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U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

LOS PADRES NATIONAL FOREST
MT. PINOS RANGER DISTRICT

BLUE GROUSE STUDY REPORT

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ABSTRACT

The Mt. Pinos blue grouse, Dendragapus obscurus howardii, has been declared a sensitive species by the U.S. Forest Service. It has been reported on Mt. Pinos, Frazier Mtn., Alamo Mtn., and San Emigdio Ridge. Other areas above 6,000 feet in elevation were considered potential habitat at the start of the study. These areas are Tecuya Ridge, Pine Mtn., and San Guillermo Mtn. All these areas were censused using a tape recording of a female pre-copulatory call. No grouse were heard or seen while running the transects, nor was any grouse sign found. Only one grouse was reported seen this year; on July 12 a Forest Service employee sighted a lone bird, probably male, on Alamo Mtn.

METHODS

Very little information existed on the population size or range of the Mt. Pinos blue grouse because of the limited number of reported sightings. It was determined that the most efficient way to locate grouse and consequently delineate their range was by walking transects while playing a tape recording of a female pre-copulatory call, or whinny. This whinny call is given by hens immediately before squatting and accepting a male.

Call transects were begun on April 19, 1979 and ended June 21, 1979. Twenty-six transects were run in 6 different areas. Only one transect was completed on San Guillermo Mtn. and one on San Emigdio Ridge because of the small amount of suitable habitat in each area. The Mt. Pinos - Mt. Abel area received the most attention because of the relatively large amount of recorded sightings and the extent of suitable habitat. The other areas, Frazier Mtn., Alamo Mtn., Tecuya Mtn., and Pine Mtn. each had several transects completed due to the greater likelihood of finding grouse.

Techniques for using the taped call are described by Stirling and Bendell (1966) from their study on Vancouver Island. They set up a grid over their study area using 11 calling stations approximately ½ mile apart. A census consisted of driving to each station, plotting the position of all hooting males heard in 5 minutes, then playing the recorded sequence of nine whinny calls twice with an interval of 2-3 minutes between each playing. These call censuses were made

during the early morning, midday, and evening. The whinny call was found to be equally effective throughout the day in eliciting a response from territorial males. Initially our methods were like Stirling and Bendell's, but had to be adjusted later. After using the ½ mile separation of stations for the first few transects, it was determined that a high incidence of strong winds prevented the sound of the call from traveling at least half way to the next station. Consequently the distance between stations was reduced to ¼ mile. (800m)

A grid covering the entire study area was impractical, because of the steepness of the terrain and the large number of stations required to census all areas above 6,000 feet. Locations were chosen for transects: (1) by the type of vegetation, i.e. Jeffrey pine (Pinus jeffreyi), white fir (Abies concolor), or bigcone Douglas-fir (Pseudotsuga macrocarpa), (2) previous recorded sightings in the vicinity and (3) safety in hiking the area. Most transects were run between 0900 - 1700 hours, however some on the Mt. Pinos/Mt. Abel ridge and on Frazier Mtn. were started at daybreak, about 0630 hours. Transects were rotated to different areas thoughout the study for a more even seasonal distribution of results. To aid in delineating grouse range, searches were made for grouse sign and droppings while running the transects.

Members of the Kern County Audubon Society, the California Department of Fish and Game, and local Forest Service employees were requested to report any sightings. Seven people, other than the author, worked on the study in varying degrees, Ben Harbour, Resource Officer for the Mt. Pinos District, offered suggestions during the study and reviewed the manuscript. Forest Service employees Dave Bucher and Gary Keasler, University of California at Davis-Bixby Work Learn volunteer Dave Sticha, and Kern Audubon Society volunteers Bill Goodloe and Cliff and Wendy Peterson each assisted in running transects. Approximately one hundred seventy man hours were spent in running transects and looking for grouse and grouse sign.

