

THE SCALED QUAIL (*CALLIPEPLA SQUAMATA*) OF THE SOUTHWEST: SYSTEMATIC AND HISTORICAL CONSIDERATION

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Several years ago my friend Lyndon L. Hargrave pointed out to me certain variations in a relict population of Scaled Quail (*Callipepla squamata*) (Vigors), now confined to the mesa country north of the Gila River on the San Carlos Apache Reservation, Graham County, Arizona. He kindly placed these specimens (LLH; see Appendix 1 for abbreviations used in citing source of the specimens examined) and a series of topotypes of *C. s. pallida* Brewster at my disposal for taxonomic consideration. When a series of over one hundred seasonally comparable specimens was assembled from the Southwest (Arizona, New Mexico, western Texas, Colorado, México, and Oklahoma), it became clear that the trans-Gila population in question was not consistently separable from true *pallida* of southeastern Arizona. However, a dull, extremely pale population was readily discernible within the series. This may be known as:

Callipepla squamata hargravei, new subspecies

Syntypes. Collection of George M. Sutton orig. nos. 15699, 15700, 15701, im. ♀, ad. ♂, and im. ♀, respectively; collected by Troy L. Best, 25 November 1970, Pepper Ranch, 7 miles N, 32 miles E of Folsom, Union County, New Mexico; prepared by George M. Sutton (without chemical preservatives). Their weights are, respectively, 206.5, 209.4, and 182.8 g. Type no. 15699 (AMR no. 3581) is presently in the Rea Collection at Prescott College, Arizona; the remaining two are in the type collection at the University of Oklahoma, Norman, Oklahoma.

Range. Western Oklahoma, southwestern Kansas, southeastern Colorado, northern New Mexico, northwestern Texas. Localities of specimens examined are shown in figure 1.

Description. The palest race of the species, most similar to *pallida* but much paler, the nape, sides of neck, and chest a pale gray, contrasting markedly with the darker, brownish drab scapulars, back, and rump; dark terminal bars of anterior parts narrow and

brownish or grayish, especially dorsally; abdomen pale with narrow, pale brown markings; size averaging larger.

Discussion. Of the four described races of Scaled Quail, *hargravei* is similar in coloration only to *pallida*. It differs from *pallida* in that the grays of the chest and nape are (in fresh fall plumage) Pearl Gray (capitalized color names from Ridgway 1912) rather than near Pale Neutral Gray; the terminal bars of the "scaled" areas are blackish-brown and narrow instead of black and broad. The anterior feathers of the crest are a slightly grayed Saccardo's Umber, occasionally verging on Sepia rather than Clove Brown and pale Mummy Brown. The belly is nearest Pinkish Buff rather than approaching Cinnamon Buff; the dark bars of the abdominal feathers are grayer, less blackish and less rich, closest to Dresden Brown or Buckthorn Brown X Isabella Color rather than near Tawny Olive or Sayal Brown in *pallida*. Back, rump, scapulars, and shorter upper tail coverts are brownish-drab, contrasting with the extremely pale gray nape, rather than grayish-drab, not contrasting so conspicuously with the darker bluish nape of *pallida*. There is no overlap in this character when specimens are segregated by age (and season) as immatures of both races tend to be browner, respectively, than adults, which are grayer.

There is considerable variation in mensural characters even when specimens are segregated into their respective age-sex categories. However, specimens of *hargravei* from Oklahoma, Kansas, Colorado, and northern New Mexico average larger in wing chord, tail, and tarsus than *pallida* from Arizona and southern New Mexico (see table 1). The few available weights (table 2) also suggest the larger size of the new race.

