

## A REVIEW OF THE DISTRIBUTION OF GALLINACEOUS GAME BIRDS IN NEVADA

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The recent publication concerning the distribution of American gallinaceous birds by Aldrich and Duvall (1955) shows a number of striking discrepancies between the present known distribution of gallinaceous game birds in Nevada and the distributions reported by Linsdale in his most recent Nevada bird list (1951). This paper is presented in order to pinpoint the distribution reflected by Aldrich and Duvall and to supplement the information published by Linsdale.

### DISTRIBUTIONAL RECORDS

As may be expected, many attempts have been made to introduce various game birds into nearly every type of habitat in Nevada. These attempted introductions have resulted in the widespread establishment of three exotic species as well as a wider distribution for one or two native species.

*Dendragapus obscurus*. Blue Grouse. This species is generally closely associated with stands of firs or multi-needle pines (subalpine and white fir, *Abies lasiocarpa* and *A. concolor*; bristlecone and limber pine, *Pinus aristata* and *P. flexilis*) on the higher mountain ranges across the state. However, in some areas this grouse occurs in places devoid of these conifers, in which event it occurs in aspen (*Populus tremuloides*), chokecherry (*Prunus virginiana*), serviceberry (*Amelanchier* sp.), or other similar shrub types.

The present known distribution of the species is essentially the same as that given by Linsdale (1936:47; 1951:232) who lists records from the "Sierra Nevada on the western border of the state," the White Mountains in Esmeralda and Mineral counties, the Toyabe, Toquima and Monitor ranges in Nye County, the Snake and Schell Creek ranges in White Pine County, the East Humboldt Range (Clover Mountains, Linsdale, 1936:47), Ruby and Jarbidge mountains, and Ruby Valley, Elko County, and Wilson Peak (Mount Wilson) and Patterson Mountain, Lincoln County.

Additional records have been obtained in the following areas: Elko County—Pinyon Range, Spruce Mountain, Pequop Mountains, Pilot Peak, Independence Mountains, and Elk Mountain; Eureka County—Diamond Mountains and Fish Creek Range; Nye County—Shoshone Mountains; and White Pine County—Egan, Cherry Creek and White Pine ranges (fig. 1).

*Bonasa umbellus*. Ruffed Grouse. Linsdale (1951) fails to mention the records for this species given by Rasmussen (*in* Bump, Darrow, Edminster, and Crissey, 1947:52) for the "scattered occurrence of the species in the White Pine Mountains, the Ruby Mountains and another small area in the northern part of the state."

It is our belief that these records should be regarded as hypothetical. Although there is fairly extensive habitat in northeastern Nevada which resembles good Ruffed Grouse habitat in the adjacent states to the north and east, at least seven years of game surveys by ourselves and other field personnel of the Nevada Fish and Game Commission have failed to turn up a single definite record of this species' occurrence in Nevada. Rasmussen in a verbal communication stated that he believed these records, taken from Forest Service files, represented instances of mistaken identity.

*Pedioecetes phasianellus*. Sharp-tailed Grouse. The records cited by Linsdale (1936:48; 1951:232-233) for the Bull Run Mountains, "Upper Humboldt Valley," and the East Humboldt Range (Clover Mountains) in Elko County, and the recent report by Wick (1955) from the Capitol Range, Humboldt County, constitute the only definite