RESULTS AND DISCUSSION

No grouse were heard to respond to the taped call or were seen by the study workers. No grouse droppings or other positive signs were located. Only one grouse sighting was reported since the start of the study; on July 12, 1979, a Forest Service employee working on a back country recreation

patrol saw a grouse, probably male, on Alamo Mtn.

Because of the paucity of local sightings, information on preferred habitat must be determined from the available literature and extrapolated to our area. According to Martinka (1972), blue grouse male territories in Montana are typically thickets of coniferous trees where there is a large amount of edge effect with open areas. Open areas associated with the thickets usually have either no brush cover or brush that is high enough to allow ground visibility for the bird. Hooting and nesting are done in the same area.

Brood cover, according to Mussehl's (1963) study, is rich in herbaceous vegetation, including grasses, where insect life is abundant. Homogeneous stands of grass are lightly used. An interspersion of plant forms that provide concealment is preferred by grouse broods. Areas with large amounts of bare ground are avoided. Tree or brush cover within 50 yards of broods is also important. Bendell and Elliot, (1966) found breeding habitat to be open and dry, with shrubs and herbs interspersed with bare ground. They found that open water is probably not required by blue grouse chicks, but that the high amount of insect life associated with herbaceous cover is an important food source. The amount of bare ground at brood locations in both studies was under 28%. Herbaceous vegetation that provides both cover and insect food appears to be the most important requirement.

Wintering requirements for blue grouse are almost entirely white fir (Abies concolor) or Douglas-fir (Pseudotsuga menziesii)* (Hoffman 1961, Beer 1943, Martin et al 1951, Bent 1932).

1) Mt. Pinos/Mt. Abel area

Previous sightings, both from the literature and from reports submitted directly to the Chuchupate office, were mapped to study known range, and to estimate possible use of other areas.

The Mt. Pinos/Mt. Abel area had the largest amount of sightings, expecially near the top of Mt. Pinos. Mt. Pinos has

* In southern California, the bigcone Douglas-fir (Pseudotsuga marcroparpa) is probably used instead of P. menziesii.

also received the largest amount of study and of searches for the blue grouse. (Abbot 1965, Pemberton 1928) It presently receives more visitation than the other high mountain areas, primarily due to the condor observation site. Consequently, there exists a strong bias for finding grouse on the mountain. Mt. Abel has also received a large amount of recreation use and has also had several reported sightings. Most of the recent sightings, from 1960 to late, have been made in the late summer to fall (August to October). The sightings made by Hunter (personal communication) on Mt. Abel and the historic sightings by Abbot (1965), Van Rossem (Dickey and Van Rossem, 1923) and Howard and Pemberton (Pemberton, 1928) of hooting males, nests, young chicks, and un-sexed birds were made in May and June. All sightings from May and June were on the top or upper north slope of the Mt. Pinos/Mt. Abel ridge.

This indicates that the upper part of the Mt. Pinos was, and possibly still is, breeding range. The lack of recent spring sightings on Mt. Pinos roughly coincides with the increase in human use of the area. Recent increased recreation use of Mt. Pinos could have forced the grouse to either restrict their breeding range to further down the north or south slopes or to become secretive in spring.

Late summer and fall sightings indicate that the top of the ridge is used as winter range. No grouse sightings in winter are on record; this is most likely due to the inaccessability of most of the mountains in winter and the limited movements of blue grouse during the winter (Hoffman 1956, Stewart 1944). It is unlikely that the grouse migrate out of the Mt. Pinos District in winter. The only other nearby suitable winter range (white fir) is in the Tehachapi Mtns. in the Cummings Mtn. area. This area is approximately 40 air miles east of Mt. Pinos, over chapparal, pinyon-juniper, and annual grassland habitat and there have been no recent grouse sightings recorded from the Tehachapis (John Ortega, personal communication).

