Texas Agricultural Extension Service

People Helping People

Managing Playa Wetlands for Waterfowl Hunting

Texas Agricultural Extension Service • Zerle L. Carpenter, Director • The Texas A&M University System • College Station, Texas

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Preface

With today's changing patterns of agriculture, farmers and ranchers are looking more seriously than ever before for alternative sources of income. New crops, new animals, new cropping systems, new machinery and new management all are being considered. Old methods and ideas are being rediscovered and reexamined. Hunting leases and recreational uses of farm and ranch land are receiving renewed attention as possible sources of alternative or supplemental income.

Crucial to the development of a hunting enterprise is an adequate supply of game upon which to base a lease. Fortunately, playas in the Great Plains have great potential for game birds, both upland and wetland species. The uniqueness of playas provides their managers with opportunities for developing waterfowl, pheasant, dove or quail hunting enterprises.

The purpose of this bulletin is to aid owners of playa wetlands in managing their playas for waterfowl and in developing hunting-based enterprises. Successful management of a playa for waterfowl must involve the whole farming system. Because no management actions are truly independent, the impacts of each will need to be considered and trade-offs identified which can help achieve a favorable balance. The discussion will include compliance with agricultural programs.

The way in which a playa is managed affects the survival of pheasants. Therefore, the effects that managing for waterfowl has on pheasants are mentioned to aid you in integrating the various enterprise activities of your farm. Publications listed in "Selected References" describe management practices for pheasant, quail and dove. Landowners will need to tailor management practices for each individual playa; sources of assistance will be suggested.

The primary objective of playa development and management for waterfowl is simple — to provide adequate water, food and cover to meet each desired species' needs. However, it is difficult to coordinate waterfowl management with the many other possible or already fixed uses for the land. There may also be unanswered questions concerning biological, economic and regulatory integration under present and future conditions. Anticipated future conditions must be considered since effective management of wildlife habitat is a long-term undertaking.

In the final analysis, it is the individual playa manager who must make selections based on his own preferences and circumstances. He must evaluate the costs and benefits relative to his own personal goals. However, this is not done in a vacuum; as with other facets of agriculture, society's needs and desires, as reflected in governmental programs and regulations, must also be considered.

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Managing Playa Wetlands for Waterfowl Hunting

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Have you ever wondered about opportunities for developing a duck hunting lease on your playa, or for getting some income from the pheasants that winter there? Maybe you simply want to provide more hunting for family or friends, or just enjoy seeing the great variety of wildlife that lives around the playa. Many farmers and ranchers, at one time or another, have wanted to improve living conditions for wildlife on their land but have not done so because they were not sure what to do, how to do it, or when to do it.

This is unfortunate, because the thousands of farmers and ranchers in the Texas Panhandle can have a tremendous influence on the future of wildlife not only in their region but in the nation as well. Private lands comprise most of the wildlife habitat in the Panhandle. The future of wildlife will be determined by the way these lands are managed.

Most Texans owning or living on rural land care a great deal about the wildlife that also lives on or visits their property. And most of these people are willing to help enhance wildlife habitat as best they can within the limits of their time and financial resources.

It's not necessary to tell you, the playa manager, what your playa is. But perhaps you have not thought about playas beyond your property boundary, their collective value to wildlife, and why there is national interest in playa wetlands. We will briefly consider the situation in the whole Southern Great Plains Playa Region before focusing on individual playa management.

The Resource: Playa Wetlands

Playas are the flat, central portions of arid basins that drain internally, flood periodically and accumulate sediment. These shallow, plate-like depressions occur in desert and semiarid regions of the world. Although one descriptive statement can collectively define all playas, there are many important differences between individual playas. In the U.S. they are found primarily in the Southern Great Plains. Of the approximately 25,000 playas that exist, 80 percent are in Texas (Figure 1).

The Southern Great Plains Playa Lake and Wetland Region is second to the Gulf Coast as the most important sector of the central flyway for wintering waterfowl. Playas containing open water may support up to 90 percent of the overwintering waterfowl in the Texas Panhandle.

In addition to ducks and geese, other game birds are associated with playas. The unique sandhill crane is frequently found at large playas and the much sought after ring-necked pheasant is dependent upon playa vegetation for survival. Other game birds such as dove, quail, turkey and prairie chickens use playa habitats as available. Although birds are the most common wildlife found in playa basins (more than 100 species) numerous mammals, reptiles and amphibians also depend upon the wetlands.

Playa wetlands are not the same now as they were 200 years ago, or even 30 years ago. They have changed and will continue to change, perhaps at an accelerated rate. Farming brought major changes to playa basins and wetlands; both physical structure and vegetative composition were altered. Cultivation, burning and weed control in the basins eliminated or reduced the acreage of many emergent aquatic plants. Livestock grazing and watering at playas reduced the height and diversity of the native vegetation.

The physical changes made in playa basins in order to accommodate farming have had more lasting effect. Modifications such as pitting, trenching and diking (which are intended to concentrate water, control runoff and collect tailwater) have reduced water surface area, increased water depth, reduced shallows, reduced evaporation loss and extended the availability of open water. As a result of farming, much of the land in playa basins is ex-