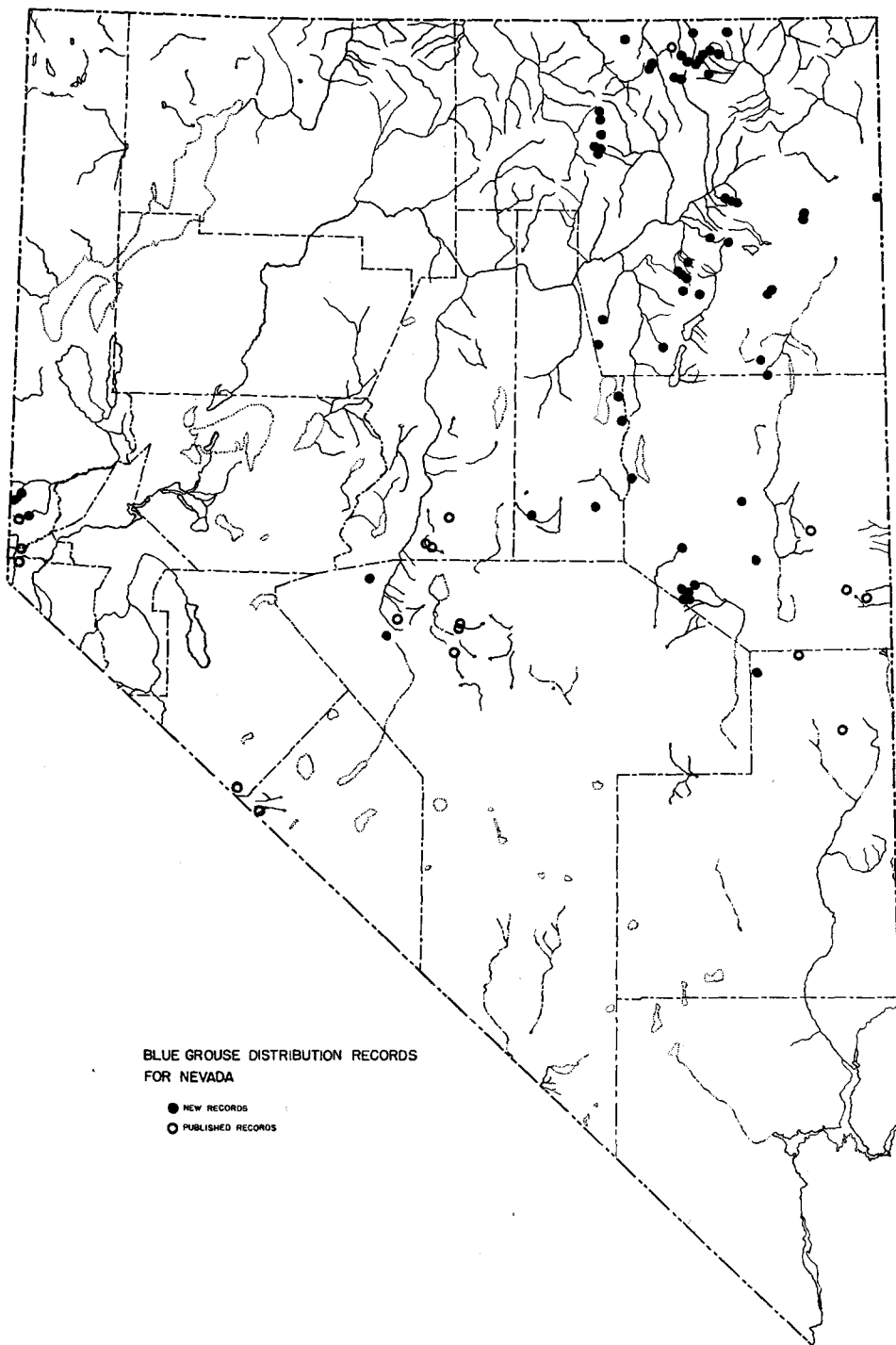


Fig. 1. Occurrence of Blue Grouse in Nevada.