Winter range on the Mt. Pinos/Mt. Abel area is mainly on the upper north and northeast slopes above 6,000 feet elevation. Few fir trees are found below 6,000 feet or on south or west facing slopes. Most of the Mt. Pinos/Mt. Abel ridge appears to be potential breeding range, although the best breeding habitat is on the northeast side of Mt. Pinos between San Emigdio Saddle and the Condor observation site. There are frequent open areas with several water sources in this area. Associated with the water sources are small green herbaceous "wet meadows" which last at least until mid summer, providing a good food source for chicks. Although the south facing slopes are much drier than the north slopes and all historic reports of hooting

males are on the north side, south slopes do have potential breeding sites, especially by open areas close to herbaceous vegetation.

2) Frazier Mtn. has one definite recorded blue grouse sighting; a lone male was seen on June 2, 1978 (see appendix 1, #14). This spring sighting indicates that Frazier Mtn. is used as breeding range. Within ¼ mile of this sighting there is a spring in a rich herbaceous meadow and a large open stand of Jeffrey pine. Although this area appears to be prime nesting habitat, there seems to be a limited number of other areas on Frazier Mtn. that are suitable for nesting; these are mainly on the north side of the mountain. Many areas that are not in timber have fairly thick stands of brush (white thorn and snowberry) that are typically avoided by broods (Martinka 1972). There are few streams or springs and little herbaceous vegetation other than on the north side. Frazier Mtn. has approximately 2 square miles of white fir - Jeffrey pine habitat on the north slope that can provide suitable winter habitat for grouse. Despite a possible shortage of nesting habitat, I believe that there probably exists a small population of grouse that lives on Frazier Mtn. year round. As relatively few people visit upper Frazier Mtn. (compared to Mt. Pinos), especially the northern area, a small, wary population, as described by Dickey and Van Rossem (1923), could easily escape detection for a long time. Although most grouse activity probably centers to the north side of Frazier Mtn., all areas above 6,000 feet elevation that have herbaceous cover and little brush can be considered breeding range.

3) Alamo Mtn.

Alamo Mtn. has had two reported grouse sightings in recent years, one in June of 1977, the other on July 12, 1979. Since both sightings were during or near the end of breeding season, there is a strong possibility that Alamo is used as nesting range. There are frequent springs with "wet meadow" habitat and also open areas that appear to be good nesting habitat. There are few white fir or bigcone Douglas-fir on Alamo; these are mainly at the upper end of Snowy Creek on the north facing slope of the drainage. There are no large, dense stands of white fir or of bigcone Douglas-fir that are traditionally use as winter range by blue grouse. I do not think that Alamo Mtn. can support a year round population of grouse, however, as grouse have been seen during the breeding season there and as the habitat appears to be suitable for breeding, it probably is used as breeding habitat possibly by a Frazier Mtn. population. Alamo Mtn. is separated from the stands of white fir on Frazier Mtn. by five miles. Within this five miles are stands

of Jeffrey pine, pinyon pine, and scrub brush. Grouse have been known to travel up to 31 miles in a banding study by Zwickel, et al. (1968). Fifty percent of their recovered banded birds moved over five miles and 30 percent moved over 10 miles from the banding site. Hoffman (1956), however, reported no migration to breeding range in his Northern California study. The tendency to migrate probably depends on the size of the local grouse population and available habitat. More information is needed on our grouse population to accurately determine migration and the use of Frazier and Alamo Mtn.

4) Tecuya Ridge

The Antimony - Tecuya Mtn. area has some suitable blue grouse habitat on the north slope. The drainages to the north have herbaceous vegetation near springs and in stream beds and moderate stands of white fir and Jeffrey pine. No grouse have been reported on Tecuya Ridge. However, because of the proximity to both Mt. Pinos and Frazier Mtn. (within 2 miles), Tecuya Ridge is probably used at least occasionally by grouse and the potential exists for a year round population there. The suitable habitat extends from the top of the ridge north to about 6,000 feet elevation and from Tecuya Mtn. west to Anitmony Peak, approximately 6 square miles.

5) San Guillermo Mtn.

