

Range Expansion of Anna's Hummingbird

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*An inquiry into the extent, chronology,
and possible causes of a striking
recent phenomenon in distribution.*

Male Anna's Hummingbird. Photo/Phillip F. Stowbridge from N.A.S.

Calypte anna generally is regarded as essentially a Californian species, restricted to that state and to adjacent northern Baja California as a breeding bird, wandering in winter to Arizona. Such is the distributional picture presented by the standard literature. A. C. Bent (1940: p. 387) considered Anna's Hummingbird to range "east casually in winter to Arizona and the mainland of Mexico," the latter reference to a specimen taken February 21, 1934 at Punta Peñascosa (Puerto Peñasco), and the only Sonoran record known to Bent.

The A.O.U. Check-list (1957: p. 302) established that the species "wintered in considerable numbers eastward . . . across southern Arizona to northern Sonora (Punta Peñascosa and Los Pinitos)." The Check-list also mentioned one accidental occurrence in the United States: a bird collected October 23, 1936 in the Chisos Mountains of the Texas Big Bend (Van Tyne and Sutton, 1937: p. 44). The status of the species is much different today. The following accounts, arranged by regions or states, illustrate the changes that have been and are taking place in the distribution of Anna's Hummingbird.

SONORA AND ARIZONA

The early Mexican records are worthy of special comment. The Los Pinitos occurrence mentioned above is based on a specimen (American

Museum of Natural History) collected October 14, 1890, northwest of Nacozari at about the longitude of the New Mexico-Arizona state line. Another Sonoran specimen (U.S. National Museum) cited by van Rossem (1945a: p. 125; 1945b: p. 80), was secured by Mearns and Holzner in the San José Mountains, some five miles south of the international boundary at lat. 31° 15' N, long. 110° 10' W. (Some confusion surrounds this record—probably explaining its exclusion from the A.O.U. Check-list. The specimen was allegedly taken August 19, 1893. However, Mearns [1907: pp. 96, 99, 102] was in the San José Mountains from August 4 to August 12; on the 19th he was at the San Bernardino Ranch. Holzner was collecting in the Huachuca Mountains between July 24 and October 9 of that year. But despite a probable mix-up in the date, there is little reason to think the specimen in question did not come from the San José range. These mountains are not far from other sites worked by Mearns and Holzner in 1893.) Additionally, A. K. Fisher (1904: p. 80) recorded two Anna's Hummingbirds collected by J. C. Fowler just north of the boundary at Fort Huachuca October 12, 1892, and another taken there by H. H. Kimball September 11, 1895. Thus five specimens were obtained in five

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years from a region of—at that time—precious little ornithological activity. Perhaps *Calypte anna* was not merely “casual” in southeastern Arizona and northeastern Sonora in the 1890s.

Outside of California the species was given scant attention until van Rossem (1945b) discussed its eastern distributional limits. He stressed that Willett as long ago as 1915 found *C. anna* “plentiful” from Nov. 30 to Feb. 3 at Roosevelt Lake east of Phoenix. Loye Miller and van Rossem also found it “common and regularly distributed in the Emory oak belt” of the Pajarito Mountains west of Nogales, October 6-14, 1944. Dr. Miller and W. J. Sheffler had found it rare there in February 1941. Van Rossem’s 1945 paper listed all occurrences east of California known to him: 10 from Arizona and three from Sonora.

Allan Phillips (1947) reviewed the bird’s status in southern Arizona, listing numerous records between September 4 and January 8. (Some questionable ones extended to January 21). He emphasized that in a seasonal sense, *Calypte anna* was not a true winter resident in that region. At Tucson, the species “proved to be a regular visitor in fall” between 1938 (when Phillips’ record keeping began) and 1945, in which period it occurred “regularly.”

