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**BIRDS OF THE ISLANDS OFF THE COAST
OF SOUTHERN CALIFORNIA**

BY

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NOTE

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INTRODUCTION

The need for a publication of some kind embracing all possible information in regard to the avifauna of the islands off the coast of southern California first came to my attention in 1908. At that time I began compiling lists of the birds of each of the islands, for my own use only; but, at the suggestion of a few friends, I began four years ago to get these notes into shape for publication. This was undertaken, not because I have worked the islands more thoroughly than anyone else, which is not the case, but because of the special interest I have in the region.

The present contribution was completed and delivered to the Editors in October, 1915, but for various reasons the Club has been long delayed in its publication. During this delay, I have taken the opportunity of bringing the paper up to date, with the beginning of 1917.

The territory covered in the present paper consists of the Santa Barbara Islands as properly restricted: Anacapa, Santa Cruz, Santa Rosa and San Miguel, with certain outlying rocks; the more southern group, popularly included under the same general term: Santa Barbara, San Nicolas, Santa Catalina, and San Clemente; and Los Coronados Islands. The last mentioned group does not lie off the coast of southern California, being Mexican territory and pertaining to Lower California, but is included in this report because of location nearby, and because of faunal similarity to the other islands named.

I regret that I have been unable to spend more time myself in field work—some weeks, at least, on each island. There seems no prospect of this in the near future, and further delay of publication for this reason seems unwise. As a matter of fact, there has been comparatively little work done upon these islands by anybody, and a visit of several weeks to any one of them is almost sure to add one or more new migrants or winter visitants to the list.

The scope of this paper, as originally planned for my own use, has necessarily been amplified. I have endeavored to cite every publication relating to the island avifauna that could be deemed of importance, and to gather all unpublished notes relating to the subject, though I suppose it is useless to hope that I have uncovered every one of either. As a matter of general convenience, the nomenclature and order of the third edition of the American Ornithologists' Union *Check-List* (1910) has been followed, except where modified by the one supplement since published. There are several island races belonging to groups which have lately been monographed, and which have been accorded standings different from those in the *Check-List*. In such cases, while I personally accept, for the most part, the opinions of the men who have done this work, I have in

this publication been content to state their findings in the text, without changing the formal headings under which these species are placed. This appeared to be the best plan, in the interests of convenience and uniformity.

In the treatment of records objection may be made that some unconfirmed ones are included, while others, at first glance apparently just as trustworthy, are relegated to the hypothetical list. I have endeavored to act conservatively in this; but one need not be as strict in such matters in the case of a local paper as in a state list, and I have therefore accepted sight records, by competent observers, of birds not too hard to identify in the field and belonging to such species as one might expect to find upon the islands. On the other hand, in the case of single, sight records, of birds that are especially hard to differentiate in life from closely allied forms, relegation to the hypothetical list has been the only course open to me. As regards another type of record: We know that Dr. J. G. Cooper was a most capable and scrupulous ornithologist; but in his time men did not keep as exact notes, nor label their specimens with as much care, as they now do. I find that several of Cooper's island skins were wrongly identified, while there seem to be a number of mistakes and inconsistencies in his published notes. Therefore, any unusual records of his, unless verified, have been placed in the hypothetical list.

In the cases of birds that do not breed upon the islands, it is often difficult to judge as to their numbers and the regularity of their visits. Therefore, instead of merely citing a few winter records without any explanation, I have stated, when there are instances of the occurrences of a species upon more than one island, the *probable* numbers in which it is found, judging from its relative abundance on the nearby mainland and the apparent likelihood of its occurring regularly upon the islands. In general I have endeavored, besides giving manner of occurrence, to present any little-known habits that may be of interest, especially those relating to species or subspecies which are confined to the islands.

Generally speaking, it is a bad plan in any science to advance fanciful theories, impossible to prove; for a science should be built up of facts. With some things, however, as for example, with bird migration, it is impossible to make absolute statements as to cause and effect, and in such cases it seems justifiable to advance theories, which, even though eventually shown to be incorrect, do good by promoting further discussion. With such an idea I have submitted several theories in the following chapter on "Problems presented by the island avifauna," the resulting conclusions, though not considered as absolutely proven, having been reached through careful consideration of the known facts. While not submitted as final, I trust that they may prove of assistance in building up a further understanding of our insular bird life.

ACKNOWLEDGMENTS

During the preparation of the following paper I have often called upon fellow members of the Cooper Ornithological Club for aid, which, though sometimes incurring trouble on their part, has at all times been most cheerfully and promptly rendered. For furnishing me with important unpublished notes in regard to the island birds, I am very greatly indebted to the following gentlemen: W. L. Dawson, D. R. Dickey, O. W. Howard, L. M. Huey, C. C. Lamb, J. Mailliard, C. W. Richmond and G. Willett; and for supplying much needed information of various kinds, to C. B. Linton, H. C. Oberholser, A. van Rossem, and H. S. Swarth, the latter having been of great help to me in many ways. I am under obligation to F. S. Daggett for allowing me access to the collections in the Museum of History, Science and Art, of Los Angeles; to J. E. Thayer for the loan of specimens and for notes; to the Bureau of Biological Survey, through E. W. Nelson, for the loan of specimens; to the Museum of Vertebrate Zoology of the University of California for access to its collections, and for the loan of specimens; and to W. L. Chambers for the unrestricted use of his splendid library. Finally, to Dr. Joseph Grinnell I am under a lasting debt of gratitude for encouragement, advice on all sorts of subjects, and the use of his unpublished notes. The accompanying map was drawn by C. L. Moody, and the technical descriptions of the islands were taken in part from the Pacific Coast Pilots of the U. S. Coast and Geodetic Survey.

A. BRAZIER HOWELL.

Covina, California,
January 10, 1917.