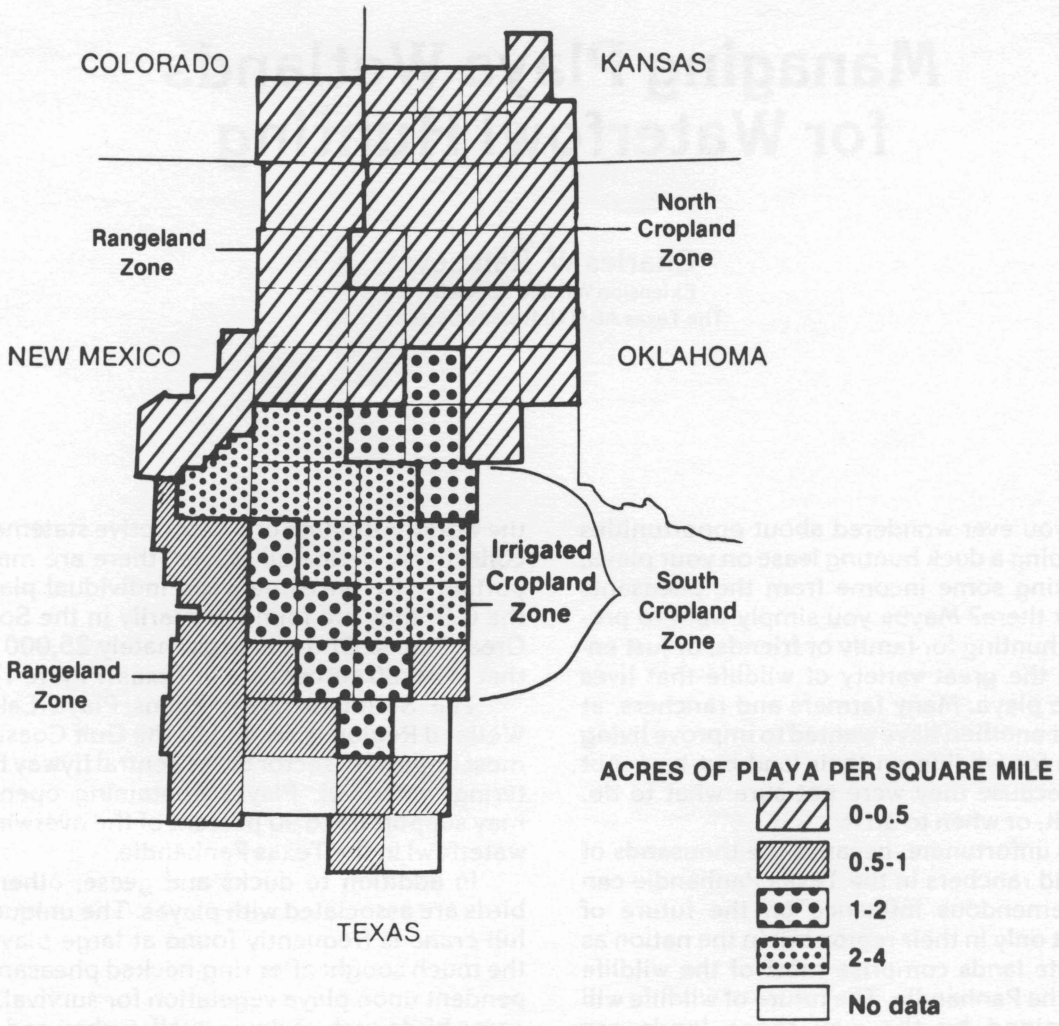


Figure 1

posed to drying and has lost its wetland characteristics.

In contrast, playas adjacent to irrigated cropland frequently are improved for wildlife. Playa basins that receive irrigation tailwater are usually larger, have more native vegetation and provide better wildlife habitat than those found on rangeland or on croplands without irrigation.

Farming has both positive and negative effects on waterfowl. Croplands, with their waste cereal grains, have increased the food supply, while cultivation and weed control have reduced native food plants. Playa modifications have decreased the acres of surface water but stabilized the water conditions, particularly during drought. This has intensified some waterfowl disease problems but may have lessened others.

In the future it is expected that the playa region will have less available ground water for irrigation. This will bring a change to dryland or partially irrigated farming and a probable geographic shift in crop distribution. Government benefits to farmers, which are expected to decrease, also will determine crop choices and, hence, irrigation demands.

A new and immediate influence on playa management is the provisions of the Food Security Act of 1985 (Farm Act) which deals with "highly erodible land and wetland conservation." This will affect farming throughout the playa region.

Another provision of the law, which went into effect in December 1985, imposed immediate constraints on physical modifications of "wetlands" to produce agricultural crops. But even with changes in crops and irrigation practices, and a decrease in the number of future modifications to playas, the modifications which already have occurred will continue to affect waterfowl for years to come.

Because each wildlife species has its own optimum habitat requirements, some populations have gained and others have lost as a result of past changes. It will be advantageous for you, the playa manager, to recognize the critical elements of each species' habitat requirements in order to an-

ticipate the impacts of change and to mitigate those which are not desired.

Elements of Wildlife Habitat

Wildlife managers have recognized for some time that the health, or thrift, of wildlife populations is closely linked to food, cover and water, and their relationship in space and time. These elements make up an animal's habitat. Some of these elements can be influenced by management practices. However, since most game birds do not exist totally within a playa basin, management of lands surrounding the playa also must be considered.

The amount and variety of food, cover and water (that is, the quality of the habitat) determine an area's carrying capacity for a species. "Carrying capacity" has the same meaning as when used with livestock — the number of animals a unit of habitat can support for a period of time. For permanent wildlife residents, habitat is limited by the most unfavorable time of the year. For transients, such as migratory birds, the determining time period is the time they are present.

Carrying capacity is not constant, but fluctuates in response to natural and induced environmental influences. In wildlife management, carrying capacity frequently is determined by deficiencies in cover or water, as well as food.

Cover is a term meaning some type of protection within an animal's habitat. Cover may be a large expanse of open water for geese, a small playa lake with surrounding cattails for teal, or a dry playa with a thick stand of cattails, rushes and kochea for pheasants. Cover provides for one or more of the necessary functions in the lives of animals — breeding, nesting, hiding, loafing, sleeping, feeding and traveling.

Food is sometimes the deficient element determining the carrying capacity of a habitat. Individual animals may need different food items at different times. For example, young ducks may require aquatic invertebrates for growth while adults do well on plant material. Sometimes food plants also serve as cover, or cover plants may provide a substrate for food items (such as insects on bulrushes). When the location of food and cover are different, an important management strategy may be to bring them together.