In subsequent years, the few records suggest that the birds had begun to extend their fall visitation period. During the winter of 1949-50, the last Anna was seen at Tucson January 23 by H. Mowat (Monson, 1950: p. 215). Mary Jane Nichols observed a male in the Santa Catalina foothills near that city February 12, 1954 (Monson, 1954: p. 263). Only three records from Arizona appeared in the pages of *Audubon Field Notes* between 1950 and 1962; this does not mean that the birds had become scarce, but that their observed occurrences were within what was considered their period of usual visitation to Arizona. By the time of publication of the most recent Arizona check-list, Monson and Phillips (1964: p. 30) could only add that these hummingbirds remained in southern Arizona “until December and rarely to early March.” Phillips *et al.* (1964: p. 63) discussed the situation in somewhat more detail. By the mid-1960s there still were no Arizona records east of the Huachuclas, Fort Grant, and Roosevelt Lake, and there were no summer occurrences. There was no positive record of breeding in the state, although a nest with young Monson observed in Yuma, March 15, 1962, “may have been Anna’s” (Phillips *et al.*, *loc. cit.*).

Seasonal reports in *Audubon Field Notes* published after 1964 reveal definite changes occurring. Anna’s Hummingbirds began to remain

much longer in southern Arizona, and at least some did not return to California to nest. The species was reported with increasing frequency, largely from suburban locales, by various observers. In a Phoenix residential area, an Anna’s Hummer began building a nest in mid-November 1964; two young hatched January 12, 1965, and these fledged February 8 (Mary L. Bonnewell *in* Snider, 1965: p. 407). Through the kindness of Gale Monson I have been able to examine the late Mrs. Bonnewell’s original detailed report of this nesting (and of certain other hummingbird records discussed beyond).

At Nogales, Santa Cruz County, Bill Harrison noted the species until mid-January in 1966 (Snider, 1966: p. 447). That fall, the first presumed migrants appeared in Tucson on the rather early date of September 19 (F. Tainter *in* Snider, 1967: p. 65).

At least two pairs nested in Phoenix in 1968. Una E. Miller noted two young in a nest February 20 (and one of these fledged six days later). Ellis Jones found another nest January 15 and watched it until the young left February 8. He continued to see Anna’s Hummingbirds in the area until February 25. Mrs. Miller observed those in her area almost daily until March. These records were mentioned without detail by Snider (1968b: p. 466).

At the Boyce-Thompson Arboretum near Superior, Pinal County, S. M. Russell and D. Lamm (not F. Tainter as reported in Snider, *loc. cit.*) found a nest with two young among exotic plantings February 20, 1968. Dr. Russell informs me (*pers. comm.*) that he saw “several other Anna’s (including singing males) in the area” at the time.

Salome R. Demaree’s records from the Phoenix area showed a “new high” of 31 Anna’s Hummingbirds on the 1969-70 Christmas Bird Count, reflecting the “many” individuals wintering there that year. Mrs. Demaree recorded eggs hatching in a nest in Scottsdale January 7, 1970, another nest under construction January 31, and a third found (in Phoenix) March 17. Mrs. Demaree also found the species nesting in Phoenix between April 6 and May 4, 1971 (Snider, 1971a: p. 782).

M. V. Mowbray reported at least one Anna’s Hummingbird in the Hualpai Mountains near Kingman in northwestern Arizona May 23, 1971 (Charles S. Lawson, *pers. comm.*). The species may occur there with some frequency but the region is not well known ornithologically.

Summer records of this hummingbird in Arizona are scarce and all are recent. Noteworthy is Edgar Read’s photograph (on file, Univ. Ariz.) of a male made on July 13, 1971

This bird had been visiting Mr Read's Tucson yard since July 5. Janet Witzeman reported a female lingering in Phoenix until July 19, 1972 (Monson, 1972b: p. 889). Robert F. Miller (pers. comm.) closely and repeatedly observed an adult male in Cave Creek Canyon in the Chiricahua Mountains July 15, 1972—possibly the same bird seen at the American Museum's Southwestern Research Station's feeders May 23 that year (C. S. Lawson, pers. comm.). I saw a female Anna's Hummingbird at a feeder in Tucson June 19 and 20, 1973.

