

Improving the Quality of Duck Hunting in Arkansas:

Findings and Recommendations of the Arkansas Wildlife Federation Duck Committee

August 2003

color photo of duck hunters or ducks (horizontal)

AWF seal

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Improving the Quality of Duck Hunting in Arkansas Who is the Arkansas Wildlife Federation?

The Arkansas Wildlife Federation (AWF) is a private, nonprofit conservation organization that was founded in 1936. Hunters and anglers began our organization because they were concerned about the unprofessional manner in which Arkansas' fish and wildlife resources were being managed, the long-lasting, negative impacts of market hunting, and the rampant destruction of wildlife habitat.

At that time, it was not unusual for Arkansas' legislature to set the seasons on almost a county-by-county basis. Management of hunting and fishing was based on politics, not professional wildlife science. One region or county might get a better season or bag limit than another, depending solely upon the clout of their legislator and not the health of the wildlife populations.

With that backdrop, the AWF worked to establish the Arkansas Game & Fish Commission by developing, sponsoring and working for the eventual passage of a constitutional amendment by the vote of the people in 1944. Amendment 35

created the modern-day, autonomous, Arkansas Game & Fish Commission to help insure that wildlife will not be at the mercy of politics. Amendment 35 has been a resounding success. After nearly 60 years of conservation work, the Arkansas Game & Fish Commission is recognized as one of the most effective and productive state wildlife agencies in the nation.

During the past six decades since working for the passage of Amendment 35, the Arkansas Wildlife Federation has been involved with countless conservation education projects, and we have worked responsibly on many other issues that affect hunting, fishing and our natural resources. Our board of directors and our statewide membership include a wide array of citizens, from farmers, foresters, business leaders and teachers to doctors, lawyers, retirees and blue-collar workers. Many of our members hunt, fish, camp, hike or partake in other outdoor activities. All of our members help support AWF's education projects and our work on conservation issues that affect the quality of our environment for years to come.

Why Is The Arkansas Wildlife Federation Doing A Report To Improve The Quality Of Duck Hunting?

The following report, "Improving the Quality of Duck Hunting in Arkansas," got its start at the end of the 2002-2003 duck hunting season. AWF members, directors and other Arkansans who contacted our office felt the season had been one of the worst in recent memory. The one before it was also not up to expectations. There were many opinions as to why duck hunting was so poor, but not many facts. It was very clear that fact gathering was needed before an informed, responsible, discussion could take place between hunters and the state and federal agencies responsible for managing waterfowl and setting seasons.

The attitude among many hunters was that we did not trust the "Feds" and did not believe the Arkansas Game & Fish Commission, mainly in the area of statistics, such as duck numbers, harvest figures, size and location of the flock, etc. Duck hunters were also not sure where their money was going through various

duck support groups or how they were contributing to duck production, nesting areas, etc.

To answer these questions, a special AWF Duck Committee was formed to investigate the facts (and factors) impacting duck seasons and duck hunting. All eleven of the members of the AWF Duck Committee are duck hunters. Only one has any commercial interest in the sport. They live in many regions of the state. The AWF Duck Committee members hunt on public and private lands. In other words, they are representative members of the state's 90,000-plus duck hunting fraternity.

This report is the result of the AWF Duck Committee's work. It is a report by duck hunters for duck hunters.

The Federation welcomes comments, suggestions and questions. Our contact information is on the cover.

What Does This Report Contain?

There are five sections of this report. The first is a summary of the AWF Duck Committee's findings and recommendations. In the second section, we extensively cover a variety of topics involving duck hunting. In the

third we have included an Appendix of resources. The fourth section covers technical aspects of the season-setting process, and the last section includes various charts with information regarding ducks.

Improving the Quality Of Duck Hunting in Arkansas: Summary Of Findings and Recommendations by the AWF Duck Committee

* According to midwinter waterfowl surveys done the past 48 years, the number of ducks found in Arkansas (not the nationwide fall-flight forecast) has been trending downward. From 1955 through 1978 (a period of 24 years), there were 18 years in which the Arkansas midwinter survey totaled more than one million ducks. From 1979 through 2002 (also a period of 24 years), there were only eight midwinter counts that totaled more than a million ducks in Arkansas. States in the more northern regions of the Mississippi Flyway do not seem to be suffering downward trends in midwinter surveys.

* It is difficult to know for certain why fewer ducks are coming to the state. Some factors, such as cyclic droughts in the prairie pothole breeding region, fall and winter droughts in Arkansas, lack of snow cover in states to the north of Arkansas, or improved waterfowl habitat developments in areas north of us, are out of our control. However, there are two situations occurring in Arkansas that could be affecting the number of ducks that come here, and these two issues can be improved: They are "hunter pressure" and "incorrect" management of some private and public wintering duck habitats.

* The AWF Duck Committee believes that fewer ducks come to

Arkansas or stay here very long because they are under extreme pressure to evade the never-ending shots of waterfowlers for 60 days in a row. Those ducks that do make their way here seek protected areas when possible to avoid hunting pressure. Arkansas hunters hunt more days and harvest more ducks per season per hunter than any other state in the Mississippi Flyway. Even though duck numbers in Arkansas have been generally moving downward, the number of ducks killed by hunters in Arkansas never exceeded a million birds until 1995. Since that year, we have topped a million ducks harvested each year as the number of hunters skyrocketed.

* The Federation is concerned that Arkansas hunters are shooting a higher ratio of adult birds than we used to. We are worried that larger harvests of our adult "brood stock" or "traditional birds" causes there to be lower duck numbers coming to Arkansas in future seasons because they don't survive the season in the same ratios as they used to, compared to juvenile birds. In other words, the adult birds that used to come here every year, don't make it through the season to come back again and bring some of their flocks with them.

* Duck hunting pressure in Arkansas is much higher now than in the early 1990s or at any other time.

Twenty years ago during the 1982-83 waterfowl season, approximately 50,000 Arkansas state duck stamps were sold. In the early 1990s, stamp sales dropped below 40,000. During the 2002-03 season, about 90,000 stamps were sold. We have also just completed our sixth consecutive year of 60-day seasons, with generous bag limits. In other words, during the past few years, we have had many more hunters going afield during longer hunting seasons than ever before.

* While the phrase "hunting pressure" is scattered liberally throughout this report, hunters should also realize that ducks are under additional pressure from multiple sources throughout their migration. Everything one can imagine, up to and including bird watchers, farm operations, outboard boat motors, airplanes and motor vehicles can and do combine to harass waterfowl, whether intentionally or not, to the point of moving them out-of-state or to sanctuaries.

* The following suggestions

address hunting pressure. They are not expected to substantially increase nationwide duck populations. Hopefully, a higher percentage of ducks will spend their winter here. We need to put out the "welcome mat" for migrating waterfowl. The AWF Duck Committee is trying to help "our" ducks in Arkansas, much like South Carolina did last year. A severe drought in the Southeast caused South Carolina to shorten its season and reduce its bag limit to protect their birds. Obviously, South Carolina and Arkansas are quite different in many ways, but both states are trying to help "their" ducks by being more restrictive than federal guidelines ask them to be.

* Even though the U.S. Fish & Wildlife Service is allowing the Arkansas Game & Fish Commission to set a liberal duck hunting season of up to 60 days and six ducks, the AWF Duck Committee requests that the Commission be more restrictive to relieve hunting pressure, improve the quality of waterfowl hunting and protect "our" ducks.

**The Following are Recommendations for the 2003-04 Duck Season.
Hopefully, they will reduce hunting pressure.**

1. We recommend two, seven-day splits, starting the season and ending it about the same dates as the state usually does. Taking this action will reduce the season length available from 60 days down to 53 or so. On our AWF Waterfowl Survey, most hunters support a 45-day season.

2. The total limit for ducks should be five, including three mallards, only one of which can be a hen. A survey in the Arkansas Wildlife Federation publication indicated that most hunters prefer a three-mallard limit, including only one hen.

3. Spinning-winged decoys should be prohibited throughout the Mississippi Flyway because they greatly improve the efficiency of the hunter in certain situations, and they reduce the "fair-chase" aspect of duck hunting. Spinning-winged decoys resemble tactics used by market hunters of past years. At the least, the Arkansas Game & Fish Commission should recommend that they be banned throughout the Mississippi Flyway.

4. Sanctuaries and waterfowl hunting areas on state and federal lands are vitally important to ducks and hunters. Hunts on State WMA sanctuaries opened last year should be closed this year. Telemetry studies should be undertaken on public and private sanctuaries in Arkansas to understand the impact or value rest areas and sanctuaries have.

5. The AWF Duck Committee recommends limiting the number of hunters, particularly non-residents, on public hunting grounds through the use of permits or other means. Public hunting areas have become so crowded it is nearly impossible to have a quality hunt. Hunting pressure is causing ducks to avoid these "blasting" areas.

6. To minimize the human disturbance factor in and near WMAs, we are recommending that only morning hunting be allowed on public and private lands in certain regions. When possible, consider restricting the use of outboard motors in parts of the WMAs.

The Following Findings and Recommendations Concern Habitat For Ducks

Independent, professional waterfowl experts say that greentree reservoirs and flooded fields designed to attract ducks to Arkansas and keep them here as long as possible are often managed incorrectly. Too much water, too fast, at the wrong time, and too deep, stresses mast-producing trees, reducing the amount of food available for ducks. Deep water also makes feeding difficult for mallards and other puddle ducks.

On the other hand, water is often drained from flooded fields as soon as the season is over, thereby decreasing habitat available for ducks migrating back north. Ducks need this type of habitat going back north as much as they need it during the southern migration, even though the food in the fields may have changed from grains during the winter to invertebrate "prey" during the late winter.

Many Arkansas hunters have complained that ducks have been increasingly concentrated on US Fish and Wildlife Refuges, especially the Bald Knob and Little Dixie Refuges. Hunters also feel that duck flight patterns, movement and distribution have been changed by the refuges. One refuge practice which has been strongly criticized is leaving unharvested grain in sanctuary areas.

AWF Duck Committee has

confirmed that in recent years both of these refuges have held large numbers of ducks. AWF Duck Committee believes these refuges are well managed and important, as they provide all types of wildlife habitat plus sanctuaries. We further believe their importance has increased in recent years because of the following:

- (1) Increased hunting pressure;
- (2) Lack of ideal habitat provided by private landowners in the counties surrounding the refuges; and
- (3) Lack of flooding of the White River during duck season in five of the last six years.

The AWF Duck Committee believes the absence of flooding of the White River should not be underestimated. Both of the above mentioned refuges are near the White River. When the White River floods it is literally several miles wide and provides ideal waterfowl habitat as well as sanctuary.

When prolonged flooding occurs, large numbers of ducks have been consistently observed. The White River also provides the best opportunity for the hunters of Arkansas, who may not own land or can't afford expensive memberships in hunting clubs to have a quality hunting experience. For example any hunter with a flat bottom boat,

9.9 HP outboard motor and a sack of decoys can access, hunt and have quality hunting opportunity on the White River.

Waterfowl biologists agree that habitat conservation is the most important fact related to duck production. It is impossible to overstate the importance of the federal government's Conservation Reserve Program and the Wetlands Reserve Program. Grasslands in the northern reaches of the United States produce most of the ducks that come through the Mississippi Flyway. When these grasslands are tilled for soybeans or other crops, their wildlife values almost disappear.

Waterfowl experts agree that the success of the CRP has been a major factor in helping duck populations recover from their low populations of the 1980s and early 1990s. The program provides much needed supplemental income to landowners while providing them the resources to help wildlife on their property. It's a win-win situation!