Habitat. *Hargravei* is a resident of the Upper Sonoran Zone throughout its range, whereas *pallida* is found primarily in the Lower Sonoran Zone. Sutton (1967) states that the species in Oklahoma is "Resident among mesas of Cimarron County, in sand and sagebrush country of Cimarron and Texas counties, and in uncultivated parts of

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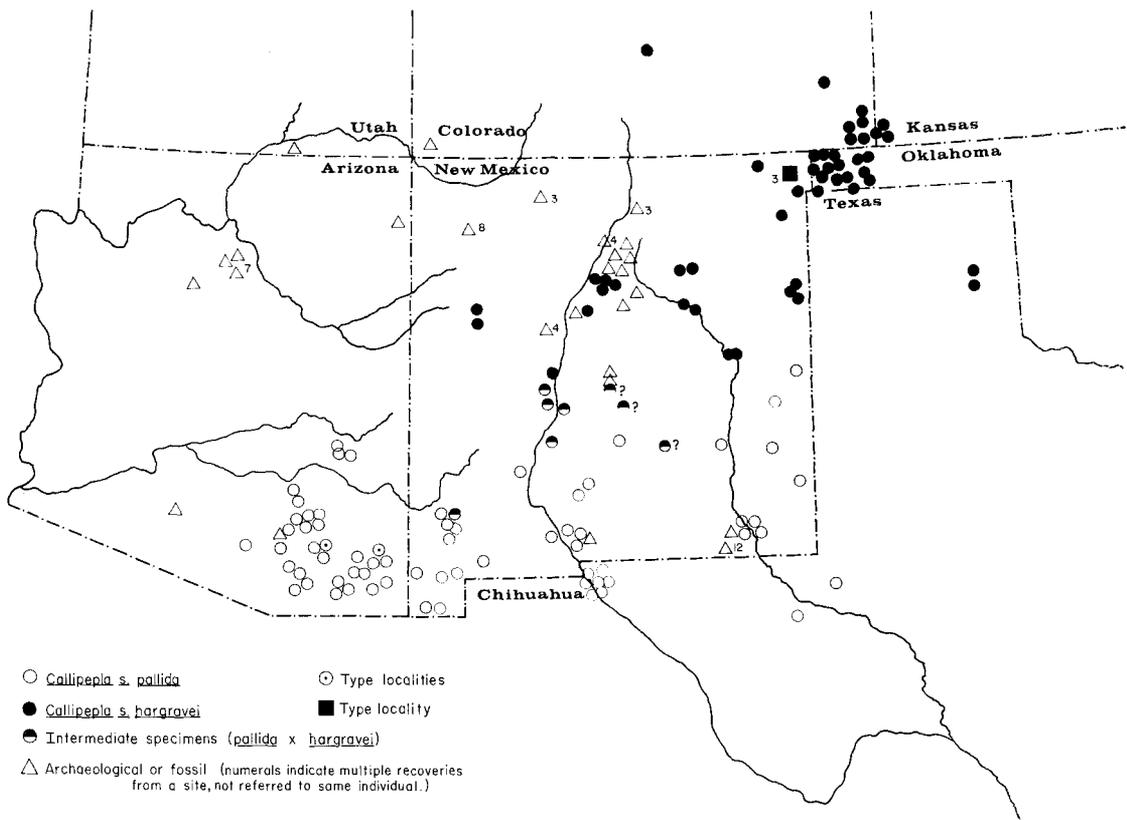


FIGURE 1. Localities of recent and fossil specimens of *Callipepla squamata* cited in this paper.

the southwestern corner of the state." Schemnitz (1961) discusses the species' ecology in the Oklahoma Panhandle. In Colorado, Hoffman (1965) notes its range in the semi-arid regions of the Arkansas and Cimarron River drainages, "from the flat or relatively flat farmlands to the rolling sand sagebrush hills and eastern canyons and mesas." For the same state, Bailey and Niedrach (1965) note that the original habitat was the "semi-arid southeastern part of the state with its slopes and rocky canyons grown with junipers, but it has extended its range northward into farming communities along the Arkansas River, and into cultivated areas of Elbert and Lincoln Counties."

Remarks. In common with many southwestern birds, seasonal fading in this species is great. By February and sometimes even January, some specimens of *pallida* become virtually as pale in coloration as freshly molted fall *hargravei*, but usually may be distinguished by their heavier black barring or "scales" and abdominal markings.

Postmortem color change or "foxing" becomes a problem with specimens collected more than 20 years ago. For instance, many old specimens from USNM and AMNH can

not now be identified to either southwestern race as the mantles and bellies of both northern and southern birds are equally pale and dull. Postmortem color change appears to be a function of either the preparation methods or curatorial procedures of the museum. A series of *pallida* topotypes (van Rossem, LA) taken in 1915 are still brightly colored and diagnostic. The rumps and flanks of the oldest Colorado specimens (DMNH) are unusually brown and appear to be "foxed."

