



LIBRARIES
UNIVERSITY OF WISCONSIN - MADISON

Wisconsin natural resources. Vol. 1, No. 6 November-December 1977

Madison, Wisconsin: Wisconsin Department of Natural Resources,
November-December 1977

<https://digital.library.wisc.edu/1711.dl/WDI475V4RNI5J9D>

<http://rightsstatements.org/vocab/InC/1.0>

The libraries provide public access to a wide range of material, including online exhibits, digitized collections, archival finding aids, our catalog, online articles, and a growing range of materials in many media.

When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.

Wisconsin

NATURAL RESOURCES

\$1.00

NOVEMBER - DECEMBER 1977 • VOLUME 1, NUMBER 6



© O.J.G.



Balsam fir says Merry Christmas

George Knudsen, Chief Naturalist, DNR

Do you have a favorite Christmas tree? I do, and mine is the balsam fir, like this one. "Balsams" hold their needles well, are usually well-formed, quite densely-branched, and emit a wonderfully fragrant aroma. Native to the northern half of Wisconsin, they grow profusely in many forest areas and on Christmas tree plantations.

Wisconsin Christmas tree growers annually produce 2½ million trees, with about 85 percent of them grown on managed plantations. Scotch pine leads in numbers sold, followed by balsam fir, red pine, spruce and white pine. White pine is becoming so popular for Christmas trees that current demand exceeds supply.

This Christmas take more time, sit back and really enjoy your beautiful tree!

Photo by Ralph Luedtke, reprinted courtesy of Ideals Publishing, Corp.

Contents

Stalking the wild deer hunter	Thomas A. Heberlein	4
Deer research: what's been doing	William A. Creed	8
The Sandhill deer experiment continues	John Kubisiak	11
Happy hunters by the millions	Frank Haberland	13
Diseases of white-tailed deer in Wisconsin	Daniel O. Trainer	14
Woodlot	Justin Isherwood	18
Chemical poisons: a new law, a new approach	T. B. Sheffy	21
The star-nosed mole	LeRoy J. Lintereur	24
Return of the native—turkey	Ronald H. Nicklaus	25
Buy a trout stamp: two-fifty to save a stream	Stan Kmietek	28
Looking into water with Tom Rost	J. Wolfred Taylor	30

Features

Editorial	16
From the Board	17
The readers write	16

Wisconsin Natural Resources

November - December 1977 Volume 1, Number 6

Wisconsin Natural Resources is an official bi-monthly publication of the Wisconsin Department of Natural Resources, 4610 University Avenue, Madison, Wisconsin 53705

Subscription rates are: \$4.50 per year, \$8.00 for two years and \$11.50 for three years. Single copies \$1.00. Notification of address changes must include mailing label and new address. Allow six weeks. Send subscription information and requests to: Wisconsin Natural Resources, P.O. Box 7191, Madison, Wisconsin 53707.

Second-class postage paid at Madison, Wisconsin.

Permission given to reprint with credit to author, artists, photographer and Wisconsin Natural Resources. Contributions are welcome, but the Wisconsin Department of Natural Resources assumes no responsibility for loss or damage to unsolicited manuscripts or illustrative material. Viewpoints of authors do not necessarily represent the opinion or policies of the Natural Resources Board or Department.

Natural Resources Board:	Daniel T. Flaherty
Thomas P. Fox	LaCrosse
Washburn	John A. Lawton
Chairman	Madison
Clifford F. Messinger	Department of Natural
New Berlin	Resources:
Vice-Chairman	Anthony S. Earl
Mrs. G. L. McCormick	Secretary
Waukesha	Andrew Damon
Secretary	Deputy Secretary
John C. Brogan	Linda Reivitz
Green Bay	Executive Assistant
Lawrence Dahl	
Tigerton	

Editor/J. Wolfred Taylor • Design & production Paul Tofte/Design

Front cover

Winter woods—Whitetail deer by Owen J. Gromme. Published by courtesy of the artist and WILD WINGS of Lake City, Minnesota.

Back cover

Sunflower seeds draw evening grosbeaks to an Oconto county feeding station. Photo by Staber Reese

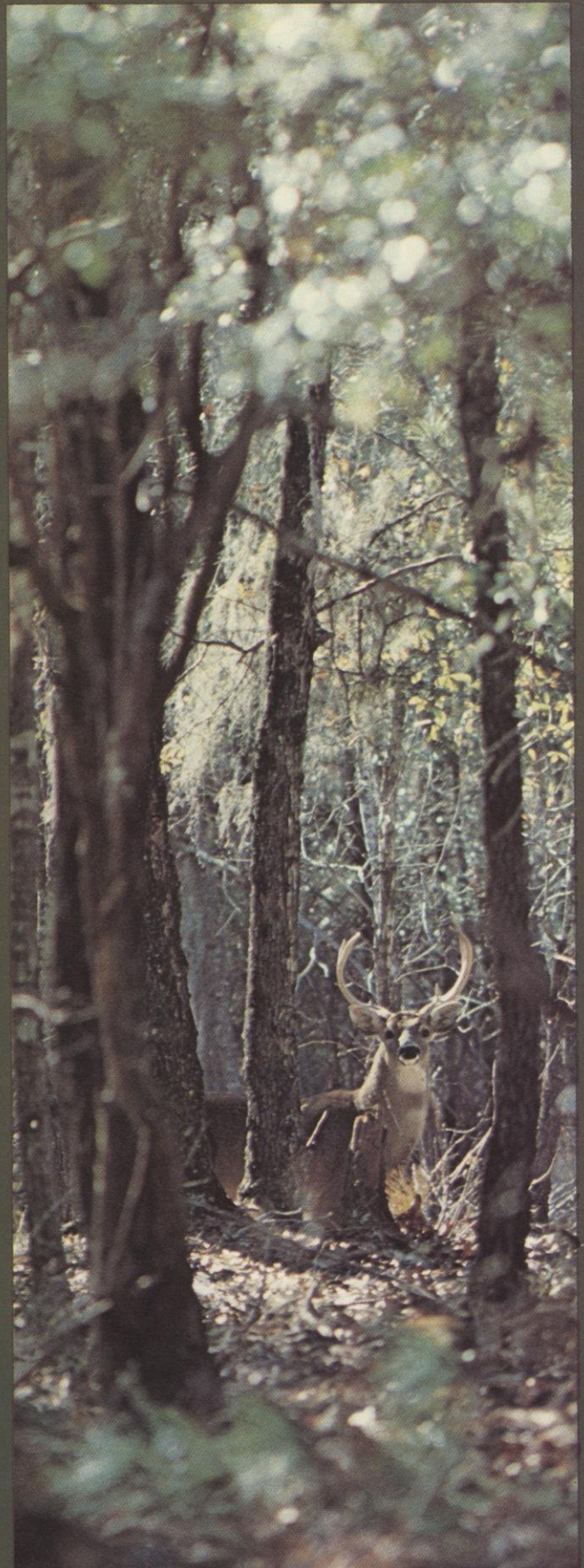


Photo by Art Carter

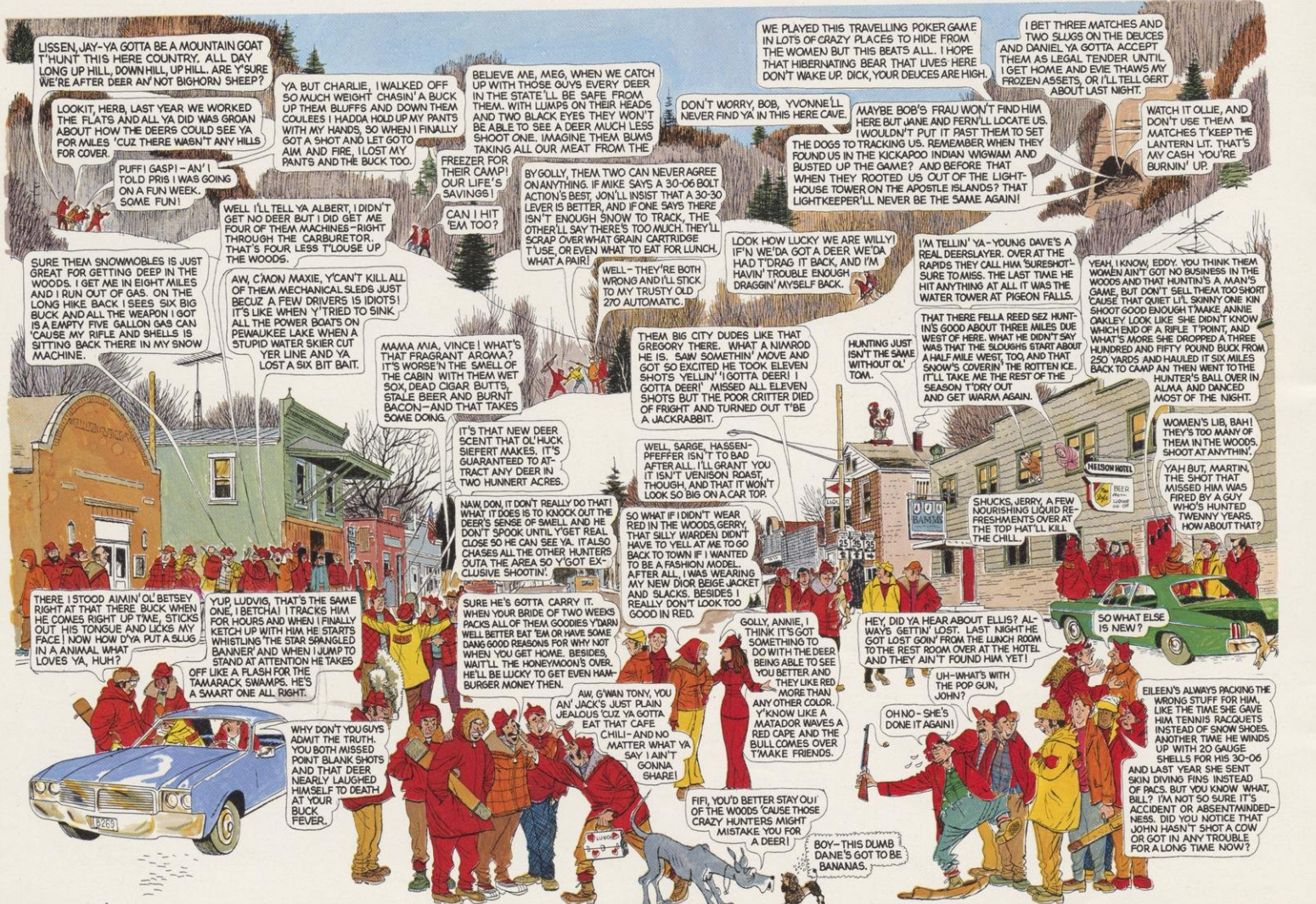
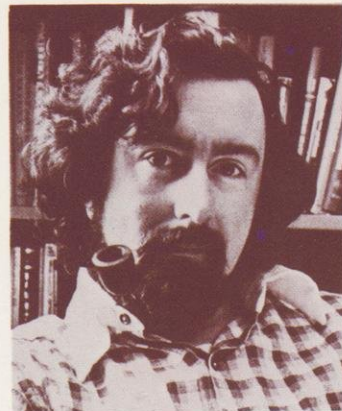


Stalking the wild deer hunter

Why are all of us deer hunters so enigmatic? The author says we're not, really. We just need to be understood. When he gets us figured out for sure, DNR should be able to fashion an even better hunt or else know the reason why.

THOMAS A. HEBERLEIN, Associate Professor, Rural Sociology, UW-Madison*

The white-tailed deer is not the only large mammal found in Wisconsin woodlands. There is another: average live weight 165 pounds; height, 68 inches. At certain times half a million can be found afield; sometimes as many as 30 per square mile in prime deer range. The animal, of course, is man.



Courtesy of the artist, Mel Kishner & The Milwaukee Journal Company

Game managers have little scientific knowledge about this prey species, but it threatens to outnumber the Wisconsin deer herd.

At the request of DNR, some graduate assistants and I conducted a scientific survey of 300 hunters to learn more about their behavior and preferences. Of those, 235 returned a 30-page questionnaire. While their answers do not provide complete understanding, the preliminary findings have high interest. They are representative of 573,000 people who bought licenses in 1975.

Based on the survey, it looks like a high quality hunt for most involves three things: a chance to bag a deer, preferably a trophy buck, a chance to be close to nature, and an opportunity to be with friends and family. Take away any of these and the quality of the hunt diminishes.