During February 1972, T. Parker *et al.* observed a singing male Anna's Hummingbird in Molino Basin in the Santa Catalina Mountains. He and Linwood Smith found a nest with eggs in Sabino Canyon of the same mountain range February 12 (Monson, 1972a: p. 640). A male seen by Monson December 20 that year in the live oak belt (elev. 3760 feet) of Sabino Basin may have been a wintering bird. The most recent breeding record known to me is that of a nest found by Harold Fetter *et al.* in a Tucson cemetery, February 12, 1973. It contained two young when examined February 24 and 25 (Monson, pers. comm.).

The great majority of Arizona records cited are from urban and suburban sites. Despite this, Monson believes Anna's Hummingbirds are widespread during the migration period when the species moves into the state. The following records (by Monson unless otherwise stated) support his view: an immature male collected at New Water Well, Kofa Game Range, Oct. 3, 1955; three seen and a female collected at Drift Hills, Cabeza Prieta Game Range, October 15, 1960; an immature male at Palm Canyon, Kofa Game Range, October 21, 1961; an adult male seen in the Santa Rita Mountains September 9, 1971 (C. S. Lawson, M. V. Mowbray); 10 or more seen below Lake Patagonia, Santa Cruz County, October 28, 1972 (T. Parker); one seen at Quitobaquito Springs, Organ Pipe Cactus Natl. Monument, November 23-24, 1972 (B. McKnight); Lower Sabino Canyon, Santa Catalina Mts., October 17, 1972.

In addition to observations already cited from the Santa Catalinas, evidence suggests that Anna's Hummingbirds may winter outside of the cities, far removed from gardens and hummingbird feeders: R. L. Cunningham reported three at Aguajita Springs, Organ Pipe Cactus Natl. Monument, January 31, 1968 (Monson, pers. comm.). Seymour Levy saw one January 26, 1973, in Sycamore Canyon of the Pajarito Mountains of Santa Cruz County near where Miller and Sheffler reported the species in February 1941.

A quarter of a century ago Phillips (1947 p. 112) believed "the bulk of the Anna Hummingbirds of southern Arizona" to return in December to their breeding grounds in California. Perhaps most of them still do, but it is clear that an increasing number remains to nest in Arizona.

From south of the international boundary there have been only sporadic reports, but Sonoran occurrences now are commonplace. By 1948, the species was described as "common" in late October and November in the Caborca-Imuris-Sonoyta region (Phillips and Amadon, 1952: p. 164). Numbers were seen and four specimens were collected between October 31 and November 3. Extending the known range still farther south, although he provides no specific records, Alden (1969: pp. 13, 15) indicates that Anna's Hummingbirds now are common during winter in the Magdalena Valley between Imuris and Magdalena, replacing the summer resident Black-chinned and Broad-billed hummingbirds (*Archilochus alexandri* and *Cynanthus latirostris*) in the riparian woodlands. *Calypte anna* may occur with some regularity at Puerto Peñasco. I saw a probable female in the desert near Cholla Bay, November 26, 1965, and Alden (*op. cit.*, p. 20) terms it occasional in the area. Most or all of these Sonoran observations are from more or less natural habitats.

NEVADA

Edmund C. Jaeger (1927: p. 4) considered *Calypte anna* "Infrequent in the chaparral and lower pine belt" of Nevada's Charleston Mountains but apparently the species remained otherwise unreported from this state until 1964 when it was recorded (with no details) on April 19, by C. G. Hansen (Austin and Bradley, 1971).

Charles S. Lawson and M. V. Mowbray saw a male 26 miles northwest of Las Vegas in Clark County, May 6-8, 1967. Mowbray reported the species from the same locality on the Desert National Wildlife Range May 5, 1968; Sept 4 and 23, 1972; and October 1, 1972. Charles and Sally Lawson observed a female at their Las Vegas feeder August 3-7, 1971, and again September 2-8, 1972, but did not succeed in their attempts to capture or photograph the birds. Mr Lawson informs me that in the Las Vegas area he has never seen Anna's Hummingbird outside of the valley floor, although other species occur in the nearby foothills and mountains.