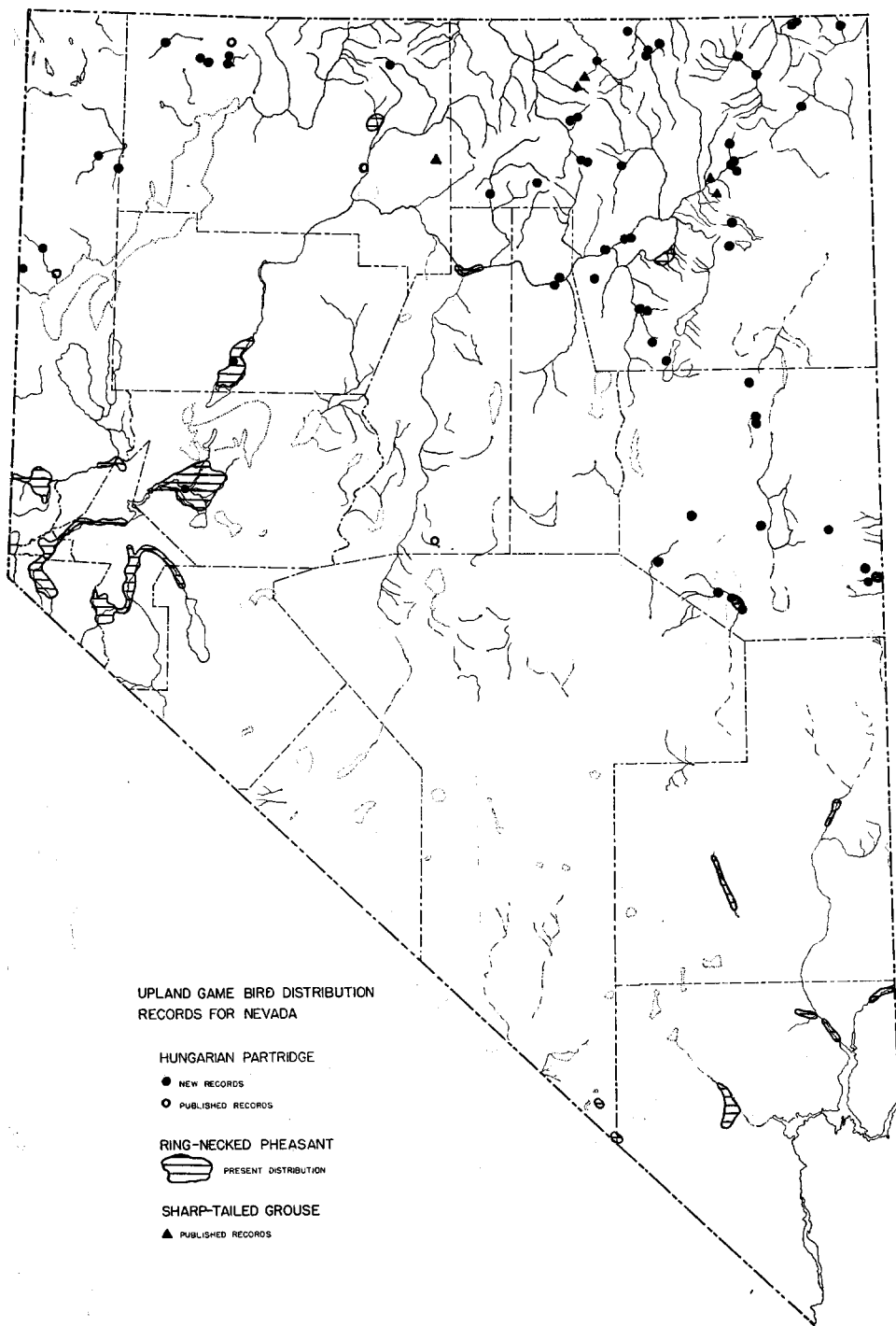


Fig. 2. Occurrence of Hungarian Partridge, Ring-necked Pheasant and Sharp-tailed Grouse in Nevada.

records for Sharp-tails in Nevada (fig. 2). However, repeated reports of light-brown "willow grouse," particularly from the Independence and Ruby valleys in Elko County, suggest possible remnant populations in those areas.

*Centrocercus urophasianus*. Sage Grouse. The range of this bird, North America's largest grouse, is generally restricted to areas of extensive short and tall sagebrush (*Artemisia nova*, *A. tridentata*, and others). The species normally is absent from extensive areas of the shadscale zone (*Atriplex confertifolia*; Billings, 1951:108-110) and the piñon-juniper (*Pinus monophylla* and *Juniperus osteosperma*) and higher coniferous areas.

Although presently in a marked depression in eastern Nevada, these grouse remain widely distributed in northern Nevada (fig. 3), but not as widely as suggested by Linsdale (1951) or as shown by Patterson (1952:13). In western Nevada the largest area of more or less continuous distribution extends from the Oregon state line bordering northern Washoe County and the Kings River of northwestern Humboldt County south and west to the Truckee River, Washoe County. Other isolated populations are scattered through Storey County and in the Pine Nut Mountains of Douglas and Lyon counties, the Pine Grove Hills, Lyon County, and the Wassuk Range, Mineral County. Sage Grouse also occur in the Trinity and Seven Troughs ranges and Eugene Mountains of Pershing County.

Farther east, Sage Grouse have been recorded in recent years in most areas east of the Kings River and the Santa Rosa and Sonoma ranges, Humboldt County, and the Edwards Creek Valley, Churchill County. Southerly limits of general distribution are Eastgate, Churchill County, the south ends of the Shoshone, Toyabe, Monitor and Hot Creek ranges, Nye County, the White Pine Range, White Pine County, and Cave Valley, Grassy Water Mountain, Patterson Wash, and Camp Valley, Lincoln County. All of Lander, Eureka, White Pine and Elko counties lie within the general range of this species, but populations are restricted to areas of favorable habitat within these counties and occupy somewhat less than one-half of the area of these four counties.

*Perdix perdix*. Hungarian Partridge. Although this species was introduced into Nye County, Nevada, at least as early as 1923, Marshall and Alcorn (1952) were the first to report it from the state. This species apparently reached its peak of abundance prior to the severe winter of 1948-49. In Elko County, at least, these birds are reported to have been much more common prior to that winter of deep snow than they are at the present time. Where they occur, Hungarian Partridges are found in a riparian environment, along stream bottoms and near pastures and hay-fields where willows, various berry bushes and grasses are abundant.