DESCRIPTIONS OF THE ISLANDS

According to the Pacific Coast Pilot, the Santa Barbara group of islands consists of Anacapa, Santa Cruz, Santa Rosa and San Miguel, but in popular parlance, all the islands treated in this report, with the exception of Los Coronados, constitute the Santa Barbara group.

Very little is known of the geology of these islands, and although one can frequently find statements in the older scientific books and reports that briefly treat of their geological character, competent geologists of the present day are reluctant to render an opinion in regard to their formation. It is a pretty well-accepted theory, however, that they are the protruding peaks of an otherwise submerged mountain chain, which was at one time integral with the mainland, probably during the Tertiary or Quaternary period.

LOS CORONADOS ISLANDS

These are four in number. Their northernmost point is three miles within the Mexican border, and they are seven miles from the nearest part of the mainland, being in the neighborhood of twenty-five miles from San Diego. The group extends about five miles in a northwest and southeast direction. The southernmost and largest island is about two miles long and half a mile wide, rising near the southern end to a height of 672 feet. The two central islands, lying, respectively, one half and three quarters of a mile westward, are much smaller, the lesser of the two being hardly more than a great rock. Their heights are 251 and 101 feet, respectively. They were formerly a favorite resort of the sea elephant, and the west side of the larger one is now the rendezvous of a herd of leopard, or harbor, seals. The fourth island, second in size, lies two and a half miles to the northwestward of south island, and is about a mile long, a quarter of a mile wide, and 467 feet high. There is a large colony of seals on the seaward side. A species of *Peromyscus* is the only land mammal known to occur upon it. The islands are very steep, and, as there is no water, they are comparatively barren, there being only stunted bushes, iceplant and a few patches of opuntia and "cane" cactus. Lizards of several forms are numerous, and on south island there are many rattlesnakes, centipedes and tarantulas, besides several domestic cats, run wild. A good place to camp is at the cove near the north end of the south island, and another, at a little indentation of the shore near the middle of the north island. Indeed these are the only two spots where it is possible to land in rough weather. The islands are uninhabited.

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San Clemente Island is 1964 feet high, and its southeastern end lies sixty miles from Point Loma, near San Diego, from which it is visible on a clear day. It is eighteen miles long in a northwest and southeast direction, with an average width of two and a half miles, the broader and higher part of the island being near the southeast end. The northeast side is straight and bold, with rocky, precipitous cliffs, but the southwest side is lower and more broken. There is rather good grazing here, and large flocks of sheep are kept at this point. Near the southeast end, at Mosquito Harbor, there is water and a number of trees, but the northwest part is devoid of moisture for the greater part of the year, and there are no trees and very little brush. Back from the coast the land is rolling, and near the northwest end are two fresh-water ponds, which are dry during the summer. A *Peromyscus* and a fox occur, and in addition numerous house cats. The San Clemente Wool Company have several ranch houses on the island and it is necessary to obtain permission before staying and hunting in the locality. There is no public boat service.

SAN NICOLAS ISLAND

This island lies fifty-three miles from the nearest part of the mainland, forty-three miles westward from San Clemente, and twenty-four from Santa Barbara Island. It is eight miles long in an east and west direction, with an average width of three miles, and is 890 feet high. Most of the island is very sandy, with no vegetation to speak of, but around the lower end there are a few patches of thorn, cactus and other scrub. Several alkaline springs occur, but the island is, nevertheless, very barren indeed, and animal life is correspondingly scarce. The high central mesa is the home of many sheep, to care for which there is a single herder. Very few boats visit this island.

SANTA CATALINA ISLAND

Santa Catalina Island lies about twenty miles southward from San Pedro. It is eighteen and a half miles long in an east and west direction, with a greatest width of seven miles near the east end; the highest peak, 2109 feet, lies about the middle of the island, near Avalon. The latter is a famous fishing ground and resort, with a resident population of several hundred. It is two and a half miles from the east end. About six miles from the western end is a deep cut that almost divides the island. Catalina is rugged and mountainous, with steep, precipitous shores, intersected occasionally by deep gulches and small valleys; good water occurs in a number of places. For the most part it is covered with brush and scrub oak, with some fair-sized trees in the canyons. The uplands and hillsides, however, are often bare, except for grass. Two species of mice, a ground squirrel, and a fox occur here, but the latter is almost extinct because of contracting "scabies" from the sheep, which causes them to become blind. An excursion boat makes a daily run from San Pedro to Avalon.

SANTA BARBARA ISLAND

Santa Barbara Island lies twenty-one miles in a general westerly direction from Catalina. It is one and a half miles long, with a maximum width of one mile, the highest point being 547 feet. The shores are bold and precipitous, with but one regular landing place, even that being impossible to negotiate in very rough weather. A rocky islet 257 feet high is situated a third of a mile southwestward, and a smaller one with a height of 125 feet lies two hundred yards to the westward. Except for two hills, the top is a smooth mesa with a heavy growth of grass and weeds. In certain parts there are scrubby bushes and patches of cactus, with an abundance of iceplant. There is no water, and no one lives upon the island. House cats have become established there.

ANACAPA ISLAND

This is the easternmost one of the northern group, and consists of three islets separated by narrow passages, the eastward channel being navigable for small boats at high tide only. The eastern point lies ten and three quarter miles from the nearest mainland. The islands extend four and a half miles in a general east and west direction. The eastern extremity of the group is a large arched rock, but the true eastern island is a mile long, a quarter of a mile wide, and 260 feet high. It is the lowest of the group and is rather level on top. The middle one is nearly one and three quarters miles long, three quarters of a mile wide, and 320 feet high. The western and largest island is two miles long, three quarters of a mile wide, and rises to a peak 980 feet high. The shores are perpendicular and filled with numerous caves. This is a most beautiful island, especially in the spring, when it is covered with verdure and wild flowers.