COLORADO AND NEW MEXICO

An Anna's Hummingbird was reported from Durango, Colorado, by the late Oppie Reames,

a veteran hummingbird observer, June 21, 1970 (Scott, 1970: p. 703). R. W. Stransky (pers. comm.) informs me that the bird was a male and was seen at Miss Reames' feeder on numerous occasions. There are no other records for the state.

In view of the species' status in Arizona and Texas it is likely that Anna's Hummingbirds have been overlooked in New Mexico for some years. The single record to date is of an immature male that appeared at our feeder in Silver City, Grant County, on October 2, 1972. Upon arrival it lacked red coloration except on mid-throat but by the time of its departure November 7 numerous rose-red feathers dotted the crown and posterior portions of the gorget. It sang daily, often for extended periods, and vigorously chased the few Broad-tailed Hummingbirds (*Selasphorus platycercus*) still present in early October. We studied it literally at arm's length, for on occasion it fed from the syrup-filled bottle held in the hand. Marian Zimmerman and I tape-recorded the bird's vocalizations and photographed in color several times (Ektachrome transparency on file, Univ. of New Mexico). A male Anna's Hummingbird was at Albuquerque April 15-20, 1973. It was first seen by Dorothy DeLollis at her feeder, and subsequently by many others, and photographed.

TEXAS

About the time L. R. Wolfe's Check-list of the Birds of Texas was being printed in 1956, there began an impressive "invasion" of Anna's Hummingbirds in that State. Col. Wolfe's list mentioned only the 1936 collection in the Chisos, although Lena McBee (pers. comm.) saw a bird she identified as a male Anna's Hummingbird at Boot Spring in the Chisos on July 24, 1940. There were no further reports until 1955 when Mrs. C. N. Hagar (*in Webster, 1956: p. 39*) recorded *Calypte anna* from September 8 through September 27, at Rockport, Arkansas County. In all, 19 individual birds were seen, some of these remaining in the same spots day after day, permitting repeated study. Reasonably complete diagnostic descriptions of the birds were submitted. These mentioned the red foreheads of the males and the "very noticeable" red throat spots of the females. The large size of the Annas was conspicuous as they fed with Ruby-throated Hummingbirds (*Archilochus colubris*), Black-chins, and Rufous Hummingbirds (*Selasphorus rufus*). The hummers were seen by six other observers besides Mrs. Hagar.

More Anna's Hummingbirds appeared along the Texas Gulf Coast in 1956, as part of an incredible autumnal movement of trochilids

through the region Mrs. Hagar wrote (*in Webster, 1957: p. 40*): "Hummingbirds by the thousands migrated through Rockport [over a two-week period] during September and October. . . ." The "most numerous species was the Broad-tailed with the Rufous Hummingbird next. . . ." There were "days when the Anna's and Broadtails far outnumbered Ruby-throats." Anna's Hummers were "seen every day between September 11 and 29—at first males, then females and immatures." Mrs. Hagar estimated *over 300* of them, an astonishing estimate. Other observers included B. L. Monroe, Jr., Dr. and Mrs. R. M. Lockwood, and Mr. and Mrs. W. D. Anderson. In spite of this convincing aggregate of reports, there is as yet no specimen or photograph from coastal Texas.

No further reports came from Texas until 1960 when "a number of Anna's" were recorded at Rockport during the fall migration but with no details or dates published (Webster, 1961: pp. 57-58). That fall, Roy Fisk reported a male from the opposite side of the state, at El Paso, on an unspecified date in September; the bird remained until October 2 (Monson, 1961: p. 64).

There followed a six-year gap in reports of this species from Texas. The next came from Houston, where Margaret Anderson *et al* reported a male January 12, 1966 (Webster, 1966 p. 440). It was seen by several persons and photographed by C. Oates as late as January 29. Webster wrote that the submitted description ruled out "any other North American species, although the possibility of a hybrid. . ." remained. M. A. and R. B. Moore reported a male Anna's Hummingbird in Houston December 10 and 24, 1967 (Webster, 1967: p. 438). Still another was identified at a feeder in Beeville, Bee County, from January 3 to February 15 by Mrs. T. Adkins *et al*. These birds were "seen well, and in each instance observers described the rose-red crown and gorget" (Webster, *loc. cit.*).

