



Woodland Fish and Wildlife

July 1996

Quail

On Small Woodlands

Three species of wild quail may be found in the Northwest, but one of them is rare. The mountain quail is a native to both Washington and Oregon and the valley or California quail is native to southern Oregon. In the early part of the century, the bobwhite quail was introduced rather randomly into various areas of the two states and for a while there were minor populations of them. The bobwhite are the quail of the eastern United States and they did not do well in this area. There are a few left in some areas west of the Cascades and in very limited areas east of the mountains, but hearing their "bobwhite" call or seeing one in the wild is unlikely.

Both native quail have been spread widely throughout the two states by natural migration and by human transplanting of the birds. Generally, their range is

shrinking because of human-caused changes in habitat needed by the birds. Programs by state and federal agencies have addressed some of the habitat problems and have resulted in new populations in limited areas, but overall populations seem to be on the decline.

As with most birds, quail populations are largely an annual natural product, hence the need for proper habitat. Studies have shown that as

many as 60 to 90 percent of the quail population will turn over each year because of natural causes. In our area the "pinch" or mortality period is normally during the winter months when birds succumb to the rigors of the weather. However, in certain areas, this pinch may come in the summer when water supplies become critical. When habitat is good, quail normally respond by having large broods fully utilizing what habitat is available to them.

Hunting seasons in the autumn are designed to allow hunters to harvest a portion of the birds that normally would meet their death during the winter months. Controlled hunting of these species, if proper habitat is available, normally does not impact the population numbers. Habitat in the form of necessary food, water and cover is the key to quail survival.



Valley Quail

California or Valley Quail (*Callipepla californica*)

Originally found from southern Oregon south to Baja California, Mexico, the valley quail has been widely transplanted and is now found as far north as southern British Columbia and in many areas both west and east of the Cascades in Oregon and Washington.

West of the Cascades the valley quail inhabits a wide variety of habitats except the heavily timbered ones. These quail will live along the edges of the timber in more open habitat and adapt well to human populations, often being seen in the suburbs of cities. East of the Cascades the distribution is largely controlled by the availability of water and suitable winter habitat. Riparian areas adjacent to grasslands and semi-desert locations are very important.

Description

This little bird is probably one of the most familiar of the game birds. About 10 inches long, both sexes have the forward curving "topknot" of feathers on top of their head. The topknot is black in both sexes, but that of the male is more prominent than the adornment of the female. The male has a blue-gray breast with dark cheek patches bounded by white bars. Flanks of the male are brownish with spots of cream. The female is generally a brownish color overall with golden color on the cheeks.

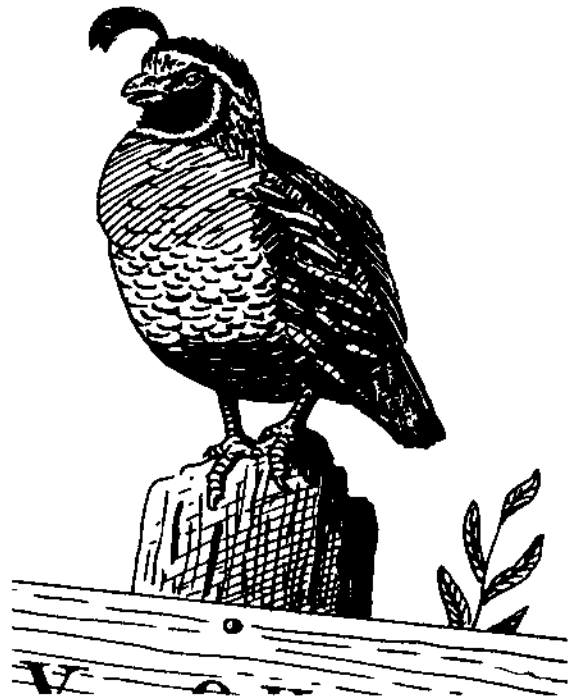
The call of the valley quail is

probably familiar to anyone who has lived near them. During the spring or when a pair is separated and locating each other the cry of "chi-ca-go" is repeated often.