Likewise, the Wetlands Reserve Program has been a great blessing for

ducks throughout the nation, especially in Arkansas. Landowners are enrolling tens of thousands of acres in this federal effort to restore wetlands that should never have been drained. Landowners can receive significant supplemental income by taking their qualifying farmed wetlands out of production and planting them in trees and other appropriate vegetation.

Our state and nation have lost millions of acres of natural wetlands, particularly during the 1960s and 1970s, and we continue to lose more. The Wetlands Reserve Program helps reduce the impact of past and present losses of these valuable habitats.

Last, but certainly not least, we must realize that disastrous changes have been proposed by the EPA for the Federal Clean Water Act. These changes to the Act, if adopted, could eliminate waterfowl hunting as we know it in the future by removing protection of millions of acres of prairie potholes and other important wetlands throughout the nation. If this protection is lost, landowners will be unleashed to drain prairie potholes and many other priceless habitats.

The AWF Duck Committee Makes the Following Recommendations Regarding Duck Habitat

1. AWF Duck Committee recommends to enhance wintering waterfowl habitat in Arkansas, seminars and other education projects should be conducted to help private and public habitat managers understand how to better manage greentree reservoirs, flooded agricultural fields and realize the importance of moist soils. The AWF is currently planning to provide assistance in these areas through public seminars.
2. In order to reach some sort of workable compromise between hunters and waterfowl managers, AWF Duck Committee suggests that where feasible, fields that are open to hunting on public lands should more often be planted in grains, and the sanctuaries should be moist soil areas. (The AWF Duck Committee realizes that crop rotation requirements often dictate planting schedules)
3. AWF Duck Committee encourages all Arkansas duck hunters and non-profit conservation groups to strongly support Federal programs that benefit wildlife habitat, such as the Conservation Reserve Program and the Wetland Reserve Program.
4. AWF Duck Committee recommends that all concerned duck hunters and organizations must work to defeat the changes proposed by the EPA for the Federal Clean Water Act.
5. AWF Duck Committee suggests that all Arkansas duck hunters contact their elected officials in Washington and state elected officials and urge them to oppose the manipulation of the Lower White River (specifically the navigation and irrigation projects proposed by the Corps of Engineers) which is and will continue to be detrimental to wildlife habitat.

Improving the Quality Of Duck Hunting in Arkansas: a General Discussion

The AWF Duck Committee set about our task by interviewing waterfowl officials with the U. S. Fish and Wildlife Service, the Arkansas Game & Fish Commission, as well as experts from non-profit organizations in waterfowl management. We saw early on that we also needed to interview those outside of governmental agencies and the non-profit groups in order to obtain the broad picture. We did not want to simply repeat what the Fish and Wildlife Service, the Arkansas Game & Fish Commission or biologists with private conservation groups said.

We wanted objectivity. So we sought out two noted, independent, waterfowl scientists, Dr. Leigh Fredrickson and Dr. Mickey Heitmeyer of the Gaylord Lab in Puxico, Missouri, all in an effort to obtain information about ducks, specifically Arkansas ducks. We reviewed the information from all of these waterfowl experts and input from hunters throughout the state.

Even after spending hundreds of hours, the first conclusion we reached is that there is a vast amount of information available on all aspects of a duck's life. Yet with this vast amount of information few definitive answers exist. Even professional waterfowl managers don't always agree in the conclusions to be drawn from the data. One example we found of this was on

the issues of "density dependence" and "additive mortality." This debate centers on the question: Does hunting impact the population of ducks?

Those who say hunting does not affect populations support their position with two claims. First, they claim that a certain percentage of the population would die each year anyway and the numbers taken by hunters includes some of these ducks. The remaining ducks we harvest is fairly negligible to the overall population, therefore, hunters don't have that large an impact on the "net" number killed. Second they argue a Darwinian position that the remaining ducks, particularly hens, will be more productive. They also argue that because of a finite amount of breeding population, a reduction in the number of hens is a positive factor because the hens will not have to compete for nesting ground.

The experts that do feel hunters have an impact on the overall population argue that if you kill a duck, particularly a hen, that duck will not reproduce. All of the experts agreed, however, that hunting pressure was one factor in the equation. Other factors were habitat, climatic conditions, disease, predators and governmental policy. What we do know and believe is that in the U.S. and Canada in 2001, an estimated harvest figure of all ducks was

14,541,585 (13,279,000 in US, 1,262,585 in Canada) and the average from 1996-2000 was a total of 16,494,089. In 2002, overall continental duck numbers were estimated to be 31.2 million. Continental duck numbers do not indicate the July hatch of that year. Also, harvest figures do not reflect cripple losses and other natural causes of death such as disease, old age, etc. In years of poor production, hunter harvest has a greater impact on duck populations.

We found that because of political considerations both nationally and internationally, waterfowl management has taken a "systems" approach in an effort to remove political influence from the equation as much as possible. The North American Waterfowl Management Plan (NAWMP) is an example of this as is the concept of Adaptive Harvest Management or AHM.

The objective of these "systems" is to produce healthy and stable waterfowl populations by using models into which variables can be inserted to arrive at management decisions.

In meeting with the waterfowl experts, all of whom were duck hunters, their common theme was habitat: Habitat for breeding, habitat for migrating and habitat for pair bonding/breeding preparation. Hunting pressure in the various states was also a component of the managers' work, however, it was not as significant a component as the AWF Duck Committee expected it to be. Adaptive

Harvest Management and the regulation of Waterfowl Harvest states that "regulations directly affect a population by influencing the amount of harvest, and through harvest, the subsequent population size."

Adaptive Harvest Management (AHM) is extremely complicated and much more difficult to understand than anyone on the AWF Duck Committee had expected. The package that will be selected each year is determined by the breeding population on mid-continent mallards, the number of Canadian ponds counted during the May survey, and an annually improved assessment of mallard population dynamics.

The AWF Duck Committee feels the AHM model is flawed and because of this, season frameworks are being set too liberal, too often. Dr. Mickey Heitmeyer suggests the biggest problem with the process is that the regulation matrix is too simplified (only mallard and pond numbers). Early data from the 1950s to the 1970s indicated a strong relationship between pond numbers and duck population in the prairies. Starting in the 1980s, however, this relationship deteriorated and now the relationship is weak, at best. The AWF Duck Committee agrees with Dr. Heitmeyer that AHM puts too much emphasis on this "old" relationship between ponds and ducks and does not consider other important factors such as upland habitat conditions, drought indices, and winter habitat conditions. We support others who have wanted the U. S. Fish & Wildlife Service to include

winter precipitation in population and regulation models (because of the relationship between winter water and subsequent survival and recruitment of mallards). This change has not been made, possibly reflecting the bias of training and experience of many waterfowl biologists who only have worked on breeding grounds in the prairie region.

With that in mind, the reader should understand that this report is not a comprehensive body of work on waterfowl management. It is intended to provide the Arkansas duck hunter with insight as to how our waterfowl are managed, and to provide some of the factors that impact hunting success in our state.

The Nest

It all begins with the habitat. If a pair does not make it to the nest or if there is no dense nesting cover or wet lands, or if the nest is not successful, we have fewer ducks in the migration pipeline to hunt. Let's look at the beginning of the process to see what has been going on with duck reproduction.

For purposes of this discussion, we will use mallards as the species, however, the same basic principals would apply to other species such as pintail, teal, gadwall, widgeon, etc.

We all have been indoctrinated to understand the value of prairie potholes to mallard populations. However, the scientists are beginning to have a better understanding of how mallards work and their nesting habits. For over two decades we have been told that ducks nested "around the potholes." Most sportsmen interpret this statement to mean within a narrow border of the pothole itself.

Actually ducks nest in large tracks of grasses in pothole regions. Various species nest at differing intervals from the pothole and travel back and forth to it as their needs dictate. A mallard, for example, may nest up to a mile from the pothole while a pintail may nest as far as 2 miles from the pothole. The AWF Duck Committee was also surprised to learn that a mallard hen will most often not nest in sight of another hen, meaning the size of habitat needed for

one nesting mallard hen is far greater than we had understood. It is an established fact that larger blocks of habitat have higher nest success. The birds can escape predators easier and they have more food available.

Waterfowl researchers have pointed out that 40% of the landscape must be in grassy nesting cover for ducks to produce at population expanding levels. In areas that do not have that threshold, predator control could be implemented, or habitat must be increased or improved to increase nest success and other measures of production. Larger areas make it more difficult for predators to find nests compared to smaller nesting areas. Predator trapping is successful on small sites but it is not easy to implement on large areas.

Whereas some hunters may have believed a strip around a pothole of 100 yards was sufficient or 160-acre blocks containing a pothole were sufficient, now most biologists feel that much larger blocks are needed. While the professionals are not in total agreement on this point, if this is true, nesting success could be increased by having larger tracts of prairie pothole land available for ducks to nest in.

Not only is size important, but the quality of the habitat is important. For the past 3 to 5 years various parts of the American and Canadian prairie have experienced drought leading to fewer usable nesting sites. Biologists

we met with were not alarmed at the drought. Drought brings about a rejuvenation of the pothole by killing the older grasses and growth and supplanting it with new when the rains return. It also allows grass to grow in the bottom of the pothole which, in turn, provides food for the whole ecosystem.

These new grasses provide not only food for ducks but cover as well. The pothole as a whole "freshens up" and gives the ducks new habitat. So while there is a downturn in the population during the drought, the drought is necessary to provide food and cover over the long run. The conclusion that drought is a good thing, while not necessarily what hunters want to hear, does appear to be supported by science. Potholes need this death and re-birth to be able to provide a part of the quality habitat needed by ducks, particularly puddle ducks, for nesting. However, drought is but one problem with the potholes.

Canadian Prairie

First are problems with the Canadian prairie. Canada does not have prohibitions against turning prairie into farm ground like the U. S. does. Canadian farmers are not prohibited from draining wetlands if they so choose, or, in drought years, plowing up the pothole. As the farm economy changes and larger tracts of uninterrupted land are needed for a farmer to make maximum use of his equipment, potholes get in the farmer's way more and more. Without an incentive to protect the pothole and the breeding ground

around it, he has no option but to utilize his land to the best advantage to make a living.

This becomes more important when you realize that 60% to 70% of the ducks we hunt in Arkansas come from Canada with 40% of our ducks coming from Saskatchewan alone. Canadian farmers also have a resentment of American interest because of competition for land as waterfowl agencies and groups purchase land to provide nesting habitat.

However, the NAWMP has done a LOT to change that situation. Prior to the NAWMP, their perception was that they were raising the ducks and bearing the cost with no help from the U.S. Now that the NAWMP has been providing significant sums of money to the Canadian farmers, the attitudes have ameliorated considerably. Private conservation groups are vigorously working on improving habitat there.

Waterfowl in general have been one of the major beneficiaries of U. S. farm and wetlands policy. The Conservation Reserve Program (CRP) and Section 404 of the Clean Water Act have been two major programs that have helped duck populations. The CRP program has provided farmers and landowners with a financial incentive to not farm the land yet receive income from it.

In a study done by Ron Reynolds of the U. S. Fish and Wildlife Service published in 2001, he concluded that CRP accounted for an additional 2

million ducks each year to the fall flight. Yet, since as early as 1997, North Dakota, South Dakota and Montana ranchers have lobbied for and obtained a waiver from the Conservation Reserve Program (CRP) rules prohibiting cutting hay on their CRP ground. This CRP ground has become prime nesting habitat for ducks and they have been using it.

However, the haying has been allowed before the ducklings leave the nest leading to crushing of the nest by farm equipment or other destruction/disruption of the nesting cycle. Not only are the disturbed/destroyed nests unsuccessful, but in many instances the hen is killed as well. Also, the remains of barren ground and nests leave a virtual buffet line for predators. There does not appear to be data available to document the extent of this loss but it is known to take place. A simple delay in the effective date of the waiver until after the young have left the nest would lessen or even eliminate the damage to duck populations.