Marshall and Alcorn (1952:321) recorded this partridge from "about 10 miles south-southeast of Denio" and "from 15 miles north of Winnemucca," both in Humboldt County, and "as far south as the southwest side of the Smoke Creek Desert in Washoe County and at Kingston Canyon on the east side of the Toyabe Range in Nye County." In addition to these records cited by Marshall and Alcorn, this species has been observed during the past several years in the following areas: Washoe County—Smoke Creek Ranch, Buffalo Meadows, and High Rock Creek; Churchill County—Fallon area; Pershing County—Lovelock Valley; Humboldt County—Alta, Granite, and Alder creeks in the Pine Forest Range, Virgin and Paradise valleys; Eureka County—Barth Canyon and Emigrant Pass Road near Palisades; Elko County—Elko, West Elko Hills, Squaw Creek, Taylor Canyon, Independence Valley, East Fork of the Owyhee River, Owyhee Indian Reservation (Duck Creek), North Fork of the Humboldt River, Bruneau River drainages between Charleston and Rowland, Metropolis area north of Wells, O'Neil Basin, Contact area, Shoshone Creek north of San Jacinto,

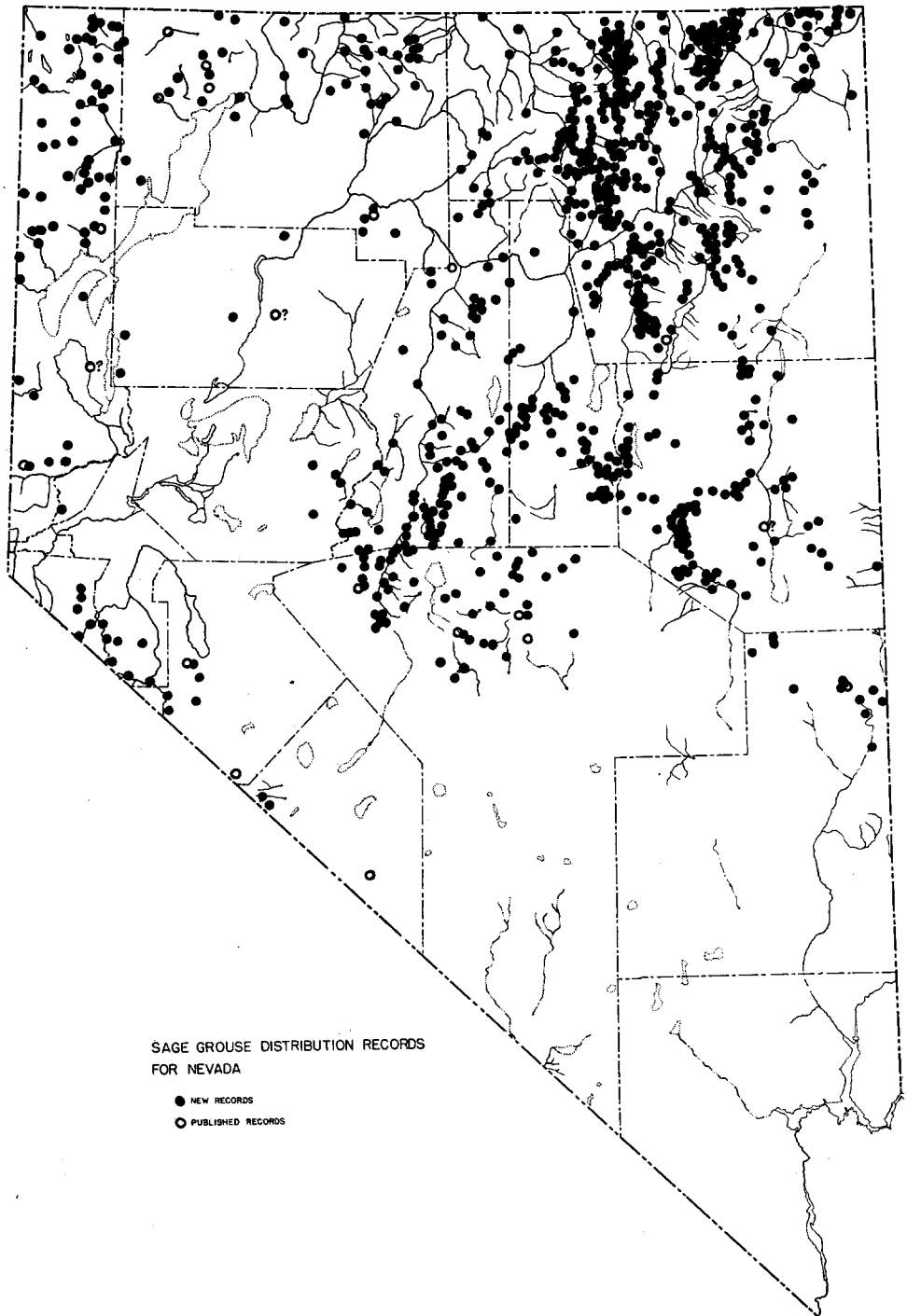


Fig. 3. Occurrence of Sage Grouse in Nevada.