Food and Cover

A wide variety of seeds and fruits from wild plants provides food for the valley quail. Wild grass seeds as well as various planted grains are important when available. Other popular foods according to a study by John Crawford of Oregon State University are blackberry and vetch. Legumes such as clover and lupine appear to be very desirable to the birds. Seeds of other plants such as wild carrot, teasel and Scotch broom also provide food. During the winter in areas where snow covers lower plants, taller shrubs with persistent fruits such as wild rose, huckleberry and snowberry are very important for survival. These birds do not fly long distances, spending most of their time on the ground. Their home range may cover less than a quarter of a mile.

Several kinds of cover are necessary for the birds to prosper. Obviously nesting cover is of prime importance. Moderately high grass or weeds in brushy or rocky areas within a quarter mile of water are preferred for nesting.



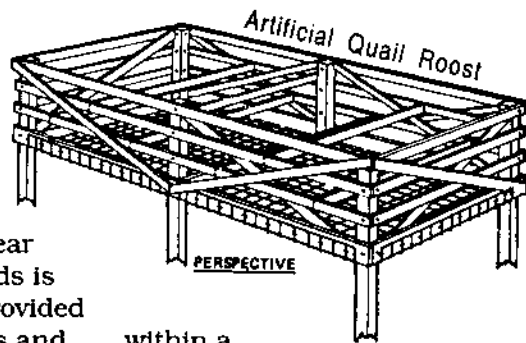
Roosting cover is also an important factor in valley quail distribution. The birds need dense, rather compact foliage to protect them from the weather and to escape from avian predators. This needs to be 6 to 10 feet in height so it can also be used as a place for "lookouts". Nearby should be heavy brush cover for escape and additional protection. To be most productive such clumps should be at least ten yards across.

Management

A number of activities can improve living conditions for the valley quail. Several of the publications listed in the reference section go into considerable detail concerning improvement of quail habitat and are worthwhile reading for anyone wishing to attract and increase these colorful birds.

Water

Though it may seem that water might be the last thing



limiting populations west of the Cascades, such is not the case. A year around supply for the birds is essential. This may be provided by fencing natural springs and creating small pools. A good water supply may be assured by protecting riparian areas so the birds have good cover near a constant streamflow. On the east side of the Cascades, protecting the riparian areas may allow cover to grow again along small streams and in some cases may create flowing water where it was not available before the streambank protection.

A device called a "gallina-ceous guzzler" was developed to provide water for all kinds of game birds in arid areas. In one version a hole is dug in the ground and lined so it will hold water. A small ramp leading from the surface down into the hole is added. A cover, usually corrugated steel is then placed over the top. This is sloped to catch any rain and drain it into the reservoir. In some cases pumps are installed to put water into the guzzler, but if properly constructed, these reservoirs will store rainfall for long periods of time. The ramp allows birds, and other small wildlife, to reach the water supply as it drops.

In summary, year around water is essential for valley quail and most other birds. To be of maximum value it must be

within a quarter of a mile of their nesting and hiding cover with travel lanes between. These birds, though they will disperse are not long range travellers.