A second problem with CRP has to do with expiring contracts. CRP contracts are generally for 10 years. In the eleventh year, the landowner is free to do what he wants with the land and often returns it to production. Either a program such as CRP is not in place or the rental rates are so low as to not provide the necessary incentive for the landowner to sign back up.

Recent newspaper articles also point to other problems facing wildlife and habitat in South Dakota. Federal

farm policies and advances in technology make it more attractive for ranchers and farmers to till the land, primarily for soybeans, than use it for grazing.

To put things in perspective 60% of the country's ducks come from North and South Dakota. A soybean field generally has a duck nest every few hundred acres. Grazed land has a nest every 10 to 20 acres. South Dakota has lost nearly 1.1 million acres of rangeland and pasture in the last 20 years. Federal soybean subsidy payments and prolonged drought are causing landowners to reduce cattle herds and till more land.

The Conservation Reserve Program, on average, pays a South Dakota landowner \$40 per acre to take land out of production and plant native grasses or other vegetation that is good for wildlife. A recent Associated Press article contended that federal subsidies for soybean farmers help enable the landowners to realize a net gain of \$130.28 per acre. It's easy to see why soybean acreage increased in that state from 2.7 million acres in 1996 to 4.5 million acres in 2001.

In addition, with the dry cycle, farmers are able to work deeper into the pothole than before and provide permanent drainage for it. Especially in Canada, farmers appear to have taken advantage of this opportunity and permanently drained potholes for farming. In the northern U. S., farm program regulations and Clean Water Act (404) rules have kept this from happening to a great extent, however, a recent U. S. Supreme Court case

could eliminate the Clean Water Act protection.

In the case of the Solid Waste Authority of Northern Cook County vs. U. S. (sometimes referred to as the SWANCC case), the U. S. Supreme Court struck down the Corps of Engineers "migratory bird rule" and said that "isolated wetlands" do not come under the regulation of the Clean Water Act. Acting on this ruling, the Bush Administration proposed new regulations that would define "isolated wetlands" and "ephemeral or intermittent streams" which some commentators say would include prairie potholes. Notwithstanding the Administration's efforts, it appears that the SWANCC case could very well be the springboard for landowners in the prairie potholes to remove Clean Water Act protection from their land. If this is the case, more nesting habitat would be lost.

Conclusion

It all starts with the nest and proper habitat. The AWF Duck Committee has found that the more productive prairie pothole habitat we have, the more ducks we will have make the fall flight. What is productive is being debated, however, large areas of undisturbed land adjacent to the pothole are clearly needed. While we cannot do anything about drought (nor, perhaps, should we) we can manage the nesting habitat to provide mating pairs a productive environment. Predator management may be helpful in small areas but is not believed to be

practical on a large scale. U. S. and (if adopted) Canadian farm policy could go much, much further in protecting the 89.6 million acres of required nesting habitat than the cumulative efforts of conservation organizations.

The AWF Duck Committee feels that if conservation groups, individually or as a coalition, would use their resources to convince the U. S. and Canadian governments to implement AND FUND programs such as CRP or the Grassland Reserve Program, far more "bang for the buck" and higher duck numbers would be the result.

Recommendations

More research is needed to help define what is productive nesting ground for waterfowl. Lobbying or advocacy work needs to be done with both the U. S. and Canadian governments for implementation and funding of programs such as CRP and the Grassland Reserve Program in both countries to provide large tracts of UNDISTURBED nesting grounds for waterfowl.

The AWF Duck Committee feels that conservation groups should direct combined resources into advocacy work to convince the U. S. and Canadian governments of the value of CRP type programs to waterfowl and to implement such programs. In addition, regulation such as we have seen under section 404 of the U. S. Clean Water Act needs to be put in place to protect these potholes from drainage and destruction.

Hunting Pressure

From the outset, we knew that there had been an increase in hunters over the past few years. Remember the old saying that "sometimes if you wish for something long enough, you will get it." We wished to be the "Duck Capital of the World" and we got it. We wanted waterfowl hunting to become a major economic factor in Arkansas and we got it. Duck club memberships are now more expensive than many country club memberships.

Top of the line commercial operations charge \$500.00 per hunter, per day or more. Farmers and landowners have found that leasing land for duck hunting can add significantly to their bottom line. Little did we on the AWF Duck Committee understand just how successful we had been in doing this in Arkansas but more importantly, that other states in the flyway were doing the same thing with an equal measure of success.

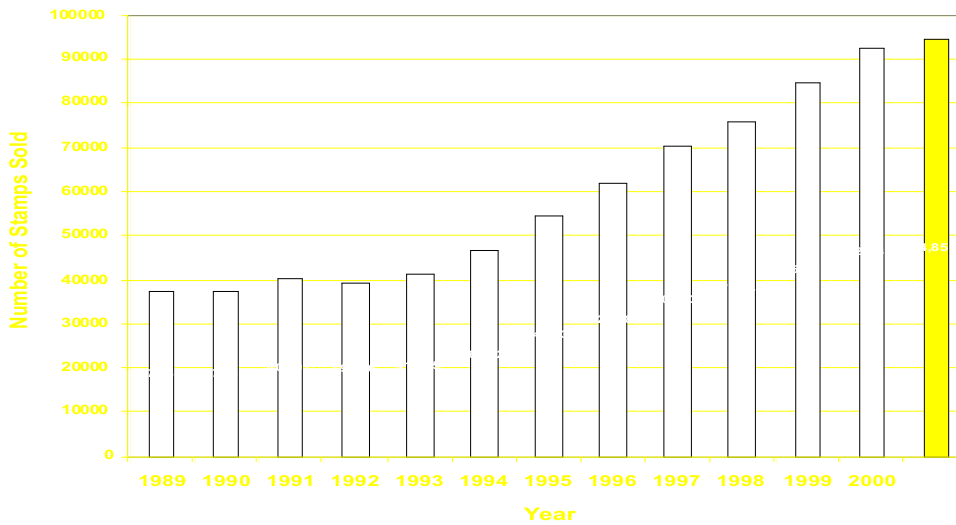
We also found duck hunters have a basic, "if it flies, it dies" attitude meaning that ducks served one purpose for us and that was to shoot them. In coupling this attitude with the numbers, it did not take long to figure out how much of an impact hunting pressure is having on the

overall quality of the duck hunting experience. It's easy to see why hunting pressure is affecting the behavior of ducks.

This explosion of the duck industry has been fueled in part by a "follow the flock" type of hunting where hunters and guides will follow the fall migration from Canada to Louisiana. Another component of the expansion has been the increase of waterfowl for social and/or business purposes. Just as the golf course has traditionally been a place to recreate and conduct business simultaneously, now business is being conducted in the duck blind or at the clubhouse over cocktails.

For instance, in Arkansas alone, State duck stamp sales in 1990 did not exceed 38,000. Yet for 2001-2002 Arkansas state stamp sales were 94,850 (43% or 41,078 of which were non-resident) and for 2002-2003 they were 89,476 (42.4% or 37,979 non-resident). Some believe that 2002-2003 would have exceeded 100,000 hunters if we had not experienced such a poor season, with the last 30 days a bust. Also, record hunting guide license sales were 839 for 2000-2001 and 858 for 2001-2002.

Number of Duck Stamps Sold in Arkansas 1989 - 2001



This trend of duck popularity has not been limited to Arkansas. As the table below points out, the increased hunter pressure and harvest figures clearly show a significant increase not only in the number of people hunting,

but in the number of ducks they are killing. These numbers are from the U. S. Fish and Wildlife Service's Waterfowl Harvest and Population Survey Data of July 2002.

Federal Duck Stamp Sales

	<u>Mich.</u>	<u>ND</u>	<u>SD</u>	<u>Minn.</u>	<u>IA</u>	<u>IL</u>	<u>MO</u>	<u>AR</u>
1990	52,053	25,836	28,650	104,369	24,686	54,470	29,150	31,451
2001	68,350	34,421	33,513	140,803	32,090	56,222	41,657	66,351

Although all states above us had increases in Duck Stamp sales, Arkansas was the only state to show an over 100% increase. In addition to the

above, Arkansas State Duck stamp sales, increased from 37,530 in 1990, 62,428 in 1996, to 95,863 in 2002.

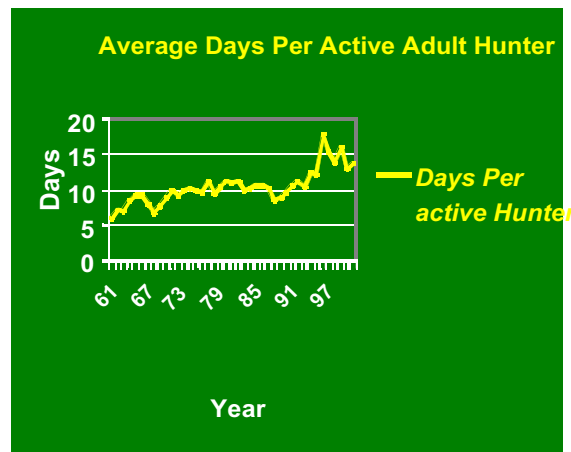
Estimate of All Ducks Harvested

	<u>Mich.</u>	<u>*ND</u>	<u>*SD</u>	<u>Minn.</u>	<u>IA</u>	<u>IL</u>	<u>MO</u>	<u>AR</u>
1990	187,000	68,600	67,100	366,200	105,800	186,200	107,500	333,700
2001	304,000	694,700	290,800	647,100	249,000	429,200	461,100	1,113,800

*North Dakota and South Dakota are in the Central Flyway

To put hunting pressure in perspective the Arkansas hunter needs to understand that over 3,000,000 ducks were harvested in the Mississippi Flyway before reaching Arkansas in 2001. Once in Arkansas, our number of hunters has increased from 37,530 to 95,863 and our duck harvest has gone from 333,700 to 1,113,800. Another

important factor to be considered is that Arkansas leads the Mississippi Flyway in the number of days we hunt (per hunter) with each hunter going an average of 14.52 days per season. Forty-three percent (43%) of these hunters come from out-of-state according to the state duck stamp sales.



But the numbers are only one-half of the picture. Canada opens its season in August. While we are still playing golf, fishing and going to football games, Canadian hunters with an 8-duck limit are busy killing the first 1,262,585 ducks in the inventory. Early days up North kill ducks, days kill ducks, late days kill brood stock and interrupt pair bonding.

been hunted for some 80 days non-stop. Development of hunting clubs and shooting areas has also increased in the northern states such that the ducks have more migration habitat to chose from. But, it's generally accepted that these habitats have not been added in sufficient quantity to significantly affect migration chronology.

By the time Arkansas' season opens in late November, the ducks we are calling and trying to shoot have

Shortstopping Of Ducks

Depending upon your point of

view, ducks are either lazy or smart. A duck will only travel as far as he has to in order to find food and habitat. Once he runs out of either of these, he moves on. That is why in 1999 when we had one of the warmest winters on record, Arkansas still had a good duck season. The northern states were warm as well but because of the drought, they had no water.

The ducks kept moving until they found food and water and that was lower Missouri, Arkansas and Louisiana. While we tend to think of a freeze moving ducks down, we have to keep in mind that it is a combination of food and habitat that cause them to move or stay put. The development of habitat in the northern states means that ducks will stay put, i.e. be shortstopped, until the habitat is no longer usable such as by cold weather or shortage of food.

Combine the increasing duck hunting developments, such as flooded corn and milo and rest areas and other private efforts in the Northern States with the mission statements of Federal and State Refuges and management acres and we have really spread out the ducks in the Mississippi Flyway. Not only is development taking place specifically for hunting but farming practices are changing as well. No-till farming of corn is having a large influence.