SANTA CRUZ ISLAND

Santa Cruz Island is the most beautiful and the largest island of all, being twenty-one miles long, in an east and west direction, with an average width of five miles, and a peak 2407 feet high. The eastern part is very irregular, barren and almost destitute of water. The western part, however, is, in certain localities, especially near Prisoners Harbor, plentifully besprinkled with forests of the Santa Cruz pine, which, in the higher parts, gives a distinctly boreal impression. At the lower edge of the pines are oaks and considerable grass land. The larger canyons are well wooded with a variety of deciduous trees, some of them quite large, and there is good water in many of them. Low cliffs skirt the shore. About three quarters of a mile southward from the southern end, is Gull Islet, 150 feet high, it being the largest and outermost of a group of small rocky islets a quarter of a mile in extent. There are two ranches upon the island, and a small hotel which is visited more or less regularly by an excursion boat from the city of Santa Barbara. Good camping spots can be found almost anywhere. There are many sheep on the island, a few pigs and house cats run wild, and there are some foxes, though the latter are not as plentiful as formerly.

SANTA ROSA ISLAND

Santa Rosa Island lies five miles westward from Santa Cruz, and is fifteen miles long, with a maximum width of ten miles. The shores are bold, high and rocky; the highest point is 1562 feet, near the middle of the island. Water is plentiful, and the island is covered with vegetation, but there are no large trees. There are sheep upon the island and several people live there, but it is hard to obtain permission to stay upon it.

SAN MIGUEL ISLAND

This is the westernmost island of the group, and is the most difficult to approach. Its western point lies about twenty-five miles south of the nearest mainland, and its eastern point three miles westward from Santa Rosa. The island is irregular in shape, seven and a half miles long in an east and west direction, and with an average width of two miles. The highest points, 860 and 850 feet respectively, are about the middle of the island near the southern shore. There is much long grass but no trees, and in the western part there are extensive sand dunes. This sand is constantly shifting and encroaching on the remainder of the island. The shores are bold, broken and rocky, with a few short stretches of beach, the southern shore being more precipitous than the northern. Several fairly good landing places occur, and there is some good water. Prince Islet, 303 feet high, lies a half mile off Cuyler's Harbor, which is about midway on the northern coast. It is a breeding place for many sea-fowl.

Begg's, Wilson, and Richardson rocks are all three of small extent, and are respectively 40, 15, and 50 feet high. As far as I know, they have been visited by no ornithologist. A few gulls and cormorants may make their homes upon them, but it is unlikely that they hold anything of greater interest.

PROBLEMS PRESENTED BY THE ISLAND AVIFAUNA

The climate of the islands, taken as a whole, is more equable and humid than that of the mainland coastal plain nearby. Although rainfall records are lacking, it is common belief that even the islands nearest shore receive slightly less rain than does the adjacent mainland. This is to be expected, for the nearer one approaches to the mountains, the heavier is the annual rainfall. Those islands farthest from the coast have a still smaller precipitation, and are correspondingly more barren. The increased humidity, despite the lesser rainfall, is caused by the modifying influences of the surrounding sea and frequent fogs. The climate of any one of the larger islands shows much variation, according to exposure. The seaward sides are subjected to dense fogs and heavy winds, tending to raise the average temperature in winter and lower it in summer. The comparatively sheltered landward sides are much warmer during the summer months, occasionally presenting an aspect that is decidedly Lower Sonoran, though in reality, the Upper Sonoran is the lowest, and by far the most prevalent zone that occurs. In winter the temperature is higher than it is at the same altitude on the nearby mainland coast, due again to the sea; frosts are unknown, except possibly on the higher parts of the islands.

On some islands there are high, grassy ridges and tablelands, in strong contrast to the wooded canyons, and on Santa Cruz, pine forests, which, while probably of a Transition nature, present features decidedly boreal in appearance. Although certain characteristics of other parts of this and other islands impress one as being in a higher zone than Upper Sonoran, I am of the opinion that these pine forests are the only spots in the region that will bear out such an impression. Taken as a whole, the climate of the islands probably has a lower mean temperature than that of the adjacent coastal plain, which would tend to give them a climate somewhat approaching that of the coast farther north, though not with any conspicuous effect upon the flora and fauna.

The Santa Barbara Island Faunal Area, as a division, would seem to be considered such more because of convenience and its geographical position, than because of any general uniformity or peculiarity of animal or plant life. Geographically it is segregated from the rest of the state, and the distinct insular forms afford an apparent reason for terming it a separate faunal area; in reality it is made up of an infusion from several of the other California divisions. In the main, it is clearly San Diegan, but it also contains elements of the Sierran Area, and to a greater extent is suggestive of the more humid northern coast district, not so much of the Humid Coast Faunal Area as, say, of the San Francisco Bay Region.

Colonization of the islands by birds may have been brought about in two, or possibly in three, ways. First, through those species which originally lived in the territory at the time when the islands were part of the mainland; these would seem to constitute the bulk of the species now resident there. Second, through such instances as where a pair or more of a species had wandered from the mainland during fogs, or, having been blown to an island by storms, settled there permanently. This theory, has, I believe, been accepted as an explanation of the presence of some few resident birds on other islands. A third theory, which I consider rather improbable, is that a few individuals of a species regularly or occasionally visiting the islands in winter or during migration, have remained to breed.

Conditions bearing upon the bird life of the islands differs from those on the mainland in a variety of ways, as one would expect. Here we have the survival of the fittest carried to the extremest degree. If a species cannot readily adapt itself to changed conditions, it is unable to seek more congenial surroundings, as on most parts of the continent, but must get along where it is, or perish. If structural adjustments are possible, insular forms arise. Food on the islands must differ, in the case of many birds, from that available on the mainland; but to just what extent, it is impossible to say. Notable cases are those of the insular Mockingbird and House Finch, which feed on the fruit of the opuntia cactus until their whole fronts are stained by the red juice. This may enter into the menu of their mainland relatives as well, but certainly not to a like extent.

