johnson
Released -- 29-3/4"	5/ 1	Alan Riemenschneider, Spirit Lake	Silver Lake, Dickinson
Released -- 28"	4/ 9	Duane W. Capes, Rochelle	Mississippi River, Jackson
Released -- 28-1/2"	8/22	Joel D. Becker, Clear Lake	Clear Lake, Cerro Gordo
Released -- 28"	10/31	Bill Ginter, Dubuque	Mississippi River, Dubuque
Released -- 29-3/4"	12/ 7	Erwin Wackerbarth, Jr., Spirit Lake	Spirit Lake, Dickinson
Released -- 29"	5/16	Larry Bendlin, Spencer	West Okoboji Lake, Dickinson
Released -- 28-3/4"	5/ 2	Tim Stellmach, Milford	West Okoboji Lake, Dickinson
Released -- 29"	10/ 8	Jack Bradley, Humboldt	Des Moines River, Humboldt
Released -- 29"	10/ 1	Lawrence Hetrick, Milford	Mill Creek, Dickinson
Released -- 30"	5/23	Darwin Wackerbarth, Spirit Lake	Big Spirit Lake, Dickinson
Released -- 29-1/2"	3/23	Steve Prins, Hartley	West Lake Okoboji, Dickinson
Released -- 28"	5/ 1	Orville Belken, Arnolds Park	West Okoboji Lake, Dickinson
Released -- 28"	2/18	Jim Wahl, Clear Lake	Clear Lake, Cerro Gordo
Released -- 28-1/4"	9/11	Ron Bliss, Andrew	Mississippi River, Jackson

WHITE AMUR (MINIMUM -- 25 LBS.)

51 lbs.	9/1988	Leon Allen, Omaha, NE	Viking Lake, Montgomery
30 lbs.	5/ 8	Clifford Drumheller, Council Bluffs	Lake Manawa, Pottawattamie
28 lbs. 12 ozs.	5/11	G.D. Trumpold, Marion	Central Park, Jones

DNR

Printed on Recycled paper

The South American Connection

Article by Lowell Washburn
Photos by DeWaine Jackson

Each autumn more than half of the landbird species that nest in North America travel southward to winter below U.S. borders. For many, the ultimate destination is the lush tropical rainforests of Central and South America. But today, these habitats are disappearing at an unprecedented rate. The solutions are not simple. Is it progress or merely a bungle in the jungle?

It isn't until the last dingy snow drift has disappeared into spring melt water that I suddenly realize just how deathly silent the winter has been. Without fail I am brought to this realization by the sudden arrival of northbound bird life. It is the sudden noise that I notice first, and regardless of whether your nearest habitat is timber, grassland, or simply the backyard, there is no tonic like the chorus of spring bird song to make you feel really alive.

But have you ever stopped to wonder where or how all of your favorite songbirds were spending their time while you and I were locked into

▲ The ruby-throated hummingbird is just one of the more than 160 species of North American birds classified as neotropical migrants -- birds that winter in Central and South America.

▶ Tropical rainforests once covered nearly 20 percent of the earth's surface. Today, they have been reduced to a mere seven percent.

the cold storage of last winter's 20-below temperatures? Ask most people and they will probably shrug their shoulders and respond with something like — "well, down south I suppose." South, yes. But exactly how far south is amazing.

Roughly half of the land bird species that nest in North America are classified as neotropical migrants. In other words, they winter below the U.S. border. The group includes more than 160 species of North American birds. Incredibly, nearly 80 percent of these birds breed in the Midwest, and nearly all can be found in Iowa.

Neo or New World tropics are located in Mexico, Central America and South America. Their habitats include grassland, shrub, wetlands and rainforest. All are critical to at least some aspect of the life cycle of North American birds. So much so, in fact, that on an acre per acre basis it can be argued that neotropical winter habitats are in some regards more important to American birds than are summer nesting areas.

"As North American birds move southward each autumn there is a definite funneling effect as they exit the U.S.," says Lisa Hemesath, nongame biologist for the Iowa Department of Natural Resources. As the migration swells to full tide, the phenomena snowballs. The end result is that most of those 160 plus species end up occupying a wintering area that is only about 10 percent of the land volume that they inhabited during the breeding season.

"We have to remember that these habitats are shared with resident tropical species," said Hemesath. "The sheer bird densities can become quite remarkable," she said.

The country of Costa Rica is a classic example. Although only 25 percent of the size of Minnesota, it supports 600 species of resident birds. During winter, Costa Rican habitats host an additional 200 species as migrants arrive from Canada, the U.S. and Mexico — boosting the total count to 800 different species of birds. Even more astounding is the influx of migrating birds into the forests of Mexico, the Bahamas and Haiti where 50 percent of the winter bird population is comprised of neotropical migrants. Obviously, the neotropics are the equivalent of a "birder's paradise."

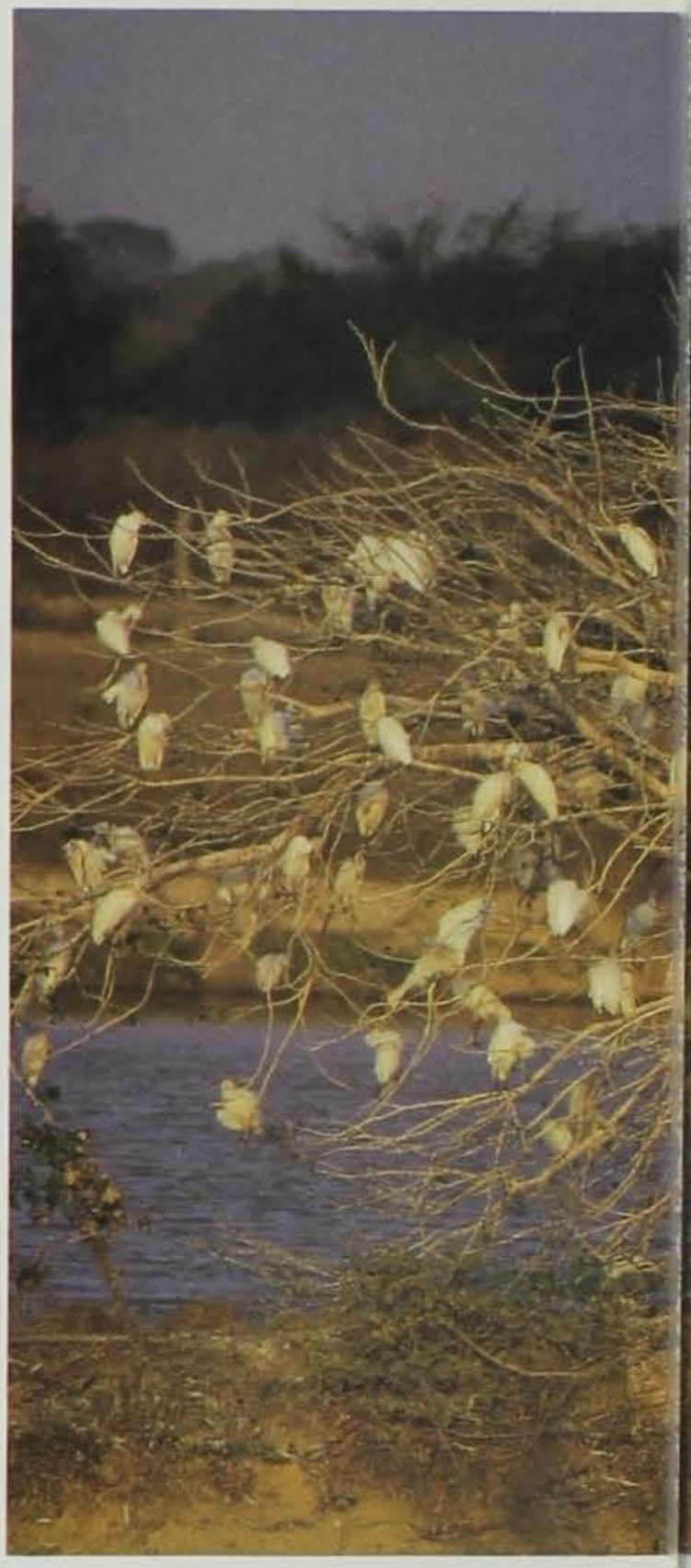
Unfortunately, paradise is under siege as neotropical habitats of all types are undergoing rapid and dramatic change as entire ecosystems are being destroyed and converted to other uses.

One of the habitats of most concern is the tropical rainforest. Of course, we all realize that conserving the rainforest is important to jaguars, macaws, and other "jungle" species. But, perhaps fewer of us reflect on the fact that southern rainforests are equally important to the survival of many of "our own" favorite birds such as orioles, tanagers, hummingbirds, and warblers. Many of us would be even more surprised to learn that nearly half of those 160 species that leave the U.S. each fall end up spending most or all of the winter in tropical rainforests.

Tropical rainforests once covered nearly 20 percent of the earth's surface. Today, they have been reduced to a mere seven percent. Many scientists regard the continued elimination of this habitat as one of the planet's most pressing environmental concerns.

Analyses of satellite imagery (reported by the U.S. Fish and Wildlife Service) has revealed that 78 percent of Costs Rica's rainforests has been destroyed. Deforestation in that country continues at annual rate of four percent. In El Salvador 3.3 percent of the remaining rainforests are eradicated each year. Not surprisingly, there is a growing body of evidence that the alarming rate of decline being experienced by many North American songbirds has a profound and direct link to the ongoing eradication of neotropical rainforests.

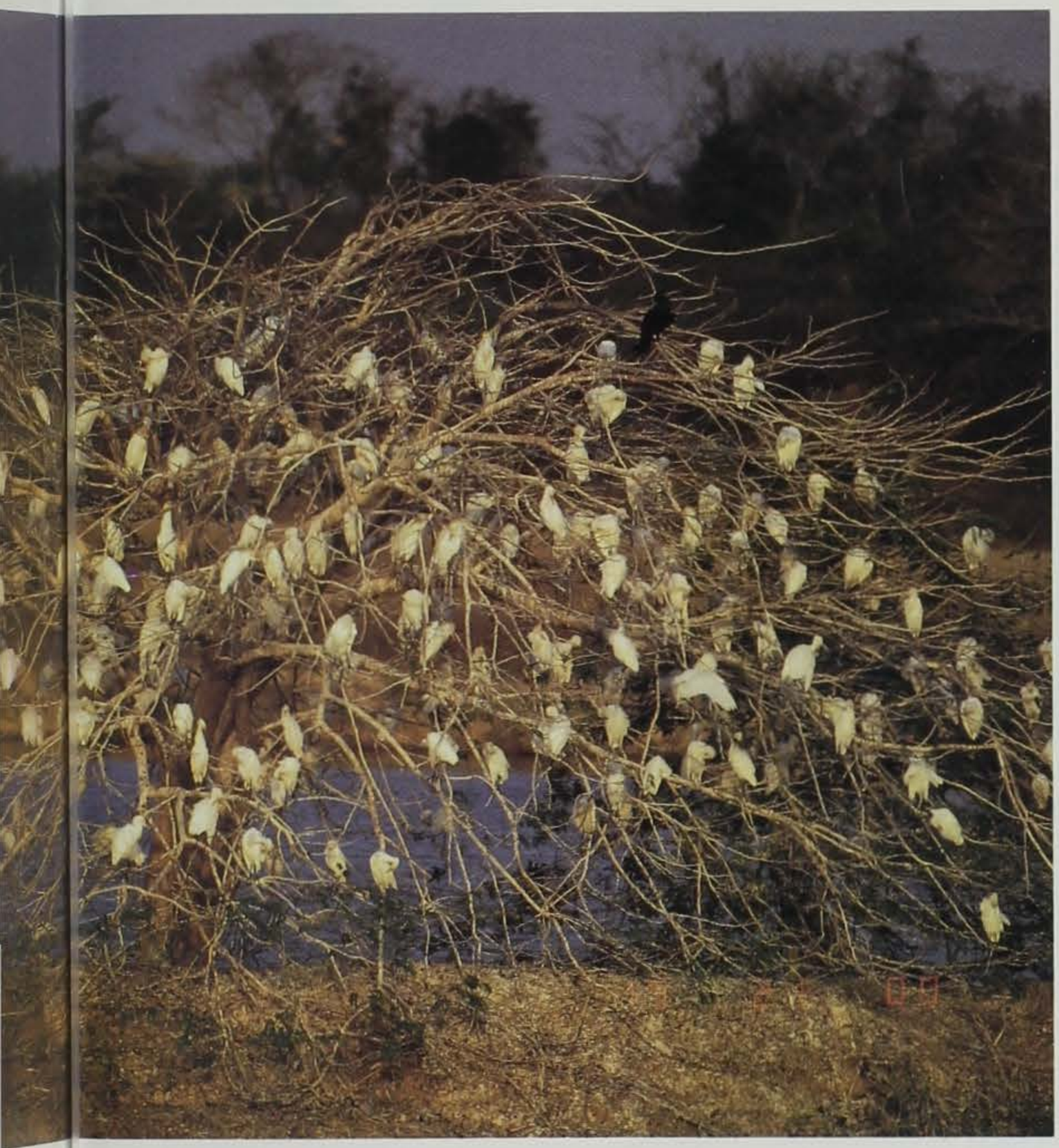
"Research is beginning to reveal just how devastating the loss of critical wintering areas can be to American birds," said Hemesath. "One study, for example, has found that the elimination of a 2 -acre plot down south may be the same as destroying up to 20 acres of northern breeding habitat," she added. Due largely to the fact that migratory



species are forced into those smaller winter acreage's, deforestation creates a greatly amplified effect.

"Since we're only dealing with that ten percent of the overall land mass compared to what birds occupy during the summer nesting season, deforestation in the neotropics simply wreaks more havoc," said Hemesath. The importance of neotropical wintering areas is compounded by the fact that many U.S. nesting birds spend the large part of the year in these habitats.

But one of the greatest frustrations is that comparatively little research has been done regarding the relationship of North American birds to neotropical habitats. One of the most comprehensive studies was done by Chandler S. Robbins and John Sauer of the Patuxent Wildlife Research Center and Office of



Lowell Washburn

Lowell Washburn

▲
The house wren (top), willet (middle) and ovenbird are all North American species that winter south the the U. S. border and are currently feeling the threat of habitat loss in the tropics.

The diversity and density of birds that depend on habitat in Central and South America is staggering. Cattle egrets in Costa Rica (top left).

Migratory Bird Management. By using information obtained from the Breeding Bird Survey (an annual roadside survey of U.S. and Canadian birds began in 1966). They have concluded that the patterns of decline for certain North American species can be used to intelligently gauge the effect of tropical deforestation. In essence, their work has shown a "significant association between the use of rainforests in the Yucatan and the tendency of certain U.S. nesting species to show a negative change in population during the past nine years." Their research also indicates that neotropical migrants who primarily use forest habitats during either summer or winter have been declining in recent years.

Unfortunately, because most birds use the same general habitat types during both summer and winter, it is difficult to separate and access the effects of changes in either summer or wintering areas. The key lies in monitoring the numbers of those species that switch habitat types during summer and winter. According to Robbins, these birds provide the only information on differential effects of wintering and breeding habitats. What the project revealed was that "species that winter in a more mature habitat than that in which they breed show negative population changes; where those that winter in earlier successional habitats generally show positive population changes." Researchers feel that these findings suggest that the effect of destroying neotropical habitats can be detected at the "continental" level. "Given the difficulty of quantify-

ing the effects of nonbreeding-season events on breeding populations, we suggest that this analysis represents the strongest evidence to date that tropical deforestation is contributing to declines in migratory bird populations," says Robbins.

But, of course, not all of the dilemmas facing neotropical migrants relate directly to rainforests. Many occur along the migration trail.