The man who hunts with strangers in an area he does not know and guns down a deer from the road has had a poor hunting experience according to the standards of Wisconsin deer hunters.

The man who hunts with his dad, son or best friends, on land he grew up on or otherwise knows intimately, and who stalks or otherwise outguesses his prey, has participated in a high quality deer hunt. Whether he has bagged a trophy is not altogether relevant. Bagging a deer is but one part of a quality hunt. It is the part DNR has paid attention to in the past, but now the agency is turning to the human and even spiritual aspects of the hunt.

Should they? Why not just focus on providing deer? Suppose the deer herd could be increased or deer hunters reduced to the point where everyone was certain of bagging a deer. Would quality go up? Probably not. The chase, the uncertainty, the success or probability of failure all make the deer a prize and contribute to a good hunt.

Our research shows that seeing a large number of hunters in the woods decreases satisfaction almost as much as getting a deer increases it! Controlling hunter numbers, as opposed to increasing the probability of success, may be a more effective way of increasing satisfaction of the hunter.

The deer hunter, unlike his prey, is not particularly susceptible to management. More than 90% of the hunter population rejected a zone plan which the Department proposed for 1977. In our more detailed survey, we found that those alternatives most likely to effectively reduce crowds on opening days, such as restricting hunters to zones, split seasons, or midweek openings, are most strongly opposed by hunters. Those alternatives which do least to reduce crowds, like a special early season in the north and a longer season overall, are most popular.

If a high quality hunt is to be achieved, or if present conditions are to be maintained, the prey species is going to have to consider restrictions. An unharvested deer population will overbrowse, and winterkill. *An uncontrolled population of hunters will have no choice but that of low quality hunting.*



Photo by Ted Borg

We also learned even more specific things about the Wisconsin deer hunter.

Among Wisconsin males, one of three over the age of 12 hunts deer. This makes deer hunting one of the most popular leisure pursuits in the state.

Contrary to some views, the deer hunter is not a cold blooded, solitary figure. Hunting is done in a family centered group with fathers, sons and brothers participating. It is a social event. Almost all hunters begin in their youth before the age of 18. They are usually taught by their father or other relatives. Deer hunters are far more committed to their sport than are those in any other recreation activity we have studied, including canoers and fly fishermen.

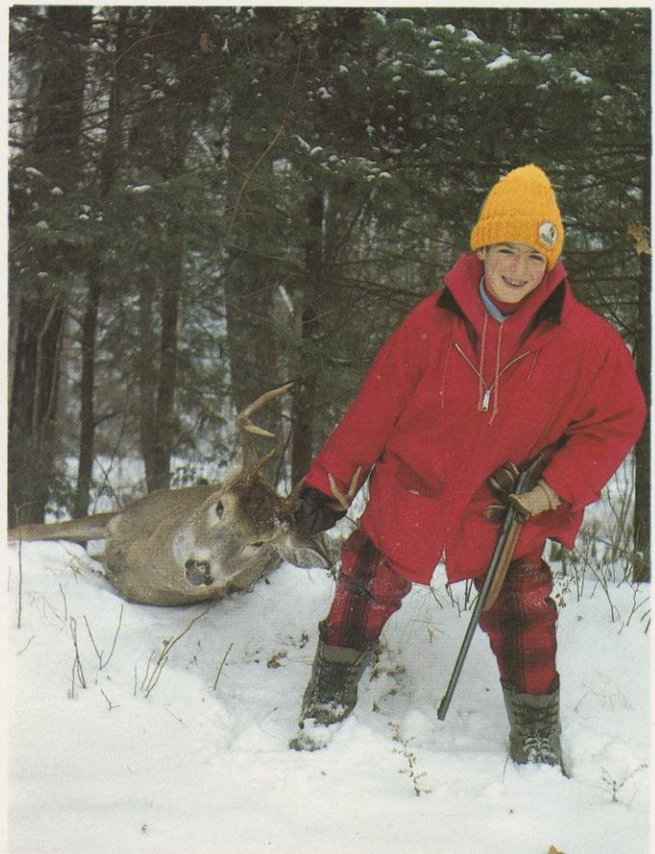
Deer hunters come from metropolitan counties like Dane, Milwaukee, Brown or La Crosse. Nearly a majority live in the 13 most metropolitan counties of the state. The proportion of urban based hunters has increased in the past two decades.

Deer hunters spend a lot of time in the field, but two-thirds hunt only in a single management unit. Nearly half hunt on six or more days out of the nine-day season. The deer hunting trip is still a part of the Wisconsin experience, with a quarter of the hunters making a trip of four or more days away from home.

Did you know that most hunters who get shooting on opening day miss their bucks? If you don't see a legal deer opening day, you are in the minority, but 60% of those who get shooting did not bag a deer. This means that the two things which are most likely to increase deer hunting success are in the hands of the hunter. Know your gun. Spend plenty of time at the rifle range before the season. When you see a deer, wait. Take care to line up a killing shot. With practice and patience almost all hunters who get shooting could bag their deer. Besides, fewer misses will make it safer.

Twenty-five per cent of the hunters in our sample began hunting in the last five years. For this group the good old days are now. Some would say that these new hunters have never had the chance to know high quality hunting.

When you go out to the field this season, you are not likely to be alone. Only one deer hunter in 20 reported seeing no other hunters in the field opening



day (not counting those in his own party) . Nearly 25% reported seeing more than 20 other hunters in the field.

"Gang hunting" was strongly opposed by the Hunter Ethics Committee last year. The committee couldn't decide on how big a group constitutes a gang. From our survey we got an idea. Only 5% hunt with a field party of 12 or more. Most hunters believe 12 is too many. If you hunt with a group this size or larger, why not ask your buddies to split into two separate groups? From our results it appears that your fellow deer hunters don't think you are playing by the rules when 12 or more hunt as a gang.

Wisconsin deer hunters reported being strongly opposed to road hunting. As a result, the Department has established an administrative rule limiting hunting along roads or near the vehicle which transported you to the field.

Any good ecologist knows that to understand a species you have to know the predator-prey relationship. We know a good deal about the white-tailed deer, and little about the human species as it relates to the hunt. There's a lot to find out, for example: the dollar value hunters place on their license and game; hunter migration patterns and why they hunt where they do; their reactions when they meet or see each other afield.

These studies and more are in the planning stage. As they come in, the knowledge should mean a progressively better hunt. If it doesn't, at least we'll know why.



Photo by Art Carter

*Dr. Heberlein has studied the human dimensions in a number of natural resource issues. Currently preparing a book describing his research on littering, he is also studying energy conservation and crowding in outdoor recreation. He is a member of the Hunter Ethics Committee.



Photo by Ted Borg

Deer research: what's been doing

WILLIAM A. CREED,
Leader, Forest Wildlife
Research Group, Rhinelander

Like pieces of a giant puzzle, research findings on Wisconsin's most publicized wildlife species—the deer—have been painstakingly fitted together during the past 36 years.

And each year the picture becomes more clear. As it does the state's highly successful deer management program is adjusted accordingly, although knowledge of the game species is still far from complete.

Enduring the whims of Mother Nature and conducted under the watchful eyes of varied interested publics, Wisconsin's deer management program measures its successes not in leaps, but small, deliberate steps. It is a program that has required patience, deliberation, and explanation in more than one Sportsmen's Inn.

Usually when a problem is solved, research and scientific surveys can claim some of the credit.

Wisconsin has had almost continuous deer research since 1940, thanks to monies channelled back to the state through the excise tax on sporting arms and ammunition under the Pittman-Robertson Act.

During the 1940's, research emphasized the identification of overpopulation problems and ways to



solve them. Deer yards were located, mapped, and field-checked on a regular schedule, and efforts were made to improve them. The life history and biology of deer were investigated to determine the factors regulating deer abundance. And most important perhaps, the pioneering biologists of those times—Bill Feeney, Burt Dahlberg, Ralph Guettinger, and many others—made painful strides in selling the idea of harvesting antlerless deer—also unpopularly known as “doe shooting”. It was an uphill battle from the beginning.

In the 1950's, the concept of *management by units* was born, and some 70-odd deer management units were carved out of the state map, with highways as boundaries. Records of deer harvests (registration) and field surveys were incorporated into this unit plan. This was the beginning of a sophisticated deer management system that has been continuously upgraded through the years.

More recent advances in deer management technology were these:

A 10-year study ending in 1969 showed that three to five percent of public forest land should be kept in permanent grassy openings because deer need them as feeding sites, especially in spring and fall. Thousands of these grassy openings, mostly about an acre in size, have since been saved through

Orange hawkweed emblazons this forest opening. Besides being pretty to look at, openings like these are important to deer and other forest wildlife.



wildlife management programs. Where already lost through natural forest growth and reforestation, openings are recreated by bulldozing, discing, and seeding. Over the long haul, this will help keep more deer in the northern range.

A food habits study based on identification of rumen (first stomach) contents showed aspens and associated herbaceous species were critical elements of the summer deer diet. This information helped support a program for more effective maintenance of aspen forests.

A long term investigation of deer distribution revealed the relative degree with which deer use various forest types. Result: Efforts to preserve and manage key types like aspen, jackpine, and oak are recognized in forestry programs. Wildlife monies help get the job done.

Ages are now determined for 12,000 to 15,000 deer annually in 50 plus management units. Along with registration totals (numbers of bucks, does, and fawns) these age determinations help assess current strength of the deer population and the rates of harvest.

Annual population estimates are now available for all management units. Most important statewide are estimates based on sex, age and kill which use a combination of harvest and age data to reconstruct herd densities. These calculations have been employed increasingly since 1959 and improvements have led to greater and greater accuracy. In northern Wisconsin, pellet counts as an index to populations have been used ever since the mid-50's. Piles of deer droppings on sample plots are counted to obtain a measure of range-wide use.

Numbers of highway deer kills, when adjusted by changes in traffic volume, were found to be closely related to herd trends. Thus, a supplemental index was made available for areas where other population measurements were inadequate or lacking.

A winter severity index, relating measurements of snow depths and temperatures to winter deer losses and subsequent fawn production, has been developed. With the index, wildlife managers can now predict trends in deer numbers according to annual severity levels. During the extremely severe winters of



Where natural openings have been lost, new ones are being constructed with wildlife management funds. Photos by Keith McCaffery.

1971 and 1972, winter losses amounted to 20 to 25 percent of the post-season deer herd. Downward trends in deer numbers in those years led to widespread dissatisfaction. Milder winters since 1972 have resulted in rapid expansion of deer numbers, reflected by the 100,000 plus annual kill the past three years.

Procedures for determining annual deer quota recommendations have undergone a number of improvements. Managers now keep detailed unit histories for each management unit, involving harvest, hunting pressure, deer population, and other critical data. With these records, along with updated population and winter severity data, they develop harvest recommendations geared to the current need of each unit.

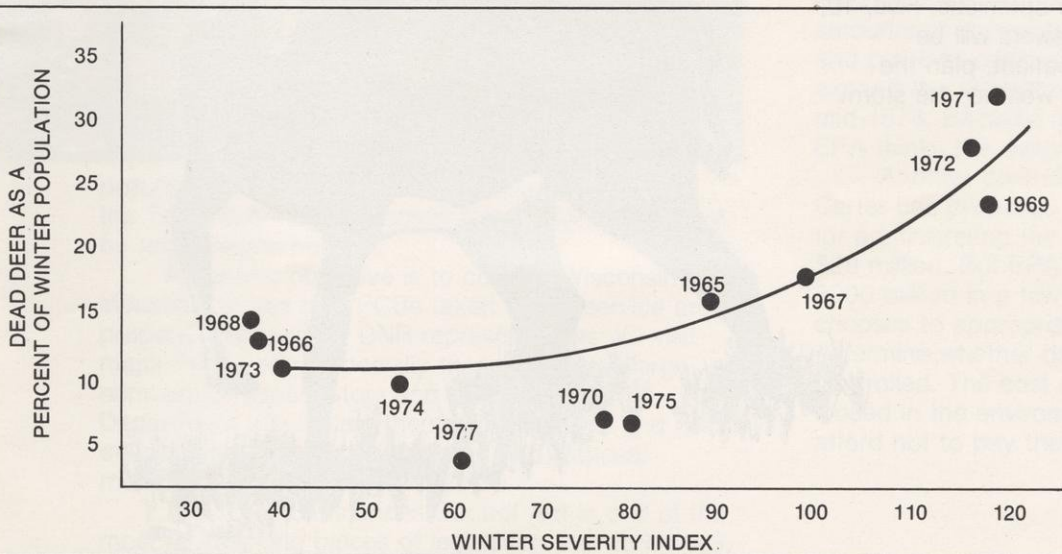
At the Sandhill Wildlife Area in Wood County, an enclosed deer population has been intensively studied and eight experimental hunts held. A complete removal of the deer herd by controlled hunting in 1972-73 confirmed the accuracy of pre-hunt population estimates and taught valuable lessons about the interactions of deer and deer hunters. Further, the deer removal set the stage for follow-up studies on deer and vegetation interrelationships which are still in progress. When

these studies are finished, we hope to have a better handle on the optimum deer carrying capacity for central forest management units.