Additionally, there is considerable variation in timing of molt in this species. Wallmo (1956) reports western Texas hatching dates from May–August. Most birds have completed molt by November and the majority of my comparative material was from this month (Appendix II). Five specimens (AMNH, MCZ) from Ancho, Lincoln Co., New Mexico, taken from 3–5 November 1912, have not yet molted the feathers from the interscapular region to the upper tail coverts. At least a few individuals appear to have a spring molt. A male (MVZ), taken 28 April 1913 at Rodeo, Grant [now Hidalgo] County, New Mexico, has many fresh diagnostic *pallida* feathers, some still ensheathed. Another male (AMR), taken 5 June 1972 near Acoma

TABLE 1. Measurements (mm) of *Callipepla squamata hargravei*^a and *C. s. pallida*^b.

	Adult males		Adult females		Immature males		Immature females	
	n	$\bar{x} \pm SE$ range	n	$\bar{x} \pm SE$ range	n	$\bar{x} \pm SE$ range	n	$\bar{x} \pm SE$ range
Wing (chord)								
<i>hargravei</i>	14	123.3 \pm 0.51 121.0–126.5	6	119.0 114.9–122.9	14	120.4 \pm 0.58 115.9–123.7	18	119.0 \pm 0.67 113.1–124.8
<i>pallida</i>	13	120.8 \pm 0.70 115.7–125.7	7	118.0 116.9–120.4	18	119.6 \pm 0.76 113.7–126.6	24	116.1 \pm 0.61 110.1–121.7
Tail								
<i>hargravei</i>	10	89.0 \pm 0.32 83.9–95.9	6	86.3 84.3–88.4	12	88.4 \pm 0.92 83.7–93.2	16	86.0 \pm 0.55 82.2–91.3
<i>pallida</i>	12	88.8 \pm 0.94 83.4–96.2	5	85.4 77.3–92.4	16	88.0 \pm 0.56 84.3–91.5	17	82.9 \pm 0.63 76.6–87.1
Tarsus								
<i>hargravei</i>	12	31.6 \pm 0.27 29.7–33.1	6	30.3 29.0–31.2	14	31.4 \pm 0.35 29.5–33.5	18	31.0 \pm 0.15 29.8–32.4
<i>pallida</i>	10	30.1 \pm 0.52 26.7–32.4	6	30.2 29.3–31.0	15	30.8 \pm 0.37 28.5–34.2	16	29.5 \pm 0.44 25.0–31.8
Bill								
<i>hargravei</i>	12	8.3 \pm 0.08 8.0–8.9	6	7.8 7.0–8.5	14	8.2 \pm 0.10 7.7–8.9	18	8.0 \pm 0.07 7.4–8.4
<i>pallida</i>	10	8.0 \pm 0.09 7.5–8.5	6	8.2 7.5–9.0	15	8.2 \pm 0.09 7.7–8.9	16	7.9 \pm 0.09 7.2–8.4

^a Based on fall to late winter, unworn specimens taken in Colorado, Kansas, Oklahoma, and the northern counties of New Mexico.

^b Based on fall to late winter, unworn specimens taken in Arizona and southern New Mexico (exclusive of Grant, Socorro, and Lincoln counties).

Pueblo, Valencia County, New Mexico, is growing in feathers of the head and has replaced most of the mantle and some of the back so as to clearly identify it as *hargravei*. Raitt and Ohmart (1966) found no evidence of prenuptial molt in the related Gambel Quail (*Lophortyx gambelii*) of southern New Mexico.

Another factor of importance in studying variation in this species is artificial transplanting. The types were selected from an area near the Oklahoma Panhandle where no known planting has been attempted and the species occurs naturally, as it does throughout the rest of New Mexico (Ligon 1927).

Introductions of any success into northern Colorado (Figge 1946; Hoffman 1965; Bailey and Niedrach 1965) have been only from true *hargravei* stock taken from within the state. The origin of the successfully introduced stock in Yakima County, Washington, is unknown (Jewitt et al. 1953) and I have seen no specimens to determine which race is represented here. Introductions of *castanogastris* into Grays Harbor County, Washington, died out (Jewitt et al. 1953).