As for extreme change of habits, one has but to visit Santa Barbara Island to be impressed by the case of the Song Sparrow. This island is rather barren and without water; so, instead of a shady retreat among the dense brush of a damp ravine, we see the little fellows out-larking the Horned Larks themselves, among the iceplant and short grass of the mesa. The House Finches have taken to building in pockets of the conglomerate cliffs as well as in the cactus, and the Dusky Warbler, instead of building almost invariably on the ground, as does the Lutescent, prefers a vine, shrub, or even the branches of a tree fifteen feet above the ground.

Different exposures would seem to give more widely varying results than do similar situations upon the mainland, judging by my experiences on Todos Santos Island, near Ensenada, Lower California. This island, of course, is beyond the range of the present paper, but it is very similar to the smaller of the Santa Barbara Islands, and is comparable in climate as well as otherwise. From April 15 to 20, 1910, I was on Todos Santos, and found that at the northern end the San Clemente House Finches were far advanced in nesting (Howell, *Condor*, xiv, 1912, p. 190). I found only two pairs having eggs far advanced in incubation, while a dozen were located with young in all stages, some of which were ready to leave the nests. On the southern end, fresh eggs and incomplete sets was the rule, no young at all being noted. This was an unusual state of affairs. The island is a mile and a quarter long and the northern end is windy and fog drenched, while the southern part is comparatively warm and sheltered. I am unable to offer any explanation of this. Certainly the food supply could not have had anything to do with it in such a small area.

Judging by the data in hand, the whole life cycle of the smaller insular subspecies and species, on the more southern islands at least, is shifted a month or six weeks earlier than that of the corresponding mainland forms. On San Clemente Island in 1915, we collected during the last week in March juvenile Shrikes, Song Sparrows, Horned Larks, House Finches and San Clemente Wrens that were strong on the wing and with well grown tails. These were not isolated cases, for after the first day seen, the youngsters at once became common. On April 9 I shot a young Song Sparrow that had almost completed the post-juvinal molt. On the same date, on San Clemente, however, the larger birds, such as the Bald Eagle and the Raven, were not farther advanced in breeding operations than one would expect. On Todos Santos Island, April 16, 1910, a pair of Barn Owls had a nest containing a chick two-thirds grown, while during the first part of the month, on the mainland, I examined two occupied nests which as yet held no eggs, though of course Barn Owls sometimes do lay before this date. As previously mentioned, there were young House Finches there at the same time that were ready to leave the nest, but on the mainland there is not much use looking for Linnets' eggs before the last of March.

This early nesting may be due to obscure and unrecognized causes, but it is partly influenced by the mild winters, and to a greater extent, by the abundant food supply. In regard to the latter, it is hard to make comparisons, for on parts of the mainland where trees occur, there are large numbers of insects in the tops of these, while on an island such as San Clemente they are under one's feet and more readily noticed. Be that as it may, on some of the islands insects are everywhere, and as there is no frost to reduce their numbers, the birds do not have to wait in the spring until the presence of a new generation of bugs enables them to begin nesting operations.

The molt, also, takes place earlier than is usual upon the mainland, and birds in fresh plumage may be taken in early August, if not before. March specimens are sometimes as ragged and faded as mainland ones taken in late June, and by the time the new feathers begin to grow some of the birds are almost naked.

Small birds on the islands are particularly numerous, due partly to the abundant food supply, in large measure to the absence of many predaceous forms, and to the excellent cover afforded by the patches of cactus and thorny scrub with which the islands abound. Here they usually nest and roost, secure from everything except, in the case of the smaller ones, an occasional marauding mouse.

The birds of the Santa Barbara Islands have not lost any of their fear of man, as have, for instance, those of the Galapagos Archipelago. The aborigines inhabited some of the islands for a long time, and white men have been visiting them for many years. On the Coronados I have had Song Sparrows hopping about within two feet of my head, but, on the other hand, the Island Shrike is the most wary land bird for its size that I have ever encountered.

The formation of insular races is so shrouded in mystery that it is unsafe to speculate as to causes and effects save in a most general way. We can see that climate has played an important part in this. As mentioned previously, the gen-

eral island climate has a slightly northern or more humid tendency, and this has its expected effect in that the majority of forms are slightly darker than are their relatives on the adjacent mainland. In connection with the effect of climate on the birds as they were and as they now are, it is interesting to speculate in regard to a number of suggestions and theories set forth. The previous integrity of the islands and continent, and their subsequent separation at an uncertain date; the effects of the encroaching ice cap in glacial times; some of the tendencies of Pleistocene times as indicated by the avifauna of the Rancho La Brea beds, and the finding there of conifers which do not now occur in the contiguous territory: all this makes interesting food for thought and speculation, but is not closely enough related nor well enough understood for me to dare to set down any conclusions. Each of these changing factors has undoubtedly had an influence, however.

Both food and the quest of it have probably been contributing factors in the forming of island races. It might readily be that in the course of time an arboreal form inhabiting an island that had few trees and few predaceous forms, would show a shortening of the wings, and corresponding increase in the size of the lower extremities. Whether or not, this has had any effect, it is a fact that practically all the island subspecies whose feet differ from the forms of the mainland, have those parts heavier, but without the correlated shortening of the wing. Habits, as previously illustrated in the Song Sparrows of Santa Barbara Island, may have an active influence in this connection, and the effects of inbreeding must also be considered. It is a well known fact among breeders of domestic animals that continual inbreeding will result in loss of vigor, lessening of size, and accentuation of any defective points; and that it will help to bring out latent atavistic tendencies. This surely does not concern us in the majority of instances; but where a stray pair of a species has reached an island and remained to breed, I believe that the resultant inbreeding would have a strong tendency to form characters differing from the original type.