There is lots of corn left in the field after harvest. It's available for ducks unless it is covered by snow. In Missouri in 1975, there were 15,000 acres of rice production, yet today that

number has increased to 220,000 acres with 300,000 acres projected for 2006. Missouri has gone from a 1988-1993 average number of ducks killed of 104,400 to 461,100 in 2001. Other areas are getting on the economic development/tourism bandwagon that Arkansas has been promoting and the ducks are responding to that. Northern states are providing ducks with what they want and the ducks are staying put until it runs out.

Mechanical Or Spinning-Wing Decoys And Juvenile Ducks

Among several startling discoveries the AWF Duck Committee made in its investigation was the effect of mechanical or "spinning-wing" decoys on duck populations. Various studies have been done in Louisiana, Minnesota, California, Arkansas and Canada regarding these devices and they all reached the same general conclusion: Hunters using spinning-wing decoys kill more ducks, especially young ducks.

Spinners also encourage more duck hunters to go hunting and add to more days in the field per hunter. They also cause more areas to be hunted because more shooters feel confident enough to go afield. In other words, spinners require less hunter effort and skill.

A report from the Mississippi Flyway Council included a study done in Manitoba using spinning-wing decoys or other similarities. The study was simply 30 minutes on, 30 minutes off and count the number killed. In

the marshes, the mechanical decoys were 5 times more effective and 24 more times successful in the field. As the studies move south, the success levels decreased but were still higher with the spinning-wing decoy. Arkansas' preliminary report indicated a 1.8 to 1 higher kill rate with than without. The overwhelming factor to us was the fact that most were juveniles.

In 2000, Illinois conducted a Waterfowl Survey and discovered that 61% of the hunters were spinning-wing decoy users. They hunted more days - 15,675 vs. 6,299; they harvested more ducks - 28,094 vs. 7,234; and harvested more mallards - 15,675 vs. 3,581.

The AWF Duck Committee believes that the use of spinning-winged decoys is so detrimental to the quality of the hunt that they should be banned throughout the nation. They reduce the fair-chase aspect of the sport and they remind us of tools used by market hunters long ago, such as baiting, live decoys and electric callers.

At the same time we have seen an increase in hunter success with spinning-wing decoys, we have also seen a marked drop in the number of immature or juvenile ducks being killed in Arkansas. The AWF Duck Committee realizes this has not been a steady decline, and that it is strongly related to production and has significant ups and downs. But, all of the experts/professionals we met with agreed that the Arkansas juvenile to adult kill ratio was dropping. Since the

1960s, Arkansas has had a .75 to .80 ratio of young ducks killed for every adult duck killed. However, beginning in 1995, that ratio dropped to .71. In the 2002-03 season it was .53. Flyway-wide it was .90.

This data indicates that we kill more mature ducks, ducks that could very well be our brood stock. In the past, we killed more young ducks than we are killing now. The AWF Duck Committee questioned why this was happening. No clear answer emerges, however, age ratios from the states in the northern part of the flyway give an indication. Using Iowa for an example reveals that in 1990 that state had a ratio of 1.28 young ducks killed per adult killed.

However, in 2001, that number more than doubled to 2.62. Wisconsin had a ratio of 1.22 in 1990 but had almost tripled to 3.01 in 2001. Minnesota had a ratio of 1.40 in 1990 and a ratio of 2.55 in 2001.

Granted in the interim between 1990 and 2001, the ratio fluctuated and occasionally fell in line with the 1990 figure, the bottom line revealed that the states in the northern part of the flyway kill more young or immature ducks than we do. One conclusion is that young ducks are not as smart or seasoned as older ducks and are more easily attracted to the spinning-wing decoy. As a result, the states that get the young ducks first, i.e. the northern states and Canada, kill more young ducks than older ducks.

In comparing this data with the overall harvest numbers and the studies regarding hunting success with spinning-wing decoys, a pattern emerged. Hunters in states in the northern part of the flyway that use mechanical decoys have great success because young ducks are more susceptible than are older, seasoned ducks. Hunters in the lower flyway states are killing more mature ducks than young ducks.

From this data the AWF Duck Committee has a concern that mechanical decoys are allowing hunters in northern flyway states to kill too many young ducks and those of us in the lower part of the flyway end up dipping into the brood stock.

Lastly, two very interesting statistics were learned. First, if a female duck survives the Arkansas season and the northern migration, she has a high percentage chance of returning to nest and second, 20% of the hens (so-called "Superhens", i.e. older, mature hens that we tend to kill in Arkansas) produce 60% of the next fall's flight. The more we have learned about hen mortality, the more the AWF Duck Committee has come to understand that we must stop killing so many hens.

The AWF Duck Committee also found an interesting statistic regarding hens. When the bag limit was increased to allow for a 2-hen limit, we experienced a 37% increase in the hen harvest. According to a recent article in the *Arkansas Democrat-Gazette*, even with a 1-hen limit, we killed

115,061 hens during the 2002-2003 season. Obviously, if a hen is dead, she will not reproduce. The AWF Duck Committee feels that the bag limit on hens should only be 1 for the simple reason that a hunter may inadvertently kill a hen and the 1 limit would keep him/her within legal limits.

Waterfowl are sensitive to all forms of disturbance and will almost always seek refuge. Disturbance is not just caused by hunters shooting shotguns as water users, i.e. boaters, anglers, aircraft as well as hunters going to and from their blinds, create many disturbances. Carl E. Korschgen and Robert B. Dahlgren wrote an article published in *Waterfowl Management Handbook* that describes degrees of disturbance caused by human activity. They are listed below in order of importance.

1. Rapid over-water movement and loud noise (power-boating, water skiing, aircraft)
2. Over-water movement without noise (sailing, wind surfing, rowing and canoeing)
3. Little over-water movement with noise (wading and swimming)
4. Activities along shorelines (fishing, bird watching, hiking and traffic)

Disturbances increase the time ducks spend in flight, which expands considerable energy and decreases feeding time. However disturbances can also cause waterfowl to change their feeding habits and locations. It is

not surprising that the sanctuaries that the various refuges provide have attracted and held so many ducks in recent years as human disturbance has increased.

Korschgen and Dahlgren state the following: "Prolonged and extensive disturbances may cause large numbers of waterfowl to leave disturbed wetlands and migrate elsewhere. These movements can be local in areas of plentiful habitat or more distant and permanent in areas of sparse habitat, causing shifts in flyway migration patterns. Extensive disturbances on migration and wintering areas may limit the use by waterfowl below the carrying capacity by waterfowl. Korschgen and Dahlgren further state that "the harm from human disturbance must be minimized or eliminated."

They made several recommendations listed below:

1. Increase the quantity, quality and distribution of foods to compensate for energetic costs from disturbances.
2. Establish screened buffer zones around important waterfowl roosting and feeding areas.
3. Reduce the number of roads and access points to limit accessibility to habitats,
4. Create inviolate sanctuaries.
5. Reduce the sources of loud noises and rapid movements of vehicles and machines.

When the preceding information is considered it is not surprising that the overcrowded public hunting areas have not been attracting waterfowl in recent years. Most have multiple access points and unrestricted boating activity throughout the hunting area. Hunting on public areas is not permitted after noon but boating is permitted for another hour in the hunting area.

On the Cache River, private landowners can continue boating on the river all day without restrictions which results in constant disturbance. Also hunters on private lands that are adjacent to public hunting areas cause additional disturbances by afternoon hunting.

Conclusion

The AWF Duck Committee recognizes that duck populations are cyclical. However, we also recognize drastic swings have occurred in the cycles over the past 50 years. From the very restrictive seasons of the 1970s and 1980s to the liberal seasons of late, the AWF Duck Committee concludes that middle ground exists to possibly avoid the drastic swings and very possibly increase populations. Waterfowl managers should be trying to increase the number of ducks and not be satisfied with achieving a benchmark number such as the one set out in the North American Waterfowl Management Plan.

A significantly larger number of hunters are hunting a finite population of ducks throughout the flyway.

Commercialization of hunting and the accompanying development of hunting habitat throughout the flyway has significantly expanded the migration border. "Follow the flight" hunters result in those hunters moving from state to state and further increasing hunter pressure.

The actual season for a duck is much longer than 60 days. While we speak in terms of 30, 45 and 60 days seasons, for the duck the season can be as long as 150 days (mid-August through the end of January). For that 150+/- days he is called at, decoyed, shot at and otherwise subjected to a gauntlet as he makes his way down the flyway. By the time they get to Arkansas they are battle tested and wise.

The concept of "new ducks" may make for good cocktail party talk but the fact is that ducks we hunt in Arkansas are anything but new. By the time they get to us they have seen it all and maybe for the second, third, fourth, or more time. The use of mechanical decoys such as spinning-wing decoys negates the need to be a skillful hunter, especially in the northern flyway states. It also allows the northern states to kill a disproportionate number of young ducks leaving older ducks for the lower states.

Recommendations

The AWF Duck Committee recommends that hunting pressure be

reduced. This can be accomplished in one of several ways.

The obvious solution is to reduce the season length and bag limits to a restrictive or moderate level throughout the flyway. This can be done by the U. S. Fish and Wildlife Service as it sets the season framework or by the states as they set their individual seasons.

The AWF Duck Committee encourages all flyway states to insert splits or rest periods in their season framework. Continuous hunting of the ducks from mid-August to mid-January not only increases pressure but it creates smarter, harder to hunt ducks. Splits would allow for the ducks to "de-educate" to hunting techniques. Absent regulators doing something to reduce pressure, it will be up to us hunters to take action. Hunters can decide to kill less than the bag limit each day they hunt or hunt fewer days per season.

Alternatively, increases in the population should be sought. An increase in the **quality** and **quantity** of breeding habitat coupled with a moderate season could increase populations to a level more tolerant of the current hunting pressure. The AWF Duck Committee calls for a ban throughout the Mississippi Flyway on all spinning-winged decoys. Part of the allure of hunting is the aspect of matching wits with nature. Hunting is an art and a skill, not an exercise in mechanical efficiency.

Waterfowl Nutrition and Habitat

Waterfowl require a varied diet as nutritional needs change during the year related to their physical development and reproduction. During molting waterfowl require a balanced diet with a high protein content. During the late fall and early winter waterfowl require high-energy foods, such as grains, to gain weight, complete physical development and prepare for mating.

Once pairing of the hen and drake starts, hormonal changes occur which results in a diet that is needed to prepare them for breeding and nesting. This diet will need to be more balanced with adequate amino acids, protein, fat, fiber and calcium. This diet is best provided by moist soils and flooded timber with various seed types and aquatic invertebrates. As the hen returns to the breeding grounds, she continues to need proteins and other nutrients obtained from aquatic invertebrates. These are most available in small seasonal wetlands.

Hunters must understand that the migration is a high energy event for ducks not only in terms of energy to make the flight but energy to pair bond and make the return flight. In a meeting with Dr. Mickey Heitmeyer and Dr. Leigh Fredrickson on June 19, 2003, at the Gaylord Lab in Puxico, Missouri, the AWF Duck Committee learned the following "chronology" of the duck dietary needs in Arkansas:

In the initial migration they need invertebrates. In the pre-pair bonding

period they need grain. After pairing, ducks have a high need for invertebrates and then prior to departure for the return migration they need a mix of acorns, roots, invertebrates and some grain. It was very clear that "one size" does not fit all. Rice alone won't do it. Acorns alone won't do it. Invertebrates alone won't do it. If we want a healthy, productive duck population, they need it all in the right amounts at the right time.