During recent years, traditional land use practices have been in a state of flux as farmers attempt the transition from subsistence agriculture (above) to a more contemporary system of money-based farming.

"Obviously birds do not fly nonstop from the breeding grounds to the rainforest," says Hemesath. In between, they need places to stop, relax, and refuel. But gauging exactly what effects the disruption in the continuity of those habitats is having is even more challenging than the assessment of forest development.

"It doesn't necessarily take total habitat destruction to cause problems," said Hemesath. Urban sprawl, commercial development, and agricultural development all play a role. For example, many songbird species and countless shorebirds migrate along Mexican coastlines. However, as an increased percentage of these isolated habitats undergoes development for homes, resorts, or industry, the stresses on migrating birds escalates. "Increased human disturbance causes birds to move about more and spend less time feeding and resting," says Hemesath. If disturbance persists, birds rapidly burn calories and exhaust fat reserves, consequently losing energy. "All of these factors may decrease a bird's chances of making a return to the nesting grounds or having a successful nesting season," she added.

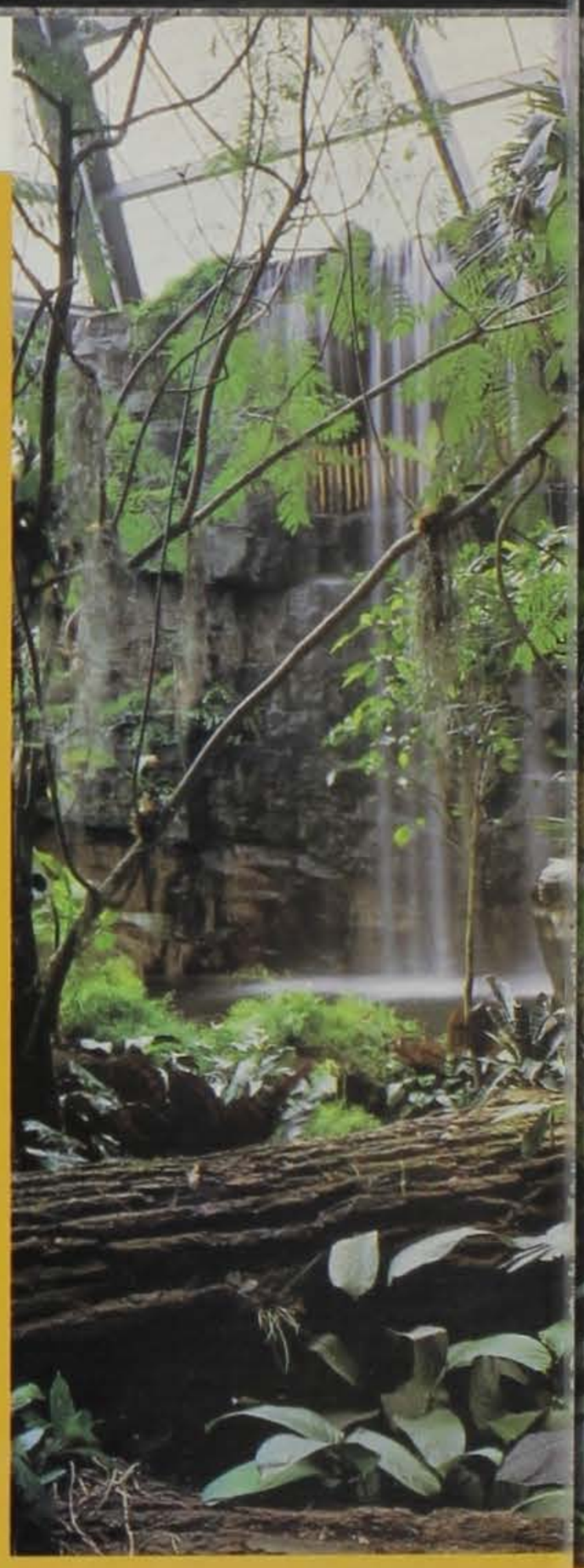
Of course, it should also be obvious that declining bird populations are not just a "south of the border" problem, and that there are plenty of things occurring right here at home that certainly are less than beneficial. One of the greatest maladies is habitat fragmentation, which is something that takes place when commercial interests or a desire for 'country living' turns a big block of habitat into several smaller ones.

The greatest evil associated with fragmentation is that it greatly increases 'forest edge' where predators such as raccoons, opossums, crows, and jays find and destroy songbird nests at a much greater rate than if those nests were farther removed from woodland borders. Country living also brings another formidable predator to the scene — the roaming house cat.

Another negative, but interesting, effect of habitat fragmentation is the increased parasitism on nests by brown-headed cowbirds. Historically, cowbirds followed roving bison herds, and laid their eggs in the nests of other grassland birds such as meadowlarks and bobolinks. However, upon discovering the cowbird's egg in its nest, many grassland species would reject or destroy the egg or abandon the entire nest to start over elsewhere.

As forests have become fragmented, the cowbird has felt comfortable invading these edge habitats in search of surrogate parents for their offspring.

"The problem is that forest birds are not adapted to cope with the cowbird,"



Lowell Washburn

The spider monkey is just one of the many residents of the Lied Jungle, part of the Henry Doorly Zoo in Omaha, Nebraska.

Omaha's Henry Doorly Zoo

The Lied Jungle

If you'd like to learn more about the tropical rainforest, or better yet, visit one first hand -- it may be a whole lot closer, easier and cheaper than you suspect.

In April 1992, Omaha's Henry Doorly Zoo officially opened the Lied Jungle which represents the largest indoor rainforest exhibit to be found anywhere in the world. The display occupies a full acre and a half under a sky-light roof and is 80 feet in height. The exhibit includes 123,000 feet of floor space (which includes 11,000 square feet of educational area). The display features three separate, reconstructed rainforest types from South America, Asia and Africa. Sponsored by the Lied Foundation Trust of Las Vegas, Nevada, the exhibit was three and a half years in the making and cost 15 million dollars.

All told, the Lied (pronounced leed) Jungle contains 2,000 species of tropical plants including banana, bamboo, orchids and epiphytes. More than 200 species of birds occupy the exhibit along with more than 200 species of mammals, reptiles and amphibians. Many of the birds, butterflies, tree frogs and lizards are free ranging and readily interact with visitors.

Omaha's Henry Doorly Zoo

By using elevated walkways, visitors to the Lied Jungle can enjoy all three layers of the triple canopy forest from the upper tree tops to the forest floor. The walkway also winds in and out of caves that feature vampire bats, owls and cats.

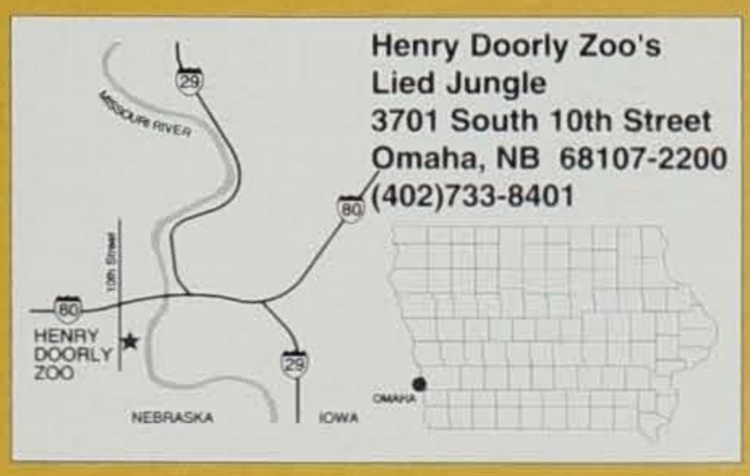
The Lied Jungle is open year-round from 9:30 a.m. to 5 p.m. And whether you spend two hours or two days in the exhibit, I think you'll agree it was time well spent.

--L.W.

◄

Lowell Washburn

The Lied Jungle, the world's largest indoor rainforest, is home to more than 200 species of birds, including the sun conure -- currently threatened by the pet trade industry.



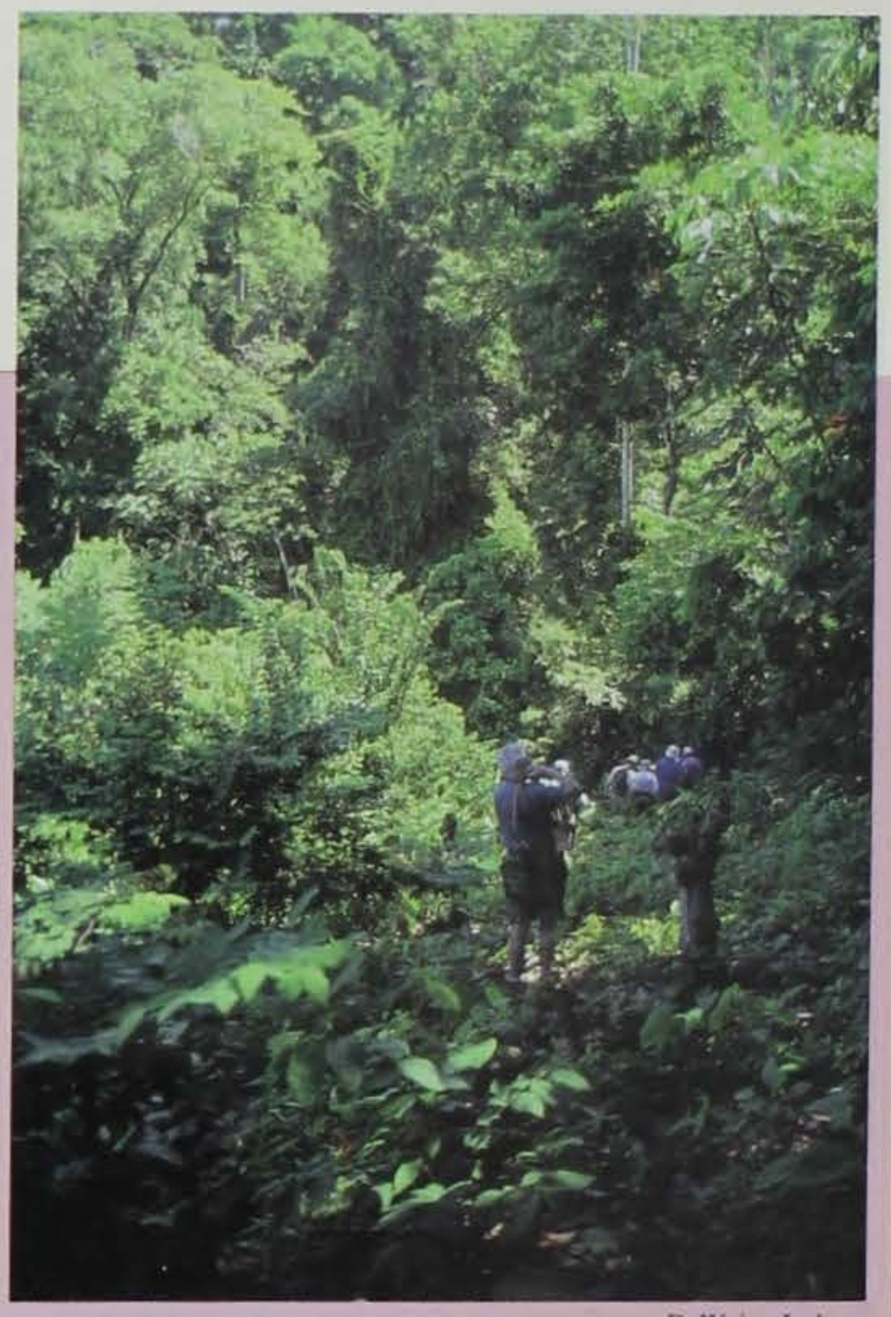
Henry Doorly Zoo's
Lied Jungle
3701 South 10th Street
Omaha, NB 68107-2200
(402)733-8401

said Hemesath. "Warblers, for example, do not recognize the cowbird egg as an alien," she said. Since the cowbird egg has a shorter incubation period, and because the young grow faster than do the nestlings of the host, the end result is that songbird parents wind up feeding one huge and aggressive youngster while their "real" babies starve to death. Cowbird parasitism has all but eliminated the Kirtland's warbler.

The good news is that many of the problems facing birds on the breeding grounds can be corrected by the implementation of comparatively simple solutions. "One feasible way to conserve wildlife habitat is through farm subsidies," says Hemesath. The erodible acres currently enrolled in the Conservation Reserve Program (CRP) have not only benefited resident species such as pheasants, but are also providing secure nesting cover for a variety of neotropical grassland nesters such as bobolinks and blue-winged teal. Other measures such as improving or intensifying forest management practices could also produce rapid benefits to nesting birds.

Unfortunately, the implementation of conservation programs on the wintering grounds is not so simple and is plagued by a wide array of nearby incomprehensible obstacles that range from simple economics to social upheaval and all-out civil war.

"You have to realize that many of the people living in developing countries are in the same situation that we [Americans] were in 200 years ago," said



DeWaine Jackson

Ecotourism can benefit rainforest countries if the countries visited profit from the tours.

You Can Help

The destruction of the Americas' tropical rainforests is everyone's loss. More than half of the planet's known plants and animals occur here, and rainforests serve as an important cleanser of the earth's air. Whether it's for medicine, food products, cleaners, shampoo or even a new bicycle tire -- we all have a stake in preserving these precious ecosystems.

Here are some tips on preserving our dwindling rainforests.

Aid in the Establishment of Extractive Reserves

Extractive reserves are areas which are protected from large-scale agribusiness operations, such as cattle-ranching, but allow the indigenous people to live off the land by harvesting products of the rainforest such as rubber, palm nuts and Brazil nuts. Small gardens are encouraged in the reserves. This arrangement allows the people to earn a living from the forest and also to become self-sufficient. Chico Mendes, an environmental activist, community leader and rubber tapper from Brazil, fought for the establishment of extractive reserves and the preservation of a way of life for his people. Mendes was assassinated for defending rainforests in 1988. If you would like to make a monetary contribution to the establishment of extractive reserves or would like more information please write: National Wildlife Federation, International Division, Chico Mendes Fund, 1400 16th Street NW, Washington, D.C., 20036-2266.

Aid in the Establishment of Wildlife Preserves

Wildlife preserves restrict human use of the land more than extractive reserves. They are more like U.S. national parks or wildlife refuges. The only problem is that they separate the people from the land. Many of the indigenous people have been living off the land using sustainable farming practices for hundreds if not thousands of years. Taking the land from them may not be the answer. However, the preserves are effective in excluding large agribusiness operations. An international effort by children has led to the creation of a preserve in Costa Rica — $50 saves one acre of rainforest. To learn more about the project, write: Monterverde Conservation League, Podo 100165, San Jose, Costa Rica.

Contribute to Manomet Birder's Exchange

This program, initiated by the Manomet Bird Observatory, allows people to donate equipment, field guides and textbooks to research facilities and educational programs in Mexico, Central America and South America. Many of these institutions are

Hemesath. "Obviously, it is very difficult for them to worry about something like rainforests or bird conservation when their own survival is often in question," she added. "The problems down there are extremely complex and are linked directly to cultural, social, and economic circumstances," she said.

During recent years, traditional land use practices have been in a state of flux as farmers attempt the transition from subsistence agriculture to a more contemporary system of money-based farming.

"For centuries the indigenous peoples of Central and South America have made their living off the land," says Hemesath. They produced crops in small plots cleared by slash and burn farming, while the forest provided wild plants and meat. Any surplus was marketed in nearby villages. After two or three years, the plots were abandoned and another field was cleared.

"The rainforest is well suited to this type of activity," says Hemesath. Once the plots were abandoned, the forest reclaimed the field.