Water is an essential requirement for all wildlife, and must be provided at the appropriate times for the species concerned. Although not all animals need standing water, usually the larger the area of open water the more waterfowl will be present.

Creating a correct arrangement or juxtaposition of food, cover and water for the desired species is a key to making your property attractive to wildlife. For example, nesting cover for ducks should be close to open water, while food for adults can be several miles from the playa. Pheasants, on the other hand, need different arrangements because they spend their whole lives within a couple of miles of the place they are hatched.

Timing is important in meeting animal's needs. To attract blue-winged teal a playa must have open water in September; other wintering ducks would require water when they arrive later in October. The presence of adequate vegetative cover in the winter is critical to pheasant survival.

"Correct arrangement" and "timing" imply a need for a harmonious mixture of the elements of wildlife habitat. However, each element is not limited to a single use. Food for geese may also be a crop for sale; cover for pheasants may also be forage for cattle; and water for ducks can also be used for crops and livestock. The point to remember is that there must be a planned integration to resolve conflicting demands for use.

Integrating Wildlife Management into Your Farm System

We change focus now from playas collectively to individual playas. However, we should keep in mind that successful wildlife management must involve the whole farming system. All elements within your farm management plan must be integrated because each one influences the other both physically and economically. Devising a working plan is essential to achieving your goals for waterfowl management.

The first step in the planning process is to list those elements which are fixed, such as the physical characteristics of your playa and farm, economic limits, personal goals, regulatory provisions of the Farm Act that apply to your farm, etc. A next step is exploring the options within the framework of fixed elements.

Because no management actions are truly independent, the impacts of each will need to be considered and trade-offs identified which can help achieve a favorable balance. Each action should be examined from several perspectives — personal, biological, economic and governmental. Examples of these perspectives will clarify the idea.

Personal goals and desires should be reviewed and perhaps recorded since these probably have not been articulated before. They will influence the setting of priorities in the allocation of resources. For example, if you plan to pass your farm to your descendents who will farm it, your planning horizon for the farm will be different than if you intend to sell it within 3 years to finance your retirement.

Long-term habitat developments must be evaluated according to the time frame appropriate to your goals. If your objective is to obtain maximum annual cash return from rented acreage there will be different considerations than if you desire optimum cash return to sustain your chosen way-of-life on your farm. With a hunting lease enterprise some privacy must be forfeited for cash flow. Trade-offs are inherent to wildlife management on private lands, because few owners can afford to devote exclusive use to wildlife.

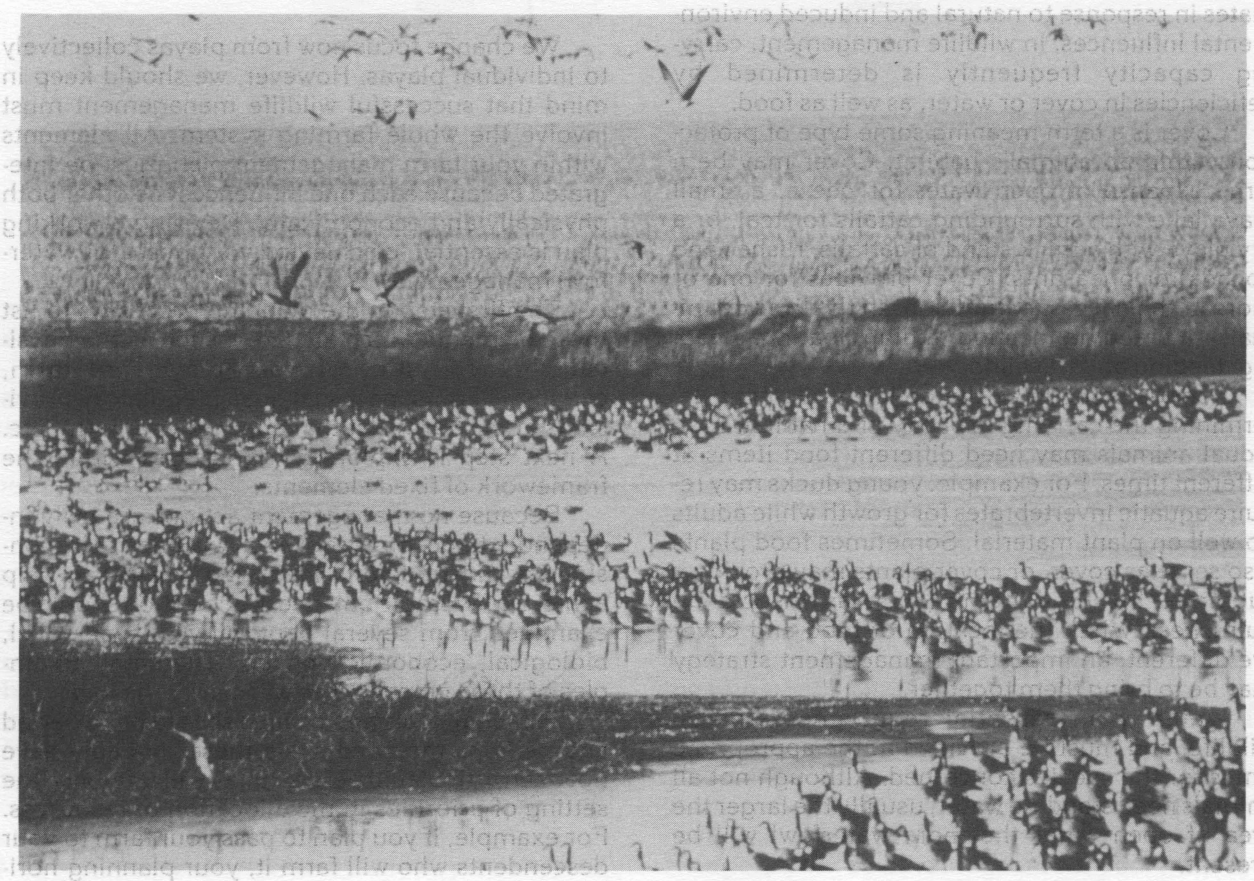
Biological integration is necessary because resources must be used in several ways at the same time. To encourage game birds, for example, the configuration of the farm might be changed by placing some crops that provide food and cover adjacent to the playa. However, the amount of possible crop depredation by the birds should be considered.