Goose Creek, Thousand Springs Creek east of Wilkins, Clover Valley south of Wells, Ruby Lake National Wildlife Refuge, and in the Jiggs-Pearl Creek area on the west side of the Ruby Mountains south of Elko; White Pine County—Butte, Duckwater, Jake's and White River valleys, and the east and west sides of the Schell Creek and Snake ranges (fig. 2).

*Alectoris graeca*. Chukar Partridge. This exotic is widely established in Nevada. Chukars are at home in the most rugged and precipitous parts of the ranges they inhabit (Christensen, 1954). They occupy the more barren slopes and are especially partial to extensive burns grown up to cheatgrass (*Bromus tectorum*). They do range down into the valleys, particularly in fall and winter, but seldom extend up into the areas of heavier shrub cover or into piñon-juniper habitat.

This species suffered a marked depression as the result of the prolonged drought prior to 1955-56, but populations, though small, continued to be widespread (fig. 4). Major chukar populations are on the grass-covered ranges of western and central Nevada. They range north to Badger Mountain on the Sheldon Antelope Range in Washoe County and to the Pine Forest and Santa Rosa ranges in Humboldt County; they extend south to the Gold Mountain area of Esmeralda County and the Grapevine Mountains, and Cactus and Kawich ranges of Nye County. The eastern limits of general distribution are the Hot Creek Range, Nye County, the north end of the Toquima Range, Eureka County, the northern parts of Toyabe Range and the Shoshone and Sheep Creek mountains, Lander County, and the Snowstorm Mountains in Elko County.

This species has also become sparingly established in a number of eastern locations in Nevada, as follows: Clark County—Virgin Mountains; Lincoln County—Clover Mountains, Ursine area and south end of the Egan Range; White Pine County—White Pine Range; Nye County—Quinn Canyon, Grant and Horse ranges; Eureka County—Diamond Mountains, Alpha, Simpson Park Mountains, Palisades Canyon and Cortez Mountains; Elko County—the canyon of the South Fork of the Humboldt River, Carlin Canyon, Adobe Range, and the Metropolis area. One Chukar Partridge (an Idaho game-farm release) was taken near Jarbidge, Elko County, on October 18, 1953.

*Lophortyx californica*. California Quail. The activities of sportsmen's groups and county game management boards have resulted in widespread distribution of this species in Nevada. These quail are usually found in the rose-willow thickets along stream courses, where cover and water are readily available. Population sizes vary considerably from year to year, according to the vagaries of the local climate.

The California Quail is widely distributed in western Nevada (fig. 5), especially from the Reno-Fallon area south to Esmeralda County, for Greenley (MS) says, "California Quail are distributed throughout my district wherever there are springs. The heaviest concentrations are naturally in the agricultural areas. They extend south into Esmeralda County . . ." The counties included in Greenley's district are southern Washoe and Churchill, Douglas, Esmeralda, Lyon, Mineral, Orsmy, and Storey. Elsewhere in western Nevada the species is known from: Pershing County—Lovelock Valley and Humboldt Range; and Humboldt County—Jake's Creek, Paradise Valley, and the Pine Forest Range.

Linsdale (1951:233) fails to mention the occurrence of this quail in central and eastern Nevada. Recent records of occurrence in these areas are: Nye County—Millet, Twin Rivers, and Peavine Canyon in the Toyabe Range; Eureka County—Eureka and south end of the Diamond Mountains; Elko County—Evans Creek near Midas; White Pine County—Lund-Preston area (White River Valley), Silver Creek, Eldridge Canyon, Weaver Creek, Baker, Connor's Pass area, between Ely and Murray Summit, Gleason Creek, and Spring Valley.