However, when the slash and burn technique takes on the form of modern-day mechanization, it becomes the forest's worst nightmare. And it is the current change from subsistence farming to producing food for cash that is having the most devastating impact on neotropical habitats. Heavy equipment moves in and the rainforest, along with its rich diversity of wildlife, moves out to be replaced by the monoculture crops of plantation-style farming. In the lowlands, the plantations produce crops such as bananas and pineapples. At higher elevations, humid evergreen and other forests are cleared for coffee or tea. Other habitats are cleared for rice or beef production.

"When compared to traditional

underfunded and are in desperate need of money and equipment. Do you have a pair of old binoculars? Please write: Manomet Bird Observatory, Birder's Exchange, Box 1770, Manomet, MA, 02345.

Take a Tropical Vacation

"Ecotourism" is a buzzword now. What does it mean? Ecotourism is based on the idea that if you visit a country to view its natural resources, you will encourage that country to preserve its natural resouces. If the natives can make a profit from preserving its forests, they will be less likely to abuse the forest by clear-cutting and establishing pastures or farms. Before you call your travel agent, be aware of where your money for the trip is going. Many U.S.-based "ecotourist" travel companies pocket the profits of your trip instead of funneling some of it into the local economy. If you want to preserve a country's natural resources, it is best to contact a ecotourist company based in the country you will be traveling. For example, if you want to go to Costa Rica, please write: Talamancan Association for Ecotourism and Conservation, President Mauricio Salazar, Puerto veiego De Talamancan, Limon, Costa Rica. Yes, they will be able to answer your questions in English.

Boycott Corporations that Contribute to Rainforest Destruction

The most critical issue facing neotropical migratory birds and other wildlife south of the Rio Grande is the loss of habitat due to commercial agribusiness and small-lot subsistence farming. One crop that many conservationists are concerned about is the banana. The banana is the number one selling fruit. Banana producers are rapidly expanding their plantations throughout tropical America. The banana monoculture requires water canals and large inputs of fertilizers and pesticides. What is really tragic, is bananas grow best in areas once covered with lowland rainforest, the richest ecosystem in the world.

The banana industry is controlled by three large U.S. firms. To express their outrage, some people have boycotted the U.S. firms by not eating bananas. While this is a valid solution, we must remember that the local economy in banana-producing countries, such as Costa Rica, relies on the banana companies. Boycotting the banana companies for long periods of time does not help the native people. The best way to express your concerns is to write the presidents of the banana companies and tell them not to expand their operations into existing tropical rainforest and encourage them to use less pesticides and fertilizer. Another environmental activist group, the Rainforest Alliance, coordinates the Proyecto Banano Amigo. This project brings scientists, environmentalists and banana company representatives together at a bargaining table in search for immediate concrete steps that will reduce the environmental impact of this crop. Cooperating companies are given the Banano Amigo seal which they can use in their advertising. To find out more about Proyecto Banano Amigo, please write: Rainforest Alliance, c/o Chris Wille, 270 Lafayette Street, Suite 5123, New York, NY, 10012.

Contribute to the Chickadee Checkoff

Beyond protection of the rainforest through the actions mentioned above, Iowans can do their part to help local neotropical migrants by contributing to the Chickadee Checkoff. Funds provided by the checkoff go to research and management of Iowa's nongame species, including such neotropical migrants as the northern oriole, bobolink, rose-breasted grosbeak and ruby-throated hummingbird. For more information on Iowa's nongame program and doing your part for Iowa's neotropical birds, write Nongame Program, 1436 255th St., Boone, IA, 50036. And remember, donate to the Chickadee Checkoff this year on your Iowa state income tax form.

--L.W.

▶ **The northern oriole is an Iowa backyard species that depends on the rainforests south here.**

methods of farming, the new slash and burn techniques are particularly damaging to the environment," says Hemesath. Plantations are often dependent upon irrigation and require huge applications of fertilizer, fungicides, and pesticides. Most of these large operations are owned and developed by foreign (Spanish or American) investors whose conservation ethic has little in common with the indigenous people who have lived on the land for generations.

"They (foreign investors) haven't been raised in the rainforest and don't understand it or depend upon its plants or animals," said Hemesath. The only concern of plantation farming is profit.

But heavy-handed management does not work in the shallow and comparatively infertile soil beneath the rainforest. Within a handful of years, the land becomes so played out that even chemicals fail to produce a viable crop and huge tracts are abandoned. But in contrast to the small diversified plots of yesteryear, the new slash and burn leaves only a desert in its wake-the soil so sterilized that the forest has no hope of regeneration. Consequently, the exposed surface is left to wash into river systems or blow away with the wind. The wildlife does not return.

Lowell Washburn

▲ **Whether it is a native toco tucan (above) or a visiting northern oriole, the rainforests are providing valuable habitat to countless animals.**

It should be noted that fallacy of these harsh land use practices can be summed up in a single word — sustainability. No matter which way you slice it or how badly you may want it, certain practices cannot work or produce profits in the long term. Here in the north, it is a simple matter to restore a grassland or refill a drained wetland basin. But once it has been destroyed, how do you recreate a mature rainforest?

But reversing the trend of declining rainforests goes far beyond mere biological issues. "This is as much of a cultural issue as it is an environmental concern," said Hemesath.

"The questions is this: How do we encourage environmentally friendly subsistence-type farming when, for the first time in their lives, poor families have the chance to make a dollar? she asked. Or to put it another way, how do we encourage people not to make money?"

At this point it would occur to many of us that the current situation in so-called third world countries today is not without certain parallels to our own history.

In our beginnings, foreign European immigrants and commercial interests moved across the continent like a giant buzz saw cutting forests, draining wetlands, and plowing prairies. Wildlife populations were decimated and indigenous cultures were driven into virtual oblivion while the survivors were made dependent upon the "new economy."

In many ways it's like looking into a mirror as neotropical forests and grasslands are currently giving way to their own "new economy." To a growing extent, indigenous peoples are no longer living off the land but are dependent upon plantation paychecks. Although traditions are being lost, the conversion to a money-based system does bring undeniable material benefits. And at least in the short term, the immediate gains to poverty-stricken economies are immeasurable.

Given a review of our own heritage regarding the use of natural resources, the question raised is this: How dare we criticize or poke our noses into the affairs of those to the south?

At surface level it does indeed appear to smack of hypocrisy. However, regardless of how cliche the answer may seem, two wrongs, environmental or otherwise, do not make a right. And no person, or in this case habitat, is an island unto itself. There is no denying that in the long haul what happens to Latin America's citizens, soil, and plant and animal resources will ultimately have an impact on us as well.

Approximately half of the world's plant species are found in tropical forests. Because, lush, rainforest communities are in production 12 months a year, they are responsible for a large share of the planet's supply of oxygen. At least 25 percent of the pharmaceuticals used in the U.S. are made from tropical plants. Drugs made from rainforest plants are being used to treat some forms of cancer and over a thousand tropical plants are thought to hold potential for curing cancer. Forest plants also supply resins, gums, oil, dyes, and latex.

All told, 50 percent of the world's animal species live in tropical forests. And as these habitats continue to diminish in both size and quality, we can reasonably expect to see fewer and fewer neotropical migrants (including orioles, tanagers, hummingbirds, and warblers) returning north each spring. So from a variety of perspectives, we do have a stake in the eventual fate of natural resources in neighboring countries.

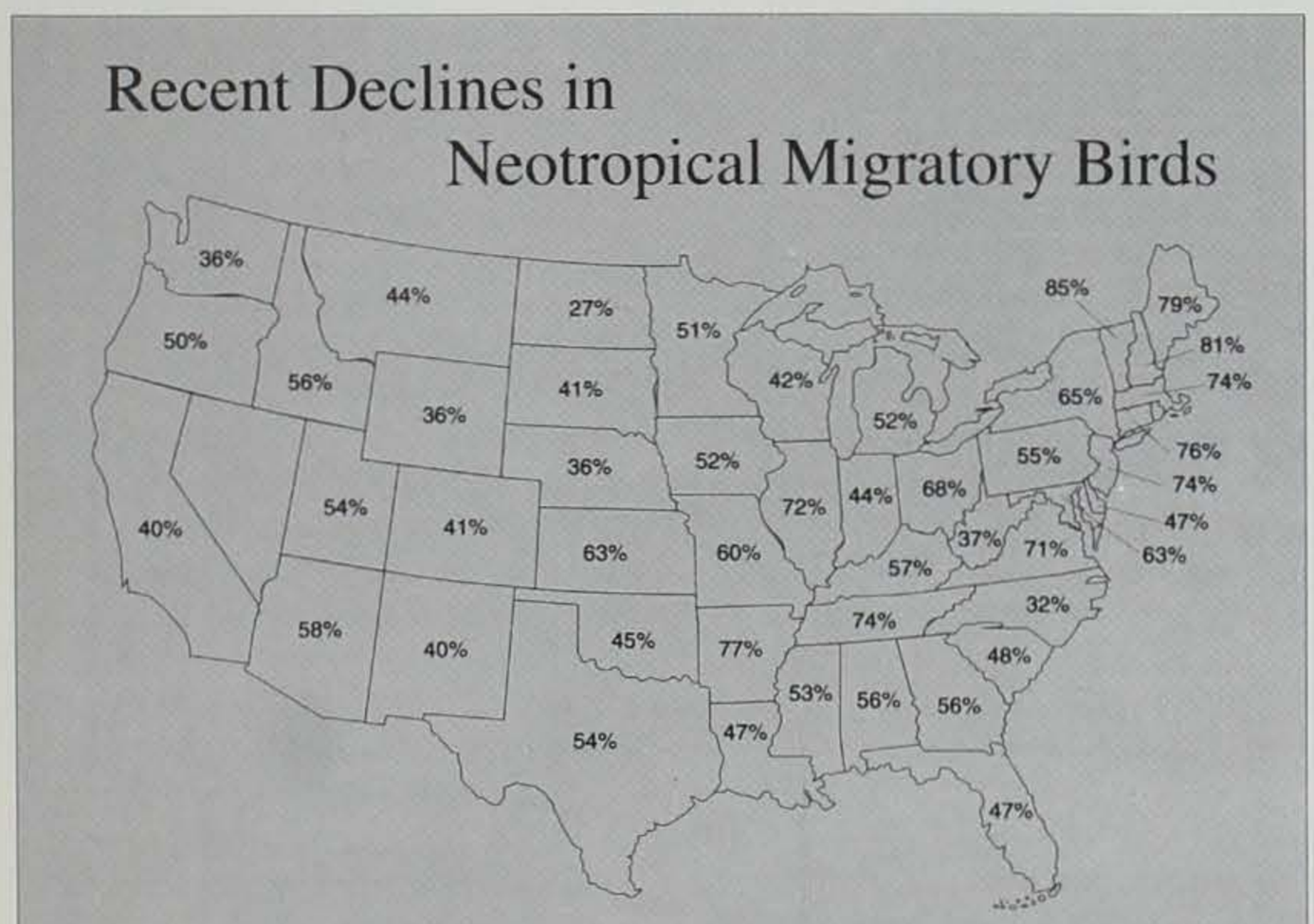
Currently, however, Latin America leads the world (18 million acres annually) in the destruction of tropical forest habitats. And as political unrest and economic demands increase, the future does appear dismal, but not necessarily hopeless.

"What people need to realize is that in some way or another, we all depend on tropical forests," says Hemesath. "Whether its coffee, chocolate, bananas, or latex paint, we're all direct consumers of the rainforest," she added. Each time we purchase a tropical product we are casting a vote with our pocketbook. We need to become conscious of the fact that as consumers our decisions have a direct impact on land use in the neotropics, she said.

"We need to find out how foods were produced," says Hemesath. "For example, was that banana produced in a sustainable way or was it grown on a huge plantation?" she asked. In most cases, the average person doesn't known how deadly plantations can be to the rainforest, soil, water and wildlife. "By buying that perfect yellow banana, we may be telling a company that we support plantation-style farming," she said.

"It isn't that people don't care, it's just that they are not informed," said Hemesath. "In order to make intelligent decisions, consumers have to be willing to write letters and do research," she added.

"That takes work and it takes time," she said. "But if we're going to have a positive effect, it's the only way."



Declines in neotropical migratory birds are widespread. The numbers on the map represent the percentages of neotropical migratory bird species with population declines in individual states between 1980 and 1989, based on data from the Breeding Bird Survey. Courtesy of Sam Droege, Office of migratory Bird Management, U.S. Fish and Wildlife Service.

Seventh In A Series

Let's Make It CLEAR

by Bill Brewer and Geraldine Fridlington

Wayne Aubrecht has been a long-time visitor to Kent Park Lake in Johnson County. However, it has only been since last April that Aubrecht of Oxford has been able to see more than six inches into the water. In a four-year effort, Johnson County's Conservation Board, Soil and Water Conservation District and local farmers teamed up in a project funded in part through the Resource Enhancement and Protection (REAP) Program. In an effort to reduce erosion and sedimentation in the watershed that feeds the lake, after the lake was dredged, funds were used to develop a series of ponds and wetland areas adjacent to the lake

"The water quality at the lake is excellent since they built the holding ponds above it. Now on a sunny day you can see two to two-and-a-half feet into the water" said Aubrecht, who now more than ever enjoys boating and fishing with his wife, Angie.

The improvements surrounding Kent

Ron Johnson

▲
Some REAP projects in northeast Iowa are "clearing up" cold-water streams. Using management practices and structures that prevent sedimentation, these projects are protecting the streams for aquatic life and recreational uses.

Park Lake are among more than 30 water quality protection projects that have received REAP funding assistance through the Iowa Department of Agriculture and Land Stewardship (IDALS). The IDALS also has made REAP funding available through Soil and Water Conservation Districts on a cost-share basis to individual landowners to implement management practices or install filter strips, terraces and other conservation structures on their farms.

"Projects and practices that we are funding with REAP dollars are the kinds of things where everyone comes out a winner," says Dale Cochran, Iowa Secretary of Agriculture

"These efforts provide farmers with an opportunity to preserve their soil and protect water resources. The environment benefits because less sediment and pollution enter our groundwater and surface water. Wildlife benefit by having more and better habitat, and sporting enthusiasts benefit from improved recreational opportunities," the Secretary adds.

REAP Funding

Twenty percent of each year's REAP appropriation is placed into a Soil and Water Enhancement Account administered by the IDALS Division of Soil Conservation. Approximately $12.5 million from that account has been used since 1989 to help finance water quality protection projects and practices in priority watersheds, including construction of 969,142 feet of erosion-control terraces; 23,294 acres of trees and native grasses; 4,887 acres of contour strips; 51 grade stabilization structures; and 85 animal waste management systems.

REAP funding has also been made available, in cooperation with the Iowa State University Cooperative Extension Service, to assist farmers in implementing crop scouting, record keeping and other management systems to prevent water contamination by more efficient use of fertilizers and pesticides in the state's priority watersheds. Other qualified uses for the cost-share assistance include installation of grassed waterways or filter strips to reduce soil erosion and potential contamination of surface water.

In addition to providing funding assistance to individual land owners, Iowa's 100 soil and water conservation districts provide landowners with technical assistance in installing or implementing all eligible conservation practices.

Kent Park Lake, Johnson County

Water quality protection projects typically involve several landowners over a large geographic area. Such was the case with the Kent Park Lake project, which brought together several landowners and local organizations in a cooperative effort to protect an entire watershed.

The sediment that was filling the lake resulted from erosion on farms throughout the watershed, while nutrients attached to the eroding soil particles fostered the growth of algae, impairing swimming and diminishing the fish and wildlife habitat of the lake.

Carrol County Soil and Water Conservation District

▲ **Samples of livestock waste are measured for nutrient content as a part of Carroll County's REAP project. The project is addressing water quality concerns in an entire watershed.**

The Johnson County Conservation Board and local soil and water conservation district commissioners knew they needed to dredge the lake. However, they also wanted to slow down the sedimentation of the lake to avoid additional dredging in the future. In 1989, the Johnson County Soil and Water Conservation District was granted REAP funds to assist in reducing erosion above the lake.