Roland H. Wauer and M. K. Rylander (1968 p. 501) collected an immature male Anna's Hummingbird at Big Bend National Park, Brewster County, November 5, 1967 (Big Bend Natl. Park collection, Panther Junction). Wauer noted other hummers of this species there from November 10 and December 30 that year, and between October 27 and November 19, 1968 (Snider, 1969: p. 89). Mr. Wauer (pers. comm.) now considers the bird a "rare but regular fall migrant and irregular winter visitor" in the Big Bend, with records from September 16 to February 6.

Dr. A. W. O'Neil reported a male at Falfurrias, Brooks County, Texas, August 26, 1968

(Webster, 1969 p 79) The bird at an El Paso feeder November 1 - December 17, 1969 (Snider, 1970a: 77; 1970b: 527) was not seen by Lena McBee as reported but by Roy Fisk and others (L McBee, pers. comm.). Mrs. McBee did, however, see a female Anna's Hummingbird in El Paso January 15, 1973; the bird is said to have wintered, and was seen by several observers, but details are not available at this writing. The most recent coastal record seems to be that of J. C. Arvin who saw a female Anna October 30-31, 1971, on South Padre Island (Webster, 1972: p. 87).

COAHUILA

There appear to be no published Mexican records of Anna's Hummingbirds east of Sonora. Of considerable interest, therefore, was my observation of an immature male of this species nearly 300 miles south-southeast of the Big Bend near Parras de la Fuente, Coahuila, December 19, 1972. Although it was not possible to photograph or collect the bird, I think the details of the observation (to be published elsewhere) preclude misidentification. The bird's plumage was virtually identical to that of the Anna's Hummingbird at our feeder in New Mexico a few weeks earlier. Its vocalizations, feeding habits, and size (readily compared to warblers and kinglets with which it fed) likewise were characteristic of this species. (The only Mexican hummingbirds that might possibly be confused with *C. anna* are the two starthroats of the genus *Heliomaster*, both long familiar to me from fieldwork elsewhere in Mexico. Probably neither of these is as likely to occur at Parras as *C. anna*, in view of the numerous southern Texas records of the latter. This region is very similar to, and separated by no major barriers from, the Texas Big Bend.)

NORTHERN CALIFORNIA AND OREGON

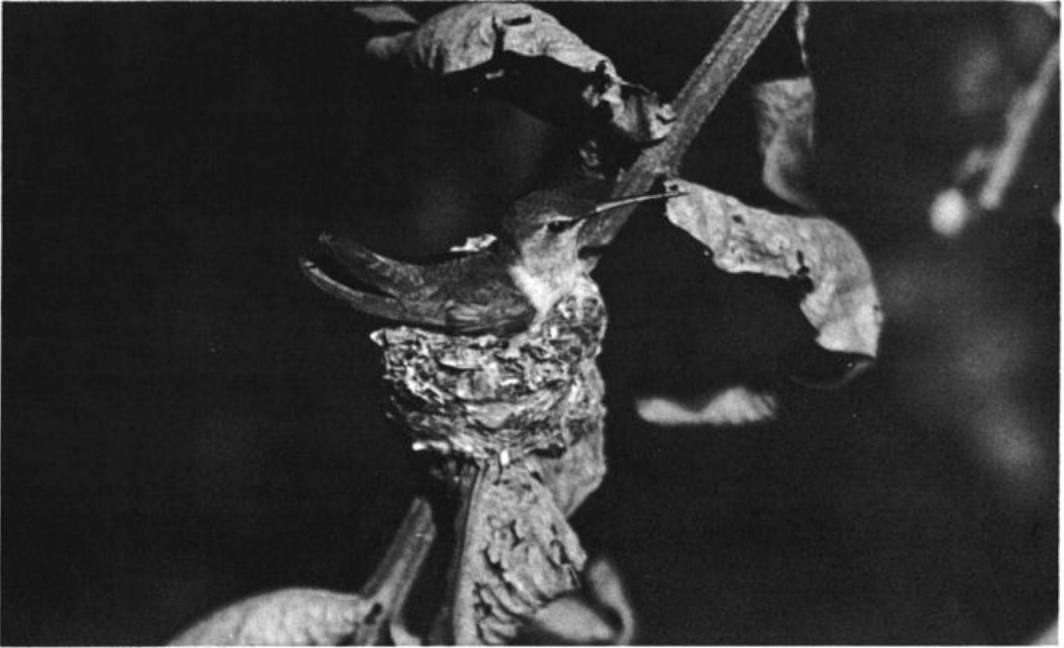
Traditionally, *Calype anna* ranged as a breeding species north to the San Francisco Bay region and along the west flank of the Sierra Nevada to Tehama and Shasta counties. In winter it extended to Humboldt, Mendocino and Siskiyou counties (Grinnell, 1915: p. 87; Grinnell and Miller, 1944: p. 219). There evidently was little or no range extension between 1940 and 1960, but in the following decade a definite northward movement, comparable to the eastward emigration through the Southwest and Texas, became apparent.

