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The West American Scientist.

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HUMMINGBIRDS.

Nearly 500 species and sub-species of hummingbirds are now known. These are divided among about 100 genera. They are found only in the American continent and its associated islands. Scarcely any part of this area, except the colder arctic and antarctic regions, is without one or more species of hummingbird during some part of the year. In the cooler parts of this area they are only summer residents, migrating toward the tropics as soon as the flowers cease blooming. Tropical species migrate but little or not at all.

The traveling flight, if it may be so called, of our species is undulating, somewhat like that of a woodpecker. The shorter, common flights are direct, with regular wing strokes. These direct flights sometimes attain an astonishing velocity, most hummingbirds being able to overtake almost any other bird they choose to pursue. They are peculiar among birds in being able to fly backwards, which they regularly do in backing out from any deep flower they may be feeding in. The flight is often erratic, and sudden pauses are frequently made, when the bird hovers as if suspended in air, the rapidly moving wings being seen only as flickering mist about the body.

Hummingbirds are nearly fearless, their extreme speed and dexterity in turning sharply enabling them to easily avoid any other bird, should it attempt to pursue them. They never alight on the ground, their short legs being unfitted for walking. They perch on twigs or small branches, usually on those situated sufficiently in the open to give a good view of passing insects, a

part of their food being caught in flight, flycatcher-like. A considerable part of their insect food is gleaned among the foliage of shrubbery and trees. Another portion is taken in flowers with the nectar found there. Sometimes nectar forms the greater part of their food.

Hummingbirds are very active, their periods of rest being usually short, though frequent. Many species are pugnacious, but often the seeming quarrels are only frolics. Most species have favorite feeding grounds from which they are inclined to drive other birds. Though not able to injure other birds, their activity in attack is sufficiently annoying that most birds prefer to leave when thus requested to do so. The notes are quite varied in character and several species have a song, consisting of a low more or less musical warble.

The body colors of most females and of many males are some shade of green, often tinged with gold. The males of many species are ornamented with gorgets, ruffs, crests or peculiarly shaped tail feathers, these being often of exquisite metallic colors. As is the usual rule among birds, the females are commonly plainly colored.

The nesting habits of hummingbirds are similar in general character to those of other families of bush- or tree-nesting birds. The nests are commonly saddled on some small branch, and are cup-shaped, open on the top. They are warm, thick-walled, well made structures and from their small size and neat workmanship are dainty examples of bird homes. The eggs are two in number, pure white, oval in

shape and rather large for the size of the parent.

Four genera and at least eight species of hummingbirds are known to occur in California, or nine if the so-called Violet-throated Hummingbird is found to be a good species. The single known specimen was probably a hybrid.

The Rufous Hummingbird (*Selasphorus rufus*) is perhaps our most beautiful hummingbird. It has a very extended range, being found in summer as far north as Cook's Inlet in central Alaska and in winter as far south as the table lands of Mexico. It ranges from the Pacific Ocean east to Colorado and Montana. Its breeding range is from central California north to Alaska and east to the Rocky Mountains. The breeding season commences in April and extends to July. The nests are often placed in shrubs overhanging small streams or footpaths. The nests are usually well stuccoed.

Rufous Hummingbirds are best known in California as spring migrants. In March and April they are abundant in the valleys on their way north. The southward migrants in autumn pass principally through the higher mountain ranges, as flowers are most abundant there at that season. The male Rufous Hummingbirds are very pugnacious but the females are comparatively quiet and well behaved.

Rufous Hummingbirds are often confused with Allen's Hummingbirds (*S. allenii*), which occur with the former species in many localities in the migrations. The females of the two species are so similar that it takes a close examination by an expert to distinguish them. The males are similar in a general way, but the back of Allen's Hummingbird is green, while that of the Rufous Hummingbird is cinnamon-rufous, occasionally tinged with green.

The range of Allen's Hummingbird is not as wide as that of the Rufous. A few individuals winter in the Santa Barbara Islands and seem to be permanent residents there. The bulk of the species winter somewhere south of California, but where is not definitely known, from lack of accurate observations. Its summer range is from west central California northward probably throughout the Cascade Mountains,

seemingly being most abundant not far north of San Francisco, perhaps because more good observers have studied them there.

Allen's Hummingbird is said to be the most quarrelsome of the North American species. Its nesting habits are similar to those of the Rufous Hummingbird.

Joseph Grinnell found a nest containing two eggs March 28th, on Santa Catalina Island.

Anna's Hummingbird (*Calypte anna*) is the commonest and best known species in California. It ranges over most of California and northern Lower California, sometimes migrating into Arizona in autumn. In the coast valleys of central and southern California, Anna's Hummingbirds are resident as a species though most abundant in winter. Their breeding season is long, January to July, one set having even been found in December near Los Angeles. Nests are placed in all sorts of places, at heights varying from two to forty feet from the ground. The greater number of those seen were placed in ornamental trees. The nests are composed of various sorts of materials and are usually stuccoed on the outside with bits of lichens and moss. They are rather large and thick walled. The females are close sitters though surpassed in this respect by Costa's Hummingbirds.