Pair bonding starts when the female reaches a certain body mass. Pair bonding continues through January and there is some concern that hunting in late January may actually interfere with or disrupt the pair bonding process. A hen will first select a mate that is large and superior to the other drakes. Once a hen selects a mate, she will not bond with another drake. But what happens if that drake is killed during the hunting season?

Apparently, that hen will seek another mate. However, because of competition from other hens, the only replacements may be inferior males leading to an impact on breeding. This is the reason many waterfowl biologists prefer ending the season in early January.

We were surprised to learn that when a hen arrives in Arkansas her reproductive system is most likely very small-one phrase used was "shriveled up." She needs the moist soil grass

seed and invertebrates to trigger her system into expanding in preparation for reproduction. Without this diet, her system will not be prepared for reproduction and she will not reproduce properly.

Both the hen and the drake need the moist soil foods and invertebrates to recover from what is called the prealternate molt, pair bonding and prebasic molt. The final stage of their diet calls for sufficient food to acquire a reserve for the return flight.

The AWF Duck Committee also learned that flooded rice or other grain fields may not provide all of the nutrition we think they do. Studies have shown that modern combines leave about 650 pounds of waste grain per acre in the field, available for ducks to feed on. By November, the amount of usable grain is down to 200 pounds and by early December, it is generally down to 100 pounds or less. Ducks will quit using a field when the

amount of grain falls below 50 pounds because it takes more energy to find the grain than the grain provides.

Leaving grain in a rice field can be a very important *component* of "good habitat," but ducks also require other components which provide natural foods etc., to make good, complete duck habitat. Rice fields, alone, are not "sufficient" habitat. Surprisingly, in the late winter and early spring, flooded rice fields provide *abundant* invertebrates such as snails, which provide ducks important nutrients and minerals such as calcium, which is necessary for egg production.

That's why people should keep fields flooded well after the hunting season ends if they want to provide habitat in addition to shooting areas. These rice fields need to be combined with moist soil units and bottomland hardwood habitat to provide sufficient habitat for ducks.

Waterfowl Food Sources And Habitat Available In Arkansas

Agricultural Foods: This is composed of familiar grains, such as, milo, rice, corn, soybeans, Japanese millet and browntop millet. These are considered high-energy foods but do not provide complete nutritional needs as they lack appropriate amino acids, proteins, minerals, fat and fiber. The total energy value varies with the type of grain as rice and corn provide more energy than soybeans.

Also the energy value of grains vary if flooded for 90 days. For example, rice will lose 19% of its energy value, browntop millet will lose 57% of its energy value, corn will lose 50% of its energy value and soybeans will lose 86% of its energy value. Researchers say it would be more beneficial to flood a rice field rather than a soybean field.

Moist Soils: Moist soils are identified as native grass areas that flood or can be flooded. They may be open fields or open areas in flooded timber. The quality and quantity of various types of vegetation is related to the time of flooding and how early in the spring water is removed. Also for best results, vegetation needs to be occasionally disturbed by discing or mowing. These areas produce a variety of seeds as well as aquatic invertebrates.

Examples of some of the beneficial plant seeds that grow in moist soils are crabgrass, barnyard grass, cutgrass, smartweed, curly dock and beggarstick. Some of these are

surprising as beggarstick has more gross energy available than rice and milo and contains 18% fat, 23% protein and 20% fiber. Researchers say that aquatic invertebrates found in moist soils are a major component of the waterfowl's diet during the molting period, pairing, breeding and nesting. Some examples of aquatic invertebrates include snails, crustaceans, insects, midge larvae, earthworms, leeches and amphipods. Most laying hens rely on calcium from snail shells for egg production.

Seasonally Flooded Hardwoods: When living hardwoods are flooded they are referred to as a greentree reservoir. The hardwoods should be flooded during their dormancy. Early fall flooding of hardwoods can be detrimental, therefore, water depth, duration of flooding and timing of flooding should be carefully controlled and monitored. It should be remembered that mallards prefer water less than 12 inches deep. Improper flooding can cause tree stress, decrease acorn production and possibly the death of oak trees.

Dr. Mickey Heitmeyer states that flooding of greentree reservoirs is poorly managed in Arkansas and may be one reason that hunting in timber has become less successful. Properly controlled flooded hardwoods can provide high-energy foods such as acorns, which are popular food for mallards and wood ducks. Also, aquatic invertebrates are readily available and used in late winter as

pre-nesting hens increase protein intake.

Bottomland Hardwood: Timing and extent of flooding depends on "Mother Nature" and is out of our control. Unfortunately, with the recent cycles of dry weather, there has not been widespread flooding, especially on the White River. This is important because when the White River floods, it provides the largest area of ideal waterfowl habitat in Arkansas.

Swamps: Swamps are usually shallow and contain perennial woody vegetation such as willows, buckbrush, tupelo and cypress. The swamps provide large amounts of invertebrates and thermal roosting cover for waterfowl.

Deep Water: Deep water provides resting and roosting areas for waterfowl and may be the only open water during "freeze up." Examples of deep-water include rivers, lakes, ponds, sloughs and reservoirs.

Studies have shown that a mallard should have all the resources needed for survival within a 12-mile area. The ideal situation would have all the above listed habitat types and food sources available within that 12-mile area. Some parts of the state, such as the Grand Prairie Region, provide relatively good habitat and food sources. In this area hunting clubs have greentree reservoirs, dead timber reservoirs, flooded agricultural fields and many have designated sanctuaries planted in grains. The private landowners in the northeast

part of the state also provide good habitat, but neither of these regions have a significant moist soil component.

Two examples where excellent habitat and food sources are provided are the US Fish and Wildlife Refuge at Bald Knob and the Cache River Refuge located north of Highway 38. In this region of north central/east Arkansas private landowners provide only limited habitat and food sources. The habitat provided by the private landowner is usually that of a flooded agricultural field leased for hunting.

This may help explain why the above two refuges have attracted and held larger numbers of ducks in recent years. According to Dr. Fredrickson, the managers of Bald Knob and Cache River understand the diversity of dietary needs of ducks and are doing a good job of providing a full and proper diet for the ducks.

Another factor, which has likely influenced duck concentration in this area is the dry weather cycles. As noted in the following chart and graph, the White River has flooded only once in the last six years, which was only temporary flooding in 2001-2002, from extensive rains south of the large White River lakes. Also note that prolonged flooding occurred six out of seven years from 1990-1997. This is significant because when the White River floods it provides the ideal waterfowl habitat with all food sources readily available. The above needs to be considered when evaluating the influence US Refuges are having on

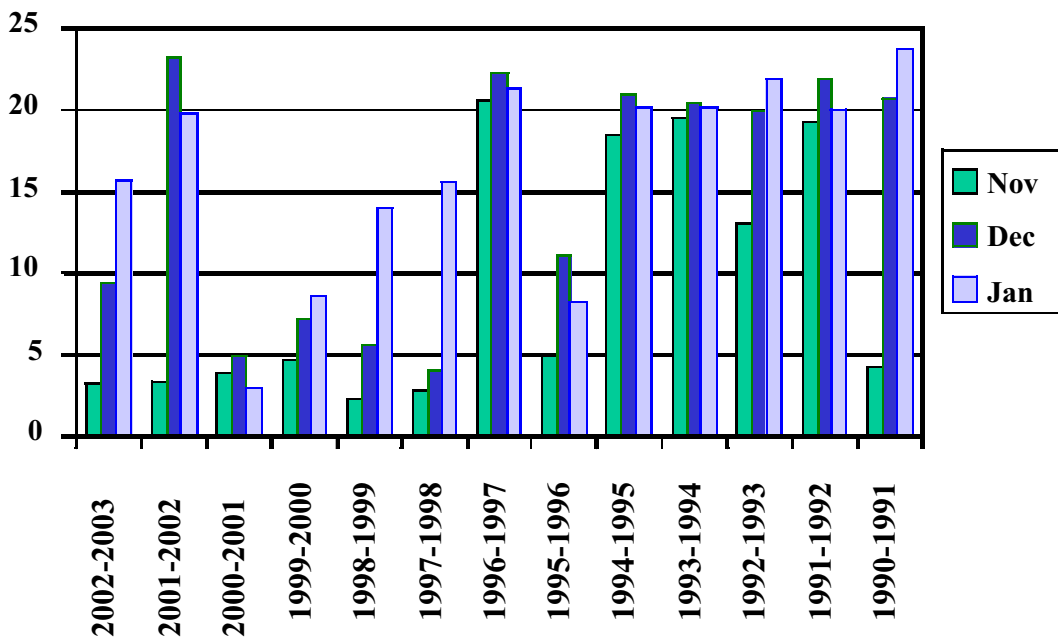
duck concentrations in recent years.

Water Levels on the White River at Georgetown
Flood stage is listed as 21 feet but flooding occurs at 19 feet
(Readings in Feet)
 (Information provided in both Charts by the Corps of Engineers)

Duck Season	November	December	January
2002-2003	3.2	9.4	15.75**
2001-2002	3.3	23.1	19.7
2000-2001	3.9	5	3
1999-2000	4.6	7.2	8.6
1998-1999	2.3	5.6	14
1997-1998	2.7	4	15.5
1996-1997	20.6	22.24	21.4
1995-1996	5	11.1	8.3
1994-1995	18.4	20.9	20.2
1993-1994	19.5	20.5	20.1
1992-1993	13.1	19.9	21.9
1991-1992	19.3	21.9	20
1990-1991	4.2	20.7	23.7

** Pre-published data

Water Levels on the White River at Georgetown
Flood stage is listed as 21 feet but flooding occurs at 19 feet
 (Readings in Feet)



Conclusions

During the time a duck is in Arkansas his dietary needs are probably more diverse than at any other time in his lifecycle. Because of the loss of habitat over the past 100 years, we are starting to understand that we need to replace habitat for pre-pairing, molt and pre-return feeding and sanctuary.

We need a combination of grains, moist soil grasses and bottomland hardwood timber to provide ducks with the varied diet they require. Public lands appear to be the best place for this; however, education of private landowners and hunting clubs may provide an increase in this

habitat on private lands. The AWF Duck Committee is also mindful that lack of flooding in the White River basin the past few years means that moist soil units and vibrant bottomland hardwood production of acorns and invertebrates may have suffered.

We need a more normal return to flood patterns to provide the food and habitat for ducks. We also were interested in the remarks of Dr. Heitmeyer that many private green timber areas were not properly managed. That they were flooded at the wrong time, for too long or too deeply, thereby affecting the production of invertebrates, acorns and grass seed.

Refuges And Sanctuaries

Few topics have raised the ire of Arkansas duck hunters as much in recent years as the prevalence of inviolate sanctuaries on National Wildlife Refuges (NWRs) and the management practice of leaving unharvested grain in the field for waterfowl feeding.

In Arkansas this issue has been debated more on the Bald Knob and Cache River National Wildlife Refuges than any other. This portion of the Report will discuss management practices in place at Bald Knob and Cache River NWR and compare them with White River NWR and Mingo Creek WMA in southern Missouri. We will attempt to explain the benefits and

detriments associated with those practices, and attempt to offer some thoughts to constructive solutions. This is not an attempt to single out any single NWR for any particular criticism or praise, but rather a response to the significant debate arising from management practices in place at Bald Knob and Cache River.

It is certainly worth noting that the management practices at place on Bald Knob, in particular the practice of leaving standing grain in flooded fields, are in place at other NWRs in the state, though, arguably, not to the degree that they are employed at Bald Knob and Cache River.

A Brief History Of Bald Knob NWR

Bald Knob NWR is a 15,000-acre waterfowl paradise, in one of the world's greatest flyways (Lower White River). Virtually every acre can be flooded and it has traditionally held hundreds of thousands of ducks, geese and countless other important birds, such as Bald Eagles.