Other accomplishments could undoubtedly be added to this list, but these are some I consider most important.

Research emphasis recently has turned to other species like grouse, bear, and bobcats, but deer always seem to need attention.

Ways to conduct a safe, ethical, satisfying deer hunt under the onslaught of a growing army of



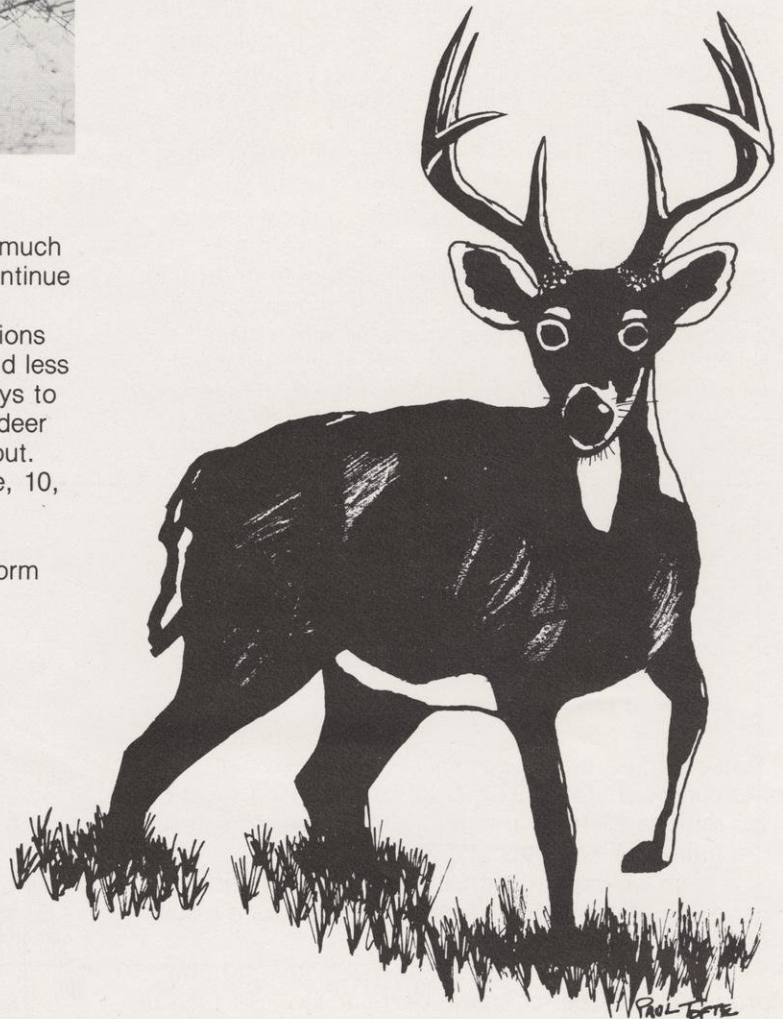
Relationship between total numbers of dead deer found and the winter severity index.



Thousands of deer are aged annually by DNR technicians. Along with harvest records, this information helps determine deer population changes and harvest rates.

hunters are urgently being sought. Presently, University of Wisconsin researchers are helping unravel the sociological aspects and no doubt, much more work of this type will be needed as we continue to make changes in the season structure.

Despite all the research since 1940, questions still arise. We can always use more accurate and less costly methods for inventorying deer. Better ways to mesh agriculture and timber management with deer management remain to be completely worked out. But based on past progress, I'm optimistic. Five, 10, or more years from now, the answers will be forthcoming. The trick is to be patient, plan the research, and until it bears fruit, weather the storm lack of knowledge often creates.



PAUL ESTE

The Sandhill deer experiment continues

JOHN KUBISIAK, Forest Wildlife Research, Babcock

It's been five years since all deer on the Sandhill Wildlife Area were removed by hunting. Sandhill is a 9,150-acre experiment station surrounded by a nine-foot high fence in Wood County. In 1972, a 44-day hunt in which 552 deer were taken, occurred as part of a wildlife research plan. The plan has many objectives: to determine the accuracy of deer population and reproduction estimates, to measure unrecovered losses during total deer removal, and to determine the health and productivity of a large herd and its effect upon plant life.

What has happened at Sandhill since the much publicized deer removal experiment of 1972?

In 1973, 23 deer came into the area through a section of damaged fence and through gates inadvertently left open by visitors. Entry of deer from outside continues to be a problem; however, regular maintenance and patrol of the 16½ mile boundary has reduced this to a minimum.

An annual count of deer is made in late winter by helicopter. Beginning with the initial nucleus of 23 in 1973, the herd increased to 49 in 1974, and then jumped to 113 in 1975. This past winter 169 were present and the resident herd is expected to exceed 270 animals by this fall. That's about 22 deer per square mile — quite a remarkable increase in five years!

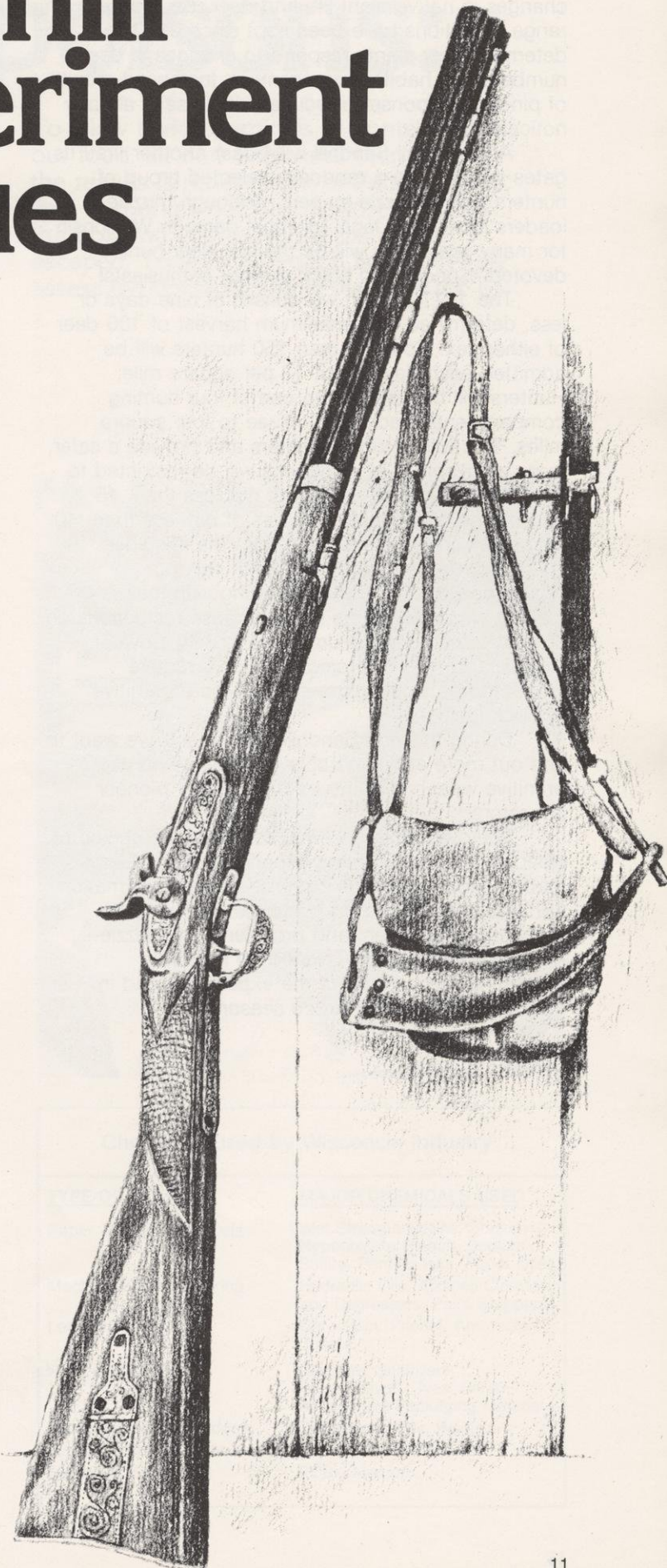
Spring to fall increases have been 70% or more since 1973. That is, for every 10 adults in spring, seven fawns are produced before fall. While this certainly demonstrates the high productivity of the whitetail, the rate at Sandhill is somewhat unique. In other central Wisconsin deer herds, spring to fall increases usually average 50 to 60%.

What's in store now at Sandhill?

Size of the herd will be controlled. The goal is to keep overwinter populations near 200 until 1983. That's about 15 deer per square mile, less than half the number before 1973. Controlled hunting this fall will remove 25 to 30 percent. Similar adjustments in the future will keep populations stable.

Can we expect improvement in the physical condition of deer and in fawn production as a result of reduced numbers?

Field-dressed weights, antler growth, and fawn production will be recorded. Comparisons will then be made with similar measurements from 1,565 deer



taken during eight either-sex hunts from 1963-72. In addition, measurements of deer range will evaluate changes in native plant life and deer use. Records on range conditions have been kept since 1963 to determine how plants respond to changes in deer numbers and habitat management. Increased growth of pines in response to reduced deer use is already noticeable.

And this fall Sandhill will boast another first! Its gates will open to a randomly selected group of hunters toting muzzle-loaders. Although muzzle-loaders have been legal for most game in Wisconsin for many years, this will be the first deer hunt devoted especially to black powder enthusiasts!

The 1977 season will consist of nine days or less, determined by a maximum harvest of 100 deer of either sex. No more than 150 hunters will be admitted each day, about 12 per square mile. Hunters will be assigned to one of four hunting compartments, each about three to four square miles. This will distribute hunters and provide a safer, more enjoyable hunt. Weapons will be restricted to smoothbore, muzzle-loaders of not less than .45 caliber and rifled muzzle-loaders of not less than .40 caliber which are discharged from the shoulder.

Forty-three other states, with varying regulations, allow big game hunting with muzzle-loading weapons. Some states impose restrictions on caliber, barrel length, number of barrels, powder weight, and type of projectile. Others require smoothbores, iron sights, and the more primitive flintlock ignition.

During this first Sandhill experiment, we want to find out more about Wisconsin hunters who use primitive weapons in the tradition of our pioneer ancestors.

They will be interviewed to determine choice of weapon, previous hunting experience with muzzle-loaders, and success in bagging a deer. Information will also be gathered on hunter satisfaction with number of deer seen, and proficiency of muzzle-loaders in killing deer. This will be helpful in evaluating the success of the experiment and in setting regulations for future seasons.



All hunters report results at the main gate. Sex, age, field-dressed weights, antler development and hind-foot lengths of each animal are recorded to determine physical condition.



Information on deer health and productivity is obtained from cooperating hunters. Intestinal tracts are examined for parasites and reproductive tracts collected to determine pregnancy rates.



The annual deer count is made by helicopter. Good weather and snow are essential for best results. Can you count the deer?

Happy hunters by the millions: 15th anniversary of the variable quota

FRANK HABERLAND, DNR Big Game Management Specialist, Madison

Fifteen years ago, the variable quota deer management system replaced the boom and bust of buck seasons in Wisconsin. How has it measured up?

It's been the best system we've ever had, nearly all pluses: a healthy herd, more trophy bucks on the rack, a greater number of successful hunters, not so many wasted deer from illegal shooting, less malnutrition, reduced crop damage, fewer deer-car collisions and more protection for habitat.

This chart tells the story:

Comparison of variable quota party permit with buck seasons		
	Variable quota seasons (1963-76)	Buck seasons* (1944-48, 1952-56, 1961-62)
Average annual total harvest	96,768	37,005
Average annual buck harvest	60,498	37,005
Average total hunting success rate	19.8%	15.6%
Average buck hunting success rate	12.4%	15.6%
Average number of hunters	488,320	237,048

*Includes some antlerless deer from either-sex seasons in agricultural areas.