It is probable that those individuals that breed, or are reared in the coast valleys in winter and early spring, migrate to the pine regions of the mountains, being replaced by immigrants from the southern parts of the winter range of the species.

The remaining species of Hummingbirds found in California are:—Black-chinned Hummingbird (*Trochilus alexandri*), a rather common resident of the southwestern United States.

Costa's Hummingbird (*Calypte costae*), ranging over much the same region as the Black-chinned but not as common and found in more arid localities.

Flores's Hummingbird (*Selasphorus fioresi*), a very rare species, two males have been taken near San Francisco, California.

Broad-tailed Hummingbird (*Selas-*

phorus platycercus), a common Rocky Mountain species, occurring in summer in the higher Sierra Nevada Mountains in limited numbers.

Calliope Hummingbirds (Stellula calliope), a moderately common summer resident of the mountains of western North America, breeding from the San Bernardino Mountains of Southern California northward to British Columbia.

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15 MAR. 1902



8 APR 1937

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April, 1902.

Whole No. 112

COLLECTED	DESCRIPTIONS	OF	Southeastern New Mexico."—Coulter,
	CACTI.		Cont Na hb 3:384.

CEREUS PALMERI Engelm.

"Stems branching, 3 or 4 angled, 12-15 dm high; spines in greenish-brown bunches; fruit greenish-yellow, its areolae bearing 5-8 stout spines. Type, Palmer 70 of 1869 in hb Mo bot gard. Sonora."—Coulter, Cont Na hb 3:01.

CEREUS TETAZO Weber.

"Stout, branching, 10-15 m high; flowers greenish-white, 6 cm long, in clusters of 10-20 from the youngest areolae and without any wool; fruit irregularly dehiscent, exposing the ripe pulp. Type, Weber specimens in hb Mo bot gard. Zapatalan, Jalisco."—Coulter, Cont Na hb 3:409.

CEREUS WEBERI Coulter.

"Plant about 10 m high, with a regular candelabra form of branching (2 main branches each producing near the base 2 other branches, all ascending), branches and main stem of same diameter, angled and glaucous; areolae 2-5 cm apart; spines stout, bulbous at base; radials 10 or 11, 2-5 cm long; central solitary, 6-10 cm long, laterally compressed, sometimes a little deflexed; flowers lateral, white, 1-1 cm long; fruit as large as a small orange, covered with small scales bearing axillary wool and spines. Type, Weber, material in hb Mo bot gard. 'A few miles south of Tehuacan', Puebla, Mex.co."—Coulter, Cont Na hb 3:410.

Cereus Dasyacanthus

Variety NEO MEXICANUS Coulter.

"Differs in the remote areolae (1.5 cm apart), fewer spines (11 radials and 4 centrals), which are much stouter, 10-12 mm long, radiating, scarcely (if at all) pectinate, and larger seed (1.5 mm in diameter). Type, Wright 366 in hb Mo bot gard.

CEREUS PECTINATUS

Variety CENTRALIS Coulter.

"Plant 6-8 cm high; centrals usually 4, the lowest very short (3-4 mm) and correct, the upper 2 or 3 as long as the radials (sometimes longer), and recurved upward. Type, Wilcox of 1894 in Na hb. Arizona, near Fort Huachaca."—Coulter, Cont Na hb 3:386.

CEREUS MARGINATUS DC.

"Stem simple or branching at apex, erect, dark green, 5-7.5 cm in diameter, ribs 5-7, obtuse, with acute intervals, woolly through the whole length on account of the prominent areolae; spines 7-9, short (4-6 mm) and conical, rigid, grayish (younger ones purplish-black, the central scarcely distinct from the rest); flower brownish purple, slender-tubular, 3-5 cm long; fruit globular and spiny. Type unknown. From San Luis Potosi southwest throughout Mexico. The stem is often covered with a woody crust, and the woolly confluent areolae are often double. It is said to be frequently used for hedges in southern Mexico."—Coulter, Cont Na hb 3:399.

CEREUS QUERETARENSIS Weber.

"Tree-like, much branched, 6-8 m high; flowers 10-12 cm long; ovary covered with triangular fleshy scales which arise from a tubercle and bear axillary wool and spines; fruit densely covered with bunches of dark-yellowish or brownish spines bulbous at base. Type, Weber specimens in hb Mo bot gard. In the vicinity of Queretaro, Mexico, and cultivated along roadsides and fence rows."—Coulter, Cont Na hb 3:410.

CEREUS HOLLIANUS Weber.

"Branching from base, 4-5 m high and

