

Range Management for Upland Gamebirds

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A 1970 national survey made by the federal government indicates more than 15 million Americans hunt big game, small game, or waterfowl. Over 10 million hunt upland gamebirds. It was estimated that upland gamebird hunters spend a billion dollars annually on their sport and harvest 60 million pounds of fresh meat. It is difficult to quantify the value of upland gamebirds to nonconsumptive users. Based on the same survey there are about 30 million people who enjoy upland gamebirds from an aesthetic standpoint. Upland gamebirds are a valuable resource to the American public.

In the past 20 years, cleaner and more intensive farming practices and industrial, urban, and recreational development have reduced the habitat available for both game and nongame wildlife species. Opportunity for a successful big game hunt has been reduced by loss of big game habitat and more hunters. Ranchers in many states, such as Texas, California, South Dakota, Oregon, Colorado, and Washington, have found they can substantially increase their gross income by selling hunting privileges on their ranch land. Initially, fee hunting was primarily for big game animals. In the last 10 years, hunters willing to pay for gamebird hunting have increased. Quail hunting leases in Texas vary from \$600 to \$3,000 per season. Day hunting for quail and doves in Texas varies from \$10 to \$30 per day. In Oregon, pheasant and quail hunting leases vary from \$300 to \$1,000 dollars per hunter per season. Prices that hunters will pay for hunting are rapidly rising in the West because demand exceeds supply. Reduced opportunity to hunt big game has resulted in much more interest in small game. At the same time fee hunting and reduced access to private lands have caused increased use of public lands. Recent data from various western states show that the number of hunters who pursue upland gamebirds is increasing and the number of big game hunters has stabilized or declined.

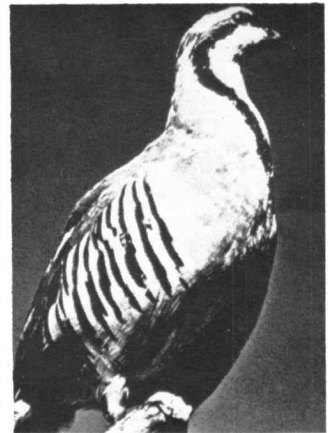
The future for upland gamebird hunting is much brighter than for big game hunting. Most gamebird species have high annual reproduction rates, require small areas, and respond rapidly to habitat improvement. This is particularly true for birds such as the chukar partridge, gray partridge, various species of quails, ruffed grouse, ringneck pheasant, and mourning doves. Several practices are available to enhance upland gamebird populations on rangelands that are compatible with other range uses. These practices include controlled grazing, water development, burning, brush control,

food and cover plantings, exclosures, grazing systems, and release of gamebirds into unoccupied areas. I will discuss how these various practices affect upland gamebird enhancement.

A subject of much controversy is the impact of livestock grazing on gamebirds and other wildlife. Overgrazing and the subsequent changes in vegetation have been very detrimental to gamebird species such as sage grouse, sharptailed grouse, prairie chickens, and harlequin quail, which are associated with rangeland in good condition. The chukar partridge, scaled quail, Gambel's quail, valley quail, and mourning dove benefit from early vegetation successional stages. Most of the various upland gamebird species respond favorably to light or moderate grazing because it promotes habitat diversity yet still leaves adequate cover for concealment from predators. The turkeys, pheasants, grouse, and similar species depend heavily on shrubs, forbs, annual grasses, and insects for food and perennial grasses for cover. Properly grazed ranges provide this mix of requirements better than those left ungrazed or heavily grazed for long periods of time. Light to moderate cattle grazing is more beneficial to upland gamebirds than sheep grazing because sheep have a strong preference for forbs.



Lesser Prairie Chicken



Chukar Partridge

Livestock water developments have been quite beneficial to upland gamebirds in the Western United States. Guzzlers—water traps—used in California, Arizona, Oregon, Utah, Idaho and Washington—have benefited quail and other gamebirds. Water developments are effective when distances between water points are greater than 2 miles.

Prescribed burning can be used to benefit upland gamebirds in two ways. These include change of vegetation composition and reduction in excessive vegetation accumulations. The first use of fire as a management tool was conducted in the southeastern United States by Herbert Stoddard in the 1920's for bobwhite quail habitat improvement. The purpose was to reduce brush and retard plant succession so a grassy understory would be maintained in the southern pine forests. Fire has since been used effectively as a tool to improve habitat for prairie chickens, blue grouse, sharptailed grouse, ruffed grouse, and sage grouse. Rotational burning of sagebrush rangelands over a 20-year period was recommended by D.A. Klebenow in 1972 as a sage grouse management tool that would restore deteriorated ranges and result in a variety of successional stages that are needed by these birds. Sage grouse winter range should not be subjected to fire because big sagebrush provides grouse with critical winter food and cover. Fire has

shown potential to enhance prairie chicken habitat by prevention of excessive vegetation accumulations which restrict movement. Both controlled and natural fires have been effective in improving ruffed and blue grouse habitat in coniferous forest areas throughout the West. Controlled burns favor the various species of berry plants and create variety in habitat. The chaparral and pinyon-juniper areas of the Southwest can be burned to improve habitat for wild turkeys if cover strips are left. For maximum value for upland gamebirds and other wildlife, burns should be conducted so patches or strips of unburned vegetation remain scattered through the burn.