San Guillermo Mtn. is probably not used by grouse. The surrounding area does support Jeffrey pine and limited wet meadow habitat around Pine Springs. However, no white fir is in the area. It is possible that the Pine Springs area could be used for nesting or brooding, but, considering the small amount of herbaceous vegetation, this is unlikely. More study is needed, however, before this area can definitely be excluded from blue grouse range.

6) Pine Mtn. Ridge.

Pine Mtn. ridge has some white fir - bigcone Douglas-fir-Jeffrey pine stands and a small amount of wet meadow habitat on the north slope. A possible sighting of hooting grouse on the ridge has been recorded (see appendix 1, sighting #17). However, because of the lack of positive sightings, isolation from areas with definite grouse population (15 miles), and the lack of knowledge concerning minimum habitat requirements, I can not suggest the probability of grouse use, nor rule out the possibility of use. Pine Mountain should be included in future studies.

7) San Emigdio Mtn. - Blue Ridge

The San Emigdio Mtn. area does not support a year round population of grouse. There are few white fir trees, limited herbaceous vegetation, and much brush. The one vague sighting from the area, if accurate, was probably a grouse migrating from either the nearby Tecuya or Mt. Pinos areas. Due to the lack of data, however, the sighting is virtually worthless.

POPULATION SIZE

An estimate of the size of the Mt. Pinos blue grouse population can only be derived indirectly and, therefore, with a high potential for error.

Bendell and Elliot (1966) found that a sparse population of blue grouse was 7.7 acres per territorial male. Mussehl and Schadweiler (1969) found population as low as 24 acres per territorial male. Assuming a minumum of 6 square miles of preferred grouse habitat in the Mt. Pinos/Mt. Abel area, and using the estimate of one territorial male per 24 acres, a figure of 160 breeding males is arrived at. A ratio of 2:1 adults to yearlings (Zwickel and Bendell, 1967) and a 1:1 sex ratio results in a population estimate of 480 birds. Pemberton (1928) estimated the number on Mt. Pinos to be less than 100, without specifying whether the Mt. Abel area was included in his figure. I think that the population on the Mt. Pinos/Mt. Abel is somewhere between these estimates.

Using the same figures for the Frazier Mtn. area, except for subsituting 1.5 square miles of preferred habitat, results in an estimate of 120 birds. The reliability of this number is questionable, due to the lack of supporting data, and is included only for comparision.

CONCLUSIONS

The Mt. Pinos/Mt. Abel ridge is the only area that can be positively indentified as having a year-round population of blue grouse. Frazier Mtn. and Tecuya Ridge also probably support a small population of grouse year round. Alamo Mtn. is most likely used only for breeding, probably by Frazier Mtn. birds. San Emigdio Ridge and San Guillermo Mtn. are probably not used by blue grouse. Pine Mtn. possibly sup-

ports a small year round population, but there is too little data to verify this.

The lower limit of grouse activity in those areas of suitable habitat is roughly 6,000 feet elevation, and is mainly on the north slopes. It should be stressed, however, that an avian species can usually be found outside of its expected range, especially in habitat that changes abruptly.

A blue grouse management plan will be prepared for the Mt. Pinos District in FY 80.

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Appendix 1. See figure 1 for sighting locations.