Flood Protection

Projects funded through the REAP soil and water enhancement account also have worked to minimize damages from the torrential rains and floods of 1993. One such project, in Adams County, provided major protection for Lake

REAP Water Quality Protection Fund Projects
(as of December 1993)

Icaria, where 20 grade stabilization structures and six water and sediment control basins have been constructed to protect the lake.

The project, completed at a cost of approximately $269,000, is reducing erosion on 193 acres of the watershed closest to the lake. Participating landowners invested $53,750 in practices to protect the lake, and received $215,000 in cost-share assistance.

"The lake came through the [flood] remarkably well. There has been almost no runoff into the lake at all since the conservation work was done on the fields," says Hylton Roberts, who built a grade stabilization structure on his rural Corning farm as part of the Lake Icaria project.

The Anderson Well and Groundwater Quality Protection Project in Fremont County is another project that provided protection from the 1993 floods. Private, shallow wells for the entire community had been subjected to repeated contamination from cropland runoff during periods of high rainfall. REAP soil and water enhancement account funds were used to build a large structure and diversion above the town of Anderson as well as sediment control basins and waterways. Runoff is now controlled and diverted around the town's wells. During the 1993 floods, the Anderson wells were protected from contamination.

Other REAP-funded projects

The Trout Run Water Protection Project in Winneshiek County is protecting surface and groundwater supplies in a 5,700-acre watershed. Trout Run Creek, which flows just south of Decorah, is a major recreational area. It is also the only water source for the DNR's Decorah Trout Hatchery that produces an average of 110,000 rainbow and brown trout annually. The trout are stocked in 17 northeast Iowa cold-water streams. The objective of the project is to help landowners reduce sedimentation and nutrient loads throughout the watershed. Participating farmers will improve their livestock, nutrient and pesticide management systems and install 200

REAP Water Quality Protection Fund Projects (as of December 1993)

Status / *County*	Project Title/Description
Completed	
Crawford	Yellowsmoke Lake Project protecting a recreational facility from siltation, sedimentation and agricultural run-off
Decatur	Hanthorn Watershed Water Quality Protection Project protecting a 544-acre watershed that flows into a public water supply from sedimentation and possible contamination from a nearby chemical facility
Harrison	Schley Park Project extending the life of a fishing facility by reducing the rate of soil erosion and sedimentation
Harrison	Willow Lake Project protecting a recreational facility by reducing the rate of sedimentation
Humboldt	Humboldt County Agricultural Drainage Well Project protecting a major aquifer providing public water for parts of two counties by reducing the risk of agricultural chemical and fertilizer pollution
Sac	Black Hawk Lake Watershed Water Quality Protection Project reducing agricultural non-point source pollution to Black Hawk Lake, a popular recreational facility
In Progress	
Adair	Three-Mile Creek Watershed creating an 870-acre lake as a public water supply and protecting the lake from soil erosion
Clarke	West Lake Water Quality Planning Project protecting a public water supply and recreational area from siltation caused by soil erosion and implementing management practices
Clayton	Ensign Hollow Watershed Project protecting a cold-water stream from agricultural non-point source pollution
Dickinson	Wetland, Woodland and Grassland Restoration for the Protection of the Iowa Great Lakes landowner education and the establishment of wetlands and permanent vegetation to reduce phosphorus run-off from farmland into the lakes
Dubuque	Bloody Run Creek Watershed protecting a cold-water stream from sedimentation using structural and management practices

Fayette	Glovers Creek Water Protection Fund Project protecting a cold-water stream for aquatic life and recreational purposes
Floyd	Floyd County Groundwater Protection Project protecting groundwater from possible contamination through sinkholes and agricultural drainage wells
Jackson	South Fork of Big Mill Creek Water Quality Protection Project protecting a cold-water stream
Linn	Dry Creek Watershed Water Quality Protection Project protecting surface and groundwater in relation to sinkholes and agricultural drainage wells
Mitchell	Mitchell County Devonian Aquifer Protection Plan protecting a public water source through education and implementation of conservation practices
Montgomery	Pilot Grove Park restoring and protecting a recreational facility
Union	McCann Creek Watershed Project improving land use and reducing nutrient run-off into a public water supply
Union	Three Mile Creek Watershed Project constructing a multi-purpose lake and protecting the water quality of the new facility
Wayne	Corydon Lake Project protecting a public water source from agricultural run-off
New	
Buena Vista	Storm Lake Watershed Project protecting an important regional recreational lake
Franklin	Beeds Lake Water Quality Project protecting an important regional recreational facility
Harrison	Pleasant View Park complete land treatment above an eight-acre lake and adjoining recreational area to reduce sedimentation rates
Linn	Cedar Rapids Area Urban Project addressing construction site non-point source pollution which is impairing streams in the Cedar Rapids area
Union	Spaullinc (12 Mile Watershed) improving land use and reducing nutrient run-off into a public water facility
New/Completed	
Jefferson	Fairfield Reservoirs second phase of a project to protect and improve the water quality of three lakes used as a water supply and for recreation is now underway

acres of contour strip cropping, 10,000 feet of terraces, grade stabilization structures, or water and sediment control basins.

The Hazelbrush Watershed Project in Carroll County was developed as a model project to address water quality concerns in an entire watershed. The project placed heavy emphasis on working with area farmers to implement reduced tillage, no-till and contour strip cropping systems as well as install terraces, waterways and other conservation practices. The project also has placed strong emphasis on community education and involvement. These efforts have included construction of community recycling facilities and a storage basin at a truck washing facility to prevent animal waste products from entering Hazelbrush Stream.

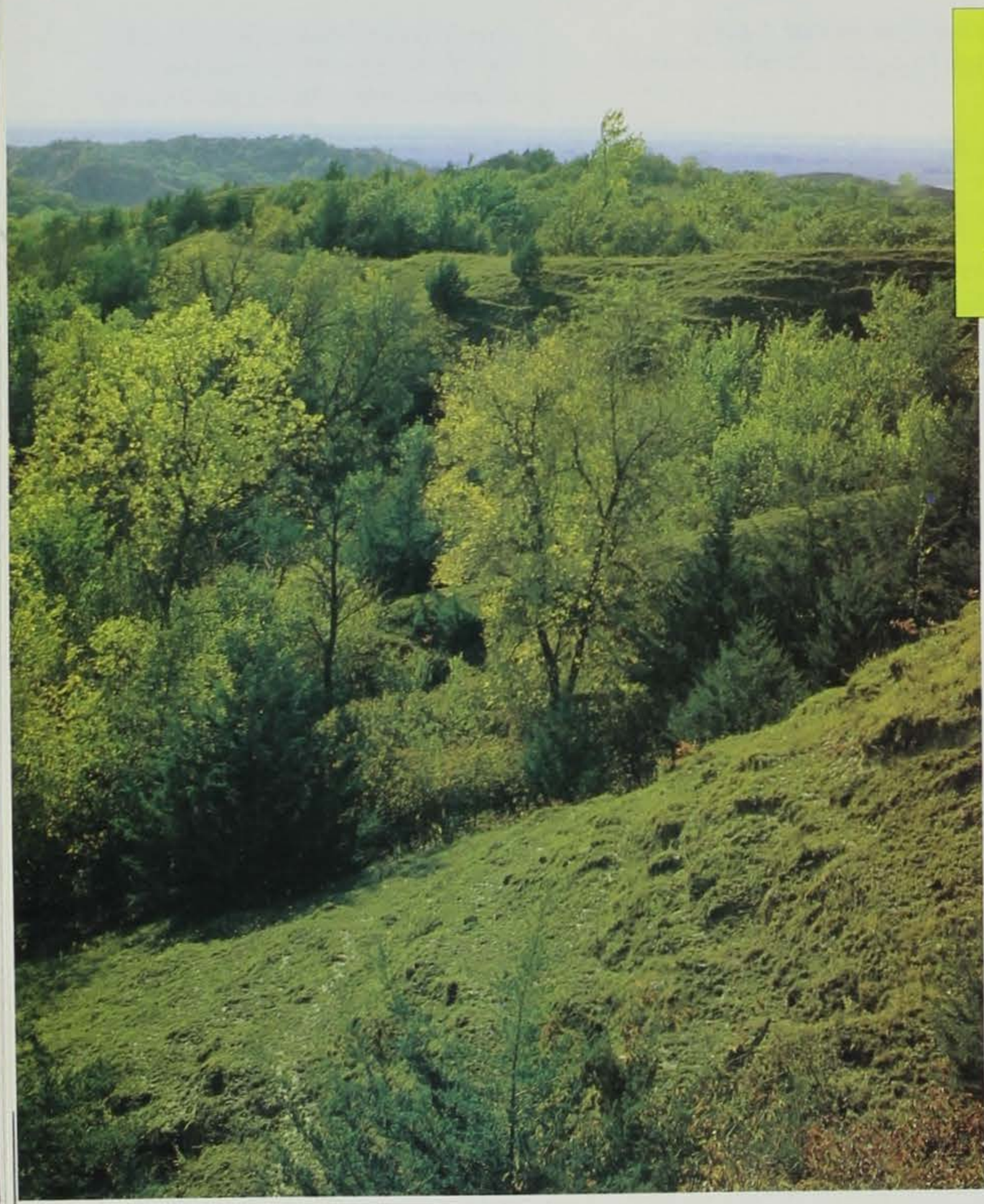
The Allamakee County Sinkhole Project is using funds to reduce the flow of runoff water and animal wastes into sinkholes. Sinkholes provide a direct link to aquifers, from which many wells and public water systems draw their water supplies. By reducing the opportunity for runoff into sinkholes, the risk of contaminating the groundwater below the sinkhole is also reduced.

The Bonus for Trees Program in Des Moines County is committed to planting trees to reduce soil erosion. The availability of cost-share funds has facilitated tree plantings by individual landowners on 31 acres near the Little Flint River.

"These water quality protection projects serve as examples of what can be done when local land owners, conservationists, and state and local officials pull together," says Cochran. "The REAP Program provides a mechanism to pull these diverse interests together. Through this teamwork, many areas that used to have nagging water quality concerns are becoming environmental and recreational showplaces."

Bill Brewer is the information bureau chief for the Iowa Department of Agriculture and Land Stewardship.

Geraldine Fridlington is an information specialist with the IDALS information bureau.



Ron Johnson

by Kevin Pape, Ron Williams and John Lambertz

HEAD FOR THE HILLS

Are you looking for a change of scenery when you vacation? Most vacationers like winding roads, scenic overlooks, abundant wildlife and rich recreational opportunities. Perhaps you should "head for the hills" this year. The loess hills of western Iowa have much to offer the vacationer.

The Department of Natural Resources manages three state parks, a state forest and a large wildlife management area, all in the loess hills. Additionally, the seven counties through which this range of hills passes each manage parks and reserves within the hills. Many towns and municipalities also have recreation facilities in this landform. All of the natural areas offer a unique escape for Iowans. Activities range from hunting and fishing to camping, picnicking, hiking, and cross-country skiing. The natural history, recreation and scenery provides all the necessary ingredients for an interesting get-away.

The loess hills have gained national attention through magazine articles and books, and are the subject of a wide variety of studies and projects. Currently, the Brunier Gallery on the Iowa State University campus is putting together a multi-discipline art exhibit about the loess hills for exhibition around Iowa in the next few years. In 1992, the Loess Hills Scenic Byway was established to promote the unique natural resources of these hills (*see side bar on page 49*). This byway was recently recognized as one of the top ten scenic byways in the country.

Loess is silt deposited by the wind. As early glaciers in the Missouri River valley retreated, they ground up the rocks and soil of the river bed into tiny particles. The water from the melting of these glaciers spread this fine powder across the flood plain into numerous mudflats. During dry periods, the fine powder particles were picked up by the prevailing winds and dropped along the eastern side of the floodplain, much like a blizzard drops snow in large drifts. Some of these drifts reach heights of 200 feet. China is the only other place in the world that has loess deposits comparable to Iowa's.

Iowa's loess hills were formed between 18,000 and 150,000 years ago during the two separate glacial periods. Natural erosion has continually shaped the hills over the past few thousand years. The topography is now characterized by extreme slopes and deep gullies. Although these soils are easily erodible, they do have a unique characteristic of being quite stable in a vertical cut. Since forming, the hills have been colonized by a mixture of woodland and prairie plants that serves as a transition from the moist eastern woodlands to the drier grasslands of the plains.

All of these natural factors combine to produce a most unique area that many are finding more and more interesting. Some of those unique areas managed by the DNR include . . .

Stone State Park

Stone State Park is located in the northern loess hills region of Plymouth and Woodbury counties on the north edge of Sioux City. The park has a mixture of wooded ravines and dry prairie ridges. Park visitors can look out across the Big Sioux River to the plains of South Dakota and Nebraska. In the evening, city lights illuminate the plains below.

The park is named for Thomas Jefferson Stone whose family provided a portion of the land for the park in 1912. The park was owned by Sioux City, prior to becoming a state park in 1935. That same year, the Civilian Conservation Corps (CCC) began constructing the park facilities. They used a rose-colored quartz which was quarried near Sioux Falls, South Dakota as the primary building material. Most of the original CCC stone facilities including trails, picnic shelters and rest rooms are still in use today.

Presently, Stone Park covers 1,069 acres, and features more than 10 miles of trails for hiking, snowmobiling, horseback riding and mountain biking. The Woodbury County Conservation Board is currently planning to build a nature center in the park which will feature exhibits interpreting the natural history of the local loess hills region. The new center is expected to open this year.

Because of the diverse wildlife community within an urban area, Stone Park has been recognized by the National Institute for Urban Wildlife as an Urban Wildlife Sanctuary. The park has a strong population of deer, coyote, turkey and beaver. The park provides an important feeding and resting place for migratory birds, hawks and eagles that can be seen regularly soaring above the ridges. Unusual species of butterflies, snakes and bats also take refuge in the parks environment.

Prairie enthusiasts will relish Stone Park's plant life. Plants normally found further west survive in Stone Park, including yucca, buffaloberry and locoweed. In 1989, a portion of Stone Park was dedicated as Mt. Talbot State Preserve because of the rich diversity of prairie species found there.

Loess Hills Wildlife Management Area

This 3,000-acre area in Monona County near Castana is managed by the DNR wildlife bureau, and offers excellent hiking and some of the best hunting this state has to offer. Several deer and wild turkey trophies have been taken in this area in the past few years. The area has many prairie segments and is home to the annual Loess Hills Prairie Seminar held each summer, the first weekend in June. The wildlife area has some excellent loess bluffs that overlook the Missouri River valley.

Preparation Canyon State Park

In the very heart of the loess hills in Monona County near Moorhead, is Preparation Canyon State Park -- a beautiful, pristine example of how the area once was.

In the 1850s as pioneers were pushing westward and Iowa was being settled by farm families, a group of 50 to 60 Mormon families left the famous wagon train near Kanesville (Council Bluffs). They traveled to this area near the Soldier River and established the town of Preparation, a religious community dedicated to "preparing for the life beyond." Their leader, Charles B. Thompson, managed to convince his followers that he was chosen by the spirit he called "Beneemy" to be chief steward of all property and assets of their community. Believing this, the people turned over their deeds and possessions to Thompson, who grew quite wealthy.

In 1856 the people, realizing they had been taken advantage of, asked that their property and possessions be returned. "Father Ephraim" (the name Thompson had asked his followers to call him) refused, and a mob formed to lynch him. After being warned by a young follower, Thompson escaped and hid in Onawa until the lynch party left. Thompson fled the state, unable to secure all of the property deeds he had left in Preparation. The deeds were found by the followers, but many were tied up in court action. Disillusioned, many Mormons left the valley and headed for Utah.