The variable quota will produce happy hunters by the millions. Under it so far they've taken 1.4 million deer in 14 years and the 100,000 annual average is expected to continue. The key to it is the precise kill, pinpointed for every single deer management unit where it applies.

The evolution of the variable quota started in 1957 with the old party permit. That allowed four hunters to take an extra deer—buck, doe or fawn and there was no limit on how many permits could be sold. It lasted four years and was stopped by legislative action. In those four years, hunters had taken 330,000 deer. After that good management languished. Meantime, researchers were refining ways to accurately estimate deer populations unit by unit. This made use of a variable quota practical. Begun on a token basis in 1963, it was similar to the old party permit with two differences. The number sold was limited and each was assigned a specified management unit.



It was the start of a great success story. An all time record high of 73,373 antlered bucks were registered in 1975 and the '76 season was the third best ever with 69,510.

Next step in the evolution of the variable quota may be to convert the four member permit to a one-hunter-one-deer system. At present, four hunters can take five deer. The change would distribute the harvest more equitably and have no significant effect on management.

Regardless of whether it happens, the 15-year success of the variable quota is undeniable. Its principle of pinpoint harvest has been tested and proven and will have to be the basic building block of any future refinement.



Diseases of white-tailed deer in Wisconsin

DANIEL O. TRAINER, Dean, College of Natural Resources, U.W. Stevens Point

The deer herd in Wisconsin is healthy. However, in any population which numbers more than 500,000 a variety of maladies can and do occur. In Wisconsin, most of these diseases are specific to deer or other wild animals, and rarely affect man or domestic animals.

Since diseases do occur in Wisconsin deer, it is important to know what they are as well as their significance. This will mean better deer management, will inform the hunter of any significant human health problem, and clarify the role of deer in domestic animal diseases.

Wisconsin deer harbor at least 26 different parasites. These include endoparasites (internal) such as roundworms, flukes, and tapeworms, as well as ectoparasites (external) such as ticks, lice, fleas and bot flies. Most are limited to deer and they have little or no effect on man. One exception is echinococcus, a tapeworm cyst that can cause hydatid disease in man. The life cycle of this

interesting parasite requires both a carnivore like the coyote or dog and an herbivore such as the deer. The adult is found in a carnivore; eggs laid by the tapeworm are shed in the feces. When an herbivore ingests the eggs an intermediate stage or cyst develops in its tissues. These cysts or "hydatids" as they are often called, are then ingested by a carnivore and develop into adult tapeworms to continue the cycle. Man sometimes acquires the infection accidentally by handling infected carnivore carcasses. This condition exists in Wisconsin deer, but is very rare in man.

The giant liver fluke is a common parasite. It forms large cysts in the liver. Deer have learned to live with these flukes and do not have serious health problems. On the other hand, if this parasite infects domestic sheep, mortality usually results. The fluke's life cycle involves deer, snails, and sometimes domestic animals. There are sometimes serious livestock problems in certain areas of Wisconsin where deer and livestock share a common pasture.

Several virus diseases occur in deer. The one most visible to hunters is the deer fibroma. They

resemble warts in man and are caused by a virus which attacks the epidermal layers of the skin resulting in an abnormal growth or tumor. Usually the warts are small ($\frac{1}{3}$ - $\frac{1}{2}$ inch); and they normally regress and drop off just as in humans.

Warts, however, are a type of tumor and in certain instances unrestricted growth occurs which can cause physical damage and mortality. For example, there have been cases where warts actually overgrew the eyes of an infected animal resulting in blindness and eventual starvation. Normally, however, fibromas are not serious in deer. They can be found anywhere on a whitetail but are located usually on the legs or neck. These growths are very specific and the virus which causes them in deer will not cause warts in other species like cattle or man; just as the warts of man will not cause others in deer.

Another important deer virus causes epizootic hemorrhagic disease (EHD). This is highly lethal and has caused severe deer mortality in different parts of North America. EHD always occurs in late summer or early fall and its victims have extensive hemorrhages scattered throughout their tissues. They often resemble car-kills because of the extensive hemorrhages and internal bleeding. This disease sometimes has a serious effect on local deer populations. The virus is very specific and does not infect other animal species or man.

Some diseases which infect deer, however, can be caught by man. For example, deer can have rabies, tularemia, plague, Rocky Mountain Spotted Fever, anthrax, and salmonellosis; however, their occurrence in deer is rare and not important in transmission to man. Tuberculosis occurs in both wild and captive deer. It can be serious in captive animals and man is susceptible; therefore, its control in deer is important.

Deer succumb to a variety of toxic substances and there are documented cases of poisoning due to pesticides, arsenic, salt, and bracken fern. These were usually isolated cases and had no significant effect on deer populations.

Deer are sometimes incriminated as reservoirs or vectors of livestock diseases such as brucellosis (bangs disease). Numerous studies of this malady have documented the fact that it is rare and of no significance in whitetails. Leptospirosis on the other hand, is prevalent in certain wild deer populations, especially where high densities exist. However, it does not cause them serious health problems and deer are not important in its transmission to livestock.

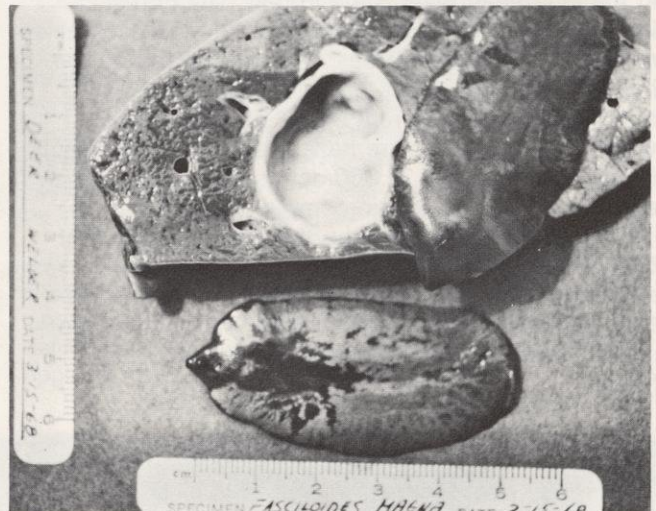
A long list of diseases infect white-tailed deer in Wisconsin, however, the herd is healthy and is not an important reservoir for livestock or human infection.

Disease can affect deer, as an ecologic factor but does not alone control populations. It becomes important when combined with other problems such as malnutrition, predation, or stress. When several of these factors are involved, the cumulative effects can be significant.

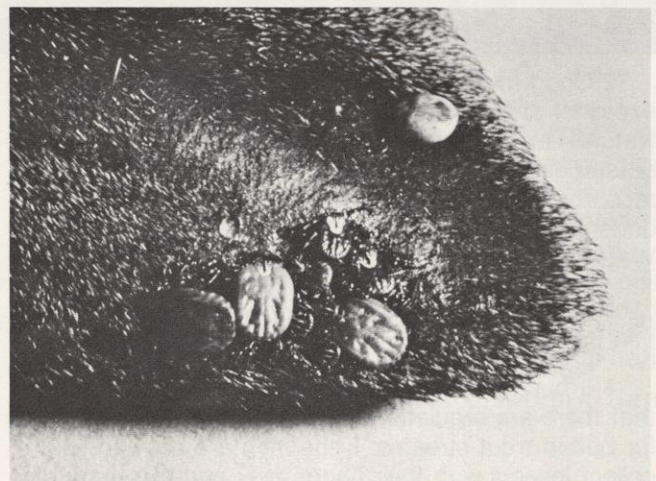
A major reason for the health of the Wisconsin deer herd is DNR's successful management program which results in a young, vigorous population. Continued intensive management coupled with an awareness of disease as an ecologic factor will assure the herd's continued health.



Bot flies

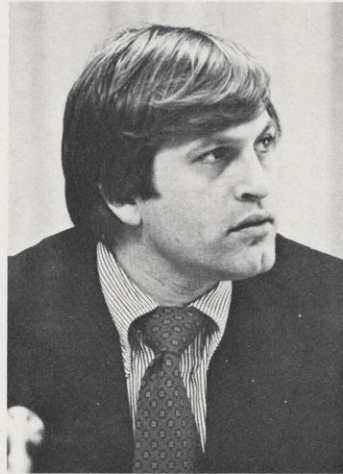


Liver fluke



Deer ticks

From the board



Chairman Thomas P. Fox

At the July meeting in Menomonie, the Natural Resources Board adopted a resolution requesting the U. S. Fish and Wildlife Service to stop hazing geese with airboats and planes in the Horicon National Wildlife Refuge. The Board continues to endorse the concept of dispersing the Horicon flock, but a majority felt that hazing geese with planes and airboats is inappropriate and ineffective.

The Board also voted to salvage downed timber in the Flambeau River State Forest. The Forest, including the well-known "Big Block" which contains many of 300-year old trees, was devastated by the heavy winds that struck on July 4th. Salvage will result in the sale and removal of downed timber which will reduce the fire hazard and possible insect infestation. However, a 360-acre scientific area is an exception and will remain completely natural.

In August at Marinette, the Board for the first time, scheduled a general public participation session. Many area residents appeared to express their views. The session was highly informative and similar ones will be scheduled periodically in the future.

Waterfowl regulations for 1977 were adopted as recommended by the Department and the Wisconsin Conservation Congress. Legislation to regulate fish and wildlife contests was recommended in response to a growing concern about the propriety of "big money" fishing contests. These usually feature professional and semiprofessional anglers and award large sums of money or very valuable prizes. Legislation being sought would specifically exempt local fisherees and fish-for-fun contests which give prizes of modest value.

A proposal to exempt the Department's administrative rule making process from environmental impact requirements of the Statutes will receive continued discussion during the next few months. Those who support the proposed exemption believe that the environmental impact law was never meant to include the rule making process. These people hold that:

The courts have extended the law to include rule making.

There are sufficient protections in the public hearing requirements of the rule making process itself to satisfy environmental impact needs.

And delay in rule making caused by the time it takes to prepare environmental impact statements would often of itself have an adverse environmental impact.

Those opposed believe that the statutes were intended to require environmental impact statements for rule making and that such statements work in favor of a better environment.

Editorial: The deer hunt: its essence

A Wisconsin deer hunt is one of the great experiences. Set aside the controversy. Let argument swirl, as well as it should, over season dates, variable quotas, zones, crowds, trespass, safety, bucks only, does, shotgun or rifle. Soon, the problems will be talked out and solved. Change will happen and the mechanics of the hunt be better. You will support some, oppose others, hopefully, not be indifferent.

But, set that aside. A Wisconsin deer hunt is one of the great experiences. The reason is that it happens only to you. Never mind the 600,000 other individuals simultaneously spread across wood, swamp and field of every county. Even give due regard to your own companions. In the hunt, you are alone, and that's the essence of it.

The experience is unique. It gets at all of you, mind and body, from moments of excitement to weary-dreary,



hot, cold hours of stand, trail or drive. No other recreation is so all consuming, evokes such persistence, lasts for so many days, has so many participants and yet remains so highly personal.

In practical terms, the economic and social overtones are explicit and easy to understand. But, the spiritual call to the hunt is something else again.

The why of it is buried in your genes and needs no justification. It is not arguable, but it is also chained to the DNA of those who press you. Their criticism is sublimation. So understand and be tolerant. But above all, be above reproach.

The hunting ritual is old as man and womankind, born in the remote regions of our African genesis millions of years ago. In evolutionary terms, the hunt and its weapons fashioned your brain, created the intelligence that makes you human.

So, the hunter is no slob, or else, all of you are slobs. Many feel the genetic attraction, but have lost touch with precepts of an art in which the hunt becomes a microcosm of existence. There is hunger for authoritative data and the success of hundreds of hunter-related magazines (including this one) attest to it. The rituals of equipment usually are there in spades but, so are many insights. Instantaneous popularity of "How to Hunt Deer" seminars, conducted by such diverse entities as UW-Stevens Point and the down-to-earth Stump Sitters of Appleton illustrate the same good motives. DNR will soon be in it, too, through Hunter Safety Courses.

But, why bother? Because a deer hunt is one of the great experiences and needs to be done right. It is like life. It leaves you out there alone, and waits to see how you handle it. The trick is to be above reproach. You must define it and act it out. The companions and the others will applaud.