Correct timing in providing resources for wildlife requires integration with farming activities. For instance, the availability of waste grain for ducks and other game birds can be extended by delaying the plowing of grain stubble until late fall. In some areas waste corn provides more than 90 percent of the winter food of four major playa ducks. Delayed harvest of winter wheat adjacent to playa lakes could decrease destruction of mallard nests. Benefits to game birds and the hunting enterprise must be balanced against the possible physical and economic loss of grain.

Economic integration of wildlife management with crop and grazing management involves the same planning processes used to decide which crops will be planted next season or whether or not to graze steers in the playa. Your county Extension office has examples of crop budgets and other agricultural decision aids. These have not been worked out for hunting lease enterprises, so you will need to develop your own plan and keep good records to evaluate your success.

Game species can provide income through hunting leases. Under some conditions they can return more net profit per animal unit or per acre than domestic livestock. However, since biological integration is feasible, the better overall returns may come from a compatible mixture of wildlife and other agricultural land use.

A hunting lease enterprise contains some of the same production components as other agricultural enterprises. However, marketing recreation is much different than marketing a product.



The playa region, with its wetlands, native vegetation and cultivated crops, is a very important wintering area for many waterfowl species.

This fact, along with the public nature of wildlife management, means that more interaction with regulatory agencies and the public will be required than in the production and sale of livestock and crops.

Provisions of the Farm Act will strongly influence the selection of crops, cropping systems and acreage to be planted, and thus wildlife habitat management. Mandatory provisions of the Act and USDA interpretation of the "highly erodible and wetland conservation" sections will be significant to farming in the playa wetland region. But much of the detail is yet to be worked out.

The integration of regulations, game management and crop and livestock production is difficult, but necessary for a successful enterprise. Regulatory constraints may affect personal goals of farming as well as biological and economic management.

Wildlife itself is a public resource and its management subject to various federal and state laws. Following is a brief survey of some of the regulatory provisions which will affect game management as the basis of an economic enterprise. The following section is neither exhaustive nor detailed, but is intended to make you aware of important regulations and where to inquire for further information.

Regulations Affecting Game Management

Laws, regulations and programs affecting game management can be grouped into three categories: those relating to habitat management; those relating to game animal management; and those relating to hunters or customers.

Habitat Management

Game habitat management on farms in the playa wetland region will be significantly influenced by the Farm Act because of its pervasive effect on farming. The "sodbuster," "swampbuster" and "conservation compliance" provisions and interpretive regulations will cause changes. At this writing, regulations have not been completed and many questions are currently unanswered.

The major impact will be on currently farmed land identified as "highly erodible," which will be subject to the requirements of "conservation plans." This means that individuals who farm "highly erodible" land will be required by 1990 to operate according to a conservation plan developed by the Soil Conservation Service (SCS) in order to retain eligibility for most financial assistance programs administered by the USDA. In the Southern High Plains many entire counties probably will be classified as "highly erodible."

Farming "highly erodible" lands, such as those often found in the playa region, requires the use of conservation practices such as shelter belts.

Conservation plans probably will require that farmers initiate practices to reduce erosion, such as shelter belts, conservation tillage, strip cropping and others. Depending upon the soils involved, certain changes in cropping systems may become mandatory (such as from continuous cotton production to rotation systems incorporating high residue crops). Generally, the more erodible the soils the more restrictive the cropping system.

The planting of high residue crops, particularly grains, will benefit game birds, as will some other practices designed primarily for wind erosion control, such as shelter belts. Planning crop rotations so that some high residue crop is kept adjacent to your playa and removing the playa basin from cropping may create sufficient game bird habitat to support a hunting lease enterprise.

Questions about the level of government benefits, acreage bases for required changes in crops, and cross compliance between various programs should be asked at your county Agricultural Stabilization and Conservation Service (ASCS) office to identify options in the Farm Act.

The "wetland conservation" provision applies directly to "wetlands" and "converted wetlands," including playas. It makes any person who produces an agricultural commodity on converted wetland ineligible for USDA financial assistance programs. Interim rules define "converted wetlands" and describe disqualifying acts. Wetland converted before December 23, 1985 is exempted. The SCS will define the boundaries and status of wetlands. You should inquire about the ramifications of this provision before making any physical modifications to a playa for cropping or irrigation.

The Conservation Reserve Program (CRP), a voluntary program of the Farm Act, is designed to remove highly erodible cropland from production. Under CRP, a landowner enters into a 10-year contract with USDA to establish and maintain permanent vegetative cover on his CRP lands. In exchange, USDA guarantees to pay the landowner annual rental payments for 10 years and share 50 percent of the cost of cover establishment. Permanent vegetative cover eligible for CRP includes introduced and native grasses, forbs, legumes, shrubs and trees. Participants can increase the wildlife benefits of CRP by providing for game bird needs when planning and implementing this program. During the contract period CRP lands cannot be grazed or hayed, but leasing for hunting is permitted.

Establishing permanent wildlife habitat (CP-4) and shallow water areas for wildlife (CP-9) on CRP acreage is permitted. Costs of establishment are shared. Designating CRP acreage adjacent to or surrounding a playa will enhance the value of the area for game birds. Rejuvenation of a playa wetland could restore waterfowl habitat. Cropland eligibility and minimum requirements for cover establishment will be included in a conservation plan which the land manager develops with SCS.

Another program with a similar name, the Acreage Conservation Reserve (ACR) or annual "set aside" acreage, pays farmers to reduce their acreages of selected commodities such as feed grains, cotton and wheat. Acreages taken out of production must be protected from soil erosion, but annual vegetation is permitted in this program. Wildlife food plots may be planted annually on set aside acres.