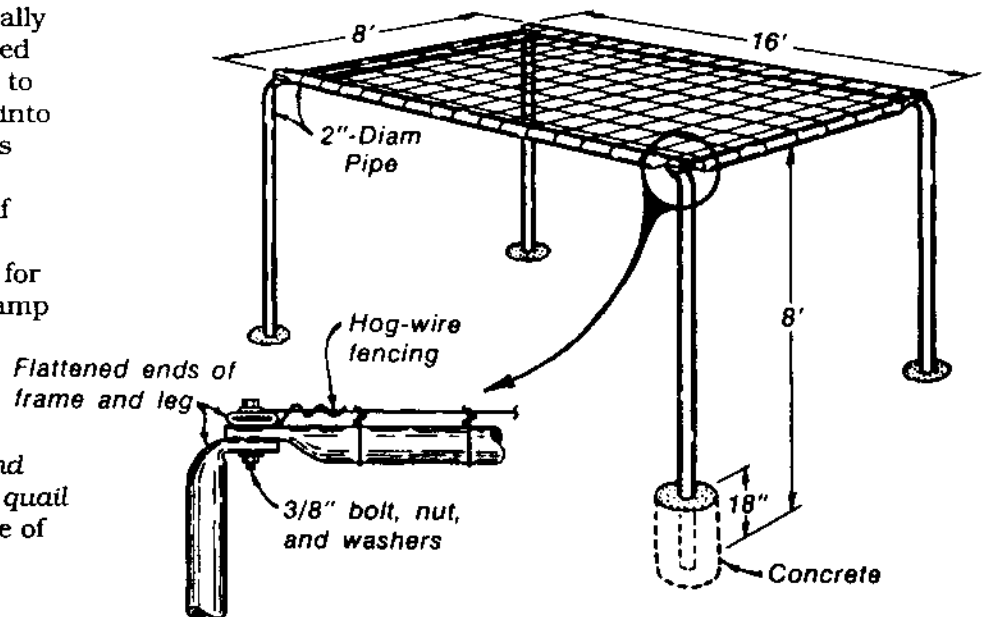
Roosts and Cover

Another management tool used successfully by various agencies is the artificial quail roost. If dense roosting cover is not available it may be provided in a couple of ways. Making large brush piles that are six to ten feet high is one way. However this can take a lot of brush and over a period of a few years the piles tend to collapse and do not provide the desired effect.

Artificial quail roosts have

been constructed in many areas. Essentially they are open frame structures elevated six feet above the ground and eight to sixteen feet on a side. Brush is piled on them to provide elevated night roosting and some protection from predators. Several types of these roosts are described in the US Army Corps of Engineers booklet listed in the reference section. If there are no evergreen trees around a simpler way to assist the quail is to assemble clumps of brush and pile them in the crotches of other trees.

Winter cover is extremely important because this is normally the period of highest mortality in the populations. Though disliked for other reasons, large evergreen blackberry clumps provide good shelter. Protection of habitat from heavy grazing, especially riparian



areas, can help the birds by allowing the native hardwood shrubs to grow. Extreme grazing not only destroys brush cover, but may also eliminate grasses that provide seeds for food.

Food

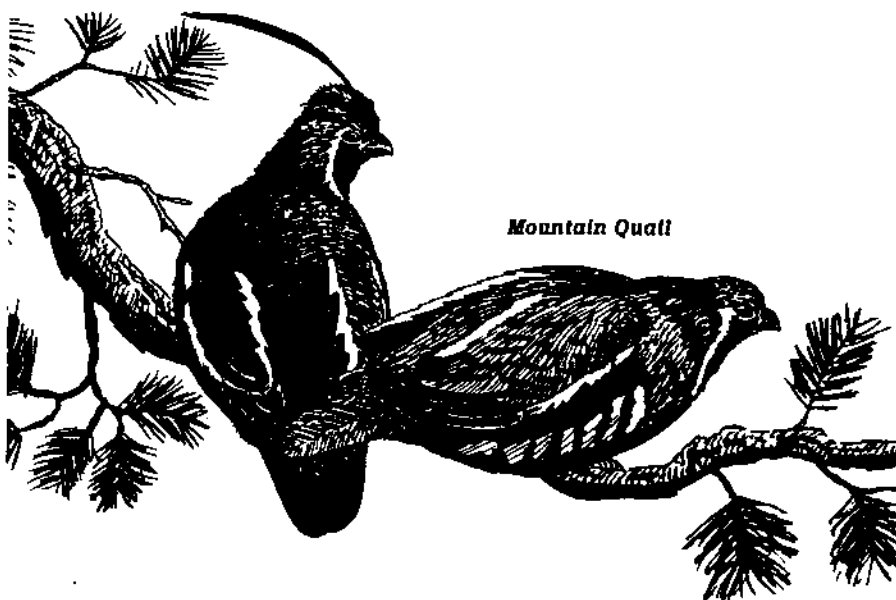
Native plants and perennial grasses are important sources of food for valley quail. Activities such as controlling grazing that protect these plants will benefit the birds. Legumes can be planted and let go to seed to provide one of the preferred kinds of food. Limited discing in areas that have grown over will allow native grasses and forbs to reestablish.