J. Wolfred Taylor

The readers write

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

Congratulations to Tom Calabresa on his very excellent article in the May-June issue of Wisconsin Natural Resources. I think he has done an outstanding job of describing the state's water resources in terms nontechnical people can readily understand. **Robert T. Sasman, Hydrologist; Illinois Water Survey Division.**

I enjoyed the article entitled "Double Your Pleasure: Collect Your Own Fish Bait" by Thomas Karl in the last issue.

I must point out, however, that it was not clear that there are regulations against harvesting insects for bait in trout streams. Fishermen are allowed to collect insects with their hands only and they cannot be transported from one stream to another. Any left over must be returned to the same stream.

Keep up the good work, we enjoy your articles. **James T. Addis, Director
Bureau of Fish Management**

The July-August article on Phragmites was very interesting because it explains the "permanence" of the cane beds I used to hunt on Lake Poygan.

It raises a question on use of wild grapevines to prevent dry soil erosion. Wild grapes got ahead of me on 2 1/2 acres of part woods and I have to cut, chop and pull to keep them down. I may also have to go to weed killers, carefully.

These vines *growing on the ground* set roots every few feet and send out new shoots. The shoots grow 10 to 15 feet a year and I have found vines reaching two inches in diameter in 10 years. Growing on the ground they form a formidable net.

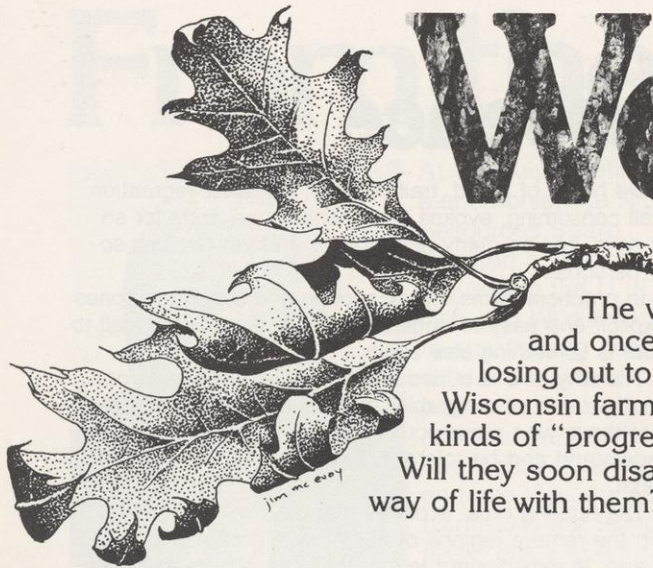
Wild grapes can easily be raised in thousands from cuttings and if planted 500 or so per acre of bare ground should cover it in two years. They also provide food for wildlife, are dirt cheap to plant and require no maintenance so they should make a good ground cover. **R. H. Wolff; Franklin.**

We really enjoyed our first issue of *Wisconsin Natural Resources*, and are looking forward to future issues. However, in the July-August magazine, you neglected to identify the flower on which the butterfly is resting (back cover). That's called by various names: Orange Milkweed, Butterfly Weed, Pleurisy Root. The clusters of orange flowers are familiar here in Polk and Burnett counties, growing along roads, thriving on poor sandy dry soil.

Thank you for the article and pictures on Wisconsin's Wild Waterfalls we recognized many old friends, including Morgan Falls where our men have fished for trout in past years. **Bernice Abrahamzon; Lewis.**

The whole family thoroughly enjoyed your magazine. We would like a subscription—enclosed is a check for \$11.50. **Kathy Flynn; Apple Valley, MN.**

Dennis R. Richie's article on Governor Dodge State Park was well done. It was especially interesting to me since back in the late 1940's I rented 40 acres of what is now part of the park area from T. Harry Arthur, Dodgeville's leading realtor of that era. The "forty" was wild and rugged and mostly pasture. Little did I realize in those days that bluffs that sheltered my steers during summer storms would some day be framed in blue water and white sand. The new format of the Natural Resources Magazine is most attractive and your choice of articles both interesting and educational. **Walt Goldsworthy; Three Lakes.**



Woodlot

The woodlots that hold the soil and once nurtured our lives are losing out to irrigation in the Central Wisconsin farm country and to other kinds of "progress" in other places. Will they soon disappear forever and a way of life with them?



JUSTIN ISHERWOOD, Farmer, Rt. 1, Plover

On one of those Sunday drives a friend unfamiliar with country ways asked why farmers kept woodlots, what purpose did they serve? Taken by surprise, an answer wasn't quick in coming. Modern farming has gotten away from the woodlot experience. Current concerns are for irrigation pumps, pivot systems with 160 acres of square level field. What use is the woodlot? Is it the sign of poor soil or bad farming practices?

It was not long ago that to a child growing up in the townships, the woodlot was as much a part of life as a barn full of Holsteins and Guernseys. The woodlot was a practiced religion. The boards and the great beams of the barn itself had risen from the near woodlot. Pine, elm, ash logs were cut and hauled to a neighbor's sawmill where inch boards were sliced off clean and fresh-smelling as hot blackberry pie. Farm boys stacked the lumber to dry while the bright blade tossed sawdust as if in celebration. Out back the new lumber pile waited for the barn builders, the raisin', one day in early summer after the corn and oats were all planted.

It was the woodlot that made the long Wisconsin winter something less than a task of survival. About the time the ground was frozen beyond reach of disk and quack digger, that somewhat pleasant early winter job of gettin' up wood began. Saturdays from school were spent cutting out the dead and dying trees, skidding them along the twisted logging roads, piling them in liftable lengths for the day when a tractor-mounted buck saw cut the lengths into block size. Two or three would lay the log on the tilt platform while another would catch the block and toss it on the wagon. The thick comfort of wood heat was in almost every farm house in the township. Heating systems

that were oil fed or that threw coal in automatically were rumored to exist in the city. To a farm boy whose Saturdays were spent in the woodlot, those rumors were as distant as the fabled cities of gold.

And there was a bachelor uncle whose invitation to breakfast with him always began with the milking of his cows. At the breakfast table he'd have a pile of pancakes tall as a kerosene lamp and a Red Wing stone jug, cool from the basement, full of his spring pride, maple syrup made from his own hard maples at the field's edge, saved from the axe. His sugar house was a pig boiler slung from poles. It was a special job for the warming days of March, a chance to be out of the house, the first of the spring work.

And when the farmer's wife had complained long enough about new kitchen cabinets, it was the woodlot that provided. Birch made the cabinet frame, drawer slides and choppin' block. The oak was for the door panels and cabinet sides. A sweet kind of work among clean curls of wood, sharp tools smooth from use by strong hands. The farmer carpenter for his work got more smiles with his supper, the woodlot got a new fence to keep the cows out.

And yet other things given by a back forty in trees. The axe handles, hammer handles, sledge handles were woodlot given.

Each tree had a purpose, a place in the life of the farm, a place in the lives of the people that dwelt there. White ash made the pliant canoe paddles that stroked the Wisconsin River Sunday, past secret places on the high yellow banks where Indians were buried.

Basswood was for whittling. An easy to work wood, it quickly took the shape of little animals, kitchen spoons and trinket boxes. Willow was for whistles, the willow song part of the spring rite. Part of fishing for cool trout in the Buena Vista Creek was a green maple branch, line tied on.

The year ended with balsam, the Christmas tree, carried home as extra booty on the last load of fire wood. Took half a day to find the best, walking back and forth, debating the merits of each tree. A pleasurable time, less of theology than of a strange sense of peace in the township. The work of spring, summer and fall behind, wood for winter cut, jam in jars on basement shelves and a green tree in the house,

resinous with good cheer, bequeathed by ancient druids.

But today, it takes only eyes to see that our little corner has and is turning away from the woodlot life. A world increasingly plastic has diminished the back forty. The things once wood—the cabinets, the hammer handles, paddles, paneling—are often now derivatives of oil from the long dead green and cold blooded lives of ten million years ago. Gambrel roofed barns, once a Wisconsin symbol are losing out to corrugated steel sheds where few ever spent rainy afternoons, just looking at the rafters, the great beams tongue and grooved, hickory pinned together. Country romance that has never felt the aromatic comfort of a cowbarn haymow has missed not only a delight but a tradition.

That chain saws and heavy breathing bulldozers are having their rough quick way is in part the fault of the machinery itself. These are earthshaking engines that can clear and burn a forty in a week when ox and chain would have taken years. It has been made too easy. Anyone for any short or good reason can put this mechanical curse on the landscape. If it were a matter of our own muscle and not money it would not be done—could not be.

But blame cannot be put on the machinery alone. If there is a fault, it is with us, the people of the land. What we do to the land depends on how we see ourselves, and how we define simple words. What is good? Good farming? A good yield? Good profit? Good land use? The fundamental relationship between a people and their land is not shaped by individuals. It is shaped by their values. It is philosophy, religion, a matter of how they perceive.

To our forebearers it was a theological duty to subdue the American wilderness. Wild places were worse than useless, they embodied evil. Trees were weeds, wild animals unclean and expendable, cleared land not only a physical need but also a moral and they carried out the scripture of Genesis, “. . . fill the earth and subdue it.” It has been this view, that fed continuously on the forest, the wild prairie and today the township woodlot.

The recent impact of irrigation technology has transformed this sand land from a maybe-maybe

not vegetable producer into an important northern marketer of potatoes, beans and feed corn. When you do stick your money into a pivot system, it is only “natural” to recover the investment as quickly as possible. A 40-acre woodlot in the path of a 160-acre circle system isn't going to last long, and they don't. The smell of clearing fires is in the township—good for the tax base—to raise more potatoes. There will be more jobs making granules, jobs driving truck, jobs making bags, jobs selling fertilizer, jobs making aluminum pipe, jobs in electric motors, fuel oil, lubricants, herbicides, insecticides, new cars, used cars, watches, bubble gum and money enough for a well deserved vacation.

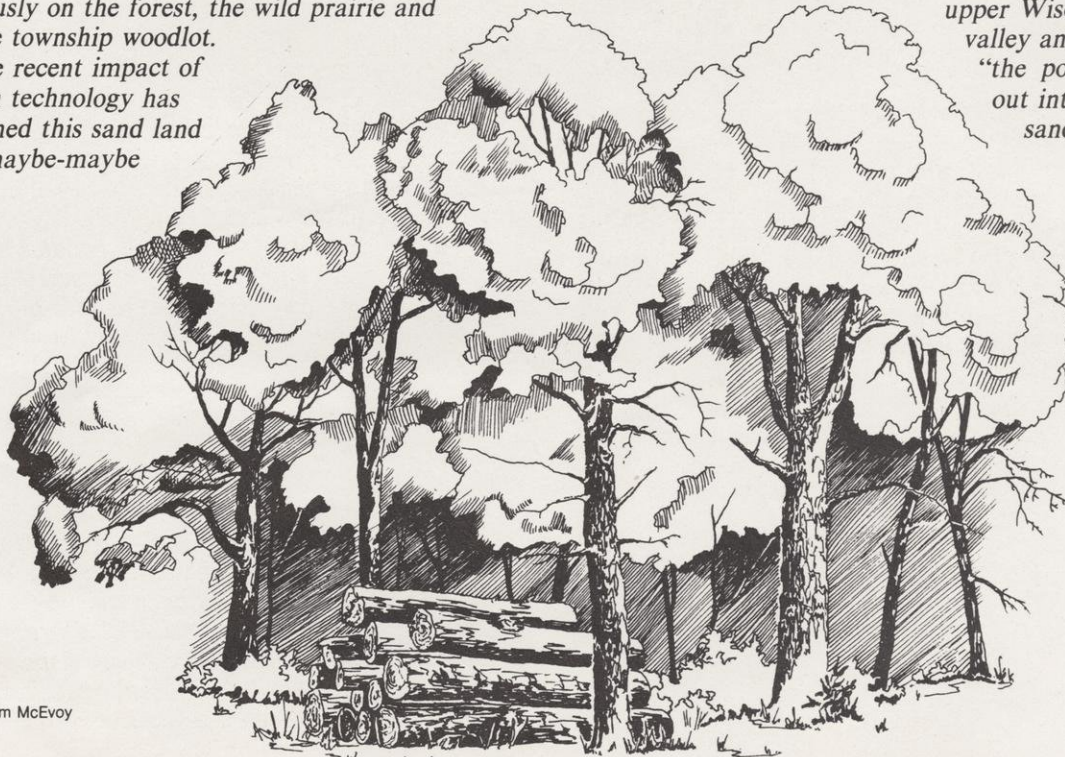
Does an answer to this seemingly irreversible digestion of land mean short-changing ourselves and rejecting the possible rewards we might reap from technological progress?