The CRP and set aside programs can be used in combination to improve wildlife habitat, particularly where habitat is deficient in food and cover for the desired wildlife species. CRP and ACR acreages that are adjacent to or include a playa are enhanced beyond the value of the individual acreages alone. The ASCS administers both programs

Game Animal Management

Wildlife is protected by laws and regulations at state or federal levels, with some exceptions. The majority of the game laws relate to reducing this public resource to private possession, and are intended to prevent excessive harvest of a wildlife species.

Seasons, shooting hours, bag limits, the "point system," restrictions on means and methods, and license requirements are all facets of game laws that relate to individual hunters but that also affect the management of a hunting enterprise. For example, most hunters prefer some ducks over others, so the point system for setting bag limits was established on a flyway basis to distribute hunting pressure among species. The U.S. Fish and Wildlife Service and the Texas Parks and Wildlife Department are the regulatory agencies responsible for waterfowl regulations in Texas.

As an individual game manager, you may wish to impose more restrictive rules at your playa than required by the game laws. For instance, too much shooting activity can drive ducks away so some managers restrict both hunting hours and days to something less than the legal limits to increase the number of successful hunting visits. Restraints can be enforced through the hunting lease agreement.

You may want to attract more waterfowl to your playas to expand your enterprise. Increasing water and food is good management for accomplishing this; but, there are game law constraints. You should know the restrictions on "baiting," how baiting is different from establishing food plots, and the difference in application between migratory and resident game birds. Your local game warden can explain the regulations to you.

Hunters/Customers

Legal requirements concerning a hunting lease enterprise are more complex than those dealing with habitat and animals. Mandatory licensing is established by state regulations, but most requirements affecting the enterprise and relations with customers/hunters are contained in civil law.

A shooting preserve license and associated records of game harvested are required for each individual farm or ranch leased for hunting. Licenses and information are available from offices of the Texas Parks and Wildlife Department.

Areas of civil concern relate to trespass, liability and contracts. Enforcement of your right to control access to your property is under the jurisdiction of the county sheriff; however, the enforcement of the law concerning trespass for the purpose of hunting is a game warden responsibility.

The presence of hunters on your land carries liability whether they are there by trepass or invitation. The degree of your liability increases with the amount of services and/or facilities which you provide for a fee. Your attorney can advise you on your liability based on your specific circumstances.

Insurance protects you from loss due to liability. Since the degree of liability varies with the details of the hunting lease, the kinds and amount of coverage must match your situation. "Standard coverage" may or may not meet your needs. Discuss it with your insurance agent.

A hunting lease is a business arrangement and should be managed in a business-like manner.

Hunting Lease Enterprise Management

Management of wildlife on private lands can become an economic enterprise within some constraints. The right to control access to private land is a property right of the landowner. He can transfer this right of ingress to whomever he desires by gift or sale, subject to any conditions which he wishes to impose.

Allowing an individual access to one's property, for a fee, in order to hunt is the basis of a hunting lease enterprise; but a successful enterprise encompasses more than just access. The real business is providing individual hunters with opportunities for pleasant out-of-doors experiences.

The key to success for you, the landowner, is understanding that hunters must have a good time while on a hunting trip. This does not mean that each hunter must kill a limit of game to enjoy a trip. Many little things external to the hunt itself contribute to a pleasant experience.

Hospitality goes a long way. A friendly, welcoming attitude on the part of the landowner can give big returns. The hunter should be made to feel that he is not a problem and is not being criticized for his lack of knowledge. A landowner who is willing to help and who offers a sincere "we'll be glad to have you back" contributes to a pleasant hunting experience for his customer.

A successful hunting lessor, like a successful retail merchant, appreciates his hunters' business. Usually, as experience has shown, he even grows to enjoy their visits. If the lessor is dissatisfied with the lease arrangement he should objectively examine the situation. His actions could be the source of the problem. Offering hunting leases has been a traumatic experience for some farmers and ranchers simply because they did not know what they were getting into. They were poorly prepared to anticipate problems and to recognize opportunities that arose.

A hunting lease enterprise is different from agricultural production. There is no standard product or established market. Each producer must find his own customers and each customer must have access to the land. It is the contact between farmer, hunter and land, and how it is handled, that is central to the enterprise.

There are several ways in which the contact might be managed: lease to a third party; cooperative lease with neighbors ; employee management; or owner management. These are not mutually exclusive categories, but are degrees of assigning or retaining control of the enterprise.

Hunting rights might be leased to a third party (either an individual, company or club) who in turn subleases to hunters. The landowner is freed of the business relations with hunters, but not of incidental contact with them on the land. He would have transferred to another the right to determine who comes on his land. This arrangement provides an income with the least personal involvement of the landowner. However, there may be disadvantages. Lease brokers want to make a profit and hunting clubs want recreation. Neither may have long-term interest in a farm, its management or its owner.

Single playas, individual fields or single farms may be too small to attract hunters by offering sufficiently predictable hunting opportunities. Or, the potential economic return from the unit may be insufficient for its owner to commit significant management time to it. A cooperative leasing arrangement among neighbors can combine small units into a marketable package and take advantage of the economy of size. A satisfactory division of income will need to be established, perhaps proportional to area hunted and also game harvested.

One owner might manage the hunting lease on several farms. He might receive compensation for his time from a game harvest cooperative of which he is a member, or he might function as a lease broker for other farmers. An advantage of this system is that the individual dealing with hunters for other farmers is a farmer himself.

Another option is to employ, individually or collectively, a person to manage the hunting enterprise. This manager must be trusted to know and take care of the landowner's interests; he also must have management skills and be able to deal with people since the success of the enterprise will depend upon him. An advantage is that the manager is an employee representing the landowner; however, the cost may be prohibitive for small units.