BLUE GROUSE SIGHTINGS

Mt. Pinos - Mt. Abel Ridge

Map Number	Sightings*
1	October 8, 1974, one mile west of Sawmill Mountain on Ventura County-Kern County boundary; T8N, R22W, Sec. 2; T9N, R22W, Sec. 36; 8500 feet; 1M, 1?, 1030 hours. A. Woodcock, T. Mosko.
2	August, 1973. Meadow between Sawmill Mtn. and Mt. Pinos; T8N, R21W, Sec. 1, 8400 feet. 2F. D. Kessler.
3	October, 1960 or 1961. Vicinity of Mt. Abel. 6?, Elmer Barbere.
4	September 23, 1976. North slope of Mt. Abel, SW¼, Sec. 23, T9N, R22W, 7000 feet, 1?, 1320 hours. J. Hamber, D. Smith, M. Hasey.
5	August 16, 1978. Off the Mt. Pinos road. SW¼, Sec. 35, T9N, R21W (estimated), 3?, Bill Goodloe.
6	Spring, 1953 - 1978. Mt. Abel area. Jim Hunter, USFS Engineering Tech. has seen grouse on Mt. Abel from above Camp Condor to peak, from 1953 - 1978, usually in spring and most often on top. Last observation was in spring of 1978, SE¼, Sec. 27, T9N, R22W, 8000 feet, 3?
7	September, 1978. Top of Mt. Pinos, near Condor site. SW¼, Sec. 32, T9N, R21W, 8700 feet, 1? Barbara Garros.
8	May 24 - 29. NW slope of Mt. Pinos, SW¼, Sec. 32, T9N, R21W (estimated), 8700 feet. 2M. W. Abbot (1964) (Mr. Abbot, according to his report in Condor, searched 30 years for blue grouse on Mt. Pinos, Mt. Abel, and Frazier Mtn. before making this observation).

* "?" indicates that sex was undetermined.

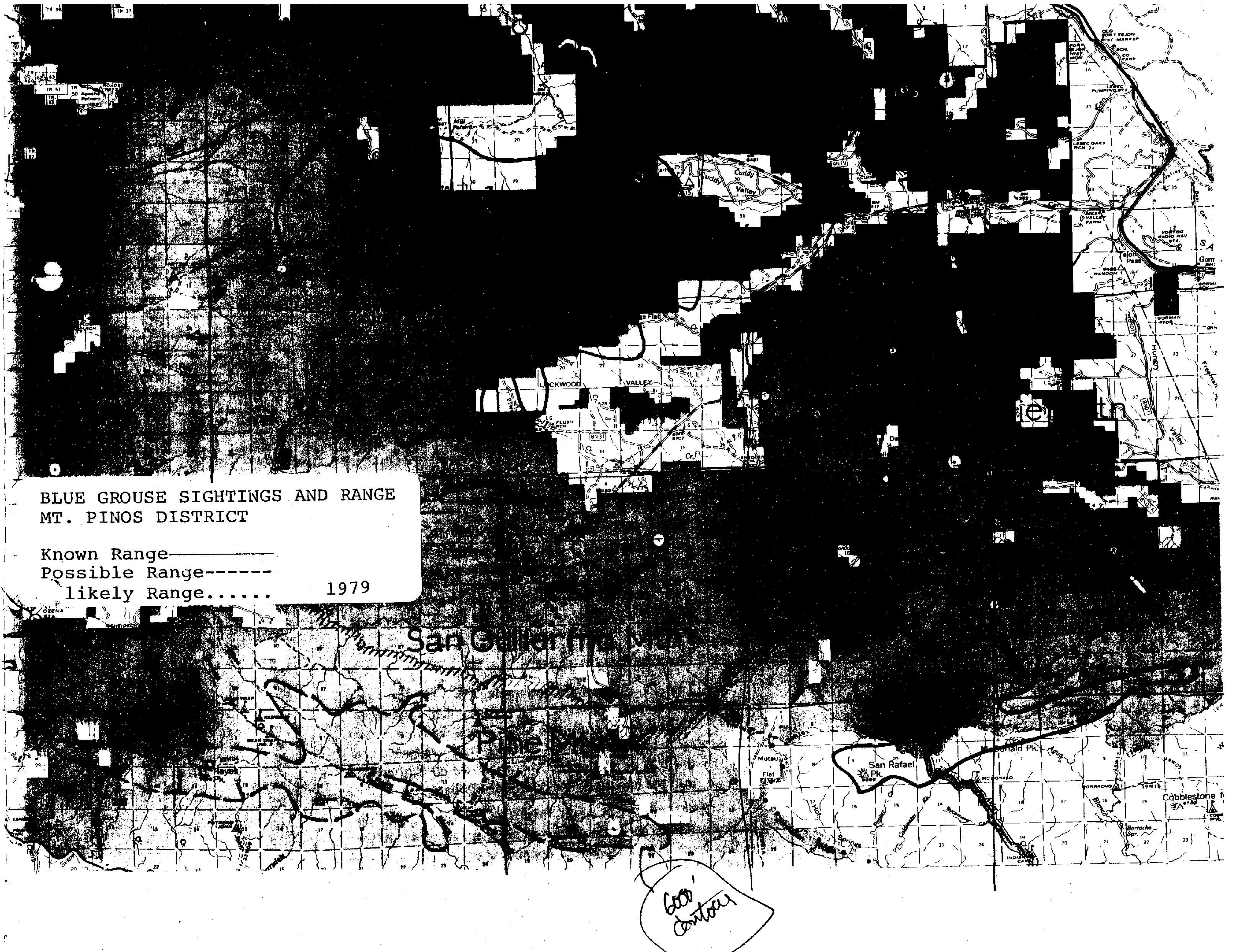
Map Number	Sightings
9	May 28, 1922. Mt. Pinos, 7500 feet. 1M, A.J. Rossem (Dickey and Van Rossem 1923).
10	June 6, 1927. Flat area on top of Mt. Pinos, 8400 feet. 1 chick, a few days old. O.W. Howard (Pemberton 1928).
11	May 21, 1928. 200 feet below rim of north slope of Mt. Pinos, 8200 feet. 1F and nest, 5 eggs. "Many hooters heard well down north slope." J.R. Pemberton, (1928).