Because the birds use varied areas and especially edges with heavy cover nearby, openings in thick cover seeded with legumes or other food producing species will improve the habitat. Corn and wheat planted and then knocked over provide food. Food plantings should be within a quarter of a mile of escape and resting cover to be effective.

Heavy spraying of herbicides and insecticides is damaging to the quail. Young birds utilize considerable numbers of insects as food. Clearing out weedy plants and other undergrowth directly impacts needed living areas and seedy food supplies. However, some old fields may be so infested with noxious, non-native weeds that treatment with herbicides, site preparation and planting of appropriate seeds may be necessary.

Predators

Control of natural predators has been found to be of little



Mountain Quail

value if quail have the proper amount of cover. Proper habitat is the key to quail populations. However, in built-up areas, free roving and feral house cats may impact local populations of the birds. On occasion ground squirrels and other ground predators may limit nesting success, but here again if good nesting conditions are present predators are probably not going to have a major impact on the overall populations.

Mountain Quail (*Oreortyx pictus*)

Distribution

The mountain quail was originally found in the western United States from southern Washington south to Baja California, Mexico and east into some areas of Nevada. It has been introduced into additional areas of western Washington and into riparian areas of eastern Washington and central and northeastern Oregon.

Description

This is the largest of the native American quail. It aver-

ages about an inch longer than the valley quail, but its appearance makes it seem quite a bit larger. The overall appearance of the mountain quail is similar to that of the valley quail with a blue gray breast, brownish back and chestnut flanks. However one very distinct feature separates the two. While the valley quail has a forward turning topknot, the mountain quail has two dark, long feathers turning back from the top of its head. Often these two slim feathers cling together and appear as one long plume going back. Both sexes have the plume, but it is much more prominent on the male.

An additional feature separating the mountain quail is the presence of prominent cream colored stripes on its flanks running toward its belly. Appearance of the males and females is quite similar. Both have a dark throat patch similar to that of the valley quail.

Food and Cover

Like valley quail, the mountain quail eats a wide variety of plant materials. Except in newly

hatched chicks who require large amounts of protein rich insects, only about 3 to 5 percent of the bird's diet is animal matter. Grains, seeds, tubers, leaves and flowers of various plants all are eaten. Legumes are important as are the seeds of native grasses. Because these quail live at higher elevations, plants that are tall enough to protrude above the snow in the winter and have a fruit that stays on are important. Such plants include such things as rose, salal, snowberry, and huckleberry. Also, the seeds of various evergreens provide food, and acorns are used when available.

These birds are not very specialized in their needs, but do need some dense, shrubby areas for shelter and a wide variety of plants for shelter and food. Mixed evergreen and deciduous forests containing a good deciduous understory and shrub layer, clearcuts in early and mid-successional stages, and forest and meadow edges all may provide a home for this species. The most popular areas are on steep slopes and not down adjacent to farmlands or pasture areas such as those used by the valley quail.

Some vertical migration occurs during the year with the birds moving higher up the foothills during the nesting and summer months. They may be found in most areas of the coastal mountains and up to the medium elevations of the Cascades. East of the mountains their habitat is mainly in riparian areas.

Water is a serious limiting factor and if a year around

supply is not available, seemingly good cover may not be used. Populations increase and decrease in response to prevailing land uses. These quail do best in early successional habitats. Logging or fire may produce good habitat after a few years which deteriorates as the forest grows an overstory. It appears quail in southwestern Oregon may now be as abundant as they ever were. They are lower in numbers than they once were in other areas following the re-growth of logged old growth and burns.