An Anna's Hummingbird seen by Mr and Mrs. R. Garrett December 23, 1965, and January 1, 1966, apparently constituted the first record for Del Norte County, California. In view of other reports farther south it appeared that the species had by then occupied "at least garden areas along the Northwest Coast where it was not known by Grinnell and Miller" (Chase and Chandik, 1966: p. 455).

The hummingbirds had earlier appeared in areas north of the state line in Oregon. At Medford, Joseph Hicks saw a male May 10, 1964 (Hesse and Hesse, 1965b: p. 506), and later that month Mr. and Mrs. N. Suttel reported two females elsewhere in Jackson County (Boggs and Boggs, 1964: p. 481). Through October 1966, Hicks regularly saw two adults and four young Anna's Hummers at his Medford feeder. The adult male left in mid-February, the female on March 2, 1967 (Crowell and Nehls, 1967a: p. 71; 1967b: p. 452). During the fall of 1967, Hicks' feeder supported two adults and six immatures, and two of the latter remained through November (Crowell and Nehls, 1968a: p. 82) The species has been reported regularly from the Medford area since that time, with records from every month of the year.

It appears, in fact, that Anna's Hummingbirds have spread virtually throughout the western quarter or third of Oregon. In Portland, Baldrige and Crowell (1966: p. 85) independently identified a female or young male Anna's Hummingbird in December 1965. This bird had been visiting a feeder since September, and it remained until February 22, 1966, having been satisfactorily photographed by Baldrige February 2 (Crowell and Nehls, 1966a: p. 452). A first-year male came to a feeder at Sherwood (south of Portland) in mid-June 1966, and remained at least to August 8. It was identified by Dr. and Mrs. F. Crenshaw and was seen and photographed by several others. This bird and a male at Talent, Jackson County on June 12, were at first inadvertently reported as Allen's Hummingbirds (*Selasphorus sasin*) by Crowell and Nehls (1966: p. 594). The same authors recorded a male Anna's Hummer seen in Portland June 1, 1967, by D. B. Marshall. Virginia Holmgren reported a male at a Portland feeder from August 9 to November 30, 1968 (Crowell and Nehls, 1969: p. 98). The next year she saw one regularly after August 4 and apparently throughout the winter (Crowell and Nehls, 1970a: p. 86; 1970b: p. 531).

Since 1967, there have been reports of birds from: Scio, in northwestern Oregon (two in May, 1967; Crowell and Nehls, 1967c: p. 534); Brook-



Anna's Hummingbird, female on nest. Photo/Donald Dickey from N.A.S.

ings, Urry County (April, 1968; Hicks and T. McCamant, in Crowell and Nehls, 1968b: p. 470); Lebanon, Linn County (April 16, 1970; W. Thackaberry in Crowell and Nehls, 1970c: p. 638); the Finley Refuge (April 24, 1970; C. Zeillemaker in Crowell and Nehls, *loc. cit.*); and from Springfield and Eugene in Lane County (several, including L. McQueen's observations from March 15 to April 22, 1971, Crowell and Nehls, 1971d: p. 898). Other localities include Salem, Marion County; North Bend, Coos County; Oakridge, Lane County; and Gold Beach, Urry County—all apparently with late fall or wintering Anna's Hummingbirds during the winter of 1971-72 (Crowell and Nehls, 1972b: p. 646).