Eventually, the Iowa Supreme Court awarded the unsecured property back to the remaining families and the community continued to grow. At one time, the town boasted 67 houses, a post office, skating rink and blacksmith shop. By 1900, however, the town had faded and died shortly thereafter. There is nothing left of the town today other than the land on which it sat. Part of the town site is at the east end of Preparation Canyon State Park.

This 344-acre park was partially purchased by the Iowa Conservation Commission in the early 1930s and completed in 1969. It consists of a variety of hills, valleys, timber, grasslands, dry windy uplands, and secluded creeks and wetlands. The vegetation is very typical of the loess hills area with bur oaks, ironwood, walnut and basswood found in timbered areas, and numerous native prairie plants in the open grasslands. Beavers are at work, constantly engineering new structures that dam up and change the course of the creek. Raccoon, deer, quail, pheasant and wild turkeys also live in the park and occasionally coyotes, foxes, badgers, turkey vultures and bull snakes make the landscape interesting.

It is the kind of area where one can go to hike, picnic, backpack, camp or meditate without all the interruptions that our present populated society normally produces. Approximately six

SOME OF THE LOESS HILLS' UNIQUE AREAS

★ **State Areas**

SP = State Park
WMA = Wildlife Management Area

Numbers correspond to county areas listed on page 49.

miles of hiking trails throughout the park offers more great hiking and cross-county skiing. The older, western portion of the park remains pretty much as it was in the 1930s after the Moorhead CCC camp developed some picnic and open space areas for the public.

A pack-in camping program was initiated in 1993 when the DNR developed eight campsites in the newer eastern portion of the park. These sites are roughly one-quarter mile to one mile from the parking lot and are complete with picnic table and fireplace. This is an excellent area for the novice backpack camper to become familiar with equipment and the rigors of this pastime. Rules and registration are posted near the parking lot for easy accessibility.

Loess Hills Pioneer State Forest

This state forest was started in 1985 with the goal of learning and demonstrating the best means of managing a forest or timberland resource in the loess hills. As in other Iowa state forests, this area will also provide some other outdoor recreational opportunities including hunting, fishing, designated-use trails, picnicking, nature study and dispersed camping activities. This forest land is being acquired in four tracts which radiate out from the town of Pisgah into both Monona and Harrison counties. The proposed area will eventually consist of approximately 20,000 acres. Nearly 9,000 acres have already been acquired. Currently, the forest already offers excellent hiking, although trails aren't marked or necessarily completed. The forestry bureau intends to develop several pack-in campsites and one or two non-modern RV sites within the next 10 years. Many people are eagerly anticipating the recreational opportunities this area will provide.

Waubonsie State Park

Waubonsie State Park is Iowa's southern-most park in the loess hills. Located in Fremont County, it is only 10 miles from both the Missouri and Nebraska borders. The park sits high above the Missouri River floodplain with an overlook situated more than 300 feet above the valley.

Chief Waubonsie was leader of the Pottawattamie Indian tribe when they moved to southwest Iowa from Indiana in the mid 1830s. Waubonsie means "beginning of day," and was given to him as a young warrior after he avenged the death of a friend by entering the camp of the Osage at daybreak and killing seven members of the tribe. Because of his bravery and superiority, he was rewarded with the name and title, war chief of the tribe. In southwest Iowa the Pottawattamie established several villages, but in 1847 the they were again moved west to Kansas. Chief Waubonsie was, by then, 90 years old and was allowed to stay in an Iowa village until his death in 1848. He is buried near Tabor.

The first 200 acres of Waubonsie State Park was purchased by the state in 1926 and now has grown to more than 1,200 acres. However, it has not been developed for intensive recreation. There are two camping areas -- one modern with a shower house and one non-modern without. There are also picnic areas, a shelter house, seven miles of hiking and cross-country ski trails, eight miles of multiple-use trails for hiking, equestrian riding, mountain biking and snowmobiling, and two interpretive trails that are incorporated into the hiking trail system -- all providing many opportunities to study the plants and animals of the loess hills.

Waubonsie is one of Iowa's "undiscovered parks." During the summer, the park has uncrowded camping and picnicking areas in a valley that is nice and cool. In the spring, mushroom hunters can be found all over the park looking for the tasty morels. As the leaves change in the fall, the hillsides are spectacular with the fall colors. During winter Waubonsie is a great place for cross-country skiing or snowmobiling. It's definitely a park for all seasons. Nature study, observing wildlife, hiking, bicycling and trail riding can be enjoyed all year long.

County Conservation Areas

Don't forget the county conservation areas found in the loess hills. Each of these areas has been acquired by the respective boards to provide outdoor

recreation in this loess hills area, and each individual area has many opportunities for the public to enjoy. These western Iowa counties and their parks or natural areas include:

Plymouth County
Five Ridge Prairie Area (1)
Woodbury County
Sioux City Prairie Preserve (2)
Oak Ridge Conservation Area (3)
Little Sioux Park and Shagbark Hills (4)
Fowler Forest Preserve and Southwood Conservation Area (5)
Monona County
Whiting Woods (6)
Oldham Recreation Area (7)
Savery Pond (8)
Harrison County
Murray Hill Scenic Overlook (9)
Gleason-Hubel Wildlife Area (10)
Sawmill Hollow Wildlife Area (11)
Willow Lake Recreation Area (12)
Pottawattamie County
Hitchcock Nature Area (13)
Mills County
Pony Creek Park (14)
Mile Hill Lake (15)
Fremont County
Pinky's Glen (16)

All of these county- and state-owned natural areas combine to make an excellent outdoor recreation system in this unique natural feature called the loess hills. There are opportunities of such a wide variety that all should be able to enjoy themselves here. A whole vacation could be spent in one or several of these areas, and the vacationer will find the relaxed pace very rewarding. Just "head for the hills" and find out for yourself.

For more information about touring or vacationing in the loess hills, contact any of the areas previously mentioned, the DNR central office in Des Moines, or the Loess Hills Hospitality Association at 712/886-5441 (northern office) or 800/210-0020 (southern office).

Kevin Pape, Ron Williams and John Lambertz are park rangers for the department at Stone, Preparation Canyon and Waubonsie state parks respectively.

Loess Hills Scenic Byway

by Mimi Askew and Richard E. Allensworth

The loess hills of western Iowa represent a unique geologic formation; only one other region of the world is known to challenge the depths of wind blown sediment found here. These steep slopes were home to many different human cultures, found dating back as far as five thousand years. Today, the region hosts a variety of plant and animal species and communities, some of which are found in no other location in Iowa.

The loess hills region in Iowa formally extends south from Akron, Iowa (Plymouth County) to the Missouri border. The seven counties included in this region: Plymouth, Woodbury, Monona, Harrison, Pottawattamie, Mills, and Fremont have worked together to create a scenic byway in a response to promote tourism. These efforts began in 1989 and were completed in 1992.

The Loess Hills Scenic Byway system is a mosaic of designated roads through the heart of the scenic loess hills region of western Iowa. The system consists of a "spine" route which provides a corridor through the region in a north to south direction, along with thirteen excursion "loops" off of the spine.

The spine region measures 221 miles in length through the seven county region. Drive time for the entire route is just under six hours. The route is easily accessible to Interstate 29, and therefore provides numerous opportunities to enter and exit the system, based on the amount of time available for the user.

The excursion "loops" vary in length and require from 10 minutes to as much as 30 minutes to drive. Routes selected for this scenic byway travel through eighteen communities and provide numerous opportunities for additional activities including museums, parks, wildlife areas, and historic sites.

The Loess Hills Scenic Byway was developed specifically to allow the traveler a chance to experience the variety of scenery and vistas available. The route hugs the bottom of the bluffs in some locations and in others it wanders along the Missouri River flood plain, affording magnificent views of the region from a distance. In still other locations, the route travels through the heart or center of the hills, with breathtaking views of natural beauty on both sides of the road.

Copies of a map/brochure highlighting the Loess Hills Scenic Byway are available at Welcome Centers in Iowa or by sending a self-addressed and stamped, legal-sized envelope to the Harrison County Welcome Center, Route 3, Box 130A, Missouri Valley, Iowa 51555. Enjoy the hills!

Mimi Askew is a landscape architect/project planner with the Golden Hills RC&D in Oakland, Iowa.

Richard E. Allensworth is the director of the Mills County Conservation Board.

Richard E. Allensworth Jr.

THE PRACTICAL CONSERVATIONIST

Defensive Turkey Hunting Is Safe Turkey Hunting

Basic turkey hunting techniques have not changed much since Native Americans first showed the new settlers how to hunt turkeys -- find the turkeys, get close, hide, wait and call them in. This sounds simple, but as anyone who has hunted turkey knows, it is one of the most challenging hunts. Because of the nature of the hunt (sitting in camouflage and not moving) and the power of the weapons used (guns and bows), turkey hunting requires safe, ethical hunting techniques to avoid confrontations with other hunters.

Defensive turkey hunting means taking safety another step further to minimize life-threatening situations. The most common turkey hunting "accident" falls under the "mistaken-for-game" category. While humans walking slowly through the woods do sound very much like a turkey walking in leaves, no one should shoot before identifying the target. If hunters are sure of their targets, there is very little chance they will injure or kill another hunter who is sitting and calling, waiting for a bird to approach.

Following the basics, especially accurate target identification, can eliminate turkey hunting "accidents." Understanding turkeys and their habits, and understanding both the limits and the power of the chosen weapon are important. Courtesy to other hunters is equally important.

The Ten Commandments of Defensive Turkey Hunting © (reprinted with permission,© 1986, National Wild Turkey Federation) are:

1. Never stalk a turkey. The chances of getting close enough for a shot are slim, but the chances of becoming involved in an accident are increased.

2. Eliminate the colors red, white and blue from your turkey hunting outfit. Red is the color most hunters count on to differentiate a gobbler's head from the hen's blue-colored head. White can look like the snowball-colored top of a gobbler's head. Leave those white tee-shirts and socks at home. Not only will these colors put you in danger, but they can be seen by turkeys as well.

3. Never move, wave or make turkey sounds to alert another hunter of your presence. A quick movement may draw fire. Speak firmly in your natural voice and remain still.

4. Never attempt to approach closer than 100 yards to a roosting turkey. The wild turkey's eyesight and hearing are much too sharp to let you get any closer.

5. Be particularly careful when using a gobbler call. The sound and motion may attract other hunters.

6. When selecting your calling position, don't try to hide so well that you cannot see what's happening. Remember, eliminating movement is your key to success, not total concealment.

7. Select a calling position that provides a background as wide as your shoulders, and one that will completely protect you from the top of your head down. Small trees won't hide slight movements of your hands or shoulders which might look like a turkey to another hunter who might be stalking your sweet calls. Position yourself so you can see 180° in front of you.

8. Camouflage conceals you. It does not make you invisible. When turkey hunting, think and act defensively. Avoid all unnecessary movement. Remember, you are visible to both turkeys and hunters when you move even slightly. Sitting perfectly still will help you bag more turkeys than all the camo you can wear.

9. Never shoot at a sound or movement. Be 100 percent sure of your target before you pull the trigger.

10. When turkey hunting, assume that every sound you hear is made by another hunter. Once you pull the trigger, you can never call back the shot.

Here are a few other safe hunting techniques that are easy to follow.

Blaze or hunter orange apparel appears to cut down on turkey hunting success rates when worn during the hunt. A *large* patch of hunter orange does make the hunter visible to other hunters however, and may be worth wearing when walking to and from the hunting spot.

Some hunters will tie or tack a hunter-orange piece of material securely to a tree trunk (far above their heads) over their hunting spot. As other hunters enter the area the signal can alert them to the presence of the stationary hunter.

A hunter can avoid problems with over crowding in public hunting areas or on weekends by changing the hunt to mid-week or by seeking private land to hunt. Additionally, hunters should alert another person about their plans and their expected return time for safety.

Hunters can enjoy a memorable hunt and maybe even bag their own record gobbler, while hunting safely.

1993 Top 25 Turkey Awards

TOTAL SCORE	WEIGHT	BEARD LENGTH	LEFT SPUR	RIGHT SPUR	NAME/CITY	COUNTY TAKEN
82.50	24 lbs. 8 ozs.	12-4/8	1-5/8	1-5/8	Curt Dunn, Mt. Pleasant	Henry
81.75	30 lbs. 8 ozs.	11	1-4/8	1-3/8	Rick Rochau, Tipton	Cedar
81.50	27 lbs. 4 ozs.	12	1-4/8	1-4/8	Ron Arends, Cedar Falls	Black Hawk
81.38	28 lbs. 7 ozs.	11-2/8	1-4/8	1-4/8	David Wayne Kirkland, Cincinnati	Appanoose
81.00	28 lbs. 4 ozs.	11-2/8	1-4/8	1-4/8	Danny W. Gilbert, Amana	Iowa
81.00	28 lbs. 8 ozs.	11	1-4/8	1-4/8	Robert J. Robbins, Waucoma	Clayton
80.75	28 lbs. 12 ozs.	11-2/8	1-3/8	1-4/8	Paul J. Livingston, Edgewood	Clayton
80.50	24 lbs. 8 ozs.	10-7/8	1-4/8	1-7/8	Tom W. Cannon, Oelwein	Fayette
80.50	26 lbs. 8 ozs.	11-6/8	1-4/8	1-4/8	Kile Gerard, Marengo	Iowa
80.25	28 lbs. 4 ozs.	11-4/8	1-3/8	1-4/8	Dray D. Walter, Prescott	Decatur
80.13	26 lbs. 3 ozs.	11-7/8	1-4/8	1-4/8	Patrick J. Allen, Deep River	Poweshiek
80.13	27 lbs. 9 ozs.	11-5/8	1-3/8	1-4/8	Paul J. Davis, Dubuque	Jackson
80.00	28 lbs.	11	1-4/8	1-4/8	Robert A. Haulk, Wilton	Cedar
80.00	25 lbs. 4 ozs.	11	1-4/8	1-6/8	Lynn R. Buswell, South Amana	Iowa
79.88	27 lbs. 15 ozs.	10-4/8	1-4/8	1-4/8	Lowell J. Elledge, Colesburg	Delaware
79.75	27 lbs. 10 ozs.	12	1-3/8	1-3/8	Chad Paup, Stuart	Guthrie
79.75	25 lbs. 8 ozs.	10-5/8	1-5/8	1-5/8	Eric Shipley, Burlington	Lee
79.63	26 lbs. 5 ozs.	11-4/8	1-4/8	1-4/8	James R. Zweibohmer, Sherrill	Dubuque
79.50	25 lbs.	11	1-4/8	1-6/8	Frank Pross, Atlantic	Guthrie
79.38	27 lbs. 3 ozs.	11	1-4/8	1-4/8	Mark Kroll, Luxemburg	Lucas
79.38	24 lbs. 11 ozs.	12	1-4/8	1-4/8	Randy Hopkins, Muscatine	Jackson
79.25	29 lbs. 10 ozs.	10-6/8	1-3/8	1-3/8	Jeffrey A. Dirks, Center Junction	Jones
79.25	27 lbs. 12 ozs.	11	1-3/8	1-4/8	Garald L. Slye, St. Charles	Madison
79.25	27 lbs. 8 ozs.	10	1-4/8	1-5/8	Richard A. Werger, Marquette	Clayton
79.25	28 lbs. 4 ozs.	11	1-3/8	1-4/8	Scott J. Taylor, Estherville	Guthrie

Iowa All-Time Top Ten Turkey Awards

TOTAL SCORE	WEIGHT	BEARD LENGTH	LEFT SPUR	RIGHT SPUR	NAME/CITY	COUNTY TAKEN	YEAR
88.94	25 lbs. 7 ozs.	10-4/8	2-1/8	2-1/8	Thomas J. Moravec, Cedar Falls	Allamakee	1990
86.63	29 lbs. 10 ozs.	11	1-6/8	1-6/8	Duane Frey, Winterset		1987
85.69	28 lbs. 3 ozs.	11-2/8	1-6/8	1-6/8	Matt Whatley, Riverside	Davis	1988
85.38	27 lbs. 10 ozs.	10-6/8	1-6/8	1-7/8	Steve Winkey, Iowa City	Johnson	1991
85.00	28 lbs. 4 ozs.	10-2/8	1-7/8	1-6/8	Thomas L. Miner, Chariton	Lucas	1991
84.25	31 lbs. 8 ozs.	10-6/8	1-4/8	1-5/8	Douglas D. Vaux, Coon Rapids	Guthrie	1991
83.88	28 lbs. 6 ozs.	10-2/8	1-6/8	1-6/8	Bryan T. Hayes, Mystic	Appanoose	1989
83.37	29 lbs. 2 ozs.	11-4/8	1-4/8	1-5/8	Gary L. Hesselberg, Davenport	Jackson	1992
83.31	30 lbs. 5 ozs.	11-4/8	1-4/8	1-4/8	C. L. Current, Monroe	Marion	1987

The Iowa DNR is ending its state trophy turkey awards program. Hunters who wish to have their turkey recognized in an awards program are encouraged to enter their trophy in the National Wild Turkey Federation's "Wild Turkey Records." The NWTF uses a scoring system identical to the one used by the Iowa DNR. To obtain information and entry forms, contact Angela Terry, National Wild Turkey Federation, Wild Turkey Building, P.O. Box 530, Edgefield, SC 29824, phone: 803/637-3106. The state program met its goal of documenting the existence of a great number of trophy turkeys in the state. If DNR staffing is restored in the future, the state trophy turkey program may be started again.