The land that would become Bald Knob NWR was cleared by Harold Huntsman in the 1960s as a rice and soybean farm. The farm borders Little Red River on the south and west; Mingo Creek on the southeast; and Hurricane WMA on the east. Local legend has it that Mr. Huntsman once came very close to diverting Little Red River through the middle of his farm, although that effort apparently failed and he used river pumps to provide additional water for agricultural purposes.

The farm was traditionally a haven for all types of waterfowl, particularly pintail and teal, but certainly for mallards and other species as well. While the vast farm was often poached, the relative hunting pressure was light. A 160-acre field due north of the farm shop was usually flooded and left as a rest area, although this sanctuary held relatively few ducks when compared to the remainder of the farm.

Those who hunted there can recall years when only 10 paying lessees, plus the Huntsman clan and their friends, were allowed on the farm to hunt.

In the early to mid 1980s, John Hancock Insurance Company acquired the farm and allowed no public hunting. Of the original 11,000 acres +/- of cultivated ground, approximately 4,800 has been reforested with another 1,000 or so planned for reforestation.

Reforestation is being financed with money from a settlement in the Vertac Chemical Company litigation, litigation that resulted from the pollution of Bayou Meto by that company in the '70s and '80s. The use of these funds means that taxpayers receive the benefit of reforestation without additional budget expenditure. The downside is that the money is paid out over time, resulting in an incremental reforestation that will not be completed for a few more years.

Of the remaining acreage, approximately 6,000 acres is presently in cultivation, with half planted in rice and the remainder in soybeans, milo or left fallow. The refuge plan calls for around 4,000 acres to remain in cultivation after reforestation is complete.

The NWR is farmed on a quarter-rent basis. One-fourth of the rice (NWR's share) is left standing in the field. On the non-rice acreage, the NWR's one-fourth is either left fallow as shorebird habitat, left in standing milo, or moist soil habitat. The determination of which fields will be left standing is entirely up to the refuge manager. The refuge farmer

must, preferably, finish his harvest by November 1st (if conditions allow) and then provide water to the refuge's share of crop through the month of November. The refuge farmer traditionally holds sheet water on his portion and assists in pumping water on the remainder of the refuge if weather conditions are such that the refuge manager needs assistance.

The U. S. Fish and Wildlife Service acquired Bald Knob NWR in 1993 as part of the North American Waterfowl Management Plan because of its propensity to attract pintails. In appropriating the funds for the purchase, the U. S. Congress made the following pronouncement:

(Purpose of this Unit will be),
"...the conservation of wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions." 16 U. S. C. 3901(b), The Emergency Wetlands Resources Act of 1986.

As part of the National Refuge System, 16 U. S. C. 742(a)(4) and (b)(1) The Fish and Wildlife Act of 1956 also apply to Bald Knob and Cache River NWR as well as all other National Wildlife Refuges in the State. This statute adds the additional purpose for the refuge:

"...for the development, advancement, management, conservation and protection of fish and wildlife resources." "...for the benefit of the U. S. Fish and Wildlife Service in performance of its activities and services."

And finally, the Migratory Bird Conservation Act found at 16 U. S. C. 715d makes the following pronouncement regarding Bald Knob Refuge:

"...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds."

It is interesting to note that none of the legislation establishing the Bald Knob, and for that matter Cache or White River Refuges refers to hunting as a purpose. Legislation applicable to both Bald Knob and Cache River use the phrase, "...for use as an inviolate sanctuary, or for any other management purpose for migratory birds." It is clear that the essential mission of the refuge is to preserve a network of lands and waters for the conservation and management of fish, wildlife, and plant resources for the benefit of present and future generations."

National Wildlife Refuge System Improvement Act of 1997

This legislation embodied what came to be known as the "wildlife first" mission for the refuge system. Secondary activities such as hunting are given a priority consideration only when they are determined to be compatible with the purposes for which the refuge was established. And there, in a nutshell, lies the rub. Wildlife first is the law of the land and sometimes conflicts with hunter success.

Hunting vs. Food And Shelter

Few duck hunters would argue with the idea of hunting a vast farm encompassing timber, sloughs, rice fields and moist soil units, with over 1,000 acres of rice left standing in the field in order to attract and hold ducks; where a hunter could be assured of hundreds of thousands of ducks on the property at any given time when conditions are right; and with easy access only a short drive from most anyplace in the state. Such is the reality of Bald Knob and parts of Cache River NWR.

However, what the duck **hunter** sees as great hunting habitat, the duck **manager** sees as prime duck production habitat; production in the form of food to meet the ducks' dietary needs as was discussed above. Production habitat in the form of a place where ducks can pair bond without pressure from hunting and production habitat in the form of a place for ducks to prepare for the return flight and nesting.

To understand what is right, and what may be wrong, with Bald Knob NWR, one must acknowledge a key point: Using the benchmark of "wildlife first" as set forth in the National Wildlife Refuge System Improvement Act of 1997, the management and employees of Bald Knob NWR perform their jobs perfectly. Bald Knob NWR provides the three things ducks are looking for: food, sanctuary and access to other ducks, in abundance.

The problem arises when hunters try to reconcile a public management objective with a private one. Almost all private sanctuaries, certainly those operated by hunting clubs, are maintained for the primary purpose of enhancing the hunting success of the members of that club. This is necessarily done to the detriment of other hunters, but may still be beneficial to the species.

In other words, if a private club near Bayou Meto WMA maintains a sanctuary so that it will have abundant ducks for hunting purposes, and then proceeds to hunt those ducks with a relatively small (compared to Bayou Meto) number of hunters, then that club will have succeeded in fulfilling its primary goal of increased hunting success for its members while achieving a secondary goal of allowing more ducks to return to the breeding grounds. The exact same arguments hold true for private groups or clubs that leave a portion of the grain in the field. To put it bluntly, the private club is hoarding ducks for its own purposes, although the end result may be a net gain for the ducks.

NWR sanctuaries, on the other hand, are not designed that way. Since each of us, as American taxpayers, have a presumably equal stake in a NWR, there is no mandate to hold ducks for the purpose of increasing the success of nearby hunters. The mandate is simply to hold ducks for the purpose of getting them back to the prairies in one piece

ready to reproduce. This is absolutely a laudable goal, but the question is at what cost to the success of hunters?

The NWR system was envisioned and created largely through the work of Teddy Roosevelt, our greatest hunting president. While the goal of the NWR system has always been and should always be the protection of wild animals from the effects of man, an underlying purpose has always been and should always be the protection of these precious resources so that man may enjoy the sport of hunting them. It takes no genius to realize that it is the hunter who has always risen to protect the species, in this case ducks, that we so love to hunt.

There may, emphasize may, be a situation developing in which hunter success is not being given a seat at the table when it comes to NWR management. The U.S. Congress has placed a legislative priority on "wildlife first," which is again a laudable goal. A secondary ideal, is hunting "opportunity." Unfortunately, hunting opportunity coupled with a lack of

success is neither what hunters desire nor within the spirit of Teddy Roosevelt's vision of the NWR system.

As to the amount of land being hunted and the amount in sanctuary, Dennis Widner provided us with some statistics about Bald Knob and Cache River and Larry Mallard did the same for White River. They show Bald Knob has completed reforestation of 4,806 acres and has 1,057 acres planned for future reforestation for a total of 5,862 reforested acres out of approximately 15,000.

Obviously, these 5,862 acres have been taken out of production. Also, Bald Knob in 2001 and 2002 had a total for two years of 1,622.5 standing crops in sanctuary areas and 1,042.8 left in hunted areas. For Cache River the combined 2001-2002 totals were 956.8 acres of grain left standing in sanctuary areas and 259 acres in the hunt areas. Over 14,000 acres have been reforested at the Cache River Refuge to date resulting in the Refuge being 95% in some form of forested acreage.

Land Use on National Wildlife Refuges in Arkansas

	Cache River NWR	*Bald Knob WR	White River NWR
Total Refuge:	55,360	15,038	156,040
Open to hunting:	50,083	7,534	64,065
Closed to hunting:	5,277	7,504	91,975

For a more complete outline regarding Bald Knob and Cache River Refuges, the reader is strongly urged

to go to the website found at www.cacheriver.fws.gov and look under the heading, "Waterfowl."

We must also remember that there are those who want refuges completely closed to hunting. As this is written, an animal protection group has filed a lawsuit against the U. S. Fish and Wildlife Service seeking an injunction against all hunting on any USF&WS refuge. While we hunters want to hunt ducks (and deer, turkey, squirrel, etc.) on the refuges, there are those who do not want us to do that.

This discussion must also be mindful that funding is always an

issue. In our interview with Dennis Widner we found that he had just recently obtained the funds to hire a biologist for his staff, a position he has been wanting to fill for some time.

At this point in time, we do not know what impact the practices in place at Bald Knob Refuge are having on hunter success. Independent telemetry studies should be conducted to determine whether problems exist and what steps might be taken to alleviate them.

Grained Refuges

The grained refuge problem, as it's commonly called, results from the public's dissatisfaction with the U. S. Fish and Wildlife Service's policy of leaving certain row crops in the field for consumption by ducks. The oft quoted argument states that if the ducks don't need the food until it's time to return to the breeding grounds, then why not wait until after the season to feed them?

As outlined elsewhere in this report, ducks need grain upon their arrival and as courtship begins in early to mid-December so that they can gain enough weight to pair. This intense period of feeding on grain coincides with the heaviest duck concentrations on the Bald Knob NWR, which traditionally occur in mid-December.

While ducks may frequent flooded fields post-season, this is usually done to feed on crustaceans and invertebrates that have emerged in agricultural fields, rather than to feed on excess or leftover grain.

The policy of leaving grain in the field is sound from a scientific basis. It allows the ducks to gain the weight they need to be healthy enough to attract a mate, as well as providing them with overall improved health prior to their return to the prairies for breeding. While it's true that no one has ever seen a duck starve to death in Arkansas, it's also true that a healthier hen will produce a larger clutch than one that is under-nourished or otherwise stressed.

Having determined that the practice of leaving grain in the fields is beneficial to the ducks, the next question is whether or not the practice is detrimental to hunting.

This part of the question really dovetails with the questions surrounding sanctuaries addressed below. The answer is that the practice of leaving grain in the field, when done by a private club or group for the purpose of enhancing their success, will likely do so on a localized basis. As the practice occurs at Bald Knob NWR, one must ask if it is detrimental or beneficial to hunting in the local area influenced by the refuge.

The AWF Duck Committee believes that research should be done to determine the positive or negative impacts the sanctuary brings from the local hunter's standpoint. The goal for all should be to determine the conservation goals for Bald Knob NWR (or any refuge, for that matter), then allow for the maximum amount of quality hunting opportunity that will still allow the refuge to meet that goal.

We would be remiss if we did not note that while hunters in north-central and northeast Arkansas are busily complaining about the negative impact of the Bald Knob NWR management practices, their duck hunting brothers to the south speak highly of the same practices. As we were conducting our investigation and interviewing Dennis Widner, his counterpart, Larry Mallard, at White

River NWR told us that he had hunters near his refuge that were upset because he WAS NOT planting grain and leaving it in the field. Some even offered to produce the crop at their own expense and let it fail just to attract ducks.

When traditional sanctuary areas in the White River Wildlife Refuge were opened to hunting and the fields left in moist soil rather than uncut rice, the locals called for the refuge manager's head. It seems that their duck hunting suffered as a result. All the while, hunters to the north claimed that the large sanctuary and unharvested rice harmed their hunting. Who's right and who's wrong? It is entirely possible that both groups are right.

The size and makeup of a sanctuary can make a tremendous difference in whether or not it hurts or helps duck hunting. Again, the only way to find this out is to study the birds, learn where they are spending their time and when. Telemetry studies can answer these questions.