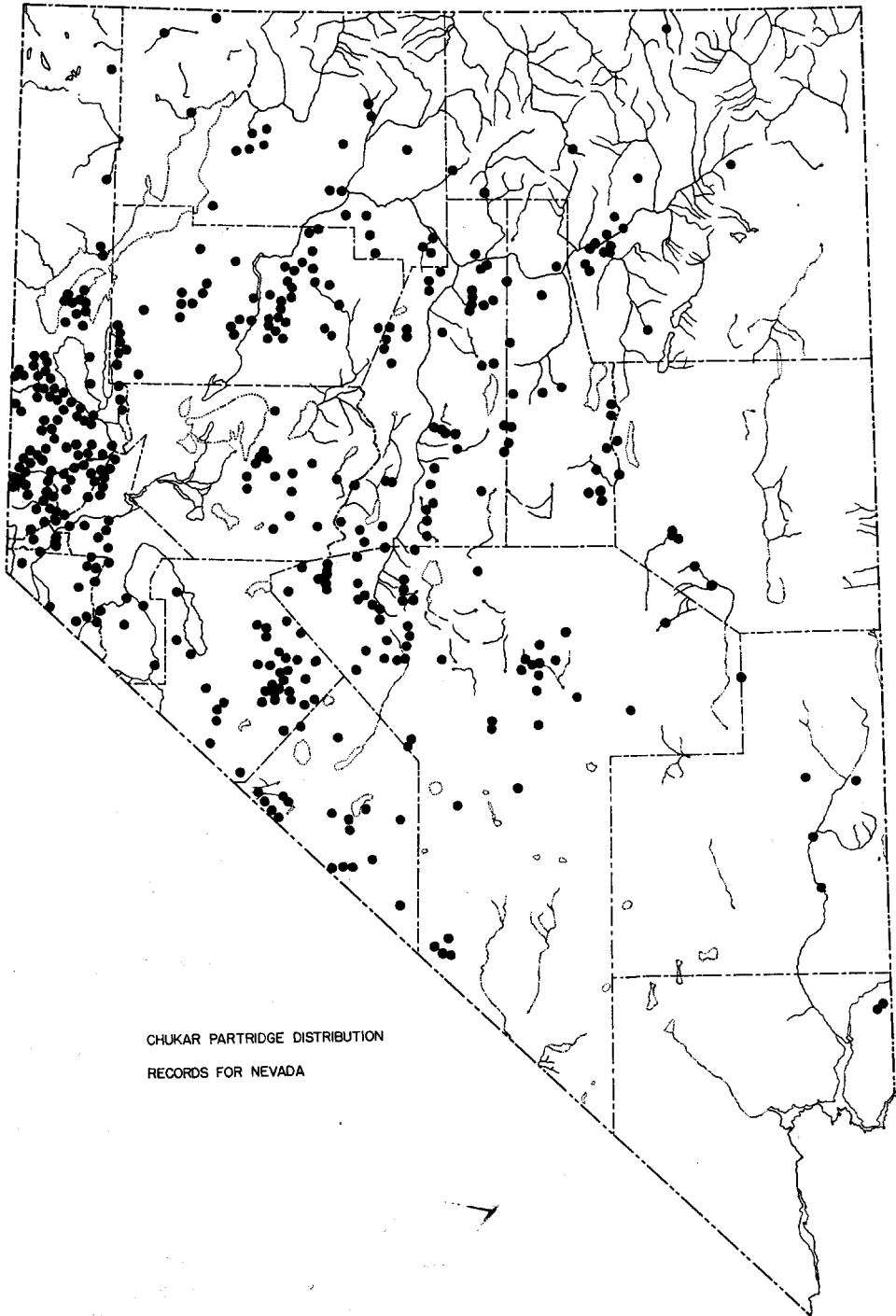


Fig. 4. Occurrence of Chukar Partridge in Nevada.

There is some question as to whether or not California Quail are native to any part of Nevada (Linsdale, 1936:48-49). However, there is little question that all populations in Nevada east of the Sierra Nevada drainages have resulted from introduced stock—mostly obtained from the Reno area. A recent (1955) introduction in the Battle Mountain area, Lander County, seems to be thriving, while the status of an introduction of 1954 near Caliente, Lincoln County, remains uncertain.

*Lophortyx gambelii*. Gambel Quail. This native desert quail is confined to brushy desert valley bottoms or to a mixed shrub type on the desert ranges; it normally is absent from the very extensive bur-sage—creosote-bush (*Franseria dumosa*—*Larrea tridentata*) type of desert vegetation, the desert grasslands, and the higher chaparral and piñon-juniper covered ranges.

This species is the most important resident game animal in southern Nevada and has much benefitted from water development programs designed to increase its numbers. Gambel Quail are subject to drastic periodic fluctuations in numbers, according to the quantity of fall and winter rainfall and the amount of food available from year to year in their preferred habitats (Gullion, 1956:62).