CONSERVATION UPDATE

The Nongame Program's Chickadee Checkoff

"Contributing to the Chickadee Checkoff on the state income tax form is one of the best ways Iowans can do their part to help songbirds or any of the 400 plus species of nongame wildlife in the state," said Laura Jackson, DNR nongame biologist. "This year the familiar Chickadee Checkoff logo is not on the tax form so taxpayers need to take a little extra effort to make sure they contribute. The Chickadee Checkoff (officially known as the Fish and Wildlife Trust Fund) is located on line 15 of the Iowa 1040A (short form) and on line 62A on the Iowa 1040 income tax form (long form).

Jackson said the Chickadee Checkoff generates just under $200,000 a year for the DNR's work on nongame wildlife, or those species that are not the targets of anglers and hunters. Programs geared to game species, such as pheasant and deer, are funded by sports licensees. "Money from the Chickadee Checkoff enables us to conduct research, management and education programs that go much further in the protection of nongame wildlife," Jackson said.

"With thousands of persons participating in our Bald Eagle Appreciation Days, our bird feeder survey and other programs," Jackson said, "we know there is much interest in nongame species. We continually hope that interest is transferred into financial gifts to support our nongame programs."

Roger A. Hill

The familiar Chickadee Checkoff logo is not on the Iowa tax form this year so taxpayers need to take a little extra effort to make sure they contribute.

Officially known as the Fish and Wildlife Trust Fund the checkoff is located on line 15 of the Iowa 1040A (short form) and on line 62A on the Iowa 1040 income tax form.

According to a new survey by the U.S. Fish and Wildlife Service, Iowa residents spent $124 million on recreation such as bird watching, bird feeding, and wildlife photography in 1991. These activities were enjoyed by two-thirds of the state's adults. "More than half of the people enjoyed wildlife-related recreation on 50 or more days," Jackson said.

"Despite the high interest and participation in wildlife activities, most Iowans still do not realize that there is a state program for non-hunted or nongame wildlife," said Jackson. "The program is actively promoting education about landscaping for wildlife, bird feeding and where to go to view wildlife," Jackson noted, "as well as co-hosting several wildlife viewing events,"

"Since little is known about the needs of most non-hunted species, the nongame program also conducts research on wildlife ranging from birds at the bird feeder, to frogs and turtles, and from bald eagles to butterflies to bats," Jackson said. The

Roger A. Hill

A breeding bird atlas is in production.

Roger A. Hill

The annual frog and toad survey information is distributed beginning March 1.

Amphibians and reptiles are excellent "barometers" of habitat change and pollution damage.

In 1991, Iowa residents spent $124 million on recreation such as bird watching, bird feeding and wildlife photography.

Ron Johnson

▲
The otter reintroduction, begun in 1985, has been very successful. The reintroduction of the peregrine falcon to Iowa is one of the Nongame Program's most recent accomplishments.

program has also been active in restoring native species, such as the river otter and peregrine falcon, to the state.

The Nongame Program is not funded by income taxes, license fees or habitat stamps. Taxpayers can donate and know that their donation helps preserve more than 400 non-hunted species in the state, and is used to help thousands of Iowans learn about Iowa's nongame wildlife each year. A copy of this year's beautiful sandhill crane nongame poster (see inside back cover of this issue) can be acquired from tax preparers or by sending a $5 or more donation to the nongame program. For more information about the Nongame Program write: Nongame Program, 1436 255th Street, Boone, Iowa 50036, or call 515-432-2823.

Roger A. Hill

Ron Johnson

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The Nongame Program provided bat house plans and conducted a bat house survey. A newly revised bat information book is planned for later this year.

Spring '94 Toxic Cleanup Days

Toxic Cleanup Days (TCD) allow Iowans to dispose of their household hazardous wastes and provide an opportunity for education on alternatives to disposal, or in some cases, proper disposal management in the home. If you are stumped about what to do with unusable chemicals in your home, call the DNR Waste Mangement Hotline at (800)367-1025.

The spring '94 TCD counties and dates are listed below. Watch local newspapers for phone numbers to call for appointments.

- **April 30**
  - Emmet County
  - Hancock County
  - Ida County
- **May 7**
  - Mills County
  - Pottawattamie County
- **May 14**
  - Page County
  - Story County
  - Taylor County
- **May 21**
  - Marshall County
  - Keokuk County
  - Van Buren County

Leopold Education Project Workshop April 22-23

A workshop on the Leopold Education Project (LEP), a new set of middle and high school curriculum materials correlated with Aldo Leopold's *A Sand County Almanac*, is scheduled for April 22 and 23at the 4-H Center in Madrid. Sponsored by Pheasants Forever and REAP the LEP workshop seeks to teach educators how to instill a strong love, respect and admiration for the land in tomorrow's land stewards.

The workshop received a REAP grant from the Conservation Education Board. For educators, the cost of the workshop is only $181 plus half of the mileage. Local Pheasants Forever chapters may sponsor educators by matching the REAP funds so that an educator's final cost would only be the $15 registration fee. The workshop will also offer college graduate credit from Drake University.

For more information on LEP or to find out how to contact a local Pheasants Forever chapter call: Ann McCarthy, 612/481-7142 at the national office or the regional Pheasants Forever representatives, Jim Wooley, 515/862-3290 in southern Iowa, or Matt O' Connor, 319/352-0318 in northern Iowa.

CONSERVATION UPDATE

West Branch Students Receive President's Environmental Youth Awards

At a Jan. 26, 1994 White House ceremony, West Branch Middle School sixth-grade math and science students and their teacher received the President's Environmental Youth Award from Vice-president Al Gore. The President's Award recognizes outstanding programs that promote local environmental awareness and channel this awareness into positive community involvement. A strong component of the West Branch project was parental and community involvement.

Student Research -- An Investment in the Future was designed to teach students the benefits of using water and energy more efficiently, to involve the parents in helping their children with measurements, calculations and installing water and energy saving devices, and to have the students make presentations about the project to the city council and school board.

West Branch Middle School, Kemper Management Services (KMS), Iowa-Illinois Gas and Electric, and Iowa Electric were partners in the original project, and last May they were joined by the Linn County Rural Electric Cooperative.

The project quickly grew school-wide when the businesses arranged for a professional auditor to teach the students and parents how to install the devices. The students and parents installed 62 compact fluorescent bulbs and 114 water saving measures, such as sink aerators and low-flow shower heads, in their homes. They monitored the conservation measures, comparing pre- and post-installation energy use. All findings were recorded on a spreadsheet and database, identifying information such as watts, gallons and money saved, decrease in harmful emissions and a projected decrease in the number of burned-out light bulbs added to the landfill. Students and parents quickly learned the environmental and financial benefits of retrofitting their homes with energy-and water- efficient devices.

Twenty-nine students presented their findings to the city council and to the school board. "Testing water devices helped me become more aware of how much water we could save," said Leanna Fawcett, an eighth-grader at West Branch Middle School. "If every student continues to use the devices in their homes, our community could save thousands of gallons of water per year.

Earlier this spring, the energy/water project received the Governor's Award for Advancing Alliances Between the Public and Private Sectors -- an effort by the Governor and the Iowa Alliance for Science to recognize outstanding public/private programs that enhance science and education in Iowa. Science teacher, Hector Ibarra and math teacher, Carolyn Anderson also received the Governor's Award for Community Involvement for their part in the school's project.

Student Research -- An Investment in the Future will continue as a project because Iowa Electric, Iowa-Illinois Gas and Electric, Jawz, Inc., Kemper Management Services and the Linn County R.E.C. have joined together to donate the materials needed to involve all incoming sixth graders.

Adopt-A-Stream In 1994

The DNR will again sponsor an Adopt-A-Stream program in 1994. The program has been implemented in order to encourage groups and individuals to get out onto our rivers and streams and take an active role studying and helping to correct problems that Iowa's streams face.

The program is open to school classes, scout groups, sports or outdoor enthusiasts' clubs, families or individuals that may be interested in adopting a stream segment. To qualify, simply contact the DNR to request a stream adoption packet. The packet will include an enrollment application that allows the group to "adopt" a segment of stream, and a project completion form that should be returned when the project has been completed.

The project completion form qualifies entrants for a certificate of appreciation from the state and mention of their project in various publications and news releases produced by the DNR. In addition, the top ten project sponsors will receive a beautiful American Rivers wall poster showing one of the nation's most beautiful streams.

Last year, the frequent spring and summer flooding kept many sponsors from completing their planned projects.

Those same floods also created many problems for Iowa's rivers, including the deposit of much trash and litter along the riverbanks and public access areas. There is a greater-than-ever need for river cleanup projects.

Those interested in adopting a stream segment this year should contact: Department of Natural Resources, Attn: James Zohrer, Wallace State Office Building, Des Moines, IA 50319-0034 or call 515/281-3449.

Largest-Ever Health Study of Farmers and Families

Researchers at the University of Iowa College of Medicine are enrolling Iowa farmers, their families and commercial pesticide applicators in the most comprehensive study ever conducted into potential health risks associated with farming practices and agricultural living. As many as 75,000 Iowans are expected to participate in the study conducted by the University of Iowa in cooperation with the Iowa Department of Agriculture and Land Stewardship (DALS) and the Iowa State University Extension Service. The study is directed by the National Cancer Institute and funded by the NCI, Environmental Protection Agency and the National Institute of Environmental Health Sciences.

"Farmers have higher than-normal rates of leukemia, multiple myeloma, non-Hodgkin's lymphoma and cancers of the brain, prostate, stomach, skin and lip. Chronic diseases like asthma, neurologic and kidney disease may also be related to agricultural exposures," says Dr. Charles Lynch, U of I professor of preventive medicine and environmental health, and project director of the Iowa portion of the study. The study has a second research site in North Carolina.

"Farmers are regularly exposed to potentially harmful compounds such as pesticides, chemical solvents, engine exhausts and animal viruses. They also have higher-than-average exposure to sunlight and other substances common to agriculture," Lynch adds.

Some of these agents have been linked to cancer, but the reasons why farmers face a greater risk for many types of cancer remain unclear. In addition, farmers may also suffer other conditions that have not yet been well studied among agricultural workers, such as neurologic or kidney diseases.

DALS and extension staff will be enrolling study participants through the next four months at pesticide applicator testing and training sessions throughout Iowa. Because this is a prospective study, investigators will collect data on exposures and then follow study participants to identify diseases that may develop. Farmers, their dependents and the pesticide applicators will be followed for at least 10 years. Investigators will compare the number of cancer cases that are expected to occur in this population with the number that actually appear. They will also compare disease risks in people exposed to specific substances to risks in unexposed individuals.

Individually, each participant will be asked to provide information on agricultural exposures, diet and cooking practices, as well as a complete occupational history, and family and personal medical history. A smaller group of participants will be monitored for their exposure to harmful substances during different farm tasks, and from diet, water and air.

Researchers hope the study results will provide information that agricultural workers can use in making decisions about their health and the health of their families.

For further information on the Agricultural Health Study, call 1-800/4AG-STUDY.

Farmer-Environmentalist To Head Soil Conservation Service

Paul Johnson, a northeast Iowa farmer and former state lawmaker, is preparing to take the helm as the new chief of the USDA Soil Conservation Service.

Johnson raises corn, hay, Christmas trees, dairy cattle and sheep near Decorah.

During his three terms as a state representative, Johnson was recognized as the environmental conscience of the Iowa Legislature. He introduced the 1987 Iowa Groundwater Protection Act which addressed nitrogen use, household waste, landfills and recycling. The act is credited with helping reduce nitrogen fertilizer use by 17 percent in the state.

According to a 1994 feature article in Goodyear's *Our Priceless Soil*, Johnson believes agriculture could reduce pesticide use by 25 percent without affecting yields. He notes Iowa farmers are now saving $30 to $40 million a year by using less nitrogen.

Johnson says, "Regulation didn't reduce nitrogen rates in Iowa — education did." He insists regulation is an inefficient way to change, but he also expresses concern that urban America is losing patience with farmers.

Johnson worries that the compliance regulation in the 1985 Farm Bill makes some farmers think they should get compensated for caring for the land. "Caring for the land is really a privilege, and our moral responsibility to the next generation and to other life on earth," says Johnson.

--reprinted from county SCS newsletter information

Change in Flotation Device Regulations

Effective immediately, anyone using a boat of less than 16 feet or a canoe or kayak of any length is now required to have a wearable Type III, personal flotation device (PFD) for each person on board. A Type IV or buoyant cushion device is no longer adequate.

The DNR is bringing its rules into compliance with Coast Guard Regulations.

All PFDs must be Coast Guard approved.

CONSERVATION UPDATE

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 Advisory Board of the Iowa Department of Natural Resources.