Blue grouse are birds associated with coniferous forested areas in the northwestern United States. Burned areas provide edge effect and food for this species.

Brush control has been a subject of considerable controversy, particularly when wildlife are considered. Sage grouse have probably been more affected by brush control than any other gamebird in North America. They require a habitat with big sagebrush throughout the year. This plant provides sage grouse with food and cover. Research shows that sage grouse decline when big sagebrush is eradicated in large blocks of several hundred acres. Overgrazed areas with heavy stands of sagebrush and little understory are of low value to sage grouse. Sagebrush control with 2, 4-D applied over small blocks of 300 acres or less in these areas improves the understory, which benefits sage grouse. Strip spraying also improves habitat. A report by C.E. Braun, T. Britt, and R.O. Wallestad in 1977 provides guidelines for sagebrush control in sage grouse habitat. They recommend that sagebrush should not be controlled where sagebrush cover is less than 20 percent, slope is greater than 20 percent, within a 2-mile radius of booming grounds, on known wintering and nesting areas, and within a 100 yards of streams and meadows.

The lesser prairie chicken, a gamebird of the Southern Great Plains, is found in eastern New Mexico, western Texas, Oklahoma, and Kansas. It is another gamebird that benefits from partial brush control. They depend on sand sagebrush and shinnery oak for both food and cover and require a good stand of tall grasses for nesting concealment. Overgrazed areas often have little herbaceous cover, support nearly a pure stand of brush, and have limited value to lesser prairie chickens or livestock. Partial control of these two shrubs

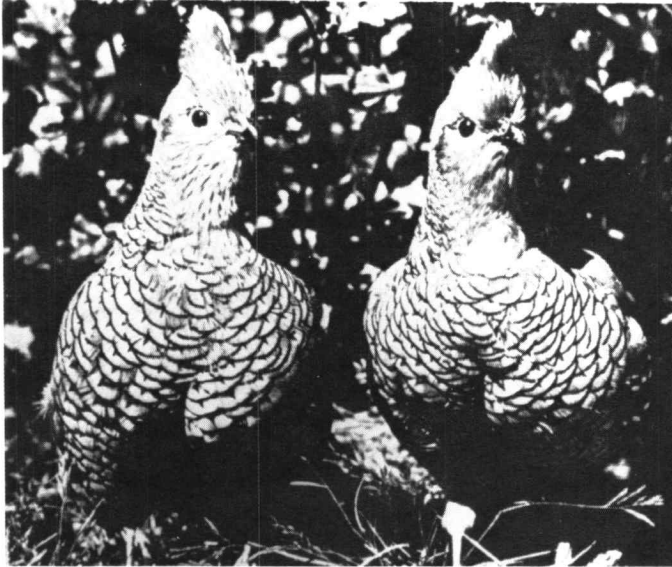
with properly applied picloram will greatly improve habitat for lesser prairie chickens and forage for livestock. Mountain quail, bobwhite quail, Gambel's quail, and wild turkeys are other upland gamebird species that can be enhanced by properly applied herbicides.

Food and cover plantings are more beneficial on clean tilled farmlands than rangelands. However, there are some exceptions. In the Northern and Central Great Plains, shrub plantings have provided valuable winter food and cover for sharptailed grouse, prairie chickens, gray partridges, pheasants, and bobwhite quail. Valley quail have been quite responsive to tree plantings for roost areas in Oregon and Washington. Shrub and tree plantings made on small fenced acreages near water where rangeland and farmland adjoin have substantially increased pheasant populations in many parts of the Northwest. Conifers should be included in cover plantings in northern areas because they maintain their leaves all year and provide better cover during periods of snow. Deciduous tree and shrub species that produce fruits should be planted to complement the conifers. Crested, intermediate, and tall wheatgrass make excellent understory for these plantings. They grow tall enough to provide good cover, furnish some food, and have little tendency to lodge in the winter.

Exclosures can be a valuable upland gamebird management tool. They are most effective where cover is the primary limiting factor. In Oregon, temporary fencing of sections along streams has enhanced habitat for valley quail, pheasants, ruffed grouse, sage grouse, and several other wildlife species. After a period of 4 or 5 years, the fence is moved to another location. This practice has allowed shrub and understory species establishment which is needed to stabilize stream banks. This also enhances desirable fish populations. Exclosures of 40 to 80 acres at selected locations may be quite beneficial to prairie chickens and sharptailed grouse since they must have a cover of tall grasses for protection from predation throughout the year. The harlequin quail lives in chaparral areas of the Southwest and requires a good protective cover throughout the year. They have low mobility and are quite sensitive to livestock grazing. Exclosures of 5 to 10 acres in key areas are very effective in maintaining or increasing harlequin quail. Bobwhite quail, gray partridges, and ringneck pheasants are other upland gamebirds that benefit from exclosures. When exclosures are used, provision should be made for periodic grazing to prevent excessive vegetation accumulations, which retard gamebird movement and cause stagnation of plant productivity. David E. Brown in 1978 pointed out these min-refuges would probably benefit many other wildlife species.