The island species and subspecies, including those that have been deemed unworthy of recognition by the A. O. U. Committee, number nineteen. When differing at all in dimensions from their relatives of the mainland, it is in the following respects. Wing: in three races shorter and in two longer. Tail: in one shorter and in two longer. Bill: in two smaller and in ten larger. Tarsus: in one smaller and in seven heavier. Toe: in one shorter and in seven heavier or longer. Eleven of the races show darker markings and three show lighter markings. Taking a composite of the lot, we find that the influences of this group of islands tend to produce a bird of greater total length, with larger, heavier bill, and heavier tarsus and foot. The length of wing and tail remains about the same, and coloration becomes darker, with brighter colors and heavier streaking.

There seems to be a well used line of migration through the islands. Practically none of the passerine transients occur in large numbers, but the seasonal waves of migration are well marked. There are several records from these and the Farallon Islands, of birds that are decidedly rare in any part of the far west. Winter visitants are abundant, but the species which are absent during the winter, and return to the islands for the purpose of breeding, number only five.

GENERAL ACCOUNTS OF THE BIRDS

1. **Aechmophorus occidentalis** (Lawrence)

WESTERN GREBE

Aechmophorus occidentalis (1) Howell and van Rossem, Condor, XIII, 1911, p. 209.

Probably a regular and not uncommon winter visitant. C. B. Linton (*MS*) has noted this species at different times during the winter months in the vicinity of San Clemente and Santa Barbara islands. A. van Rossem (1) noted a single bird at Santa Cruz Island the latter part of April, 1911.

2. **Colymbus auritus** Linnaeus

HORNED GREBE

Colymbus auritus (1) Dawson, Condor, XVII, 1915, p. 204.

W. L. Dawson (1, *MS*) saw and photographed two of these birds at Prisoner's Harbor, Santa Cruz Island, April 22, 1915. He says that in the photographs the species is recognizable, as the birds were approaching high nuptial plumage.

3. **Colymbus nigricollis californicus** (Heermann)

EARED GREBE

Colymbus nigricollis californicus (1) Grinnell, Pasadena Acad. Sci., II, 1898, p. 5.

Am[erican]. Eared Grebe (2) Grinnell, Bull. Cooper Orn. Club, I, 1899, p. 19.

Colymbus californicus (3) Linton, Condor, X, 1908, p. 82. (4) Linton, Condor, X, 1908, p. 125.

Common in winter about all the islands. C. B. Linton (*MS*) has found the species at San Nicolas in winter, and (3) recorded large flocks near the north end of San Clemente from December to March, 1907. He also reports (4) one specimen taken at Santa Cruz during November of the same year. During the latter half of April, 1911, A. van Rossem and I found the birds to be rather common in the latter locality. One taken April 25 was in the midst of the spring molt. J. Grinnell (1) found them to be numerous at Catalina during the last week in December, 1897, and I have noted them there repeatedly throughout April.

4. **Podilymbus podiceps** (Linnaeus)

PIED-BILLED GREBE

The only record of this species from the islands seems to be that of a female taken by H. Wright at San Clemente, August 26, 1908, and now in my collection.

5. **Gavia immer** (Brünnich)

LOON

Gavia immer (1) Dawson, Condor, XVII, 1915, p. 203.

While at Santa Cruz Island during April, 1915, W. L. Dawson (1) saw several of these birds at close range. This species undoubtedly occurs about the isl-

ands in numbers during the winter, as it does along the mainland, but unless especially hunted for, loons are most often seen at long range. As the several forms are hard to differentiate under such circumstances, common loons may have been noted about the islands and ascribed to the more numerous *pacifica*.

6. **Gavia pacifica** (Lawrence)

PACIFIC LOON

Urinator pacificus (1) Grinnell, Pasadena Acad. Sci., II, 1898, p. 5.

Pacific Loon (2) Grinnell, Bull. Cooper Orn. Club, I, 1899, p. 19.

Gavia pacifica (3) Linton, Condor, x, 1908, p. 125. (4) Linton, Condor, xi, 1909, p. 193.

(5) Willett, Pac. Coast Avif., 7, 1912, p. 10. (6) Dawson, Condor, xvii, 1915, p. 205.

Abundant about the islands during migration, and not uncommon in winter. C. B. Linton (4) reports having seen a few around San Clemente during the winter of 1908, and J. Grinnell (1) took two specimens at Catalina during the last week in December, 1907. A. van Rossem and I found them to be present at Santa Cruz Island during the last half of April, 1911.

G. Willett (5) states that they arrive in September and leave in May, but the bulk of the spring migration occurs from the middle to the last of April. The main line of travel seems to be about twenty miles off shore, though in places it is a trifle nearer. During a favorable morning I have watched thousands of what must have been this species flying north in detached companies of from half a dozen to thirty individuals, and all following exactly the same line of flight. At this time the birds like to feed in the little coves along the shores of the islands, to which they are doubtless attracted by the spawning smelt. They are fond of fishing in company with cormorants, and during the heat of the day, mixed flocks of these several species may often be seen sleeping or playing a hundred yards beyond the surf.

7. **Gavia stellata** (Pontoppidan)

RED-THROATED LOON

Gavia stellata (1) Dawson, Condor, xvii, 1915, p. 203.

W. L. Dawson (1) states that during most of his stay on Santa Cruz Island, April 3 to 22, 1915, there was a single individual of this species usually to be found in the vicinity of Prisoner's Harbor. While it is hard to distinguish between this form and *pacifica* except at close range, there is every indication that *stellata* is a regular and not rare winter visitant to the islands.