Other Areas

12	June 1977, Junction of Snowy Trail (F.S. Trail 19W04) and Alamo Mtn. Road, SW¼, Sec. 31, T7N, R19W, 6500 feet 1?, M. Lopez.
13	July 12, 1978. ½ mile east of Snowy Trail (F.S. Trail 19W0) and Alamo Mtn. Road. SE¼, Sec. 31, T7N, R19W, 6500 feet. 1, probably male.
14	June 2, 1978. ¼ mile south of East Frazier Rd. on short-cut road from Frazier Lookout, SE¼, Sec. 14, T8N, R20W, 7500 feet. 1M. B. Harbour M. Lefevre.
15	December 10, 1974. Vicinity of Jewel Mine, S.W. of Frazier Mtn. SE¼, Sec. 17, T8N, R20W. "What he thought might have been 8 - 12 mature birds." Jim Smalley. (I am very suspect of this sighting, due to location (Pinyon and brush), season and large size of flock. Probably mountain quail).
16	? . Cloudburst Canyon, near San Emigio Mtn. SE¼, Sec. 7, T9N, R21W. Unknown number or observer. (Due to the lack of data, this sighting is virtually worthless).
17	? . Vicinity of Reyes Peak and Pine Mtn. In a conversation between Monty Montagne and Dave Connel, Mr. Connel "provided information of grouse hooting in the vicinity of Reyes Peak, Pine Mtn., and the north slope of Big Pine Mtn." (This report is at least second hand. Mr. Connel did not say that he had heard the hooting. A band tail pigeon cooing in the area could have been mistaken for a grouse hooting by an untrained observer. An unreliable sighting.)

Additional Sightings

18 September 30, 1979. By the meadow between Sawmill Mtn. and Mt. Pinos; T8N, R21W, Sec. 1, 8400 feet. (This is the same location as sighting number 2). 5 or 6 birds. M. Hinz


BLUE GROUSE SIGHTINGS AND RANGE
MT. PINOS DISTRICT
Known Range———
Possible Range------
likely Range......
1979
San Guillermo Mtn
Pine Mtn
LOCKWOOD
VALLEY
Cuddy Valley
San Rafael Pk.
McDonald Pk.
Cobblestone
Borracho Spr.
Tejon Pass
Hungry Valley
Freeman
6000' contour