The greatest opportunities are available for those landowners who operate their enterprises themselves. Management can be very simple, as when the landowner acts merely as a gate keeper

Communication between the landowner and hunters is the key to a successful hunting enterprise.

for his customers. Or, if more options and opportunities are sought, the landowner can expand his management by increasing the game supply for more customers and/or adding services and facilities for hunters.

The success of a hunting lease enterprise depends on good communications between landowner and customer. Rules are necessary to protect people and property, but should be as few and as brief as possible to be easily understood. Rules should be written down and agreed upon prior to making a lease contract.

During the discussion and negotiation which precedes the writing of a lease, both the landowner and the hunters should have sufficient time to state their needs, desires and expectations. Misunderstandings can be avoided if all parties to the agreement are candid as well as prepared for the discussion. Most conflicts develop because of a lack of communication.

A written lease contract is an excellent means of recording those things agreed upon during negotiations, as well as some basic items which should be included in all hunting leases. The Selected References section lists several publications which discuss items to include in a lease agreement. But there is no "standard hunting lease." During the negotiation process you should develop a list of items agreed upon for each group of hunters and have an attorney write these into a contract for signatures.

A hunting lease can be designed for any timeframe from year-round to a single day. Each has advantages and disadvantages. A day lease, perhaps best suited for a large operation, is convenient for the hunters to schedule on short notice and allows the lessor to provide facilities and services. But it requires the constant availability of the lessor, similar to a convenience store operation.

A season lease may require little contact between hunters and landowner, particularly if the same hunters return each year. But this also may limit the opportunity to provide services and facilities. When access is leased for several months, the scheduling of hunters' visits is best agreed upon before the season begins.

The presence of hunters on a farm or ranch will necessitate some planning and some adjustments in normal operation. Farming or livestock activities may need to be postponed or rescheduled so as not to disturb game or conflict with hunting. If this can not be done, hunting visits may need to be restricted via the lease.

Until you have gained some experience with hunting leases, it is best to make a short duration lease, certainly no longer than one hunting season, so that you can renegotiate as you identify new needs or opportunities. Renewing your hunting lease on a yearly basis allows you to accommodate physical, personal or economic changes; this can be an advantage. However, hunters may want a longer term lease if they are to develop facilities, such as blinds.

The time-frame for a lease should be decided by examining what hunters want, determining what you have to offer, and putting together a hunting package which best matches the two. For example, duck hunters need calls, retrievers, decoys and blinds. But if they have very limited time to hunt they may prefer to have others provide for these needs as a part of a lease package. If you are skilled at calling and have a good retriever, you might offer a week-end hunt package which provides these services and charge appropriately for them.

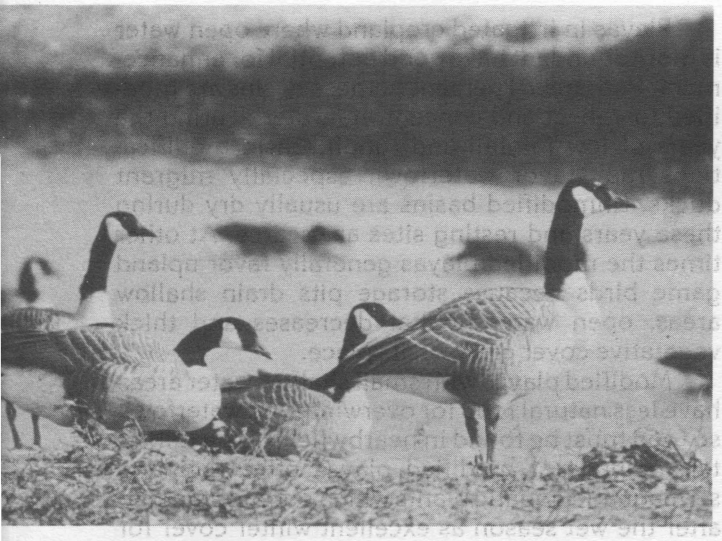
If you enjoy being with people, there are many things you might do to ensure a pleasant experience for your hunters and, in turn, enhance the value of your hunting lease. A hand trap and case of clay pigeons not only can help the hunter sharpen his shooting skills but also can provide a pleasant diversion to compensate for a shortage of birds, uncooperative dogs or tired feet. Trap shooting also could be a scheduled activity for afternoons when hunting is closed to protect playas. Some ranches even have skeet ranges, traps, towers and crazy quail layouts for bird hunters.

Other services which involve little or no cost include trash receptacles for hunters to use, an outline map showing how to get to the hunting lease from the nearest state highway, a small aerial photo of the farm with hunting and nonhunting areas marked, a newsletter to inform hunters of water and game conditions, etc.

Attracting hunters from farther away than a couple of hours' drive will require some facility for staying overnight. Plush accommodations are not required. In fact, some hunters prefer to camp out or use their own recreational vehicles. Minimum requirements for overnight stays might be simply a good access road to a location with water, a campfire site, table and trash receptacle.

The point to remember is that most hunters purchase a hunting lease not as a commodity, but as an investment in an opportunity for a pleasant experience. Managing the lease to ensure that customers have a pleasant experience is critical to successfully dealing with hunters.

The economic success of a hunting lease requires that business decisions be based on records, just as in any other business. Notes scribbled on the back of an envelope filed in the left-hand shirt pocket may be sufficient if one is providing access only and dealing with a very small group of hunters. However, with multiple leases or the addition of services, facilities, utilities and supplies, records must be carefully kept in order to make sound economic decisions.



Approximately 20 percent of the Shortgrass Prairie Canada Geese of North America winter in the playa region (top left), as do half of the pintails in the central flyway (bottom left). Redheads (bottom right) as well as mallards, blue-winged teal and pintails nest in the playa region. Besides waterfowl, many other wildlife species inhabit playas. Ring-necked pheasant (top right) depend upon playa vegetation for survival during the winter.

Another important component of a hunting lease enterprise is efficient game management. Providing good habitat at a reasonable cost will have a major effect on the profitability of the enterprise.