8. **Lunda cirrhata** (Pallas)

TUFTED PUFFIN

Lunda cirrhata (1) Henshaw, Rep. Wheeler Surv., 1876, p. 278. (2) Streater, Proc. Sta. Barbara Soc. Nat. Hist., I, 1887, p. 23. (3) Streater, Orn. & Ool. XIII, 1888, p. 53. (4) Grinnell, Pasadena Acad. Sci., I, 1897, p. 22. (5) Grinnell, Pasadena Acad. Sci., II, 1898, p. 6. (6) Grinnell, Pac. Coast Avif., 3, 1902, p. 10. (7) Willett, Condor, XII, 1910, p. 172. (8) A. O. U. Check-list, 3d ed., 1910, p. 25. (9) Howell and van Rossem, Condor, XIII, 1911, p. 209. (10) Willett, Pac. Coast Avif., 7, 1912, p. 10. (11)

Wright and Snyder, Condor, xv, 1913, p. 87. (12) Grinnell, Pac. Coast Avif., 11, 1915, p. 17.

L[unda]. cirrata (13) Coues, Key N. Am. Birds, 5th ed., 1903, p. 1066.

Tufted Puffin (14) Willett, Condor, xii, 1910, p. 170.

Common resident about the northern islands, occurring farther south in winter. C. B. Linton and G. Willett (10) each saw a bird near San Nicolas in May, 1910, and on June 23, 1911. The latter date would indicate that the birds possibly breed in the vicinity, but I think this is doubtful. I saw them near an inaccessible cliff on Catalina in April, 1911, but I hardly think it likely that they nest there, as they had not before been reported from this, probably the most often visited island of the group, during the breeding season.

Eggs have not been taken on Santa Barbara Island, to my knowledge, but in April I have found burrows there that undoubtedly belonged to this species. H. Wright (11) records what were probably the same burrows, July 4, 1912, and the fact that he saw five birds in the vicinity. On Anacapa the same writer found the birds to be quite numerous near the east end, but very few nests were accessible. Those examined held either young or egg shells, July 5. At the same place D. R. Dickey (MS), in 1913, noted a number of pairs going to and from the cliffs, but examined no nests.

A. van Rossem and I found the birds to be fairly common at Santa Cruz Island during April, 1911, and the fishermen told us that they breed regularly near the north end of the island. Although several writers give this bird as a common resident there, definite breeding records from the locality seem to be lacking, as also from Santa Rosa.

At San Miguel a large colony makes its home on Prince Islet. J. S. Appleton and H. C. Burt (10) took fresh eggs there June 6, 1906, while H. Wright (11) found young from a few days to several weeks old, July 10, 1912.

9. *Cerorhinca monocerata* (Pallas)

RHINOCEROS AUKLET

Cerorhyncha monocerata (1) Baird, Brewer and Ridgway, Water Birds N. Am., ii, 1884, p. 522. (2) Ogilvie-Grant, Cat. Birds Brit. Mus., xxvi, 1898, p. 611.

Cerorhinca monocerata (3) Grinnell, Pasadena Acad. Sci., ii, 1898, p. 6. (4) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 13. (5) Linton, Condor, x, 1908, p. 125.

(6) Linton, Condor, xi, 1909, p. 193. (7) Willett, Pac. Coast Avif., 7, 1912, p. 10.

Rhinoceros Auklet (8) Grinnell, Bull. Cooper Orn. Club, 1, 1899, p. 18.

Common in winter near all the islands. In June, 1913, on one of the Coronados, I found the desiccated remains of a Rhinoceros Auklet which apparently had been partly eaten by a Duck Hawk the winter before. C. B. Linton (6) took two specimens at San Clemente during the winter of 1908, and J. Grinnell (3, 8) reported the species as especially abundant at Catalina during December, 1897, he having secured ten specimens on the 29th. He states that they were particularly wary, swimming under water for three hundred yards or more when pursued.

Dr. Heermann (1) thought that they burrowed on Santa Barbara Island,

but what he found were probably the holes of the puffins; he saw an Auklet fly ashore with a fish in its mouth, and plunge into a hole. Of course these birds *may* have nested on Santa Barbara many years ago, and since become extirpated. I am inclined to think that Heermann must have been mistaken as to the identity of his bird, it having been "towards night", but anyway, there is small likelihood of the species having nested on any of this group of islands for a great many years.

C. B. Linton and G. Willett (7) took specimens during November and December at Santa Cruz Island, and found that they were not particularly shy. The crops of those shot contained sardines three or four inches long. There is in the British Museum (2) an adult taken in spring at San Miguel.

These birds are deep water fishermen and are to be found near the islands only where the ocean bottom drops abruptly. When resting they present a very chunky appearance, and, like most of their near relatives, they prefer to escape a pursuer by diving rather than by flying. They arrive in October and leave the first part of May, as A. van Rossem and I found them not uncommon at Santa Cruz Island up to May 2, 1911. Some of them, at least, acquire their nuptial plumage before this time.

10. *Ptychoramphus aleuticus* (Pallas)

CASSIN AUKLET

Ptychoramphus aleuticus (1) Cooper, Proc. Calif. Acad. Sci., IV, 1870, p. 79. (2) Baird, Brewer and Ridgway, Water Birds N. Am., II, 1884, p. 519. (3) Streater, Orn. & Ool., XIII, 1888, p. 54. (4) Townsend, Proc. U. S. Nat. Mus., XIII, 1890, p. 140. (5) Stephens, Auk, X, 1893, p. 298. (6) Grinnell, Pasadena Acad. Sci., I, 1897, p. 22. (7) Ogilvie-Grant, Cat. Birds Brit. Mus., XXVI, 1898, p. 600. (8) Grinnell, Pac. Coast Avif., 3, 1902, p. 10. (9) Grinnell & Daggett, Auk, XX, 1903, pp. 30, 37. (10) Robertson, Condor, V, 1903, p. 96. (11) Breninger, Auk, XXI, 1904, p. 222. (12) Reed, N. Am. Birds' Eggs, 1904, p. 14. (13) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (14) Linton, Condor, X, 1908, p. 82. (15) Linton, Condor, X, 1908, p. 125. (16) Wright, Condor, XI, 1909, p. 98. (17) Osburn, Condor, XI, 1909, p. 135. (18) Willett, Condor, XII, 1910, p. 172. (19) Willett, Pac. Coast Avif., 7, 1912, p. 11. (20) Wright and Snyder, Condor, XV, 1913, pp. 86, 88. (21) Grinnell, Pac. Coast Avif., 11, 1915, p. 18.