Highly mobile gamebirds that live in rough country such as chukar partridge, mountain quail, Gambel's quail, scaled quail, blue grouse, and ptarmigan will benefit more from specialized grazing systems than exclosures. In the winter, these birds live in trees or find adequate cover in rough areas that receive little livestock use. However, during the spring and early summer, they require areas with a good vegetative cover for nesting and brood rearing. This can be provided with a grazing rotation system that allows part of the range to be deferred during this critical season. Rest rotation grazing may be detrimental to many upland gamebirds because in order to rest one pasture the grazing load must be increased in other pastures. Lack of cover and food in the grazed pastures may more than offset any advantage of having one pasture free from grazing throughout the year. This is partic-

ularly true for birds with low mobility such as harlequin, bobwhite, and valley quail. There is evidence that rest rotation grazing may negatively affect sharptailed grouse because they show high fidelity to the same areas for nesting year after year. Any sound grazing system for livestock and wildlife must insure that excessive grazing seldom occurs on any particular pasture.



Scaled quail, an important gamebird in the Southwest, are benefited by moderate cattle grazing which results in higher forb availability. Forbs are highly preferred food items of scaled quail.

Release of gamebirds into previously unoccupied areas has been very effective in many parts of the West. Three exotics, the chukar partridge, the gray partridge, and the ringneck pheasant, have shown excellent adaptation to many parts of the West. The Asian chukar partridge was first brought to this country in the 1930's. Introductions of the chukar partridge have been most successful in the rugged rimrock hillsides of eastern Oregon and Washington and in much of Idaho and Nevada where few gamebirds previously occurred. Chukar populations now exist in all eleven of the western states and Hawaii. They are associated with early successional stages resulting from overgrazing by livestock. Their preferred food is cheatgrass. Chukar partridges have attained phenomenal numbers in certain localities and appear well adapted to the northern intermountain areas of the western United States. They are very popular with hunters wherever they have been established.

The gray or Hungarian partridge was introduced into the United States from Europe around 1900. They have been most successful in the Northern Great Plains and in the Palouse country of Oregon, Washington and Idaho. Gray partridges are associated with rangeland in good condition

and attain highest numbers where rangeland and farmland adjoin. They depend heavily on small grains, weed seeds, and green grass for food. The gray partridge is primarily a northern bird and has not been established in the Southwest. They are sporty and can withstand heavy hunting pressure. Proper grazing benefits this species.

The ringneck pheasant, the most popular upland gamebird, was introduced into the United States from China in 1888. They were first established in Oregon but now occur in all 11 western states. They occur only in small pockets in the Southwest. Pheasants reach highest numbers where grazingland and farmland adjoin although they do very well in areas where little grazingland exists.

Valley quail are a species native to southwestern Oregon and most of California. They are associated with rangeland areas in early successional stages. They rely quite heavily on annual grasses and forbs for food. Introductions of valley quail into eastern Oregon, Washington, Idaho, Nevada and Utah have been highly successful. Areas where this species has been introduced in most cases had few native gamebirds. Cattle grazing has made habitat for this species by changing vegetation to more annual grasses and forbs.

One of the big successes in the past 30 years has been the establishment of the wild turkey in areas where it was eliminated by hunting or did not formerly exist. This species is now found in all the western states although it did not originally occur in Oregon, Washington, Idaho, California, Utah, and Nevada. The preferred habitat of wild turkeys is pine-oak woodland with a good understory and running water.

Sharptailed grouse, sage grouse, and prairie chickens were quite abundant in many parts of the West until the early 1900's. Farming, overhunting and overgrazing caused a rapid decline of these three species between World War I and II. Populations of all these species have been improved by trapping and transplanting programs and better grazing management. The greater prairie chicken in particular has made a remarkable comeback in the Southern Great Plains because of these programs.

Other gamebirds which have been successfully introduced into parts of the West where they did not originally occur include bobwhite quail, scaled quail, Gambel's quail, blue grouse, and ruffed grouse. Many state game agencies in the West are experimenting with other exotic gamebirds in hopes of another success as with the chukar partridge.

In conclusion, several management practices are available that can be used to enhance upland gamebird populations on rangelands which are compatible with other range uses. The effectiveness of these practices varies with gamebird species and location. Good grazing management generally insures that upland gamebirds are maintained or enhanced. In many cases special measures can be taken that do not interfere greatly with livestock grazing but are highly beneficial to gamebirds and other wildlife. ●