Fresh-plumaged specimens from southern New Mexico (ENMU, LA, LLH, MCZ, MVZ, NMSU, UNM, WNMU) are *pallida*: Hidalgo, Grant, Doña Ana, Sierra, Otero, Chaves,

TABLE 2. Weights of fall and winter *Callipepla squamata hargravei*^a, *C. s. pallida*^a and *C. s. squamata*^b.

	Adult males		Immature males		Adult females		Immature females	
	n	$\bar{x} \pm SE$ range	n	$\bar{x} \pm SE$ range	n	$\bar{x} \pm SE$ range	n	$\bar{x} \pm SE$ range
<i>hargravei</i>	4	207.8 193–224	5	194.6 178–205	2	184.1 174.3–194	6	190.0 178–206
<i>pallida</i>	2	202.7 189.5–216.0	2	169.3 153.4–185.3	1	181.0	6	166.2 154–180
<i>squamata</i>		6	177.8 168–205		11	170.4 \pm 5.32 142–207		

^a Specimen localities for *hargravei* and *pallida* as in table 1.

^b Specimens from Mexico; not segregated by age.

Lea counties. Specimens from northern New Mexico (AMR, ETS, CM, GMS, MCZ, UMMZ, UNM, UO, USNM) are definitely *hargravei*: Valencia, Bernalillo, Santa Fe, San Miguel, Guadalupe, De Baca, Quay, Colfax, Union counties. From eastern New Mexico, I have seen no specimens from Torrance, Curry, or Roosevelt counties to know if intergradation occurs there. However, two specimens (USNM) from Fort Sumner, northern De Baca County, are excellent examples of *hargravei*. On the Rio Grande drainage, Socorro County is the area of intergradation between the two races. Specimens (UNM) from Bernardo (and perhaps 25 miles N of Engle?) are best referred to *hargravei*. Three other specimens (LA) from this county are not far along in molt, but seem variously intermediate. Farther west, four out of five specimens (WNMU, DAZ) from near Silver City, Grant County, are typical *pallida* but one (DAZ 1152) is pale ventrally and marked like *hargravei*. Weights of Silver City (Upper Sonoran) specimens, however, are more like the northern population (im. ♂♂ 191.3, 188.1; im. ♀♀ 172.1, 191.6, 197.0).

Allocation of the population along the south-central mountainous spine of the state is problematical. A partially molted specimen (LA) from 16 miles S of Claunch, eastern Socorro County, appears to be intermediate. The five specimens (AMNH, MCZ) from Ancho, Lincoln County, mentioned above, also seem to be intermediate as do five birds (ANSP) from Picacho, farther south in the county. The latter, however, have backs the color of *pallida* and may merely represent "foxed" specimens of that race. All were taken over 40 years ago. Fresh material from Lincoln County is necessary to determine the true relationships.

In central and western Texas the relationships between the races *hargravei*, *pallida*, and *castanogastris* are uncertain and perhaps their original ranges can no longer be determined. Eight birds (AMNH) from El Paso, El Paso County, Texas, are *pallida*. These are variously "foxed" or faded but have the diagnostic grayish rumps and backs of that race. Two specimens (FM) from 22 miles SE of Pecos, Reeves County, Texas, are nearest *pallida* but three other specimens (UNM) from there have extremely pale (almost white) abdomens as in *hargravei* or *squamata*. These five are Ligon birds. There appears to be some confusion in the labeling of specimens from the J. Stokley Ligon Collection, some being wild-taken birds and others being captive birds (of unknown origin) from the Ligon

Game Farm. Specimens (AMNH) from Presidio County, extreme southwestern Texas, are nearest what is known as *squamata* (much darker backs and heavier markings below) although one (#80267) shows an approach to *pallida* below. Seven specimens (AMNH) taken in 1887, Concha County, Texas, cannot be placed with any race. Some look like *pallida* with *castanogastris* influence on rump and abdomen. The range ascribed to *castanogastris* (AOU 1957; Friedmann et al. 1950; Peters 1934; see also map in Aldrich and Duvall 1955) is from Eagle Pass and San Antonio, Texas, south through eastern Coahuila, Nuevo León, and Tamaulipas. The type is from Rio Grande City, Texas, on the lower Rio Grande.