Begin with ancient words like those of Isaiah, “Woe to those who join house to house, who add field to field until there is no place where they may be alone.” The old man knew that space kept the peace better than fences.

“Balance” is one of the words but balance is precarious. Ask any child beginning on a two wheeler. “Harmony” is better—the music made by many voices, a part for each. This too is learned, altogether different than the sum of its parts.

There is nothing inherently wrong with steel plows, diesel engines and irrigation but something is out of whack if these result in monoculture farms. A tragedy is done to the landscape and to the economic system which flourishes best in a multi-flora of enterprises. And a tragedy is done to the people, when in spring the soul of us is plowed for extra acreage and death is done to the peace between us, to the beauty around us and to the reason for being.

For some, beauty and peace and aesthetics are not reason enough for a woodlot's existence. For them ultimately there are practical reasons. The sand counties are flat. They begin in a narrow ribbon in the upper Wisconsin River valley and just below “the point” broaden out into wide alluvial sands. It is a



Drawing by Jim McEvoy

place where winds take a cunning advantage, where trees and the woodlots are needed to soften its touch. That modern agriculture employs holding cover crops to nail down the sands is not enough. Hot summer winds come undiminished across the fields, a thief to leaf-held moisture. And winter winds come with bitter speed at the township houses. If it is a neighbor's land between you and the west wind your best hope is that he love you with trees.

Some there are who doubt the need for neighbors, there no longer being threshing crews or barn raisings. Barns are now built by strangers. A neighbor did better work though he might steal away your daughter.

There is a danger that this place will become a vast potato desert with little shaded comfort. The profit made by the woodlot was not the kind easily taken to the bank. The Rubaiyat of tree and wind, field and hawk's wing are words for the farmer's heart and not for his wallet, that he might take the long way home from the far field, the way through the woods. And in the thick shade of them, walk through a deciduous air conditioner and be quick refreshed, a small vacation.

Better now to ask what we value and why. How many transistor radios is a patch of marsh marigold worth? How many six packs will be traded for the meadow of blue eyed grasses and what bargains will we make for our woodlots? Is it fated that man will be the only wild thing left, his voice the only howl and his habitation the only habitat?

There is still the sound of blue-breathing chain saws and heavy footed "cats" among our township woodlots. Will they stop soon? — realizing the promise broken, of boys gone Sunday mornings after squirrels, of girls and friends gone for picnics, of hammer handles, barn beams and cradles yet to be?

The answer is unclear.



Chemical poisons: a new law, a new approach

To allow toxic chemicals to contaminate our food, air and water and then police the results is reminiscent of Pandora who, little knowing what was in store, opened the box and later bore the ills which escaped. Today's approach is to carefully assess the contents before we open the lid.

T.B. SHEFFY, Chemist, DNR Surveillance Section, Madison

True, this is the Space Age, but equally important, it is the age of chemicals.

And just as man became enthralled with space, he was smitten by the potential power of chemistry to cure ills and make life easy. However, in exercising some of this new power, man has shifted in recent times from being just one more species in a biological community, to a sort of geologic force, changing the planet and affecting the lives of all other organisms. Man's force results from a variety of activities, some of which include cultivation, exploitation, construction and industrialization. Most of these activities have been strongly dependent on the use of chemicals. Some chemicals are necessary, but unforeseen poisons threaten mankind's very existence.

In 1962, Rachel Carson expressed her fear about pesticides. She warned that in turning them against the insects, man had also turned them against the earth. It is now 15 years later and other toxic substances continue to emerge and threaten.

Chemicals are everywhere—in the air, water, soil and the food we eat. Since about 1935, there has been a dramatic surge in the development of synthetic organic chemicals and an incredible increase in sales. At present, there about 2 million recognized chemical compounds. Of these, more than 30,000 are sold in commerce.

About 1,000 new ones are introduced each year.

Many chemicals help protect, prolong and improve the quality of our lives. For example, synthesized drugs combat disease; manmade fibers can replace human tissue; and plastics are used extensively in industry and recreation.

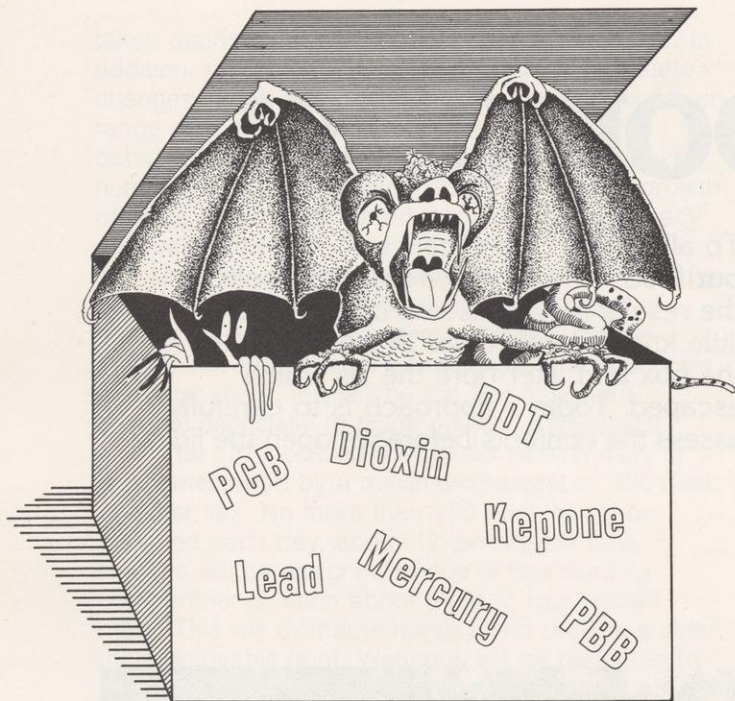
Chemical sales total more than \$100 billion annually, representing about 6% of our gross national product and many millions of jobs.

While we have enjoyed the immediate benefits of chemicals, we are slowly and painfully becoming



Chemicals used by Wisconsin industry

<u>TYPE OF INDUSTRY</u>	<u>MAJOR CHEMICALS USED</u>
Paper & Allied Products	Wet Strength Resins, Sodium Hypochlorite Bleach, Sodium Sulfite, Printing Inks, Paper Dyes.
Machinery Manufacturing	Hydraulic Oils, Alkaline Cleaners and Degreasers, Paint Strippers.
Leather Products	Chromium, Phenol, Ammonium Sulfate.
Food Products	Cleaners, Sanitizers, Preservatives, Dyes, Saran, Acrylonitrile Packaging Material.
Fabricated Metal Products	Degreasers, Oils, Paints.
Lumber and Wood Products	Glues, Resins, Phenols.
Electronic Equipment	PCBs, Mercury.



aware of great environmental risks from some. Unanticipated bad qualities and effects show up. Persistence, pervasiveness, bioaccumulation and toxicity of compounds long thought to be advantageous have been found to threaten people, plants and animals.

DDT, once hailed as a miracle pesticide, was revealed as a monster in the 1960's. An important plastics industry chemical, vinyl chloride, killed workers who were exposed to it. Mercury caused debilitation.

Polychlorinated biphenyls, or PCBs, are the most vivid example. They were first produced in 1929, but not discovered in the environment until 1967, even though more than one billion pounds had been produced by then. We now know that PCBs are persistent, toxic and distributed everywhere. High levels exist in fish from the Great Lakes and other major waters. Trace amounts are in our bodies, in the milk of nursing mothers, and are detected in remote polar regions.

In 1974 a closely related compound, polybrominated biphenyls, PBB, used as a flame retardant in plastics, was accidentally mixed into animal feed at a mill. As a result, thousands of cattle had to be slaughtered and buried. It has since been found in other localities. The ultimate fate of human beings who were exposed is still uncertain, but effects were extremely deleterious.

Albert Schweitzer said, "Man can hardly even recognize the devils of his own creation," and this has been true of certain chemicals. Our record is appalling because our methodology has been backward. When a need arose, we created a chemical and used it in total disregard to other effects. Decades later when some horror surfaced, we were faced with the difficult task of tracing down the cause. In some cases, the cause has been found but the effect lingers on.

Recognizing the frightful hazards of uncontrolled chemicals, Congress last year enacted the Toxic

Substances Control Act. It authorizes the Environmental Protection Agency (EPA) to obtain production and test data from industry on selected chemicals. The act also gives EPA power to regulate the manufacture, use, distribution in commerce and disposal of chemicals. Those used exclusively as pesticides, food additives, drugs and cosmetics are exempt because they are concurrently regulated under other laws.

EPA's Office of Toxic Substances has primary responsibility for administering the law. It will be advised by an interagency committee of experts. Members will represent Departments of Health, Education and Welfare, Labor, Commerce, the National Science Foundation and the Council on Environmental Quality. The committee's main function is to recommend substances for testing. EPA must then initiate testing requirements or publish reasons for not doing it.

A major provision of the act refers to new chemicals. Additional testing of existing chemicals may also be required. Manufacturers must give 90 day's notice on a new chemical to provide EPA with time to act in the event their product is harmful to health or the environment.

EPA will soon publish a list of existing chemicals. After publication, any product not on the list will be considered new.

Manufacturers are required to submit reports and maintain records on adverse health or environmental effects of their products. If the chemical contributes to unreasonable risk, EPA must be notified immediately.

The act provides for citizen involvement. Citizens may bring suits and file petitions to obtain compliance. Interested persons can participate in rule making procedures.

A specific provision refers to PCBs. It requires EPA to regulate this widespread environmental contaminant by issuing labeling and disposal regulations this year. It also restricts use to closed systems that do not leak into the outside environment by January 1978 and prohibits all production and distribution by July 1979.

Finally, the act authorizes grants of \$1.5 million per year to assist states in toxic substance control. Wisconsin has applied for \$100,000 of this amount for the 1977-79 biennium.

Manufacturing is dominant in the Wisconsin economy and the money, if granted, will be used to take a look at the chemicals used therein. According to recent estimates, more than one-quarter of the state's labor force, about 500,000 workers is engaged in manufacturing. This compares to a farm labor force of about 173,000.

Wisconsin has a noticeable concentration of employment in paper, heavy machinery, leather goods, food, fabricated metal, lumber and electronics. These are the major industries. Wisconsin's toxic substances control program will focus on the use they make of substances potentially hazardous to health and environment. Beyond this, DNR will take a look at toxic substances in general throughout Wisconsin. The modes of entry into the environment and significance as environmental

POISON EPA's 15 MOST WANTED LIST POISON

One of the Environmental Protection Agency's first official actions under the Toxic Substances Control Act was to order an in-depth review of 15 chemicals which are suspected of being injurious to human health or the environment. The 15 chemicals are:

NAME	AMOUNT USED OR PRODUCED ANNUALLY IN THE U.S.	ECOLOGICAL OR HEALTH EFFECT	SOURCE OR USE
1. Acrylonitrile	1.5 billion pounds	carcinogen	acrylic fiber, disposable plastic bottles
2. Benzidene	45 million pounds	carcinogen	from manufacture of AZO dyes
3. Arsenic	unknown	carcinogen	ore smelters, coal-burning facilities, pesticide production
4. Cadmium	1.5 million pounds	kidney damage, emphysema	zinc refining, ore smelting
5. Asbestos	1.6 billion pounds	lung cancer	mining, asbestos products (brake linings, gaskets, fireproofing material)
6. Hexachlorobenzene	8 million pounds	chloracne, reproductive failure	by-product of chemical manufacturing
7. Benzene	10 billion pounds	chromosome damage, leukemia	produced from petroleum and coal, emitted from automobiles, chemical plants
8. Lead	2.5 billion pounds	acute toxicity, brain damage	ore smelters, automobile exhaust, burning coal, paints
9. Mercury	4 million pounds	acute toxicity, brain damage	chloralkali industry, battery production
10. Phosphates	unknown	eutrophication of lakes, skin irritant	industrial detergents, boiler water treatment
11. Polybrominated biphenyls	2 million pounds	reproductive failure, acute toxicity, liver damage	flame retardant in synthetic fibers, plastics
12. Polynuclear aromatic hydrocarbons	unknown	carcinogen	oil spills and inefficient combustion
13. Trichloroethylene	450 million pounds	liver cancer	degreasing of fabricated metals
14. TRIS Phosphate	10 million pounds	mutagenic, toxic to fish	flame retardant in children's clothing
15. Vinylidene chloride	270 million pounds	liver carcinogen	used to produce saran wrap and other plastics



pollutants will be documented. Remedial action via the Toxic Substances Control Act and other laws will be taken where needed.