Playa Management Options For Waterfowl

The value of playa basins to game birds is proportional to the amount and permanence of standing water and natural vegetation, and the proximity to crops which furnish food and cover.

Waterfowl, including ducks, geese and cranes, must have open water and a food supply. Management for these animals centers around providing surface water at appropriate times for migrants and residents, and cover for nesting ducks.

On the other hand, upland species such as pheasants, dove and quail require cover and food during the critical winter period. Management for upland species focuses on preserving native playa vegetation. Since there is some overlap in the requirements of upland species and waterfowl it is possible, in a limited way, to manage for both. However, the landowner must assign priority since simultaneous management for all species is not possible.

Ducks, geese and cranes are attracted more by open water in playa basins than by vegetation. Geese and cranes prefer a large expanse of shallow, open water and seldom use small playas. Big playa lakes generally attract large numbers of ducks. However, ducks commonly use smaller playas for resting between trips to feed in neighboring fields.

Different species of ducks prefer different amounts of vegetative cover. Pintails and wigeons use large, open lakes. Mallards and green-winged teal apparently prefer shallow lakes with some emergent vegetation such as cattail and smartweed. This type of playa probably will command a higher leasing fee than a bare lake because mallard and teal are sought after by hunters and the cover of emergent vegetation makes for a better hunting experience.

While all playas have potential they do not have equal value to wildlife, and some will have much greater costs per benefit derived than others. The following discussion will aid you in evaluating the potential of your playa.

A beginning point is to examine the constraints imposed by the resources with which you have to work. Playa size is a major constraint. Generally, playa basins smaller than 10 acres are managed in the same way as surrounding acreage, either cultivated or grazed. These small playas are difficult to manage independently and have limited wildlife value alone. However, if surrounding land is left fallow, designated as CRP or set-aside acreage, or placed in a deferred grazing system, these playas could be a significant component of upland game bird habitat. As a part of cropland they are too small to justify separate treatment because of today's large machinery.

Saltwater playas are primarily resting areas for waterfowl on their way to other locations. Large lakes may offer some unique hunting opportunities for sandhill cranes.

Small rangeland playas have limited potential by themselves because of the difficulty of controlling grazing on them. But when located within a few miles of grain crops, ducks may use them as resting sites.

Rangeland playas larger than 25 acres can be maintained in a natural state as very attractive waterfowl habitat. When protected from overgrazing they furnish native foods and nesting cover, as well as water for resting migrants.

Playas with permanent water have good potential for duck and pheasant management, as do cropland playas larger than 10 acres, especially those which receive supplemental water. Managing for waterfowl hunting should include retaining large areas of open water with some emergent shoreline vegetation to provide winter food for ducks and cover for hunters.

Playas in irrigated cropland where open water is more abundant have good potential for enhancement. Perhaps 70 percent of these basins are modified to collect and concentrate water. During the years of low rainfall and runoff, basin modifications may favor waterfowl, especially migrant ducks. Unmodified basins are usually dry during these years and resting sites are scarce. At other times the modified playas generally favor upland game birds because storage pits drain shallow areas, open water habitat decreases and thick vegetative cover grows in its place.

Modified playas with small shallow water areas have less natural food for overwintering waterfowl, so food must be found in nearby fields. The tailwater drainage at modified playas often supports semiaquatic-aquatic plants which remain standing after the wet season as excellent winter cover for pheasants. While playas in row crop areas attract resting migrants, playas adjacent to rangeland or wheat fields are more beneficial for nesting birds because there is less disturbance in these areas.

Management of Water

Facilities for controlling water levels and supplying supplemental water at critical times increase the potential for wildlife management. Without them, waterfowl habitat at small playas is either a boom or bust situation depending upon precipitation. Water from natural or supplemental sources (rainfall, snowmelt, pumped ground water, crop irrigation and feedlot drainage) can be used to enhance playas for waterfowl and pheasants. Good water quality should be maintained and appropriate steps taken to prevent pollution, siltation, and the accumulation of salts and organic materials.

The providing of open water for waterfowl should be timed according to each species' needs. If you want to attract blue-winged teal for the early season, the playa basin should be flooded on the first of September. Water levels should be held constant to curtail botulism outbreaks at this time. Flooding to attract other species of ducks may be postponed until the first of October. Geese require relatively secluded, large playas (more than 20 acres of surface water).

Ground water can be pumped to sustain open water habitat and to promote vegetation for duck food. High quality food such as annual smartweed can be encouraged by pumping water to cover shallow mud flats early in the growing season. Flooding may be necessary once or twice each summer depending upon rainfall. Flooding these same playas to a depth not more than 1.5 feet

during the fall and winter will make them attractive to dabbling ducks.

Playa modifications made to increase water storage must decrease the surface area-to-depth ratio in order to reduce evaporation. These modifications generally are not favorable for waterfowl unless concessions are made. There are at least 50 types of alterations including excavation of pits and ditches; construction of dikes, diversions, terraces and levees; and reshaping the entire playa basin area. Ditching also has been used to channel storm runoff into playa basins. No single playa modification can accomplish every possible purpose for which modifications are made. You, the playa manager, must determine which benefits are most desired and balance those against the costs. Others can assist you with the details of planning and design, but only you can determine the priorities.

Carefully designed and constructed pits and trenches, with the spoil deposited in low embankments, can preserve open water habitat for longer periods, increase the growth of aquatic and emergent plants and provide resting sites and nesting cover.

Steep-banked pits and trenches are used by some ducks more than others. Research indicates that mallards and green-winged teal will loaf at pits more readily than pintails, gadwalls or wigeons. A bank slope no steeper than 3:1 will increase shallow-water vegetation and the production of insects and other invertebrates used as food by waterfowl. In general, more ducks will use the pits if the spoil banks are less than 3 feet higher than the water surface.