Although *hargravei* has been known to hybridize with *Colinus virginianus* in northwestern Texas (Sutton 1963), this race surely shows no evidence of "introgression" of Bobwhite genes. Phillips et al. (1964) have noted that an occasional specimen of *pallida* may show *castanogastris*-like traits (UA #4533, im. ♂; perhaps an escapee?), but Sutton (1967) observed no Oklahoma specimen showing any hint of this characteristic. A few southern New Mexico birds have a chestnut wash across some abdominal feathers.

John Hubbard has pointed out the similarity in both characters (paler colors, somewhat larger size) and range between a towhee [*Pipilo fuscus mesatus* Oberholser (1937)] and *hargravei*. With more material at hand, Hubbard believes *mesatus* ranges as far south in northeastern New Mexico as does *hargravei*. In describing the towhee, Oberholser noted, "It is apparently another example of the differentiation to which certain species are subject in the general region of northwestern Texas, northeastern New Mexico, southeastern Colorado, and northwestern Oklahoma." The area of differentiation between *hargravei* and *pallida* closely parallels that of *Chordeiles minor howelli* and *C. m. henryi* (although both nighthawks have more extensive ranges). *Howelli* differs from *henryi* (Sclander 1954) in a number of ways similar to the differences between the two quail. Perhaps both the quail and the nighthawks have responded to similar pressures in the same habitats, as both are ground nesters.

Were the environment analyzed, I believe a correlation would be found between the pattern and coloration of the quail subspecies and their respective habitats. Bowers (1960) demonstrated such correlations for the sedentary Wrentit (*Chamaea fasciata*) over a relatively small part of its range in central

California. I have been impressed, in driving south along the Rio Grande, with the abrupt change in the bajada and flatland vegetation occurring about Socorro. Here the dull, flat-colored northlands with extensive grasses and *Atriplex* give way to brighter, darker vegetation composed of *Larrea*, scrubby *Prosopis*, forbes, and only scattered grasses. It is here, too, that the two quail subspecies intergrade. All *pallida* localities I have visited have been in the higher portions of the Lower Sonoran Zone, which are more varied, colorful, and contrasting than areas where I have found *hargravei*.

Age was determined by the condition of the primary coverts (Leopold 1939; Wallmo 1956). Immature indicates a bird of the year, hatched the previous breeding season. Measurements are: wing chord, tail from insertion of central rectrices (taking care that the dense rump feathers are pushed aside), tarsus from the heel to the bend at the base of the middle toe, and bill from the anterior edge of the nasal fossa.

It is a pleasure to name this quail in honor of Lyndon L. Hargrave, leading archo-ornithologist of the Southwest, who has stimulated interest in so many aspects of ornithology.

HISTORICAL CONSIDERATIONS

In discussing a series collected in Arizona and New Mexico by Frank Stephens, Brewster (1881) pointed out that two spring specimens of Scaled Quail taken "on the Rio San Pedro, Arizona" differed from his Texan specimens and tentatively suggested "the name *pallida* as an appropriate one should the characters prove constant." Stephens shot the male cotype (according to his notes, Phillips, pers. comm.) on the San Pedro River, at or a little above the mouth of the Tres Alamos Wash, 13 March 1880. The female cotype, however, was taken 10 miles W of Fort Bowie, 2 April 1880. This is the old fort, just north of the Chiricahua Mountains and 13 miles S of the present settlement by the same name. The types, then, were collected 43 air miles apart, as noted in the 4th ed. AOU Check-list (1931) and by Peters (1934). Both localities are in Cochise County, Arizona, and fall in the range of a contiguous local population.

Later, when Brewster (1883) described *castanogastris* from Texas, he retracted the name *pallida* for the pale Arizona bird, believing "that Vigors described the pale interior form." This conclusion was followed in the first three editions of the AOU Check-

list (1886, 1895, 1910). Bangs (1914) correctly pointed out that Vigors' nominate race is the darkest population from western and central México. This was followed by the AOU Committee on Nomenclature in 1923 and has been used in all subsequent works.