Ptychoramphus aleuticus (22) Grinnell, Pasadena Acad. Sci., II, 1898, p. 6.

Cassin Auklet (23) Beck, Bull. Cooper Orn. Club, I, 1899, p. 85. (24) Anthony, Bull. Cooper Orn. Club, I, 1899, p. 102. (25) Willett, Condor, XII, 1910, p. 171.

A most abundant resident, breeding in all suitable localities that are free from cats and foxes. On the northernmost of the Coronados group there is a very large colony of these birds, but they occur on none of the other three. Common in the vicinity of San Clemente and Catalina during the winter months, but not recorded from either place in summer or spring.

In May, 1863, Cooper (2) found these birds numerous on Santa Barbara, where they had undermined almost every part of the soft, earthy surface with their burrows. In May, 1897, J. Grinnell (8, 22) recorded it as breeding in large numbers in the same locality. Since that time, cats have been introduced, and

in May, 1908, I could find no indications of the auklets' presence on the island. G. Willett (19), however, found about a hundred pairs breeding on a large detached rock near the main island, June 14, 1911. Nine nests examined held heavily incubated eggs.

G. Willett (25) states that the birds were common at Anacapa the night of June 5, 1910, and were undoubtedly breeding. They are not found on the main part of either Santa Cruz or San Miguel, but on a rocky islet near Scorpion Harbor, at the former island, R. H. Beck (23) found many occupied burrows on June 5, 1895. On Prince Islet (San Miguel) there is a large colony (18, 19, 20) which occupies all available space. Willett (19) thinks that they breed on Santa Rosa.

This species probably outnumbered all our other small pelagic birds combined. They seem to be somewhat more plentiful in winter than during the rest of the year, so it is possible that, although considered as non-migratory in California, there is, during the cold weather, a limited influx of individuals that have bred farther north, which mingle with the local birds. The nesting season varies appreciably from year to year. The birds begin looking for home sites towards the latter part of February, and fresh eggs may be expected by the last of March. During the middle of June, 1910, on the Coronados, however, I found fresh eggs to be the rule, and encountered but one small young out of a score of nests examined. On July 1, 1913, D. R. Dickey, A. van Rossem and I found but two or three badly incubated eggs, the remainder of the nests containing young in various stages, most of them being half grown. Other observers have reported a similar variation of nesting dates.

The single white egg is laid by preference in a burrow in soft ground, but in a large colony, a number of birds are forced to occupy crannies under and between rocks. New burrows are not constructed when old ones are available, and some of the latter are a foot in diameter at the entrance, seeming to have been occupied for a very great number of years. The birds are rather filthy, and the burrows have a very bad odor, strongly reminding one of an ill kept chicken house. The nestlings are at first covered with a slaty down which remains on the tips of the feathers some time after these have grown out. In the morning the crops of the youngsters were found to be stuffed with a thin, homogeneous mass which smelled most vilely.

The adults forage well out to sea, in pairs or as many as twenty-five individuals in a flock. They suffer a great deal from the depredations of the Duck Hawks, a pair or two of which are usually to be found near each colony. The auklets attain an amazing speed when pitching vertically from the tops of the islands upon being released from the hand, but the falcons overtake them with ease, and continue to slaughter after their hunger has been appeased, merely for the fun of it. The great mortality among these birds that the winter storms cause is appalling. After one of these storms I have walked along the beaches of our mainland for mile after mile, and counted dead or dying birds, sometimes averaging as close together as one every hundred yards (see *Condor*, xvi, 1913, p. 144). This is probably due more to their being unable to feed in very rough water, rather than to the buffeting of the waves.

11. **Synthliboramphus antiquus** (Gmelin)

ANCIENT MURRELET

Synthliboramphus antiquus (1) Linton, Condor, x, 1908, p. 125. (2) Linton, Condor, xi, 1909, p. 102. (3) Linton, Condor, x, 1908, p. 193. (4) Osburn, Condor, xiii, 1911, p. 76. (5) Willett, Pac. Coast Avif., 7, 1912, p. 11. (6) Grinnell, Pac. Coast Avif., 11, 1915, p. 18.

Probably a regular winter visitant, though there are comparatively few records of its occurrence. C. B. Linton (2, 3) took several and saw the remains of others during November and December, 1908, at San Clemente. At Catalina, February 13, 1910, A. van Rossem (MS) obtained an individual that was feeding near several Rhinoceros Auklets. C. B. Linton (1) secured two near the shore of Santa Cruz Island, December 17 and 18, 1907.