Water

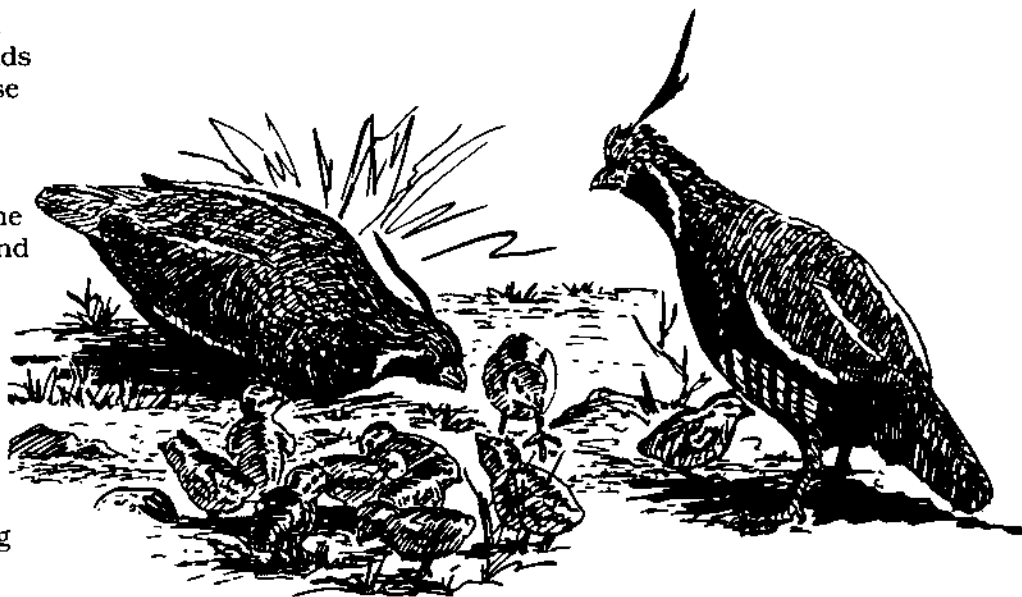
As with valley quail, drought and lack of year around water is an important factor limiting mountain quail populations. Development of springs by fencing and creating small reservoirs in areas of good quail cover can bring about increases in population numbers. Females may respond to good conditions by bringing off larger broods.

Again, riparian areas and brushy draws that have been protected from heavy grazing are important. These areas provide the birds with all of their needs if the nearby water is available year around. Though heaviest mortality may occur mainly in the winter, drought can also cause the death of the birds.

Cover

If mountain quail are in an area, protection of the existing shrubs and plants is probably the best management practice. Human caused changes in plant composition have impacted the mountain quail as much as anything. The native plants that the bird is adapted to are the best at providing necessary cover for all uses. In some cases habitat can be improved by making lanes no more than a quarter of a mile wide through large, heavy blocks of cover so the sun can reach the ground and promote the growth of grasses and forbs that provide food.

Isolation of individual popu-



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Bobwhite Quail

Our Purpose...

This leaflet was written by Ron Shay, project coordinator of the Woodland Fish and Wildlife Group. Technical review was provided by Jim Bottorff, Washington Department of Natural Resources, Ken Durbin, Oregon Department of Fish and Wildlife and Dr. John Crawford, Oregon State University.

The Woodland Fish and Wildlife Project is a cooperative effort among the World Forestry Center, Oregon State Department of Forestry, Washington State Department of Natural Resources, Oregon State University Extension Service, Washington State University Cooperative Extension, University of Washington Center of Streamside Studies, Oregon Association of Conservation Districts, Oregon

Small Woodlands Association, Washington Farm Forestry Association, Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, Oregon Soil Conservation Service, Washington Soil Conservation Service and the USDA Forest Service. The World Forestry Center serves as the coordinating organization for the project.

The Woodland Fish and Wildlife Project was initiated to provide information on fish and wildlife management to private woodland owners and managers. It is the intent of the organizations involved in this project to produce publications that will serve as practical guides to

woodland owners.

Each publication is intended to be complete in itself. Users may find it convenient to collect all publications in this series in a three ring binder to form a permanent reference file. Woodland Fish and Wildlife Project publications range from an overview of fish and wildlife opportunities on woodland properties to specific publications concerning techniques for managing individual species.

These publications can be obtained from any of the cooperating organizations or by contacting the World Forestry Center, 4033 SW Canyon Road, Portland, OR 97221, (503) 228-1367.

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