There is little doubt that the species is becoming established, and it probably is increasing. Crowell and Nehls (1970c: p. 636) wrote, "Reports of Anna's Hummingbirds in the Region continue to proliferate," citing (among others) three pairs seen by O. Swisher in the Rogue River Valley of Jackson County as early as April 1. Later (1970d: p. 710) they wrote of "at least 4 pairs" present at Medford through June and July, 1970. C. Zeillemaker saw a male at Corvallis, Benton County, June 26, 1972 (Crowell and Nehls, 1972d: p. 896). Breeding of the species has not yet been recorded north of California but surely this is merely a matter of time.

WASHINGTON

In the fall of 1964 a male Anna's Hummingbird appeared at a feeder in Seattle, and continued to visit it daily through the winter. Later it was joined by a female and the two remained until February 27, 1965. The feeder was situated near a window and close observations as well as good color photographs were made by Eleanor Stopps *et al.* (Hesse and Hesse, 1965a: p. 411). This first record for Washington was all the more noteworthy as the winter of 1964-65 was regarded as especially severe. A male and female Anna's Hummingbird appeared at the same feeder November 18, 1965, and again wintered (Baldridge and Crowell, 1966: p. 85; Crowell and Nehls, 1966a: p. 452). The latter writers (1967a: p. 71) reported a female at this feeder in October 1966, and they reported two seen in Seattle during the fall of 1968 (1969: p. 98). Their regional report (1972a: p. 110) for the winter of 1970-71 revealed three birds at Seattle in February and early March, and at least one at Olympia, Thurston County, in December.

BRITISH COLUMBIA

In 1961, R. McKenzie-Grieve saw an Anna's Hummingbird about his residence in Victoria through most of February (Boggs and Boggs,

1961 p 353) Another was reported in Victoria September 24, 1967 (Crowell and Nehls, 1968a: p 82) although details are lacking. At Comox a specimen was collected during the winter of 1967-68 and sent to the Provincial Museum, *vide* David Sterling (Crowell and Nehls, 1968b: p. 470). During the winter of 1969-70 up to three were present at Victoria (Crowell and Nehls, 1970b: p. 531), and the following year birds were "seen repeatedly at Vancouver, B.C., all winter . . ." (Crowell and Nehls, 1972a: p. 110). Another was in Vancouver December 26 and 29, and two at White Rock, B.C. December 24, when Crowell and Nehls (1972b: p. 646) reported a torpid male captured. At least two males were seen in Vancouver the following April by numerous observers including J. Tootchin, G. A. Poynter, and W. C. Weber (Crowell and Nehls, 1972d: p. 896).

ALASKA

On November 13, 1971, a male Anna's Hummingbird was carefully studied and photographed at a feeder in Cordova by Pete Isleib and J. David Solf. It remained to the end of the month. (*AB* 26: 105).

MONTANA

Perhaps the most surprising report of all is that of an immature male Anna's Hummingbird picked up alive by Harry Reynolds, November 16, 1969, in Missoula. The bird reportedly was preserved as a study skin by Dr. J. McLean (Rogers, 1970: p. 523) but I have been unsuccessful in tracing the specimen thus far.

DISCUSSION

The foregoing summary reflects a definite range expansion by *Calypte anna* in recent years. The extent to which increased reporting has resulted from growing awareness of the species' peregrinations, as opposed to actual increases in certain populations, is difficult to evaluate. Nevertheless, it seems likely that the current movement genuinely has been gaining momentum during the past few years.

Probably there have been several eastward movements of the species followed by partial or total "withdrawals" resulting from mortality and inadequate recruitment. Phillips (1947: p. 112) believed most of the Arizona birds returned in December to their California breeding grounds, for he could find no evidence of successful over-wintering or of a return flight during spring. The several specimen records in the 1890's

from northeastern Sonora and southeastern Arizona suggest that a significant movement may have occurred at that time. Occurrences in western Sonora, southern Arizona and perhaps two in western Texas between 1934 and 1940, may reflect an incursion during that period although the data are insufficient to permit more than a guess. In any event, such early flights failed to establish *Calypte anna* as a regularly occurring bird.