It is difficult segmenting out refuge impacts to ducks when the purpose and management of these, more than 500 refuges nationwide, treat ducks as only part of the fish and wildlife mix associated with each refuge. An estimated 40 million people visit and use NWRs each year

including hunters and anglers. However, few of these would put ducks at the top of their list. About 12 years ago or so, the U.S. Fish & Wildlife Service conducted a comprehensive study of refuge user opinions on the question of how well is the refuge you are using being managed? Over 90% agreed with the way the refuge was being managed. It is gutsy for the U.S. Fish & Wildlife Service to engage in such a public opinion study.

Some duck hunters who spend bundles of money on equipment and 100 hours or more each season chasing ducks around Corps of Engineer lakes or Arkansas Game & Fish Commission public areas will not invest, during the off-season, one hour of their time and cost of one box of duck loads into improving the very duck habitat they enjoy.

The AWF Duck Committee encourages duck hunters to pursue personal "hands on" public lands habitat improvement projects. At least once a year, gather up hunting buddies and schedule a visit with a U.S. Congressman, U.S. Senator, State Representative, etc. and let them know you believe wildlife issues are important, such as adequate funding for refuges, conservation programs in the Farm Bill, etc.

Sanctuaries

If they prove anything, the annual reports from the Bald Knob NWR show that hunting pressure drives ducks to the sanctuary. Once duck season ends, the ducks leave in large numbers. Those ducks you see in your rice field five days after season's end aren't usually new. They were somewhere all along, whether it was a private or public sanctuary or just some out-of-the-way place where hunters rarely ventured.

Until duck hunters realize that the primary cause of ducks hitting sanctuaries is hunting pressure, as opposed to crops left in the field, it will be difficult to get a meeting of the minds with biologists and refuge managers. Certainly, there are ways to address the problem of duck distribution that afflicts our sport, but hunters must realize that they play a role.

Pre-eminent waterfowl biologists who are in no way affiliated with the USFWS tell us that sanctuaries should remain in the same place year after year or risk losing their effectiveness. These biologists are also primarily concerned with duck survival and not with whether or not hunters are successful. However, it appears evident from the research of the AWF Duck Committee that rotation of sanctuaries is not an appropriate solution to distribution problem.

"Traditional" ducks, which means ducks that fly south at the same time and place regardless of weather, are

extremely important to Arkansas duck hunters. Without traditional ducks, we would become entirely dependent upon weather to force migrations. As it stands, we may well be seeing a reduction in the number of "traditional" ducks, due to over-harvest of those ducks in comparison to other states.

Arkansas has a higher percentage of duck hunters than any other state. In poor weather or production years, we probably chip away at the numbers of ducks that fly south regardless of weather, more than other states. As a result, hunters who typically had success even in fair weather years end up with less success. Sanctuaries are a way to alleviate this problem.

Obviously, most ducks don't spend 24 hours a day in a sanctuary: They come and go. Often this departure coincides with "shooting hours." But, the AWF Duck Committee would like to know if ducks may be imprinting to sanctuaries. Many hunters consider this a real concern, and one that should not be taken lightly. The best method by which to determine if this is happening is through telemetry studies, which enable researchers to follow a duck, via global positioning satellite, wherever it may roam.

This research is extremely vital for a true understanding of the effects of sanctuaries on duck movement and should be instituted as soon as

possible.

As mentioned earlier, hunting pressure is the ultimate force that moves ducks to sanctuaries. As much as we might like to believe that ducks will fall into an uncut rice field regardless of the number of shots being fired at them, it simply is not true. Thus, we as hunters must come to grips with our own selfishness in asking for virtually infinite access to a finite resource. While there are many things that can be done to alleviate the problems created by ducks congregating on sanctuaries, none will have the same effect as reduction in hunting pressure.

The location of a sanctuary should not change on a refuge from year to year. Local hunters should develop an understanding of the refuge's goals regarding duck numbers, hunter satisfaction and other issues. Refuge managers should conduct public information sessions regarding their conservation goals and opportunities for quality hunting experiences.

In order to reach some sort of workable compromise between hunters and waterfowl managers regarding controversies surrounding grained refuges, we suggest that where feasible, fields that are open to hunting on public lands should more often be planted in grains, and the sanctuaries should be moist soil areas. (The AWF Duck Committee realizes that crop rotation requirements often dictate planting schedules)

Consideration should be given to shorter seasons/smaller bag limits/reduced number of hunting parties/pre-determined hunting areas for certain NWRs and state WMAs. Most hunters would rather be 1 of 50 with a great hunt than one of 300 with a bad one.

The Raft Creek Arkansas Game & Fish Commission WMA near Bald Knob may present a solution. In its first year of operation there were 4,200 acres total with 1,400 acres floodable. The Arkansas Game & Fish Commission used a draw system for 35 hunting areas. Parties with a maximum of 4 hunters could draw for a spot two hours before shooting hours. Hunters had to furnish their own blinds, decoys and transportation to the holes, some of which were walk-in areas.

In a survey conducted of the hunters, 89% had hunted other WMAs, and of this 89%, 63% traveled less than 100 miles to hunt Raft Creek, 30% of the hunters were from White County and only 4% were from out of state. 83% of those surveyed favored an increase in this type of system for hunting public lands, 36% rated the experience at 9 (on a scale of 10) and 86% of the hunters rated the experience above a 6. While there is no doubt that "draw" hunting flies in the face of the Arkansas tradition of unlimited access to public lands, there can also be little doubt that most hunters don't envision another group set up 50 yards away when they think of a "traditional" hunt.

In Missouri, there are other examples of successful hunts on public areas

that utilize a permitting system. Below is a brief description

MINGO/DUCK CREEK Puxico, MO

21,676 Acres, Mingo NWR established in 1944
6,190 Acres, Duck Creek State WMA joins Mingo
27,866 Total acres

Mingo NWR Regulations

Waterfowl hunting is permitted in Pool No. 8 and is managed by the Missouri Department of Conservation. Pool 8 has a maximum of 1,400 huntable acres, and the balance of approximately 20,276 acres is in a green timber rest area. Hunting is permit only, morning draw system, 40 hunters total, no spinning-winged decoys and no outboard motors.

The area has 6,190 acres with 1,743 of those acres huntable. There are 36 blinds, 4 hunters per blind, per day.

The maximum capacity is 144 hunters per day on Duck Creek and 40 on Mingo.

In summary, there are 27,866 acres total on the two refuges, 3,143 acres huntable, 24,723 acres in sanctuary. 188 total hunters.

Last year's harvest averaged 1.5 ducks per hunter on weekends and holidays; 5.2 ducks per person during the week.

Hunting pressure affected

weekend harvest rates.

There were 110-120 estimated hunters per day on weekends.

Every day, every hunter, every duck has been recorded since 1944 on the areas. High harvest rates during the week are attributed to management of the green timber, mainly, but they also come from reduced hunter pressure.

NWR sanctuary areas should be studied to determine the appropriate size of a given sanctuary without regard to its location. In other words, if the NWR is attempting to send 100,000 ducks back north, then it should design a sanctuary to accomplish that goal, rather than using an arbitrary line to divide sanctuary from hunting area.

Finally, hunters must be willing, as we have in the past, to sacrifice days and ducks for the enjoyment of the hunt. If Arkansas had a one-day season with a one-duck limit in the middle of December, everyone would likely limit out. With a 60-day season

and a 6-duck limit, we've seen a vast reduction in the quality of our hunts. Of course, a hunter's perception is very important.

Higher harvests in the late '90s, even on an individual basis, were often perceived as being lower quality than hunts in the late '80s with smaller harvests. To some extent, this is because hunters in the earlier time period with 3 ducks were able to say, "got my limit!" But the same number of ducks in the late '90s was "only" half the limit. This is not a trivial concern.

While certainly this reduction in hunting quality is, in some measure, attributable to the movement of ducks to the sanctuaries, we have to remember that we're the ones who sent them there. Without a doubt, ducks would rather sit in an uncut rice field than one precision leveled and cut to the bone, but above all else they would rather not get shot.

Somewhere between 1 day, 1 duck and 60 days, 6 ducks; somewhere between vast sanctuaries of plenty and an all out assault on the south end of Bald Knob NWR; lies our answer.

Conclusions

The refuges are a vital part of waterfowl management. From interviews with Drs. Heitmeyer and Fredrickson, an optimum waterfowl habitat should contain grain, moist soil units and bottomland hardwood habitat. From the standpoint of

meeting the objectives of waterfowl biology, Bald Knob and Cache River are very successful.

In meeting hunter expectations and demands, however, there is extensive debate. Research should be done to understand the values the current management of Bald Knob and Cache River bring to hunters in the local area as well as the state. This is especially true in light of hunter attitudes with regard to the White River Refuge and the success of Mingo Creek WMA in Missouri.

Lastly, if the sanctuary habitat provided by Bald Knob/Cache River is so vital to duck populations (as it appears to be), duck hunters should be educated to understand and accept this.

Recommendations

Studies, particularly telemetry studies, should be undertaken in Arkansas to understand the impact or value rest areas and sanctuaries have. Congressional leaders should work with the Refuge and WMA managers to provide funding for not only the management but also the research necessary to make sound management decisions.

Study and consideration should be given to implementation of a daily draw or permit system for hunting public lands to avoid overcrowding and over hunting, especially as it applies to non-resident hunters. We have to curtail our "open-door" policy of allowing all nationwide hunters access

to our public lands. The Arkansas Game & Fish Commission should focus on their commitment to the Arkansas

hunter. Education of the hunting public about the science of waterfowl management is needed.

Things Hunters Can Do To Help (Ethics)

- ★ Obey all game laws.
- ★ Do not shoot ducks you do not want ("trash ducks").
- ★ Identify your ducks, even if it means delaying your shooting hours to sunrise.
- ★ Limit your hunts to one per day whether you have the limit or not.
- ★ Go to the skeet and trap ranges before the season to improve marksmanship skills.
- ★ Shoot your ducks ONLY (as the law states). No party hunting.
- ★ Handle your firearm safely.
- ★ Do not assist others in double dipping.
- ★ Avoid setting up your hunting position near another party of hunters. This gives everyone a chance to work the ducks within range.
- ★ Do not shoot hens.
- ★ Do not shoot at ducks out of range. Skybusting ruins the hunt for others in your area. It results in more crippling losses and it causes the ducks to leave the area.
- ★ When possible, avoid driving your boat or ATV through an area others are hunting.
- ★ Do not drink alcoholic beverages while hunting.
- ★ Have quality hunts and do not focus on getting the limit every day for every hunter.

EPILOGUE

The AWF Duck Committee set out to determine why the 2002/2003 season had been so poor. We got much more than we bargained for. We found that the average duck hunter may be knowledgeable about duck hunting but he is woefully unversed in understanding ducks and their lifecycle. The public meeting in Brinkley regarding waterfowl issues was disturbing because the attitude of duck hunters expressed there was, "Ducks are for killin', let us have at 'em." Hopefully this was a minority perspective.

Management of ducks (and for that matter any other species of animal) is about far more than killing. We hope that by reading this report the Arkansas duck hunter comes to understand some of the facets facing the duck population we hunt in order to become not only better informed, but a better duck hunter. We strongly urge the U. S. Fish and Wildlife Service, the Arkansas Game & Fish Commission, as well as all state

wildlife agencies to consider duck seasons less than 60 days and 6 ducks either in the number of days, number of ducks or both.

A reduction in hunting pressure flyway-wide would improve the quality of hunting for those who seek the enjoyment of bringing in a flock of mallards or shooting fast-flying teal and woodies. Less hunting pressure and better habitats in the breeding grounds and throughout the flyway may allow duck numbers to increase above the levels set in the North American Waterfowl Management Plan. That could bring more duck hunting pleasure for everyone.

