

Chukar Partridge

James A. Young

One of the most popular upland game birds in the western United States is the chukar partridge. Each year thousands of hunters take to sagebrush rangelands in pursuit of this bird. Its origin makes the chukar different from most other western game birds. Chukars are an exotic species introduced from Asia to western rangelands.

Origin and Taxonomy

The chukar is one of the red-legged partridges of the genus *Alectoris*. The red-legged partridges include the rock partridge of central and southwestern Asia and southeastern Europe, which embraces more than 20 subspecies; the French and Spanish redleg, which includes five subspecies; the Barbary partridge, which has two subspecies; and the monospecific Arabian red-legged partridge. Because the genus, *Alectoris*, has a widespread distribution embracing a variety of habitats, often in remote parts of the world, there have been numerous opinions as to the differentiation of the various species and subspecies.

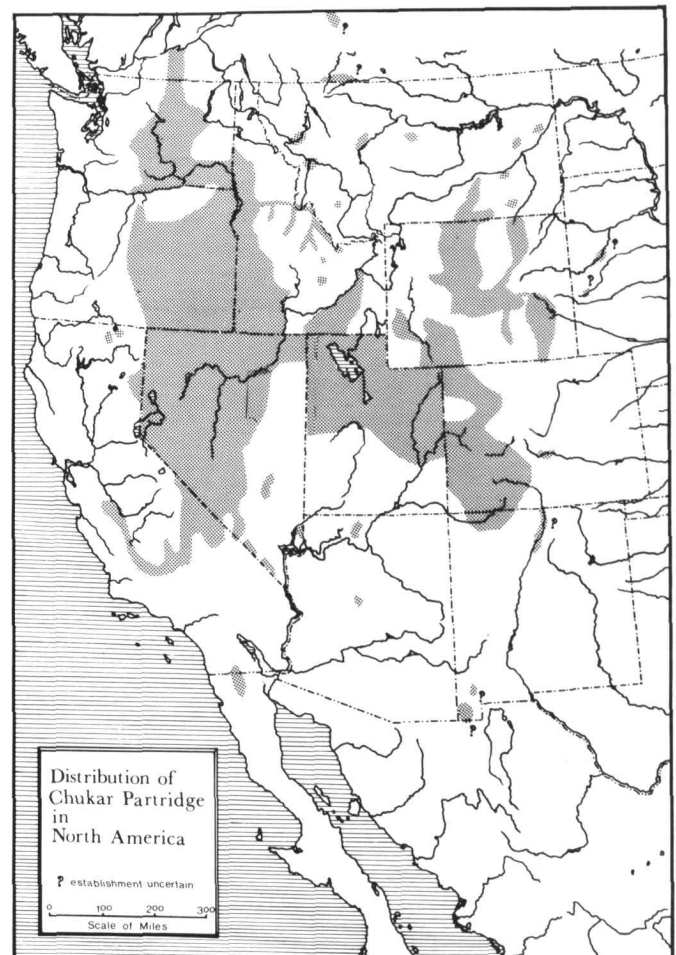
The widely recognized North American authority on chukars is Glen C. Christensen, recently retired from the Nevada Department of Fish and Game. In his opinion the predominant chukar introduced to western American rangelands is the Asiatic species properly called *Alectoris chukar*.

Present Distribution

In North America, chukar partridges have been released by game departments, sportsman's clubs, or interested individuals in at least 40 states and six Canadian provinces. The first introduction probably was in 1893 when birds were imported from India to Illinois. Most of the huntable populations of chukars on western rangelands are the result of introductions made during the 1930's. According to Christensen, huntable populations of chukars have become established in 10 states (Arizona, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming) and in British Columbia. There is a small area inhabited by chukars, as a result of nearby California releases in Baja California, Mexico. In 1954 only California, Idaho, Nevada, and Washington considered the chukar successfully established. By 1968, the other six states had huntable populations, illustrating the rate of spread of the new bird.

Habitat

The chukar is native to northern India, Pakistan, and Afghanistan, where topography is characterized by a series of massive mountain chains such as the Himalayas, the Hindu Kush, and the Karakorums, which contain some of the most rugged landscapes in the world. The climate is arid to semi-arid and the vegetation is primarily a grass-forb understory with short brush and, in some instances, a scattered overstory of small conifers. The chukar partridge commonly



Distribution of chukar partridges in western North America according to G.L. Christensen: *The Chukar Partridge Biol. Bull. 4. Nevada Dept. of Fish and Game.*

The author is range scientist, USDA/SEA-AR, Reno, Nevada. The material in this article is largely based on the lifetime studies of Glen C. Christensen which are summarized in: *The Chukar Partridge Biol. Bulletin 4. Nevada Dept. of Fish and Game, Reno, NV.* For a complete list of references used in preparing this article write USDA/SEA-AR, 920 Valley Road, Reno, NV 89512.

inhabits areas from the valley floors, at usually 4,000 to 6,000 feet, to mountain slopes and peaks as high as 16,000 feet.