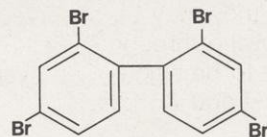
A specific objective is to contact Wisconsin's industries to see that PCBs taken out of service are properly disposed of. DNR representatives will visit major PCB users, especially those operating large numbers of capacitors and transformers. The Department will explain the new regulations and help educate industry in safe handling and disposal methods.

The Toxic Substances Control Act is one of the most far-reaching pieces of legislation ever to hit U.S.

industry. But the magnitude of its impact is uncertain. EPA must implement the act by creating rules, some of which will outline chemical testing protocol and define significant new uses of existing chemicals. Environmentalists are pushing for strong and extensive rules, while industry is likely to oppose this.

Pressure from environmentalists has already resulted in one major change. A new director of the Office of Toxic Substances, Steven Jellinek, was appointed last July. Under his leadership the office is expected to enact strong rules on reporting. And as the department develops its program to protect the environment from chemical contaminants, manufacturers will report not only the kinds and amounts of chemical produced, but also the quantity and place of origin of their products. This will greatly expand the original list and delay its completion until mid-1978. Because it will be very comprehensive, EPA thinks the delay is justified.

Another controlling factor is money. President Carter has proposed increasing EPA's 1978 budget for administering the act from \$7.4 million to nearly \$29 million. But EPA officials say this could grow to \$200 million in a few years. Whether Congress chooses to appropriate these amounts will ultimately determine whether dangerous chemicals will really be controlled. The cost of catching them before they are loosed in the environment will be high, but we can ill afford not to pay the bill.



Star-nosed mole

LEROY J. LINTEREUR, Area Wildlife Manager, Marinette

We all know what a typical winter animal is. It may be a deer or snowshoe hare racing through a swamp or, perhaps, a muskrat or beaver, snug in a winter home. There is something noble about these animals and their ability to tough out our Wisconsin winters.

But none of these can hold a candle to our hero—the star-nose mole. This is no shadow, dramatically shifting through a cedar swamp, but rather a gurgle of near frozen spring water, as the creature splashes through a tunnel in a muddy seep. No comfortable home awaits this wonder animal after a day of sculling under a foot of ice through water soon to freeze. Here is a winter animal with a vengeance.

Nowhere in the world is there a mammal built like the star-nose mole, and anyone who thinks bizarre animals are confined to the tropics has never set eyes on one of these.

Although their tail—a perfectly flattened rudder—is out of the ordinary, the body is conventional enough. The feet are not quite so modified as those of the digging moles and are a perfect cross between oars and shovels.


It's the nose, one of the marvels of nature, that sets this mole apart from all other mammals. It's elongated and sawed off, giving an effect somewhat like a miniature pig. Then radiating from this snout are two circles of fleshy projections like tiny fingers, some twenty in all, just the thing for an animal that goes fumbling through dark tunnels for much of its life. In the water this mole looks somewhat like a baby muskrat . . . on land it resembles nothing. The tunnels are not as evident as those of other moles, and mud deposited at the end of the burrow is about the only sign this animal leaves to indicate its presence. This strongly resembles the mud structures crayfish build.

Star-nose moles, unlike other insectivores, have a certain tolerance for each other, and where one is found there are generally others, a loose colony of sorts. These will always be around water or in areas permanently sodden, winter and summer.

They are sometimes observed moving aimlessly about in unlikely spots. This is a result of either a dryup or freezêup of their well soaked niches, and then they may be observed crossing roads or wallowing through snow. This is when they are most likely to be sighted, an event that always elicits marvel and wonder.

Insectivores—loosely, shrews and moles—are a stable and basic group ancient as the proverbial hills. We and all other mammals ascended from creatures strongly resembling the little shrews that rattle perpetually through leaves on the forest floor, but the star-nose also has moved far from this original ancestry. Nature fitted it with that tail, those feet, and above all a nose. And then gave it the endurance and will to contend with the worst our northern winter has to offer.





Return of the native – turkey

As Thanksgiving approaches, Wisconsin can once again talk turkey. The real wild bird is reintroduced and with luck and time may once again be the modern pilgrim's fare at the table.



Turkey calls.

Photos courtesy of Turkey Call Magazine, Edgefield, SC.

RONALD H. NICKLAUS, *Mississippi Wildlife Manager, La Crosse*

It was dawn. The old gobbler shook himself, instantly alert. Flying off his roost in a giant white oak he picked randomly at a green sprout or an acorn missed by squirrels or deer. An early April breeze blew warm from the southwest.

Then he was no longer interested in food. In a small opening he strutted and stopped. Raising himself to full height, he called loudly. The hardwood slopes rang but no challenge answered. He called again and again but there was no other gobbler, nor any breeding hen.

He had encountered none of his species for six years. In his first breeding season, at age two he had been answered by a hen. He courted and bred her. She was thin from a severe winter, unable to forage as effectively as the twenty-three pound gobbler twice her size.

The old gobbler was cautious. Farms were close and he knew the dangers of man and man's animals.

An Eastern Wild Turkey, and largest of the North American turkeys, he was dependent upon woodlands for most of his needs. But, the woods were being cleared. Roosts and feeding areas used for decades had disappeared. The white man with his oxen and plows and machines had laid claim upon the land for farm and lumber.

Night fell and the gobbler found a familiar roost. Perhaps age had diminished his hearing a slight fraction or the security of the roost allowed his senses to relax. Silently, a great horned owl streaked from above. Talons sank into the old gobbler's back, puncturing vital organs. There was a swirl of black bronze feathers. The great horned owl had made a kill. Gorging, he flew back to feed his mate and hungry owlets. It was 1881 in Lafayette County. The last wild turkey was gone from Wisconsin.

The birds had been native roughly to the southern one-third of the state. A. W. Schorger, Wisconsin's noted wildlife historian, found that " . . . in 1816 it was not uncommon for an Indian to arrive in Prairie du Chien with a hand sled loaded with 20 or 30 turkeys for sale . . ." But settlement, clearing, cultivation, and lumber had a profound effect. One theory was that clearing forests destroyed natural corridors by which restocking occurred from the milder south. The essential habitat base needed to sustain a wild turkey population was gone by 1881.



Photos by Bill Reaves

Since then restoration has been attempted many times. Pen-reared turkeys have been released to the wild in a variety of habitats and by numerous individuals and organizations. Invariably, there was little or short-lived success. Use of semi-domesticated birds doomed these projects from the start.

The old Wisconsin Conservation Department (DNR's predecessor) tried using the offspring of game farm hens bred to wild gobblers. The progeny were mated back to wild gobblers and the procedure repeated a number of years to obtain the wildest stock genetically possible. These pen-reared birds with considerable wild breeding were released in the Baraboo Range in Sauk County and immediate problems arose. Turkeys congregated around roads and farmyards. The pen-rearing was difficult to overcome.

Turkeys were then released in areas of sparse human habitation. The idea was that after one or two generations, offspring would have no domesticated associations and would be completely wild. The Necedah area was the release site.

Turkeys increased and several hunting seasons were even held when numbers rose to an estimated 2,500. With favorable weather, the birds could survive. Some were transplanted to Buffalo County and some to Crawford.

But certain behavioral traits, such as early nesting and an affinity for roads, did not permit the

population to sustain itself through unfavorable conditions. Late winter snow caught hens on the nest. Never completely wild, birds along roads were easy prey. Acorns, the favored winter turkey food were available only in limited amounts. Level terrain at Necedah did not produce mid-winter thaws and snow depth was critical in certain years. The Necedah population is now only a remnant.

The transplant to Buffalo County has disappeared. Crawford County turkeys have hung on in small numbers.

While all this was happening, changes occurred in the native range in southwest Wisconsin. Nature healed old wounds. Modern timber management was on the landscape. New agricultural economics had evolved. Farm units were much larger, eliminating old farmsteads. Odd corners and woods were left alone to revert. But some things hadn't changed — the rugged topography of the driftless region and the abundant springs and spring-seeps. South facing slopes still cleared rapidly of snow to provide easy access to winter food. Habitat was becoming increasingly favorable to wild turkeys.

Transplants of wild stock into unoccupied habitat had been successful in Missouri and showed promise in Iowa and Minnesota. The key seems to be pure wild stock and good habitat. By 1974, southwest Wisconsin had the habitat. The birds were soon forthcoming.



Missouri, a leading turkey state, was amenable to an exchange. Wisconsin would trade three live-trapped coulee ruffed grouse for each wild turkey — 135 ruffed grouse for 45 turkeys.

It took awhile to learn the fine art of summer grouse trapping. We had caught 81 grouse by 1975 and completed our commitment the following year plus trading stock for an extra 20 turkeys.

In Missouri trapping turkeys had to be done in winter when food was scarce in order to bait the birds close enough for a cannon net shot. Once captured and put into cardboard shipping containers the birds were flown directly to Wisconsin. On January 21, 1976, 19 hen wild turkeys from Missouri made history. The native wild turkey returned to Wisconsin!

Upon arrival at La Crosse airport the birds were marked and tested for disease antibodies and parasites. Tracheal and cloacal swabs were taken along with a blood sample. Colored tags were attached to the wings, coded for individual hens and gobblers. This allowed a disease history to be compiled on each bird and would hopefully give answers to disease problems if they occurred.

Turkey releases were on private land and prior arrangements had been made with a landowner in the Bad Axe River watershed.

The same worn old trucks that had gone thousands of dusty miles in the heat of summer during grouse trapping crunched over frozen snow to the release site. Shipping boxes were removed and jackknives slit the tape holding down the top. The first turkey emerged, hesitated a fraction of a second, and burst into powerful flight. A score of rapid wingbeats took it far down the wooded coulee where it glided and banked into the hardwood forest and was lost to sight. Eighteen others soon followed, red wing tags flashing in the late afternoon sun. Several days later, two more shipments completed the first year's stocking of 20 hens and 10 gobblers.

Prior to release, a program for evaluation of the stocking had been formulated. Winter tracking and observations by local residents would be used the first few months. Documentation of gobbling males yielded data on spring dispersal, male survival, and breeding chronology.

The news media cooperated and reports of landowner sightings came in regularly. There were phone calls and requests for information. Several sportsmen's clubs joined in full support of the program. Paternalism developed and a genuine interest in the entire program. Not one incident of deliberate molesting or poaching has yet occurred. There is great social pride at the local level in helping the birds along. Any would-be poacher knows that all eyes in the countryside are watching.

First year documentation of gobbling males showed a radius of dispersal of approximately six miles from the release site. Seven of nine gobblers alive at this time were located. Gobbling began the last week in March, peaked the last week in April, and finally ended near the first of June.



Release

Photo by Carl Batha

Nesting came and with it two reports: one with a clutch of 15, another with a successfully hatched clutch of 14. Sightings showed from four to fifteen young per brood.

Fall hunting seasons brought another wave of observations with no report of trouble, in spite of a record deer harvest. The stage was now set for the first season of tracking winter flocks. Good snow came around Christmas and stayed through mid-February. Seven flocks were located and a population estimate of about 100 birds computed one year after initial release. A second release of 10 hens and six gobblers was made in the winter of 1976-77 as added insurance for the Bad Axe watershed flock.

An additional allotment of 20 turkeys will be received in January of 1978. They will be released in central Buffalo County. This is about 70 miles north of the original site and contains a large block of excellent habitat. The two separate flocks are intended to supplement each other in the event of local problems of disease or poaching. Eventually the two flocks may join.

The intent of the turkey restoration program is to spread birds to different watersheds by winter live-trapping and transplanting. Initially this serves two purposes, increasing occupied range and management of numbers. Disease can be an important factor and population density is critical to its outbreak and spread.

Keeping numbers within safe limits can initially be accomplished by transplanting. As available range becomes occupied, this will be done in other ways. Sport hunting is one of the objectives and a good way to control populations.

Regulated spring gobbler hunting removes excess birds without impairing productivity. A controlled hunt will also help collect biological information not obtainable by other methods at comparable costs.