The AWF Duck Committee finds that the population of ducks that we hunt in Arkansas is a population under stress. Without management decisions designed to reduce that stress, we fear the quality of the duck hunting experience in Arkansas may not improve. It could actually get worse.

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How Are Duck Seasons Set?

Editor's Note: Setting migratory waterfowl seasons is much more complex than most hunters realize. The following information regarding that process was provided by the Arkansas Game & Fish Commission. Any editorial comments are made by the Arkansas Game & Fish Commission.

The U.S. Fish and Wildlife Service (USFWS) has the responsibility and authority in the U.S. to establish annual hunting seasons for migratory birds. This authority is granted under the Migratory Bird Treaty Act of 1918. The USFWS sets outside parameters called frameworks (opening and closing date, daily bag and possession limit, season length) within which states must select their hunting seasons. The Canadian Wildlife Service (CWS) has the authority in Canada to establish annual hunting seasons for migratory birds under the same Treaty. Hunting seasons are closed each year until formally opened by the USFWS and CWS. The USFWS publishes a Notice of Intent to Establish Open Seasons in the Federal Register in January. It also discusses leading issues and the potential for major changes.

Flyway Councils, and their respective Technical Sections, address many waterfowl management issues other than hunting regulations. For example, the Council's cooperatively fund and coordinate various waterfowl population surveys, banding programs, research projects, and develop

population management principles and policies to guide decision-making processes. The process of setting the annual waterfowl hunting regulations at the national level begins with the Technical Sections' subcommittees reviewing population, habitat, production, banding, and harvest data for the ducks and geese that use their respective Flyway. Subcommittees are comprised of biologists from states and provinces, as well as the USFWS, CWS, universities, etc. that have an interest or expertise in the species the subcommittee addresses. The entire Technical Section reviews the subcommittees' reports and recommendations, but only the official state/provincial representatives may vote on the recommendations to the Council, and only state representatives vote on regulations recommendations to the Council. The Councils consider the recommendations from the Technical Sections, interject political and social concerns, and then vote on recommendations to the USFWS.

The USFWS has a committee (Service Regulations Committee (SRC)), consisting of USFWS regional directors and the director of the USFWS Migratory Bird Management Office (MBMO), that considers the hunting regulations recommendations from the 4 Flyway Councils, as well as those from the MBMO, and formulates hunting season options for each of the 4 Flyways. The hunting season options, including the season length, bag limits, shooting hours, and earliest and latest dates the season can be

open, are then sent to the states for selection. Hunting season options vary by Flyway.

The Flyway Council Technical Section Committees and Flyway Councils (Arkansas belongs to the Mississippi Flyway Council) meet individually in February and March to consider changes in hunting regulations for migratory shore and upland game birds (mourning dove, sandhill crane, snipe, woodcock, etc.) and waterfowl seasons, research and management issues.

This meeting focuses on Early Seasons that open in September (i.e. dove, September teal, rails, moorhens and gallinules). In recent years, the regulatory packages of Adaptive Harvest Management for the regular duck hunting season have also been considered at this time. The Flyway Council forwards its recommendations to the Service Regulations Committee (SRC) of the USFWS. The SRC consists of 4 Regional Directors of the USFWS plus a Chairperson. The USFWS publishes specific proposals for Early Seasons in the Federal Register in July. Public comments are accepted on these proposals and a Final Rule published, usually in August.

States select their hunting seasons for Early Seasons in August within the framework provided by the USFWS (In Arkansas, proposals for Early Season selections are made at the June Commission Meeting. The Arkansas Game & Fish Commission selects its early season recommendations at the July Commission meeting. Selections are

due to the USFWS by August 1). A state can be more restrictive but not more liberal than the federal framework.

The Flyway Technical Section Committees and Flyway Councils meet again in July to consider Late Seasons, which include the regular duck and goose hunting seasons. Late Seasons open as early as the Saturday nearest October 1. The Flyway Council again forwards their recommendations to the SRC.

The USFWS publishes specific proposals for Late Seasons in the Federal Register in August. Public comments are accepted and a Final Rule is published in September.

States select their hunting seasons in September for Late Seasons from the frameworks provided by the USFWS. (The Arkansas Game & Fish Commission select its late season recommendations at the August Commission meeting. These selections must be received by the USFWS by September 1). A state can be more restrictive but not more liberal than the federal framework.

Surveys to determine population status of migratory birds are conducted throughout the year. Some of these data are a year old when used in consideration of hunting regulations. Others, such as the May Breeding Pair and Habitat Survey for ducks are used in the year they are collected. While annual changes in some populations are potentially important, long-term trends are given more weight.

The CWS produces a status report in November and hunting season proposals in December for the following year. A public comment period occurs in January and February, final proposals are due in March and final rules are selected in June. The reason for earlier selection of hunting seasons in Canada is that essentially all migratory bird-hunting seasons begin in early September.

Over the years, the Flyway Councils and USFWS have jointly adopted policies for waterfowl population and harvest management that can also limit hunting season options. For example, every 5 years, states select one of 4 zone/season options to use to structure their duck hunting seasons for the next 5 years. In Arkansas, the AGFC selected the option of no zones with up to 3 split season. In Iowa, the DNR selected the option of 2 zones with a split season in each zone, Minnesota chose

to split their season into 3 segments (no zones) while Missouri chose to divide their state into 3 zones (no season splits). The 4th option is to have a statewide season with 1 split. Other rules that constrain seasons choices include: a) regular duck seasons cannot open before the Saturday nearest October 1 (this does not apply to "special seasons" such as the teal season , b) duck production states, such as IA, MN, MI, WI, ND and SD do not have the option to open special teal seasons, c) regular Canada goose seasons cannot open before September 28. These rules are not necessarily cast in stone, but it takes considerable time and effort to change them.

Setting waterfowl hunting regulations is a balancing act. Hunters request different season dates, bag limits, shooting hours, etc., depending upon the species they want to pursue and when they want to pursue them.

Setting Waterfowl Seasons In Arkansas

Waterfowl hunters in Arkansas face widely varied habitats distributed along a latitudinal gradient (N-S) from riparian areas used primarily by migrant ducks in the northwest Arkansas River Valley to the Delta habitats presented by the Mississippi Alluvial Valley (eastern counties) where late fall and wintering waterfowl predominate.

Duck hunting styles (i.e. deep water vs. shallow) also vary across this gradient as well as hunter preferences for different species, which range from early-season wood ducks to winter mallard hunting. Habitat types hunted are equally varied, from shallowly flooded agricultural fields to flooded bottomland hardwoods. Early season hunting typically occurs on bayous, irrigation reservoirs and managed shallow marshes. This is in contrast to late season hunting geared toward green-tree reservoirs on public and private lands, large rivers, reservoirs, and flooded bottomlands.

Among years, hunting opportunity and hunter success often are quite variable among mid-latitude and wintering states. Summer weather patterns determine wetland habitat status and food conditions going into the fall. Considerable differences in fall weather affect migration timing, fall and winter rainfall determine the extent of bottomland flooding, while variable winter weather results in considerable differences in timing of freeze-up.

These variables have substantial effects on the timing and magnitude of duck use and corresponding availability to hunters. Season timing determines which hunting styles are most accommodated. Regardless of season length, Arkansas duck season dates are selected to provide the greatest opportunity for mallards, the predominant choice among duck hunters.

Longer seasons have benefited hunters as they allow for a greater range of hunting styles and more opportunity for species other than mallards (e.g. wood ducks and early migrant dabblers during portions of the duck season open in November). Many of these early migrant species (Green-winged and Blue-winged teal, Northern Shoveler, Gadwall) are at or near record population levels.

Duck hunters in Arkansas have seen extremes of every sort during the last decade. After short, 30-day seasons during 1988-93, seasons progressively increased in length to 60 days by 1997, the longest seasons since 1958. Duck populations increased from record lows in the late 1980s to unprecedented fall flights by 1998 as breeding habitat conditions improved and then was sustained for several years.

Weather conditions ranged from extremely severe to summer-like. Weather events and duck migrations during the 2000 season were strong reminders that winter can play an

important role in Arkansas duck hunter's seasons.

Conversely weather, or the lack there of in 2001-2002 reminded us how important conditions in northern states (ice and snow) are to the timing of arrival of ducks in Arkansas.

Long seasons, extended hunting opportunity, mild weather, and unusual migrations have been the basis for Arkansas hunters' questions about season timing during recent years. Concerns about duck season dates have often been sources of contention among hunters who hunt in different regions of the state, for different species, and in different habitats.

Mallards are preferred by most

Arkansas duck hunters and usually account for 50-60% of the state's duck harvest; however; it is important to remember that each year mallards account for only about 15% of the fall flight.

Much of the increases in recent years' duck populations have been due to record numbers of species like gadwalls, shovelers, and blue-winged and green-winged teal. In actuality, mallard populations have declined for the last two years (-5% in 2002 but similar to the long-term average) and are now below the North American Waterfowl Management Plan for the second time since 1996. Seasons timed primarily for mallards (late) will not provide much additional opportunity for these abundant early migrant species.

What is Adaptive Harvest Management?

Adaptive Harvest Management (AHM) is extremely complicated and much more difficult to understand than anyone on the AWF Duck Committee had expected. No one claims it is a perfect system, but it is the best one yet to make scientifically based decisions on waterfowl management. It reduces political pressure on season setting that previous methods used.

The Arkansas Game & Fish Commission provided the following basic description of Adaptive Harvest Management.

The Adaptive Harvest Management process centers on the use of the biological data and explicitly agreed to management goals to create optimal decisions and make the regulatory process less prone to subjective or political interference. The package that will be selected each year is determined by the breeding population of mid-continent mallards, the number of Canadian ponds counted during the May Survey, and an annually improved assessment of mallard population dynamics (which determine where the cells fall between the X and Y axis).

There are many models that are used to annually improve assessment of mallard population dynamics and all use many different parameters. Some are:

(i) Population models: Predict changes in breeding population size as

a function of annual survival and reproductive rates. All models of population dynamics used in AHM share a common structure, called a balance equation. The balance equation is basically an accounting tool that allows prediction of population size, given population size (N) and survival (S) and reproductive (R) rates during the previous year. In theory, measures of N, S, & R should perfectly predict subsequent population size.

1. Breeding population size (defined as those breeding in the federal survey strata) i.e. traditional survey area + M_n , W_s , and M_i ;
2. Proportion of males in the breeding population;
3. Survival rates of adult males, adult females, young females, young males;
4. Reproductive rate (defined as the fall age ratio of females)
5. The ratio of female to male summer survival
6. Year

(ii) Survival process: Consider the relationship between annual survival and harvest rates using additive vs. compensatory models.

1. Survival rate
2. Harvest rate

(iii) Reproductive process: Reproductive estimates are estimated from age ratios in the harvest corrected using a constant estimate of differential vulnerability.

1. Age ratios
2. Number of Ponds (May)
3. Breeding population size

(iv) Pond Dynamics: Model annual variation in Canadian pond numbers

1. Observed ponds
2. Predicted ponds

(v) Predicting Harvest rates: Linear models that predict harvest for varying regulation packages. The independent variables used in these models include:

1. Consecutive day of the hunting

season

2. Daily mallard bag limit
3. Season length
4. Interaction of bag limit and season length
5. Opening day effect

(vi) Fall Flight Index: Indices are based on AHM mallard models that consider, breeding population size, habitat conditions, adult summer survival, and projected fall age ratio (young/adult). The projected fall age ratio is predicted from a model that depicts how age ratio varies with changes in spring population size (breeding pop) and pond abundance.