In North America, the areas where chukars have been successfully established essentially duplicate the gross topography and vegetation features of their native habitat. Chukars are apparently best adapted in areas of the Great Basin between latitudes 37° and 42°. The chukar has found its home in the rugged Great Basin terrain with steep canyons, talus slopes, rocky outcroppings and small widely scattered springs.

Vegetation

In North America, sagebrush/grass vegetation is dominant over most of the chukar habitat. However, the bird does not appear to be particularly adapted to pristine sagebrush/grasslands. The chukar has adapted to degraded sagebrush ranges where the alien species cheatgrass (*Bromus tectorum*) and red-stem filaree (*Erodium cicutarium*) have become established. In the arid valleys of the Great Basin and southern California the chukars extend their range down from the sagebrush ranges into shadscale (*Atriplex confertifolia*) plant communities.

The vegetation types where chukars have been successfully established in North America are similar to the environments from which they originated in central Asia. The plant communities share dominant shrubs from the same genera and the alien weeds that have invaded North American sagebrush ranges originated in the overgrazed ranges of central Asia.



Chukar partridges in typical habitat. Photograph from G.L. Christensen: *The Chukar Partridge*. Biol. Bull. 4. Nevada Dept. of Fish and Game.

Description

The sexes in chukars are alike in appearance. The birds vary considerably in size, but adults generally weigh about 20 oz. The coloration of the bird is very striking. The upper plumage is generally a light brownish-gray. There is a prominent, rather wide black line that extends from the forehead through the eyes, down the sides of the neck, across the upper breast like a bib. The throat is white, the belly and flanks are gray, and the sides are crossed with a series of vertical black and brown bars. The bill, feet, and legs are red. In total, the chukar is a striking bird with a coloration well

suited for a silver-gray sagebrush environment.

Dusting

Dusting plays an important part in the daily life of the chukar. Dusting bowls where the birds scratch in fine soils are frequently seen along side trails in the shelter of shrubs or near the base of rock outcrops and particularly around watering sites.

Calls

A person's first experience with chukars in the wild is likely to be in the fall as a covey flushes wildly a few yards in front. The birds separate in long, curving downhill flights. As they burst from the ground the birds give a loud piercing squeal, followed by a series of *whitoo whitoo* calls gradually subsiding as the birds disappear.

The most common call of chukars is the one from which the species derives its name. At low intensities the call is *chuck, chuck, chuck* given slowly with definite breaks between each call. As the intensity of the call rises, its change to *per chuck, per chuck* with the accent on the second syllable. This in turn gives way to *chukar-chukar, chukar* with accent on the first syllable. Chukars seem to prefer to use this call from the vantage point of a rock where they have a good view of the surroundings. The throaty *chuck* is very resonant and will carry for great distances.

Food

Through analysis of crops collected from birds and feeding trials, the food requirements of chukars are known. The birds forage on a surprising variety of forbs, grasses, leafage, insects, and seeds, depending on the season. One thing that is constant to most diet studies of chukars is the importance of cheatgrass seeds especially during the late summer, fall, and winter, although chukars use cheatgrass leaves or seeds every month of the year. Feeding trials have shown that cheatgrass seeds alone do not constitute an adequate diet for chukars. These seeds must be supplemented with a source of quality protein. In nature this protein is probably furnished by insects during the summer and early fall. When frost reduces the insect populations, chukar populations are in trouble if fall rains do not induce germination of the seeds of alien weed species. Once the cheatgrass seeds germinate, the chukars utilize the tender grass shoots (coleoptiles) as a source of quality protein and carotene.

Chukar populations interact with the native seed-caching rodents. The rodents collect and cache cheatgrass seeds in topographic situations conducive to early germination. After the cluster of seeds germinates the chukars compete with rodents for the green grass shoots.

Reproduction

Chukars are monogamous birds that usually leave the covey and begin pairing in February to March, depending on the locations. Daylight (photoperiod), temperature, and food condition appear to play a part in determining when pairing occurs. When chukars do not pair, or do so only briefly, it is indicative of a poor nesting season. A great deal of dispersion accompanies pairing.

After hatching, the brood is cared for by one or both of the adults. The young are precocious and leave the nest immediately after drying. Brood integrity breaks down and 30 to 50 chicks may follow 1 to 3 adults.

Probably the most important factor controlling the reproduction is adequate fall germination of cheatgrass seeds. Abnormally heavy precipitation in May and June can cause heavy chick mortality.

Predation and Winter Kill

When chukars are in a healthy condition, predation is probably minimal. Chukars are very alert, and a sentinel bird usually sounds the alarm well ahead of the predator. Owls, hawks, eagles, coyotes, and bobcats are all potential predators. Winter kill is to be periodically expected throughout the northern range of chukars in North America. Although chukars are very tolerant of cold weather, long periods of deep snows on feeding slopes can result in starvation.