Basin diking and trenching could make it possible to flood a particular portion of the playa to attract waterfowl. Control gates in appropriate locations could improve water level control during flooding or draining.

When feedlot effluents are drained into a playa, water quality can be improved by first collecting the waste-laden water in a settling ditch or pond. The ditch or pond should be deep enough and long enough to slow down the water velocity so that organic material will settle. (The pond should be cleaned periodically.) Discharge water should be filtered through a strip of grass or alfalfa to further remove excess nutrients and organics before the water flows into the playa basin.

Duck production requires shallow-water wetlands with natural food such as aquatic plants and insects. These are present at unmodified playas that receive irrigation tailwater. For nesting, ducks prefer large areas of emergent vegetation from 1 to 1.5 feet tall. However, playas choked with cattails become marginal brood habitat, so excavating small open channels may be beneficial.

Pit construction reduces evaporation but limits the shallows favored by ducks.

Management of Crops for Waterfowl Food

Cropland surrounding playas often can be made more attractive to wildlife by using certain crop and stubble management practices. Waste grains, notably corn, can supply food for waterfowl during fall and winter if fall plowing or disking is delayed. Although retaining crop stubble at the soil surface limits erosion and helps to preserve soil moisture, allowing livestock to graze (and trample) crop stubble can make waste grain more accessible to feeding waterfowl.

Land managers can attract wildlife by raising crops which provide food and cover for the species desired. Retaining small, unharvested patches of appropriate crops adjacent to playas is perhaps the least costly way of providing food plots.

Waterfowl generally need upland cover within or ajdacent to a playa only for nesting. This cover can be provided by some crops. Mallards, for example, will nest in winter wheat. The timing of planting and harvesting should be planned to avoid destroying birds and nests. Nesting cover should be left undisturbed, wherever practical, by plowing well before the main nesting period and by mowing or harvesting after nesting is over.

Restrictions on Cropping, Burning and Grazing

Playa vegetation, whether growing or residual, offers the most valuable overwintering habitat for many wildlife species in the Southern Great Plains. Often it can be managed for a combination of spe-

cies, such as ducks and pheasants, by modifying the usual cropping, weed control and grazing practices.

A cropland playa, although modified to concentrate irrigation tailwater, can attract ducks if open water is present. It also can winter pheasants if it is not planted in crops but allowed to grow native vegetation.

Wetland burning from fall through spring generally destroys nesting habitat of ducks and pheasants and winter cover for most terrestrial species. However, controlled burning during midsummer of alternate years can be useful in opening up wildlife travel lanes in very dense, impassable cover. A burn with about 1 to 3 inches of water in the playa may be useful at times to reduce accumulated litter and rejuvenate the vegetation. Burns for habitat management should not be made in late summer when soil moisture is low, or when the roots of cattails and bulrushes are exposed.

Grazing in playa basins can improve, reduce or eliminate tall vegetative cover depending on how, when and to what degree grazing is allowed. Protecting lakeshore vegetation from livestock is important for ducks and pheasants. Fencing can be placed so that cattle have access to water but are restricted to a narrow sector of the playa. Spoil banks and dikes can be lightly grazed to make playas more attractive to waterfowl. Restricted grazing will be necessary for successful waterfowl and pheasant nesting.

Grazing on rangeland playas can be managed via pasture rotation, so that some residual cover is left for winter shelter and nesting. Rotation grazing of pastures usually results in a better waterfowl habitat than continuous grazing. The best habitat for waterfowl and pheasant occurs when there is maximum standing residual cover from winter through late spring. Grazing that is heavy enough to reduce vegetation height below 10 inches limits nesting success.

Waterfowl Diseases

Thousands of waterfowl and other wildlife are lost each year to diseases that are endemic to playa basins. Waterfowl die-offs commonly occur at two times during each year. The first one occurs in late summer due to botulism and the second one in winter due to avian cholera. Biotic, climatic, physical and land-use factors combine to create and perpetuate conditions that promote botulism, avian cholera, duck schistosomiasis and encephalitis.

Outbreaks of botulism at playa basins are caused by the presence of the bacterium *Clostridium botulinum* that produces a lethal toxin. Shallow water over organic-rich sediments, anaerobic conditions, high temperatures and carcasses of snails, fairy shrimp, leeches and mayflies (macroinvertebrates) are necessary for the disease. Waterfowl and other wildlife that ingest macroinvertebrates containing the bacterial toxin have little chance of survival, and playas with a favorable environment for botulism development tend to have regular die-offs.

Avain cholera, another bacterial disease, is caused by *Pasteurella multocida*. It is observed most frequently during winter when playa lakes are frozen and large numbers of waterfowl are forced to concentrate on small patches of open water. Sick and healthy birds are mixed together.

Duck schistosomiasis, caused by a parasitic blood fluke, is highly pathogenic to young waterfowl. Snails present in playas are intermediate hosts for the blood fluke. Ducks that eat infected snails transfer the fluke eggs from playa to playa through their feces.

In an effort to address waterfowl disease problems, the Interagency Playa Lake Disease Council was organized to offer a forum in which interagency planning, priorities and research efforts can be coordinated for disease investigations in the playa lakes region.

You can assist research on waterfowl diseases by reporting any die-offs to your local Texas Parks and Wildlife Department office or Buffalo Lake National Wildlife Refuge, P.O. Box 228, Umbarger, Texas 79091, (806) 499-3382.

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Acknowledgments

Financial support was provided by the USDI-Fish and Wildlife Service.

The author gratefully acknowledges the contributions of the following individuals: V. Dan Stiles, Charles A. Segelquist, James E. Miller and Jack M. Payne for comments and reviews of the manuscript; Janet A. Albright for preparing the manuscript; and Judy Winn for editing and designing the publication.

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This bulletin was prepared by the Texas Agricultural Extension Service in cooperation with the USDI-Fish and Wildlife Service.

Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Zerle L. Carpenter, Director, Texas Agricultural Extension Service, The Texas A&M University System.
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