The distribution is discontinuous within the areas defined by Linsdale (1951:233). Major populations occur as follows: Nye County—Oasis Valley, Ash Meadows, and Pahrump Valley; Clark County—Mohave Valley, Dead Mountains, Searchlight area, Las Vegas Valley, Muddy and Moapa valleys, Virgin Valley, Virgin Mountains, and the Gold Butte-Bonelli Peak area; Lincoln County—Meadow Valley Wash near Rox, Carp, from Lieth to Caliente, Kane Springs Wash, Coyote Wells, Pahranaagat and Meadow valleys, and the Ursine area (fig. 5).

Populations north of the Pahranaagat and Meadow valley areas of Lincoln County (Quinn Canyon Range, Pioche, Ursine) are all believed to be introduced and subject to extermination during periods of heavy snows if not provided with artificial sources of food.

*Oreortyx picta*. Mountain Quail. In addition to the records cited by Linsdale (1936:49-50), and the more recent records for the Pine Forest, Virginia and Wassuk ranges, the Jackson, Pine Nut, Silver Peak and White mountains, and the Sierra Nevada of western Nevada, this species was recorded from Mount Moses in central Lander County on June 14, 1951, by Gullion and from the East Fork of the Jarbidge River at Murphy's Hot Springs, two miles north of the Idaho-Nevada state line, on November 20, 1953, by Hoskins (fig. 5).

*Phasianus colchicus*. Ring-necked Pheasant. This exotic is fairly abundant in several of the agricultural valleys of western Nevada, occurring in most areas where small grains and irrigated pastures are grown. It is an important game bird in those regions.

Localities of establishment in western Nevada include: Truckee Meadows, Washoe County; Carson River Valley in Douglas, Ormsby and Lyon counties; Smith and Mason valleys, Lyon County; the Fallon area, Churchill County; Lovelock Valley, Pershing County; and Paradise Valley, Humboldt County.

In addition to the distribution in western Nevada, pheasants are at least sparingly established in the following areas in southern and eastern Nevada: Nye County—Pahrump Valley; Clark County—Las Vegas, Muddy, Moapa, and Virgin valleys; Lincoln County—Pahranaagat and Meadow valleys; White Pine County—Lund-Preston area, and near Baker; Lander County—Battle Mountain area; and Elko County—Lamoille area (fig. 2).