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

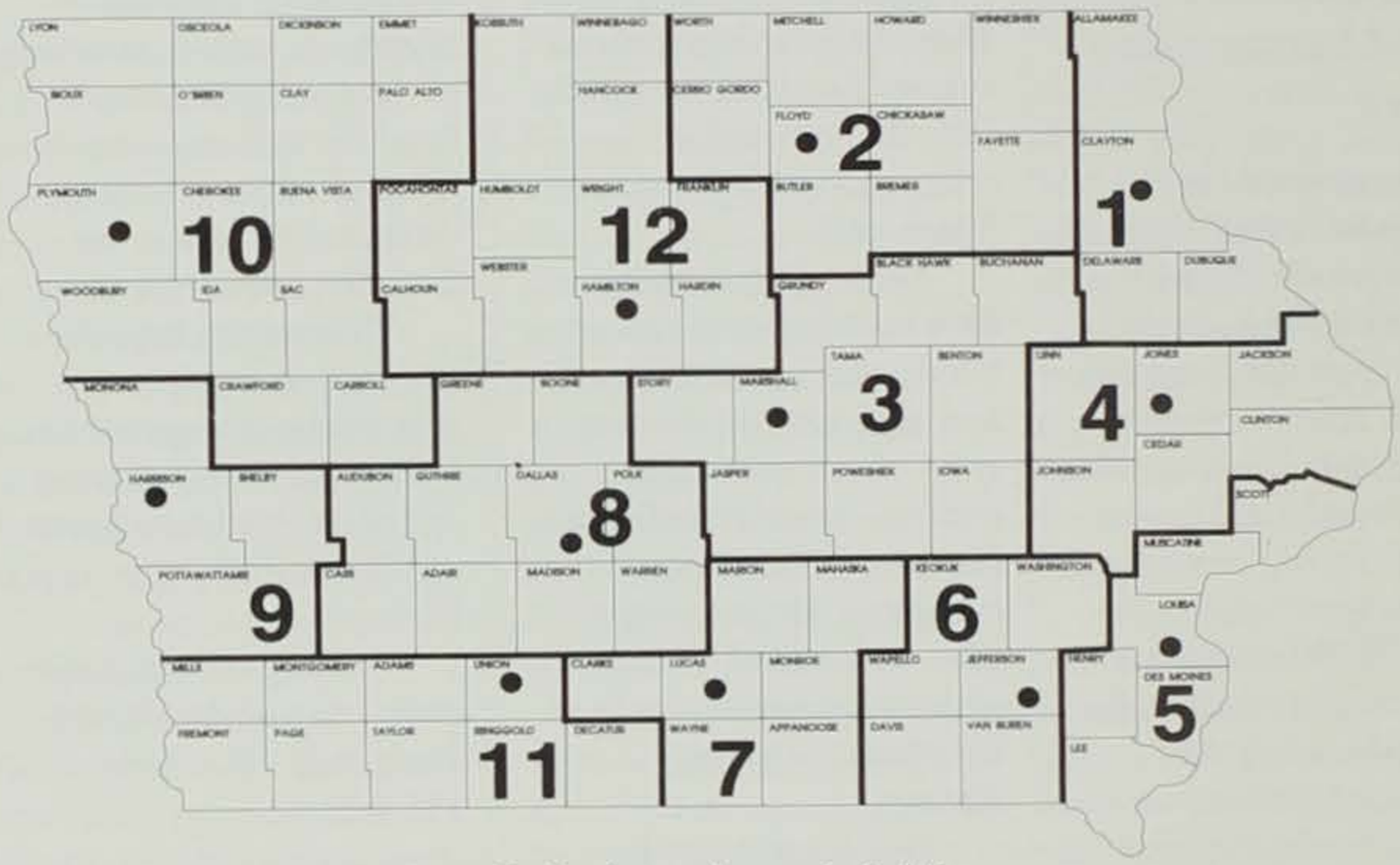
For additional information, contact the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034.

Natural Resource Commission:
--March 10, Des Moines
--No April meeting scheduled
--May 12, Webster City

Environmental Protection Commission:
--March 21, Des Moines
--April 18, Des Moines
--May16, Des Moines

State Preserves Advisory Board:
--March 8, Burlington

New Forestry Districts



Foresty district boundaries have changed slightly. Contact the forester in your area for forestry asssistance.

1. Janet Ott, Box 662, Elkader, IA 52043, 319/245-1891

2. Gary Beyer, Box 4, Charles City, IA 50616, 515/228-6611

3. Bob Hibbs, 2501 South Center St., Ste. 1, Marshalltown, IA 50158, 515/752-3352

4. Steve Swinconos, Box 46, Anamosa, IA 52205, 319/462-2768

5. Stan Tate, 515 Townsend Ave., Wapello, IA 52653, 319/523-8319

6. Ray Lehn, Box 568, Fairfield, IA 52556, 515/472-2370

7. Duane Bedford, RR 5, Box 119AA, Suite 4, Chariton, IA 50049, 515/774-8733

8. George Warford, 1918 Greene St., Adel, IA 50003, 515/993-4133

9. Brent Olson, Box 158, Pisgah, IA 51564, 712/456-2924

10. Joe Schwartz, 1100A 12th St. SW LeMars, IA 51031, 712/546-5161

11. Randy Goerndt, 500 E Taylor, Creston, IA 50801, 515/782-6761

12. Gail Kantak, Box 232, Webster City, IA 50595, 515/832-3585

International Hunter Education Conference in Des Moines

The 1994 International Hunter Education Association conference is being held in Des Moines April 30 to May 6. "Accomplishing the Mission Through Cooperation" is the theme and participants are expected from throughout the United States, Canada and Mexico. "After 29 years, this is the first time the conference has been held in Iowa," said Sonny Satre, conference chairperson. "We have a strong agenda which we feel will generate some spirited discussions. International communication and cooperation about effective hunter education techniques help make the sport safer for everyone."

The conference will have sessions on reaching nontraditional hunter education audiences, the Eddie Eagle program on gun safety in the home (for K-sixth graders), using interactive videos as a teaching supplement as well as more traditional sessions such as forecasts on the future of hunting and trapping.

For more information and registration forms contact Sonny Satre, Department of Natural Resources, 900 East Grand, Des Moines, IA 50319-0034, 515/281-8652.

CLASSROOM CORNER

by Barb Gigar

How Much is an Inch of Rainfall if You're a River?

Portions of this activity were modified from the *Aquatic Project WILD* activity, "Where Does Water Run Off After School?" and *The Young Scientist Investigates Water.*

People in the Midwest witnessed the repeated overflow of their waterways with runoff during the summer of 1993, yet it is still difficult to grasp the volume of water generated by a summer rain (or winter snow as it melts). The purpose of this activity is to help participants determine 1) the volume of water that falls during a storm on a small area of land (the school yard) and 2) develop an understanding of how the soil and materials which cover it influence how much water runs off the land into our waters.

Background:

Many of the recreational lakes in southern Iowa were built by constructing a dam on a river. Land that drains into the river(s) that run(s) into a lake make up its *watershed.* Land use in the watershed of a lake greatly impacts the amount of water running into the lake as well as *water quality.* Water that does not soak into the soil enters streams and rivers as *runoff.* Runoff may carry soil particles and other substances. As long as the water is moving, the particles stay suspended, but as water enters a lake from a river it spreads out and slows down, losing much of the fine soil (*silt*).

Silt is the number one pollutant in Iowa waters. It fills in lakes, smothers aquatic plants, insects and fish eggs and makes it difficult for predators that feed by sight to locate food. Yet, few people can comprehend the amount of soil that can be carried into a lake in a single rainfall, because they cannot grasp the volume of water that enters a lake. The best way to reduce the rate of siltation in our waters is to protect their watersheds, thus reducing runoff and the amount of pollution carried with it. Students will become familiar with the concepts of watershed and runoff during this activity.

Ron Johnson

▲
Runoff may carry soil particles and other substances.

Age:

Grades 5-12

Subjects:

Math, Science

Objectives:

1. Students will make a rain gauge and use it to measure precipitation on the school grounds for a predetermined period of time.

2. Students will determine the area of the school grounds and calculate the volume of precipitation that falls on the grounds during that time.

Materials:

clear cylindrical plastic squeeze bottle (See figure 1.)
knife, scissors or other cutting instrument
permanent marker
ruler
writing materials
meter or yard stick
calculator (optional)

Vocabulary:

watershed, runoff, water quality, silt

CLASSROOM CORNER

Extensions:

1. Have students calculate the weight of the water that falls on the school grounds during a period of rainfall. (One cubic foot of water weighs 62.5 pounds.) Students in the higher grades may calculate the force of the water if it all enters a stream at once and is accelerating at 5 meters per second per second (m/s/s), 10 m/s/s, or 15 m/s/s (Force = mass {kg} x acceleration {m/s/s}). Discuss why it is important to slow the rate at which runoff water enters waterways.

2. The measurements and calculations in this activity are designed to impress upon students that remarkable volumes of rainfall can fall to the ground in a very short period of time. Discuss what happens to the water that falls to the ground. Where does it go when it leaves the school site? How much water is absorbed in different areas of the school site (i.e. concrete, grass, bare soil, gravel)? What are potential pollutants the water might pick up as it runs off the school site? How might these pollutants affect the waterway and/or lake they run into? How can pollutants entering the waterway be reduced?

Ron Johnson

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Runoff

Barb Gigar is the department's aquatic education coordinator located at Springbrook Conservation Education Center in Guthrie County.

Procedure:

To make a simple rain gauge, use a clear cylindrical plastic bottle (figure 1). Cut the top of the bottle so the bottom piece has straight sides and invert the top of the bottle in the bottom portion (figure 2). Use the ruler and marker to measure and mark increments of one inch (or centimeter) from the bottom of the gauge (figure 3). Place the rain gauge in an open space away from trees or buildings. (Extension: Make several rain gauges and place them at locations around the schoolgrounds. Calculate the average rainfall on the schoolgrounds.)

Figure 1

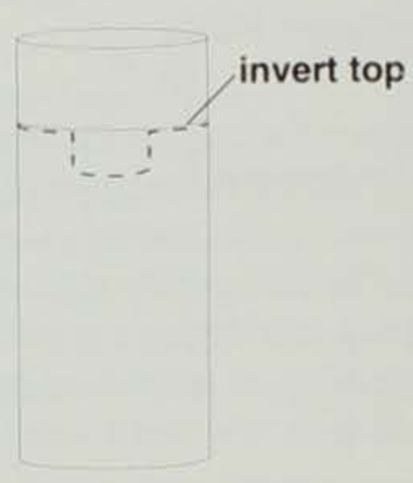


Figure 2

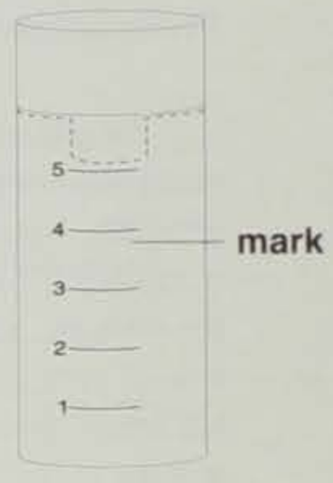
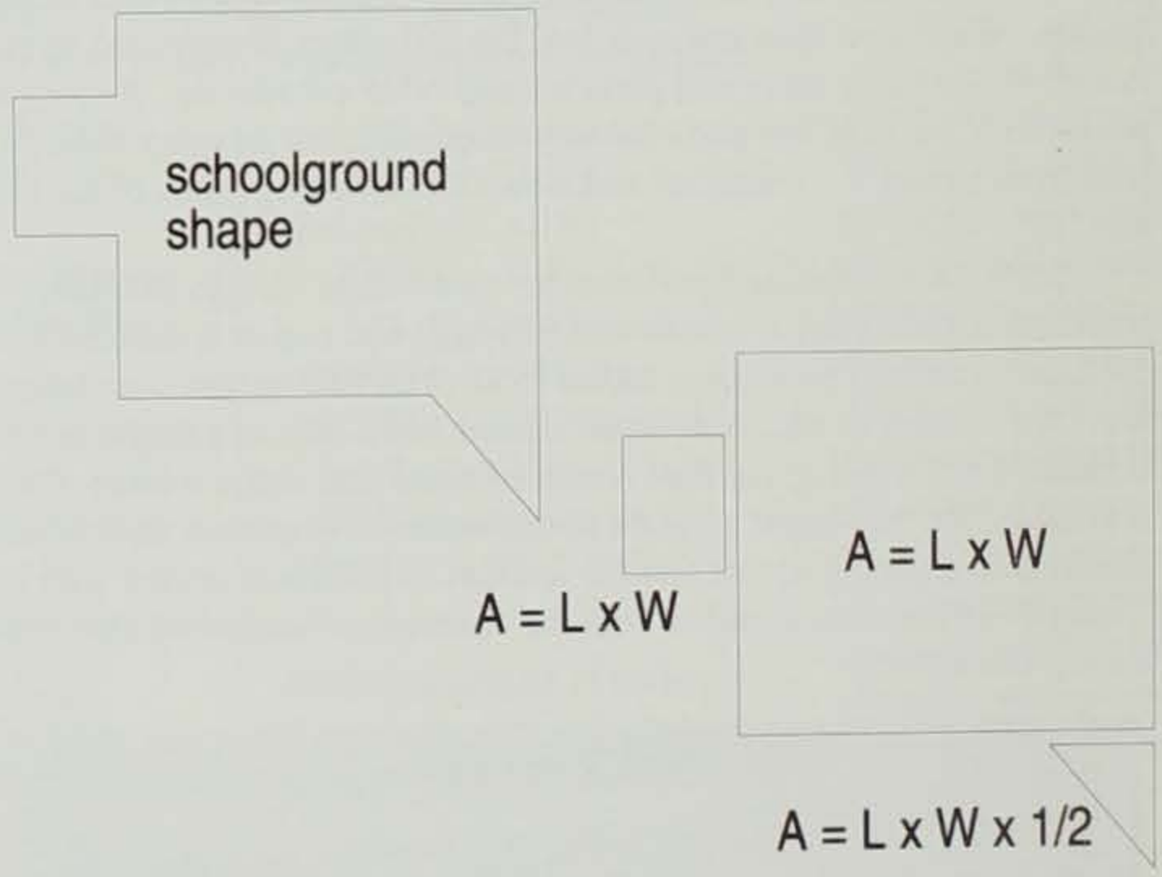


Figure 3

To calculate the area of the schoolgrounds measure the length and width. (Students may use a length of twine marked in one-foot or meter increments, or a tape measure, to speed this process.) If your schoolgrounds have an irregular shape, students can measure a rectangular approximation or measure segments and calculate the total area as shown in the following diagrams.

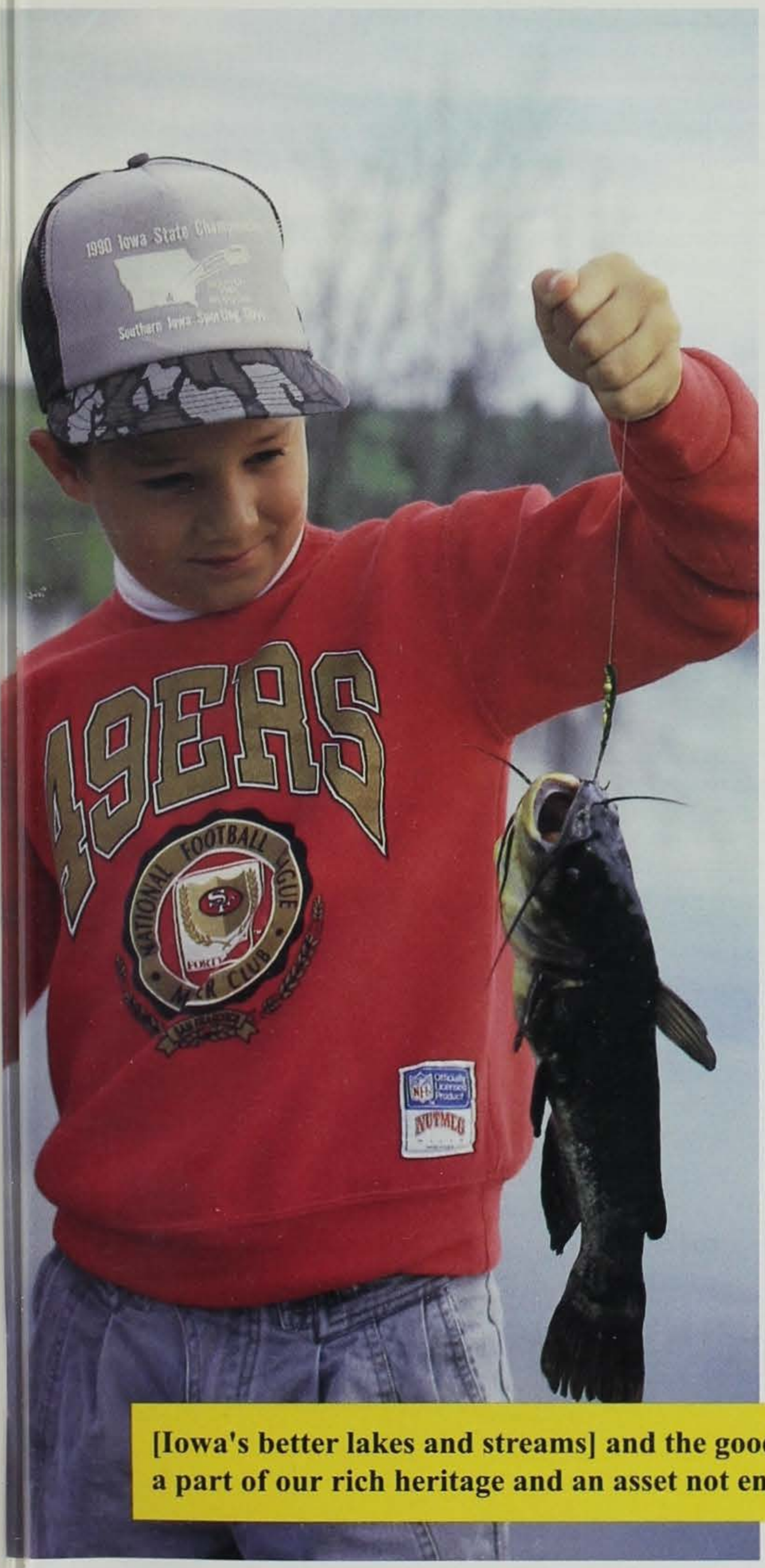


To determine the volume of rainfall, convert the amount of rainfall to feet or meters:

1 inch = 1/12 foot; number of inches/12 = number of feet
1 cm = .01 m; number of cm/100 = number of meters

The students should then multiply the area of the schoolgrounds (square feet or square meters) times the amount of rainfall. This will give you the volume of rain in cubic feet or cubic meters.