It has been a long road back for the wild turkey in Wisconsin and by no means can success be claimed at this time. Years of monitoring, evaluating, and plain hard work remain. Things have gone well so far and the prognosis is good. The truly wild turkey, descended from the native, has returned and we will do our best to keep it here.

Buy a trout stamp

Two-fifty to save a stream

STAN KMIOTEK, DNR Cold Water Fish Specialist, Madison

Over the years, a Wisconsin trout stamp has danced in and out of the legislative flow like a dry fly in a rapids. But it never caught anything. Until the summer of 1977.

Trout fisherman Dan Flaherty of La Crosse, a member of the Wisconsin Natural Resources Board, laid one out there and it couldn't be refused. He proposed that all stamp money be earmarked for trout habitat improvement in inland waters. Support rallied round — from the board, the Conservation Congress, trout anglers, the governor and ultimately the legislature.

So starting January 1, 1978, a \$2.50 trout stamp will be required. Everyone who has to buy a Wisconsin fishing license has to have a stamp to fish trout. Those who don't, won't (youngsters under 16 and residents over 65.)

You can give one for Christmas and help save a stream. Maybe your favorite.

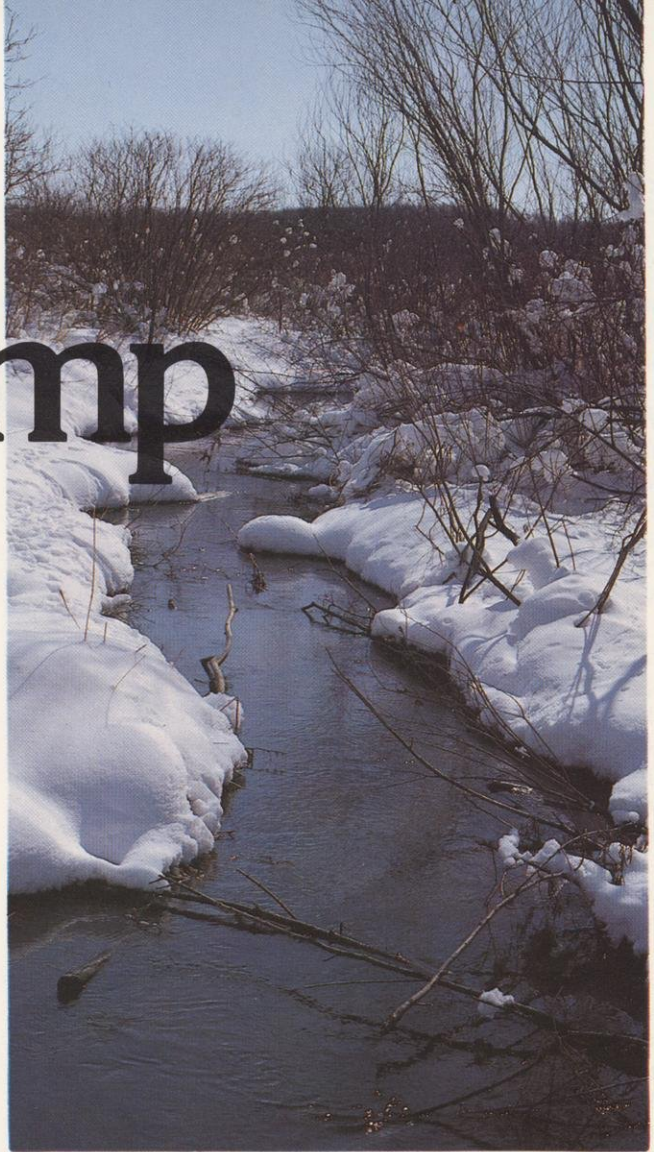
This is an important event in the destiny of Wisconsin's 9,000 miles of trout water. It means deterioration will stop and restoration begin.

It is an important event to people who fish for trout. Sure, some may give up, but for most, it eventually means a heavier creel and a kind of assurance that their favorite stream will never be barren.

It is an important event for widely known magazine illustrator Tom Rost, the venerable trout fisherman from Cedarburg who donated his "Brook Trout" from *Field and Stream* as Wisconsin's first stamp (inside back cover); for other wildlife artists who incline toward painting fish; for this magazine which will sponsor a trout stamp design contest (details to be announced in a future issue); and maybe even for stamp collectors. But mainly it's for the trout streams. They've been hurting.

Ten years ago, Wisconsin research wrote the bible on how to help, but until now hasn't had the wherewithal. In a nationally emulated technical bulletin published in 1967, DNR researchers Ray White and Oscar Brynildson outlined problems that even then were 25 years old:

"Heavy grazing and trampling by cattle and impoundment by beaver have continually mutilated our streams."



They cited shaded channels and banks that limit production and noted that "much trout water has lain deteriorated since the days of dam building and stream straightening."

Emphasized in their how-to book on rehabilitation is another important point:

" the fish manager must respect qualities of 'stream personality' cherished by anglers who have fished it for years, for much besides abundance of trout and skill of angler enter into trout fishing's quality and meaning: Unique scenic setting, the sounds of nature, the overall character or mood, be it sylvan, pastoral or swampy. Solitude is important; the angler wants to feel, for a few hours at least, that he has a peaceful corner of the world to himself. A varying landscape also enriches a day's sport. The swift run, the riffle, the slow dark pool, the slough, the wooded reach, the meadow — each offers different challenges, different thrills. Reconciling productivity and natural beauty will often be difficult."

This will be the goal when the trout stamp money is spent.

Once the cause of stream damage is eliminated and management measures completed, benefits will be cumulative. At Lawrence Creek, for example, trout populations improved steadily over a six-year period.

There'll be a priority system — streams with the heaviest use and biggest potential will be worked on first. Be patient! Yours is on the list.

The illustrations show some of the work that might be done.

BRUSHY STREAMS

Several hundred miles of stream no longer support trout because of the "damming" effect of overhanging brush. Alder, especially, tends to droop into the water and force the current sideways into the bank. Eventually the stream becomes wide, flat and too shallow for trout. Periodic brushing helps establish other shrubs and encourages grasses which protect banks from erosion. As more light becomes available, algae and other aquatic plant production increases to provide food for insects and improve trout growth. Once alders are controlled, the current develops new channels which eventually become deep enough for trout.

BEAVER DAMAGE

The beaver is an attractive animal, but is also one of the most destructive forces Wisconsin trout streams encounter. Their dams like the man-made ones can ruin a stream for trout. They warm water, destroy streamside vegetation and overhanging banks, increase soil acidity and block migration for spawning. Existing beaver damage to trout streams is widespread, will cost an estimated \$6,000,000 to repair.



ARTIFICIAL DEVICES

Stream bank cover for trout can be restored by installing devices made of rock, planks and pilings. Durable and effective, they are soon overgrown by grass and shrubs. Informed anglers search for these devices knowing that trout hide there, but some pass by unaware. One stream treated this way had six times more 10-inch-plus trout than it had before.



SPRING PONDS

Wilderness spring ponds are objects of beauty to be enjoyed by angler and nonangler alike. Excellent environment for trout, Wisconsin has more than 500 of them. Over a long period of time, ponds fill up with decayed plants and soil and are unable to support trout. These materials can be pumped out with a dredge. The ooze-filled basins once again become ponds filled with crystal clear spring water. So far, about 50 have been dredged.

CATTLE DAMAGE

Cattle ruin trout streams by breaking down overhanging banks. Vegetation that protects trout and harbors terrestrial insects is lost. Eroding soil covers aquatic insects. Fencing cattle out is the only solution.

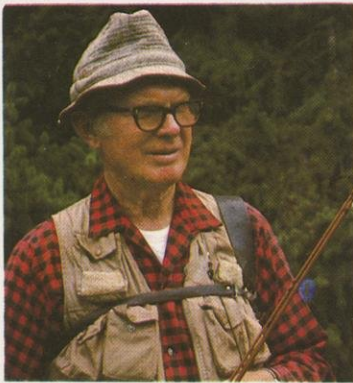


Looking into water with Tom Rost

Wisconsin's first trout stamp artist



J. WOLFRED TAYLOR, Editor
Wisconsin Natural Resources



Tom Rost

"I can't pass a stream without stopping and looking into it. All my friends kid me about it, but I just love to look into water. It's an element that's different than ours and I'm absolutely fascinated by it."

Those are the words of Tom Rost of Cedarburg, an

artist and a very gentle man who donated the painting on the opposite page that will become Wisconsin's first trout stamp. He is not only one of the best wildlife magazine illustrators in the nation, he is also a trout fisherman of high caliber with deep knowledge, sensitivity and skill in both crafts.

A contest to design the 1979 trout stamp will be sponsored by this magazine next year and he will be a judge.

Mr. Rost is a graduate of the old Milwaukee Teacher's College School of Fine Arts. Much of his early work was done in the Civilian Conservation Corps (CCC) camps during the days of the Works Progress Administration (WPA) in the early 30's. At that time, two Rost paintings were purchased by Eleanor Roosevelt as gifts for her husband, President Franklin D. Roosevelt who created the CCC and WPA to make jobs during the Great Depression.

There are Rost murals in post offices in Elkhorn, Lancaster and Paoli, Indiana.

His wildlife illustrating started with *Field and Stream* magazine in 1947 and has been going on ever since. The Wisconsin trout stamp was first published as a *Field and Stream* cover.

Of wildlife art, he says "there are some really beautiful things being done. The best are essentially paintings. They just happen to be about wildlife."

"I'm not a very fast painter. It takes me five to eight days to do something like the trout stamp. The idea is to make a painting look as though you did it in five minutes—to have it look fresh and effortless. If a fellow wants to be an artist, he has to look at

Flies reprinted courtesy of the Orvis Company, Inc., Manchester, Vermont.

everything as though he's going to paint it. I get interested in the detail. I think most fishermen and hunters are interested in it too.

"They're pretty literal. Not many outdoorsmen appreciate 'impressions' of a trout, a bird dog, a deer or a pheasant. They like them fairly representational and that requires an awful lot of detail. They should look alive. They shouldn't look like cleverly contrived plastic."



Tom Rost says he started painting wildlife because "it's something I've always loved. It's very easy to fall in love with the outdoors. A lot of people do it. It's nothing unique. I'm terribly interested in nature in all its forms, not just hunting and fishing. I love trees. I have a small orchard and I find grasshoppers and frogs just as fascinating."

The studio in his 125-year old home is decorated with the paraphernalia of fishing and hunting—antique dry flies, creels, bamboo rods, reels and shotguns.

Of fishing trout with worms, he says, "It's a special skill I don't have. I started with flies and I still fish with flies."



Asked to name his favorite stream, Mr. Rost hesitated, then said "I think the most beautiful stream I've ever fished is the Wolf, and I've fished the Brule and a whole bunch of them. I don't think it has as many fish per cubic foot of water as some others, but it's such a gorgeous stream! And it gives you plenty of room for a backcast."

"For many years in the 50's and 60's, I spent almost every weekend on the Wolf or the Oconto. Now there are so many rafters and canoers that some of the fun's gone out of it. You have to fish in the evening now, which I enjoy. But I love daylight fishing because I love the visual part of it. I like to see a fish take. I like to see a rainbow jump and I like to see the way a brown looks in water. You don't get those things at night. You get a different kind of thrill."

Asked to name his favorite trout, Tom Rost said without hesitation, "The brown! It's the most challenging fish. I love to catch brookies and rainbows are fine. I like them all. But when I catch a brown, I figure I've done everything right."

On his favorite fly, "The Adams. It has a brown hackle, a grizzly wing, a grizzly tail and a dark grey

body. It's not an imitation of any particular insect, but a pretty fair representation of a number of mayflies that hatch on mid-Wisconsin streams."

On fly tying, "I can't tie an excellent fly. I enjoy a well tied fly so much that I prefer using one beautifully tied by someone else rather than a poorly tied one done by myself."

And then as an afterthought, "Although my streamer flies are acceptable. I like them."

On his favorite fly tier—"At one time Helen Shaw was tying in Wisconsin. I don't think there ever

was anyone better. But I understand she's living in New York now and not tying anymore."

His favorite now is a man named Edward Haaga.

And finally, on the sport in general: "Fishing, particularly fly fishing is such a marvelous pursuit because no one ever has all the answers. Trout just aren't the same every day and that's what keeps it so fascinating. You just never know everything about fishing, ever. You just can't."





Department of Natural Resources
Box 7191, Madison, Wisc. 53707

SECOND-CLASS
POSTAGE PAID
AT MADISON
WISCONSIN