ARCHAEOLOGICAL EVIDENCE FOR PRE-COLUMBIAN DISTRIBUTION

Hargrave's interest in the species dates from the 1930s when he recovered archaeological specimens (five humeri, a carpometacarpus, and a femur) from the Little Colorado Valley and the San Francisco Mountain region near Flagstaff. I quote Hargrave's (1939) discussion in full: "The range of this species in Arizona during historic times seems to be restricted to the southeastern portion of the state (grassy parts of the Sonoran zones south of the Mogollon plateau and mostly south of the Gila River valley). Between this and the localities of archaeological occurrences given herein, lies the heavily forested Mogollon Rim and San Francisco Mountain, a probable natural barrier for the distribution of this species. Reference to the occurrence of *Callipepla* in New Mexico, as given by Bailey (Birds of New Mexico, 1928, map 5 and p. 215-216), however, shows that the Scaled Quail approaches the Arizona line west of Wingate [Gallup region]. There is a strip of pure Upper Sonoran flora that passes from Wingate down the Little Colorado River valley and the Grand Canyon. These archaeological occurrences are within this strip. The retreat or extirpation of this species from the east and north slopes of San Francisco Mountain must have occurred between 1150 A.D., a date when Wupatki Pueblo is known to have been occupied, and 1880 A.D., when the country became settled."

Archaeological evidence indicates that the Scaled Quail ranged more widely in the Southwest (see fig. 1) than in the recent historical past, as indicated by bones or feathers from over 25 sites (identifications primarily by Hargrave and Charmion McKusick). I have re-examined and confirmed the identification of extralimital specimens mentioned herein (Appendix 3) except as noted. In addition to the various archaeological occurrences noted above from the north and east slopes of the San Francisco Mountains, Hargrave also recovered the Scaled Quail (right coracoid) from his excavations at Pittsville Village (Upper Sonoran), in the vicinity of modern Williams, Coconino County. This is the westernmost occurrence in northern Arizona. In southern Arizona it ranged to the

west to Ventana Cave, Pima County (left femur). The distal half of a tibiotarsus was recovered (Hargrave, Glen Canyon Project) from southeastern Utah (Neskali Wash, San Juan Drainage). Hargrave also identified five associated elements (not seen by me) from Big Juniper House, Mesa Verde, southwestern Colorado. Modern occurrence here has not been substantiated by specimens (Hoffman 1965; Bailey and Neidrach 1965) but incidental to archaeological work in the Park, Alden Hayes (pers. comm.) observed a few coveys there.

Historically, the Scaled Quail enjoyed a wider distribution in Arizona, but with the destruction of grasslands by the turn of the century the species has become restricted to the southeastern portion of the state. (For a discussion of Arizona's grasslands, see Brown 1900; and "Historic Changes" by Phillips and Monson, p. xiii, in Phillips et al. 1964). In 1921 Hargrave (unpubl. data) knew of coveys north of Roosevelt Lake on the lower benches of the Sierra Ancha, Gila County, central Arizona. Scaled Quail were found upstream along the Salt River in the 1880s (according to Hugh Lawson) and as late as 1909 a covey of about 50 was seen about 5 miles E of Globe, Gila County. Apparently the only extant specimens from central Arizona are those taken at Hargrave's urging from Big Brushy Mesa on the San Carlos Apache Reservation (AMR, LLH, SWAC) and two specimens taken by Goldman from the same area in 1914 and 1916 (USNM).

Phillips et al. (1964) note the Scaled Quail "... is chiefly an inhabitant of grassland, and as a result of the destruction of the grass, it has been greatly reduced or locally exterminated in many parts of the state. On the other hand, the Gambel's Quail increases in these same areas as the grass is replaced by mesquite bushes and cholla cactus."