1 cubic foot = 7.5 gallons = 62.5 pounds
1 cubic meter = 1000 liters = 1000 kg



COMMON GROUND

Fishing and Farming

Article by Don Bonneau
Photos by Lowell Washburn

I often wonder if those of us that grew up in the Midwest, especially Iowa, really appreciate the unique qualities of the region. The fish we caught on our first outing were probably catfish, if we fished a stream; or a sunfish, probably a bluegill, if the adventure took us to a nearby lake or farm pond. Although trophies to only the beginner angler, these fish are numerous, easy to catch and prized by the majority of anglers.

I remember well my first fish. I cut a willow limb from the creek bank, tied a line and hook to it and went down to the creek behind the house. Mud from head to toe, I hurried home to show off my catch. I knew very little about fish or their habitat during those years, but it looked like a bullhead to me. It was small, had a big head and sharp spines. The fish went into a bucket of water, and that evening, I carried it up to my father as he climbed off his tractor. He smiled, patted me on the head and identified my prize. I was right -- it was a bullhead.

[Iowa's better lakes and streams] and the good fishing they provide are definitely a part of our rich heritage and an asset not enjoyed by many other states.

During later years, my family spent many hours camping and fishing lakes and streams near home. These were wonderful times that created memories a young, formative mind doesn't readily forget. We caught channel catfish, flathead catfish, largemouth bass, bluegill, crappie, white bass and walleye. It was during these years I became very interested in fish and their habitats. It didn't take a genius to see that the kinds and quality of fish varied with the area we fished. Some areas provided good fishing and some areas provided poor fishing. One pond I fished as a youngster provided great fishing for largemouth bass and bluegill, and the pond just over the hill contained only a few bass and a lot of stunted, small bluegill. The ponds looked very similar. Why did one pond provide good fishing and the other very poor fishing?

. . . other bodies of water, those that are muddy and have poor water quality, rarely provide good angling, and fish stocking and reduced angler harvest can do little to improve fishing. Reduced soil erosion, however almost always benefits fish and fishing.

DNR photo

My interest in nature, specifically quality of fishing provided by lakes and streams, was sparked by a combination of fishing and farming experiences. Years on the farm taught me that environmental factors ultimately determined the quantity and quality of the crop. It was these same factors, I would later understand, that were important throughout nature.

With my farming background in my hip-pocket, I set off to college to learn more about our environment. I knew fishing was important to many people and especially me. I wanted to know the answer to the question "why some lakes always provided good fishing and others only fair to poor fishing?" My college studies taught me the complexities in our environment and provided the foundation I would need to understand and manage valuable fisheries resources. It was 25 years of experience as a fisheries biologist and my farm background, however, that helped me understand the important relationship between water quality, fishing quality and farming. This relationship is especially noticeable here in the Midwest because farming is the major use of the land.

In Iowa, we are blessed with some of the most fertile farmland in the world. During a year of flooding, as in this past year, our crops were hurt. But over the long term, people around the world depend on Iowa's rich farmland. This same productive land also produces some of the world's most productive lakes and streams. Iowa's better lakes and streams produce more channel catfish, bluegill, crappie and large-mouth bass than similar bodies of water in most other states. These productive waters and the good fishing they provide are definitely a part of our rich heritage and an asset not enjoyed by many other states.

We didn't inherit this valuable, yet often unappreciated, portion of our natural heritage without problems, however. Yearly cycles in our fishing quality are as common as yearly cycles in farming. The causes are many and are generally associated with annual fluctuations in such factors as temperature and precipitation. These short-term influences, however, pale beside the long-term impact soil erosion has on Iowa's lake and stream fisheries. It

is the erosion of Iowa's most valuable resource, its topsoil, that has the greatest impact on fish and fishing. Muddy water, fertilizers and farm chemicals eroded from unprotected fields ruin fishing by reducing water quality, destroying fish food organisms, reducing lake depth and upsetting nature's ability to provide quality angling.

Anglers in the rich agricultural Midwest have been quick to take the blame for poor fishing and have equated poor fishing to over-harvest of fish by greedy anglers. Nothing could be further form the truth and usually the problem is much more complicated. Yes, it is true that largemouth and smallmouth bass fishing can be ruined by angler harvest. Bass fishing in Iowa's highest quality lakes is greatly impacted by over-fishing, but this is the exception rather than the rule. Research on the most commonly caught species of fish indicate that Iowa's high-quality lakes and streams are loaded with game fish and angler harvest is very compatible with continued good fishing. Research also shows other bodies of water, those that are muddy and have poor water quality, rarely provide good angling, and fish stocking and reduced angler harvest can do little to improve fishing. Reduced soil erosion, however almost always benefits fish and fishing.

Yes, from the young kid on the stream bank that prizes a small bullhead to the lunker hunter that invests thousands of dollars in the sport of fishing, we must do a better job of appreciating the resources we've inherited and stopping the major threats to those resources. It is true the potential for quality angling in Iowa matches or exceeds that of most other states. We must recognize soil erosion as the major factor impacting angling quality and muddy water and poor water quality as a problem that will be solved through long-term education. The problem of soil erosion has come into focus within the past decade and education programs and changes in farming practices has begun to reduce the loss of our valuable topsoil. Iowan's take pride in their industrious nature and clean environment. These attributes and a strong commitment to education will help insure the quality of our fishing and quality of our environment remain for future generations.

Don Bonneau is a fisheries research supervisor with the department in Des Moines.

DNR photo

WARDEN'S DIARY

by Chuck Humeston

"A Little Respect"

Have you ever seen the comedian, Rodney Dangerfield? You know, the guy who jokes about the trials in his life then fumbles with the knot in his tie, muttering, "I tell you. I don't get no respect."

Sometimes I identify with Rodney.

Recently I read an article in a newspaper concerning how many Iowa state troopers had been investigated for complaints of being discourteous. That is heavy stuff considering the ills of the world or, a rather slow news day I imagine.

Anyway, it made me think. I wonder if they also took a tally on the number of instances officers had suffered discourtesy from the person with whom *they* were dealing? Probably not, because that wouldn't be news.

Take for instance the New Year's Eve phone call. I had stopped at the Webster City Police Department, and I was in the radio room while a police officer was taking a phone call. I heard the word, "hunting," and looked over at him.

"Would you want to talk to this woman?" he asked.

I picked up the phone and said, "Hello?"

"I'm trying to get a straight answer to a simple question, and it's getting complicated," she said.

I could tell she was not too happy by the tone of her voice.

"Well, I'll try," I answered.

"What is the minimum age for a person to go hunting in the state of Iowa?" she asked.

"There is none," I answered.

"You mean a person can go hunting at any age!" she said. I could tell she was now more unhappy.

"Well," I said, "at age sixteen a person needs a hunting license, and under sixteen a person can hunt without a license if they are with a licensed adult."

"You don't understand!" she said, now very unhappy. "What is the minimum age to go hunting? Is it eighteen or twenty-one or what?"

"There is none," I answered, "but there are license requir . . ."

"I don't think that it should be that way!" No question now, she was definitely unhappy.

"Ma'am, there's probably lots of things that shouldn't be, but that's the way it is . . ."

"I don't need a lecture from you! You go to @#$*%!"

"Yes Ma'am, you too," I replied as she hung up on me.

I looked at the police officer. "Happy New Year," I said.

"Sorry I gave you that," he said. "Nobody deserves to be treated that way."

For some reason there are those people who think other people wearing badges are their personal verbal whipping posts, and, if the officer should respond, then that's discourtesy. Officers have different ways of handling it.

One officer I know told me about the time he met an oncoming car, and saw the driver make a "gesture of disrespect." I asked the officer what he did.

"Well," he answered, "I turned around, caught up with him and pulled him over. Then I walked up to the car and had a talk with him."

"What did you say?" I asked.

"Did you ever walk away from someone, and later think of all those things you wish you'd said?"

"Sure, all the time," I answered.

"I said those things!" he giggled.

All officers try to stay above it. You try to go about your job protecting the resource and public safety the best way you can. Sometimes the people we deal with are mad at something else, and we happen to be the closest available target for their stress. That doesn't mean it's right, but it simply is the way life is. When people are yelling at me, I always wish I could hold up a mirror to them so they could see what they look like. That might stop a few people in mid- word: Many times we just have to take it and walk away.

But not too long ago, there was this one instance . . .

I had stopped a pick-up containing two hunters. I asked to see licenses, and one of the hunters began to chew me up, down and over about different hunting regulations -- why were they this way, how they should be that way, they didn't take into account this, they were unfair about that, and on and on. I tried to ignore him while I looked at the licenses because many times these tirades are just attempts to distract us.

I asked to look at his gun, and I pulled the guncase out of the cab. I unzipped it, took out the shotgun and looked at it. There was one unfired shell in the chamber and a full magazine. I couldn't help smiling.

"Small problem here, isn't there?" I said.

"Yeah," he answered sullenly.

Touche . . .

IA 1040A Calendar Year 1993

IOWA INDIVIDUAL INCOME TAX RETURN
SHORT FORM - FU[illegible]R IOWA RESIDENTS ONLY

STEP 1 Name and Address

LABEL HERE

First name, middle initial | Last name | [illegible]r Social Security Number • | Occupation

Spouse's first name, middle initial | Last name | [illegible]mber • | Occupation

Current mailing address (number & street including apartment num[illegible] | Sch. Dist No.

City, town or post office, State and ZIP code [illegible]93

Are your name, your spouse's name if applicable, an[illegible]

STEP 2 Filing Status — Mark one box only

1 ☐ Single: If you are claimed as a dependent on [illegible] ☐ es

2 ☐ Married filing joint return [Note: If m[illegible]

5 ☐ Head of Household (with qualifying person[illegible]

6 ☐ Qualifying widow(er) with dependent chil[illegible]

STEP 3 Figure your exemption credits

Enter 1
Enter 2 if filing
head of hou[illegible]

YOU (and spouse IF filing jointly) — PERSONAL CREDITS ——> — DEPENDENT CREDITS

[illegible]EMPTION
[illegible]DITS
[illegible]rom left
——> $

Enter first names of dependents claimed ab[illegible]

STEP 4 Figure your income

1. WAGES, SALARIES, TIPS, UNE[illegible] •
2. TAXABLE INTEREST INCOME[illegible] •
3. DIVIDEND INCOME ..... •
4. NET INCOME (add lines 1, 2 an[illegible] •
5. FEDERAL INCOME TAX RE[illegible] •
6. TOTAL (add lines 4 and 5) •
7. FEDERAL TAX PAYMENT[illegible] Enter total of 7a and 7b belo[illegible]
8. INCOME SUBJECT TO [illegible] IF GREATER THAN $5[illegible] 8. •

STEP 5 Figure your tax, credits and checkoff contributions

9. TAX FROM TABLES ([illegible] 9. •
10. TOTAL EXEMPTION [illegible] 10. •
11. IOWA EARNED INCOME CREDI[illegible] 11. •
12. TOTAL CREDITS (Add lines 10 and 11) ..... 12. •
13. BALANCE. Subtract line 12 from line 9 (if less than zero[illegible] 13. •
14. SCHOOL DISTRICT SURTAX (see page 4) ..... 14. •
15. FISH AND WILDLIFE FUND CONTRIBUTION ..... 15. •
16. OLYMPIC FU[illegible] CONTRIBUTION ..... 16. •
17. DOMESTIC [illegible]ICES CONTRIBUTION ..... 17. •
18. STATE FAI[illegible]ON CONTRIBUTION ..... 18. •
19. TOTAL TA[illegible]s 13 through 18) ..... 19. •
20. IOWA INC[illegible] ..... 20. •

STEP 6 Figure your refund or amount due

21. If line 20 is mor[illegible]our REFUND ..... 21. •
22. If line 20 is less than line [illegible]T OF TAX YOU OWE .... 22. •
23. Penalty and Interest (see page 5) ..... 23. •
24. TOTAL AMOUNT DUE (ADD lines 22 and 23 a[illegible] ..... 24. •
Make your check payable to: TREASURER, STATE O[illegible]

ATTACH PAYMENT ON TOP OF W-2's

IOWA ELECTION CAMPAIGN FUND (See Instructions Page 5)

This checkoff does not affect your refund or amount you owe.

SPOUSE

$1.50 to [illegible]
$1.50 to Republica[illegible]
$ .75 to each political party

$1.50 to Democratic Party
$1.50 to Republican Party
$ .75 to each political party

YOURSELF

Do you wish to have an income tax booklet mailed to you next year? ——> ☐ YES ☐ NO

I (We) the undersigned, declare under penalty of perjury that I (we) have examined this return, including all accompanying schedules and statements, and, to the best of my (our) knowledge and belief, it[illegible] a true, correct, and complete return. Declaration of preparer (other than taxpayer) is based on all information of which the preparer has any knowledge.

PLEASE

SIGN HERE ➔

Your Signature — Date

SIGN HERE ➔ AND
- Verify your social security number(s)
- Recheck your math
- Attach all W-2 statements

Spouse's Signature

Daytime Telephone Number

Preparer's Signature — Date

Address — Employer Identification or Social Security Number

Preparer's Telephone Number

41-080 625-0315

MAIL TO: IOWA INCOME TAX PROCESSING
DEPARTMENT OF REVENUE AND FINANCE
HOOVER STATE OFFICE BUILDING

This return is due by May 2, 1994.

1993

A copy of this year's nongame poster be acquired from tax preparers or by sending a $5 or more donation to the nongame program. Officially known as the Fish and Wildlife Trust Fund the Chickadee Checkoff is located on line 15 of the Iowa 1040A (short form) and on line 62A on the Iowa 1040 income tax form.

Oak Ridge Monarch
by Larry Zach

This month's cover is from a painting titled *Oak Ridge Monarch* by Larry Zach. To obtain a limited edition print of this painting contact your authorized White Oak Publishing dealer or call White Oak Publishing at (515) 964-1570 for more information.

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Image size 13-1/2 x 19-1/2".