Range expansion by this species probably has resulted from increasing population pressure building within the traditional breeding range in California. Thirty years ago Grinnell and Miller (1944: pp. 218, 220) wrote: "Because of human settlement of open valleys and plains and the clearing of woodland, with extensive gardening and the planting of flowering, non-native trees, the numbers of Anna Hummingbirds now no doubt greatly exceed those comprised in original aggregate population. An important factor is the presence now of plants which flower abundantly all through the quiescent period for most native kinds of shrubs . . . This means that the rigors of a 'minimum food period' in the annual cycle have been abated; a much larger population of wintering hummingbirds can carry over . . . The assumption is strongly supported by memory and by the records, that habitat conditions favorable to the Anna Hummingbird have vastly improved and spread in the past 50 years."

Precise data are lacking but probably we may assume a continued spread of Anna's Hummingbird habitat in California since Grinnell's and Miller's time. Presumably this ensures more than enough hummers for continuing emigration and recruitment, ever supplementing the numbers of survivors in newly occupied regions. Additionally, the floristic phenomenon attributed by these writers to California now is applicable in varying degree to several adjoining states. Superimposed upon it is the proliferation of hummingbird-feeders in cities, in hamlets, and about rural residences throughout the West. Thousands are in use in Arizona and New Mexico alone.

There are comparatively few reports of the species outside of California away from suburban sites, but this may reflect only the limited time resident observers spend in natural areas compared to that spent around their homes. Furthermore, hummingbirds in the countryside are widely scattered and easily overlooked during the non-flowering season. Birds nesting in the Santa Catalina Mountains suggest a lack of dependence upon artificial habitats (although we do not yet know the success of these breeding attempts). Nevertheless, I believe the gradual

establishment of *Calypte anna* in Arizona is related to increased use of exotic flowering plants and artificial feeders which can sustain individuals or small populations in unfavorable seasons. Certainly this appears to be true in the Pacific Northwest where survival of wintering Anna's Hummingbirds seems positively linked to human activity.

This paper is largely based on sight records and the problems involved in acceptance of such reports are familiar to all ornithologists. Records published in *Audubon Field Notes* and *American Birds* often are especially troublesome as neither observer nor regional editor sees galley or page proofs covering his reports. Space limitations restrict publication of full supporting details for unusual records. I have not lost sight of the special problems posed by "seasonal records" publications so ably discussed by Van Tyne (1956).

On the other hand, critical and experienced regional editors were responsible for publishing many of the records dealt with here. Some of the early Texas observations, for example, were rightly treated with caution and were reported in guarded language by Fred S. Webster who was fully aware of the improbability of Anna's Hummingbirds appearing on the Texas coast. Possibly some of the 150 recent records (involving over 500 birds seen) reviewed for this paper were based on misidentifications, but clearly the majority were not. Sightings often were well documented, and many of the observers were skilled persons of long experience. It should be stressed, too, that many records dealt with here were not based on isolated sightings of a single bird under normal field conditions. Hummers seen repeatedly at feeders can be closely studied.

These comments should not be construed as advocating universal acceptance of all hummingbird sight records. Identification in this group is not to be lightly undertaken. Apart from the obvious problems there are numerous situations, not covered by any field guide, for which the student can be prepared only by long experience. Anyone who has seen a male Broad-tailed Hummingbird with its forecrown rosy-red from the pollen of certain mountain wildflowers, will look very carefully at any "Anna's" Hummingbird he thinks he sees. I have endeavored, through personal communication with several present and former regional editors of *American Birds* and numerous observers, to verify many of the more important published reports in this journal and its predecessor. To these individuals (named earlier in connection with their publications or specific records) I extend my gratitude. Their detailed replies have materially contributed to

the completeness and accuracy of this paper. I am especially indebted to Gale Monson for his repeated assistance and his criticism of the manuscript.

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