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APPENDIX I

Abbreviations Used in Citing Specimens

- AMNH American Museum of Natural History, New York City, New York.
- AMR Amadeo M. Rea Collection, Prescott College, Prescott, Arizona.
- ANSP Academy of Natural Sciences of Philadelphia, Philadelphia, Pennsylvania.
- CM Carnegie Museum, Pittsburgh, Pennsylvania.
- DAZ Dale A. Zimmerman Collection, WNMU, Silver City, New Mexico.
- DMNH Denver Museum of Natural History, Denver, Colorado.
- ENMU Eastern New Mexico University, Portales, New Mexico.
- ETS Ernest Thompson Seton Collection, Philmont Scout Ranch, Cimarron, New Mexico.
- FM Field Museum of Natural History, Chicago, Illinois.
- GMS George M. Sutton Collection, UO, Norman, Oklahoma.
- LA Dickey Collection, University of California, Los Angeles, California.
- LLH Lyndon L. Hargrave Collection, Prescott College, Prescott, Arizona.
- MCZ Museum of Comparative Zoology, Harvard College, Cambridge, Massachusetts.
- MVZ Museum of Vertebrate Zoology, University of California, Berkeley, California.
- NMSU New Mexico State University, Las Cruces, New Mexico.
- SWAC Southwest Archaeological Center, Globe, Arizona.
- UA University of Arizona, Tucson, Arizona.
- UMMZ University of Michigan Museum of Zoology, Ann Arbor, Michigan.
- UNM University of New Mexico, Albuquerque, New Mexico.
- UO University of Oklahoma, Norman, Oklahoma.
- USNM United States National Museum, Washington, D. C.
- WNMU Western New Mexico University, Silver City, New Mexico.

APPENDIX II

Fall and Winter Specimens Examined in This Study (by counties)

- Arizona: Graham (10); Greenlee (2); Pinal (11); Pima (9); Cochise (18); Gila (7).
- New Mexico: Colfax (1); Union (6); Santa Fe (4); San Miguel (3); Valencia (2); Bernalillo (1); Guadalupe (2); Quay (3); De Baca (2); Socorro (5); Lincoln (10); Chaves (2); Grant (10); Sierra (1); Hidalgo (3); Doña Ana (9); Otero (1); Eddy (3); Lea (1).
- Colorado: Kiowa (1); Baca (7); Puebla (1).
- Oklahoma: Cimarron (30); Tillman (2).
- Kansas: Morton (3).
- Texas: Pecos (4); Reeves (4); Cottle (or King?) (4); Crockett (1); Concha (7); Kinney (1); McMullen (1); El Paso (8); Presidio (3).

APPENDIX III

Archaeological or fossil *Callipepla squamata* occurrences (* indicates outside of today's known range based on modern skins; X indicates number of elements recovered).

Arizona

Pima Co.

- *Ventana Cave, Papago Indian Reservation
University Indian Ruins (2X)

Coconino Co.

- *Pittsville Village (near Williams)

*Terrace Pueblo, Site 1765-B

*Winona Village, Site NA 2134T (2X)

*Wupatki National Monument, Site NA 405

*Deadman's Fort, Site NA 1814-B (3X)

Apache Co.

*Antelope House, Canyon De Chelly

Utah

San Juan Co.

*Glen Canyon, NA 7713, Neskali Wash (Paiute Mesa), San Juan Drainage

Colorado

Montezuma Co.

*Big Juniper House, Mesa Verde National Monument

New Mexico

Santa Fe Co.

Las Madres, Galisteo Basin (20 mi. S Santa Fe)
 Pueblo Largo, Galisteo Basin
 Los Aguajes Pueblo, La Bajada Hill (3X)
 Spanish Ranch Site (Boyd Museum)

Valencia Co.

Pottery Mound, Puerco (4X)

Sandoval Co.

Puaray (near Bernalillo)
 Rainbow House (LA 217), Bandelier (4X)

McKinley Co. or San Juan

Chetro Ketl, Charco Canyon National Monument (8X)

Doña Ana Co.

Shelter Cave, Pyramid Peak Range, Organ Mts.

Eddy Co.

Dark Canyon Cave (1+ X)
 Pratt Cave (12 X)

Taos Co.

Picuris Pueblo (3 X)

Socorro Co.

Pueblo Pardo

Torrance Co.

Mound 7, Gran Quivira

San Juan Co.

Charco Canyon, Gallo Cliff Dwellings, Site Bc 36.

Rio Arriba Co.

Tower 19, Largo Gallinas District, Gallina Peak (3X)

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