Hunting

The dedicated chukar hunter must have the legs and lungs of a Sherpa from Nepal. Hunting these birds often means lung bursting climbs up rugged and rocky ridges. Once fall germination of cheatgrass occurs and the weather cools, the birds scatter to inaccessible terrain. The chukar has the reputation of being an exceedingly hard bird to hunt. The advent of 4-wheel drive vehicles has opened much chukar territory to easier hunting.

A typical hunt usually consists of suddenly flushing a covey on some high ridge. After flushing, the covey will break up into small groups or singles when landing. The hunter will proceed arduously to the spot where he marked the birds only to find they have dispersed by running. A good dog is an invaluable aid to the hunter at this stage.

Relation to Other Birds and the Environment

The relation of chukars to the native sage grouse (*Centrocercus urophasianus*) tells much about the exotic's relation to the sagebrush environment. The sage grouse is the symbol of the pristine sagebrush/grassland environment. As

the grass portion of these rangelands has become degraded after a century of grazing and brush increased, the populations of sage grouse have become greatly reduced. The chukar evolved in the degraded environments of central Asia where the grazing of flocks of domestic animals probably originated. Once the sagebrush grasslands of North America were substantially degraded, the chukar was successfully introduced to a synonymous environment. Just as farmland areas have provided a niche for the exotic ring-necked pheasant, the degraded sagebrush grasslands have provided a niche for the chukar.

In an attempt to enhance the depleted sage grouse population, severe and often arbitrary restrictions have been placed on range improvement practices. These restrictions may have helped sage grouse populations, but they also have insured that degraded sagebrush stands will persist, to eventually burn in wildfires creating future degradation to cheatgrass stands, and providing habitat for chukars. This synopsis has ugly connotations, for the next step down in environmental degradation may not support chukars. Feeding trials have shown that chukars cannot readily digest seeds of medusahead (*Taeniatherum asperum*), an alien annual grass that has spread on selected sagebrush rangelands at the expense of cheatgrass.

The chukar is well established in North America and is a valuable game species on sagebrush rangelands. A careful in-depth review of how and why the chukar was successfully transplanted provides valuable insight into the nature of the sagebrush ecosystem and its response to grazing of domestic animals. ●

Fire Fear Diminishing

Ranchers who once feared any fire on their rangelands have changed their attitudes when it comes to prescribed burning.

Increased public awareness and the economics of prescribed burning for rangeland brush control have influenced this change in attitude, according to Dr. Henry A. Wright, world renowned expert in the field of prescribed burning.

Wright, Horn Professor of range and wildlife management at Texas Tech University, reported a significant change in public willingness to accept prescribed burning since he began his brush control experiments 13 years ago.

"When we first started our work with fire for brush control, there was quite a lot of animosity against working with fire for anything. People thought that fire destroyed the soil and caused erosion," Wright said.

Even after Wright and his research assistants had been working with prescribed fires for several years, people still avoided this means of brush control because chemicals were cheaper, he added.

"But starting three or four years ago, when energy costs rose, ranchers felt they needed something cheaper than chaining or dozing. Suddenly, they couldn't afford spray, either," Wright said.

Fire can be used as a follow-up treatment after an initial combination treatment of rangeland with chemical and mechanical methods to remove undesirable brush, Wright said.

Wright also noted that conservationists, who object to other brush control methods, including mechanical and chemical means, find fire use acceptable.

Ranges need to be in good condition for fire to be used in brush control. Wright recommends 1,000 pounds of grass per acre as a minimum amount of fuel for a good burn.

Training and experience is another important factor in burning, Wright said.

"Our job is training, but we need more people teaching prescribed burning. Practitioners require two to three years' experience for effective prescribed burning," he said. "We like to see our students exposed to a range of weather conditions."

When temperatures are above 80 degrees, the humidity is 20 percent or less, or winds are gusting above 20 miles per hour, burning should not take place, Wright said.

A range fire can be put out with a pumper or with a dozed fire line in which the soil is plowed away from the burn, Wright said.

Burning will increase forage production for two to three years, Wright said. It does this by raising soil temperatures 10 to 15 degrees, which causes bacteria populations to increase tenfold. The bacteria break down organic matter to produce nitrogen, and thus better, faster-growing grass.

Cattle will only eat about 10 percent of coarse tobosa grass before burning, he said. After burning, they will consume between 60 and 70 percent. The non-desirable litter is removed by the fire and the new tobosa grass is more succulent.

"When we burn in cedar country, we remove dead piles of cedar and kill young cedars, which take up 25 percent of the land area," Wright said. "By removing the young cedars and shrubs, which compete with grass, we increase forage production."—*Texas Tech News*