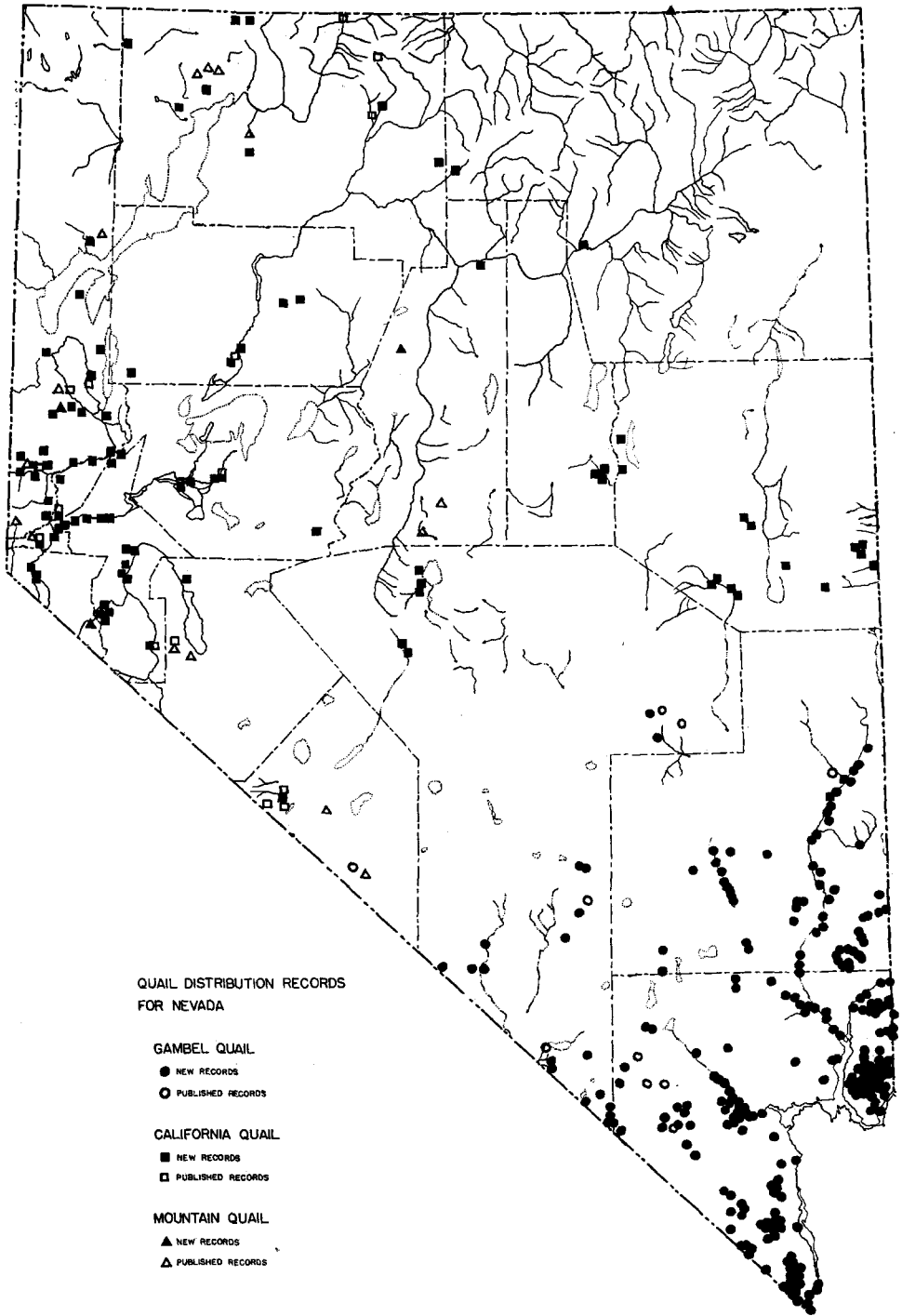


Fig. 5. Occurrence of Gambel, California, and Mountain quail in Nevada.

## DISCUSSION

The impression is widespread that the vast public domain unoccupied by human populations in Nevada is well endowed with upland game bird habitat. However, it should be pointed out that the same factors limiting the establishment of high-density human populations in these areas are also limiting factors for resident game birds and that approximately 68,000 square miles (62 per cent) of the 110,500 square miles in the state are not occupied by any upland game bird on a permanent-resident basis.

Of the occupied habitat, the sagebrush type is much the most extensive, and it provides food and cover for Sage Grouse over about 29,000 square miles of the northern and eastern parts of the state. This habitat type is occupied to a lesser extent in various areas by Blue Grouse and Chukar Partridge. Second in extent is suitable Chukar Partridge range. All the other gallinaceous species together occupy no more than about five per cent of the suitable upland game bird habitat in Nevada.

Some of the areas included as suitable habitat may be occupied regularly on a seasonal basis, as for example, the lower-elevation sagebrush areas which Sage Grouse enter for the winter but abandon during the summer drought. Also, according to the amount of fall and winter precipitation, and the resulting development (or lack of development) of essential annual food plants, the occupied ranges of Chukar Partridge and Gambel Quail, and perhaps one or two other species, may expand or contract to a considerable extent.

The normally unoccupied major habitats in Nevada consist of three definite vegetational zones. One is the shadscale or "cold" desert of western and central Nevada; the second is the piñon-juniper or pygmy coniferous forest, most extensively developed in central and eastern Nevada; the third is the bur-sage or "hot" desert below about 3000 feet elevation in southern Nevada.

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Innumerable sportsmen, county game board members and game commissioners have provided additional information, and certain other distributional records have been obtained from the operation of game checking stations and from Nevada's annual Game Kill Report, a questionnaire mailed to 10 per cent of the licensed hunters in the state.

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## LITERATURE CITED

- Aldrich, J. W., and Duvall, A. J.  
1955. Distribution of American gallinaceous game birds. U. S. Fish and Wildl. Serv. Circ., 34:1-23.
- Billings, W. D.  
1951. Vegetational zonation in the great basin of western North America. Les bases écologiques de la régénération de la végétation des zones arides. Union Internat. Sci. Biol., Paris, ser. B, No. 9:101-122.

Bump, G., Darrow, R. W., Edminster, F. C., and Crissey, W. F.

1947. The ruffed grouse (New York Conserv. Dept.).

Christensen, G. C.

1954. The chukar partridge in Nevada. Nev. Fish and Game Comm., Biol. Bull., 1:1-77.

Gullion, G. W.

1956. Let's go desert quail hunting. Nev. Fish and Game Comm., Biol. Bull., 2:1-76.

Linsdale, J. M.

1936. The birds of Nevada. Pac. Coast Avif. No. 23:1-145.

1951. A list of the birds of Nevada. Condor, 53:228-229.

Marshall, D. B., and Alcorn, J. R.

1952. Additional Nevada bird records. Condor, 54:320-321.

Patterson, R. L.

1952. The sage grouse in Wyoming (Sage Books Inc., Denver).

Wick, W. Q.

1955. A recent record of the sharp-tailed grouse in Nevada. Condor, 57:243.

*Nevada Fish and Game Commission, Austin and Reno, Nevada, February 24, 1956.*