12. **Brachyramphus hypoleucus** Xantus

XANTUS MURRELET

Brachyramphus hypoleucus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1868, p. 12. (2) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79. (3) Goss, Auk, i, 1884, p. 396. (4) Bryant, Cat. Birds Lower Calif., 1890, p. 250. (5) Grinnell, Pasadena Acad. Sci., i, 1897, p. 23. (6) Grinnell, Pasadena Acad. Sci., ii, 1898, p. 6. (7) Brewster, Birds Cape Region Lower Calif., 1902, p. 15. (8) Grinnell, Pac. Coast Avif., 3, 1902, p. 11. (9) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 16. (10) Reed, N. Am. Birds' Eggs, 1904, p. 16. (11) Linton, Condor, x, 1908, p. 125. (12) Lamb, Condor, xi, 1909, p. 8. (13) Wright, Condor, xi, 1909, p. 98. (14) Osburn, Condor, xi, 1909, p. 136. (15) Linton, Condor, xi, 1909, p. 193. (16) Willett, Condor, xii, 1910, p. 170. (17) Howell, Condor, xii, 1910, p. 184. (18) A. O. U. Check-list, 3d ed., 1910, p. 30. (19) Willett, Pac. Coast Avif., 7, 1912, p. 12. (20) Wright and Snyder, Condor, xv, 1913, pp. 86, 89. (21) van Rossem, Condor, xvii, 1915, p. 73. (22) Grinnell, Pac. Coast Avif., 11, 1915, p. 19.

Xantus Murrelet (23) Anthony, Bull. Cooper Orn. Club, i, 1899, p. 102. (24) Peyton, Oologist, xxx, 1913, p. 78.

Micruria hypoleuca (25) Anthony, Auk, xvii, 1900, p. 168.

Occurs in considerable numbers throughout the entire group of islands during the winter, and has been recorded breeding as far north as Anacapa.

A. W. Anthony (23) was the first to discover this bird nesting on the Coronados; since then it seems to have increased steadily in numbers, until at present it may be classed as abundant on all four islands of the group. One or more wild house cats on south island, however, make sad inroads on the birds that venture to nest there. C. B. Linton (15) took one at Clemente in December, 1908; H. Wright (19) has seen them there in summer, and believes that they were breeding. I consider this highly improbable, however, except that a few pairs may possibly be found on a large rock near the western end.

J. G. Cooper (2) reported them as breeding sparingly on Santa Barbara Island in 1863, and H. Wright (20) found a single fresh egg in a hole on this island, July 2, 1912. They are surely destined to be driven from this locality, as have the auklets, by the cats. H. C. Burt (19) took a slightly incubated egg on Anacapa, May 15, 1911, and during the spring of 1913, D. R. Dickey and A. van

Rossem found the birds to be not uncommon in the same locality. One was shot by G. Willett (11) during November, 1907, at Santa Cruz Island.

A. W. Anthony (23) states that on the Coronados in April, nearly all the eggs had hatched, but I have found fresh eggs in numbers the latter half of June, and a partly incubated set July 11, 1910. This might argue that two families are raised each year, but as a number of eggs are broken against the hard rocks on which they are deposited, and as the mortality among the downy young must be considerable, I am inclined to think that the great proportion of *hypoleucous* to be found nesting late in the season are birds whose first sets have come to grief.

They do not assemble in colonies, but a number of pairs will often nest close together in some especially nice rock slide or other favorite location. Nests may be found from just out of reach of the high tides to the very tops of the islands. A real burrow is never constructed, nor will they inhabit one that is made by another bird, the usual site being a deep cranny under or between rocks and boulders. They will, however, enlarge a small crack between the ground and a rock, or scratch away a hollow in the loam beneath a tangle of low brush. No material is used for construction of a nest, and a surprising number of eggs are cracked by rubbing against the sharp rocks. Forty-eight hours elapse between depositions of eggs, and these occur before six in the morning.

A series of 152 eggs collected during the last few years by D. R. Dickey, A. van Rossem and myself, and measured by me, averages 2.10x1.41 inches. Extremes are 1.93 to 2.30 inches in length, and 1.29 to 1.51 in diameter. No bird on the *Check-List*, possibly with the exception of those of the genus *Uria*, lay eggs exhibiting as wide a variation in color and markings as do those of Xantus Murrelet. Eggs even of the same set run from an almost solid dark chestnut to a clear sky blue with very faint markings. The majority have either a dark sea green or drab ground color, with a great variety of brown and lavender cloudings, spots and blotches. It is but rarely that both eggs of a set are of the darker type. D. R. Dickey has made a careful study of the sets of single eggs that occur so frequently, and he (*MS*) believes that the single eggs are incomplete sets, the parents of which have been killed, possibly by Duck Hawks, before the second egg was laid. Be that as it may, he has found only one incubated egg out of more than fifty sets of singles that he has examined, the remainder being either fresh or addled. This would indicate that the species practically never lays less than two eggs to the normal set.

The young show amazing vitality. A set of two pipped eggs rescued by A. van Rossem and myself after having been deserted among the cold, damp rocks by the parents thirty-six hours before, hatched two lusty youngsters, and these we succeeded in keeping alive for several days on a diet of hard-boiled eggs. When we substituted bits of fish for this, one died. The other escaped from his box, crawled out of the tent, tumbled down a cliff, and when discovered was making his way with all speed out to sea. The tarsus of a newly hatched chick is nearly as long as that of an adult, and they swim very fast, with their little feet fairly twinkling. Upon being placed in the sea at the age of two days, our bird at once made itself at home, diving at the slightest suspicion of danger and

swimming for several yards beneath the surface. A large fish twice rose at him, which the little fellow cleverly dodged. As in the case of the Ancient Murrelet (Heath, Condor, xvii, 1915, p. 35), the young are called to sea at night by the old birds. This, in the case of the present species, I have found to occur when the chicks are from three to four days old. I have gained so much respect for their swimming powers that I am inclined to think that but few perish by being dashed against the rocks while entering the sea. I do believe, however, that the larger fish get a good many, and as their down readily becomes waterlogged, numbers must perish during the spring storms. When first hatched, they present the most attractive appearance of any bird I know.

Shortly after dark during the breeding season, numbers of the adults make their way to the coves and shallow water about the islands, and from then until dawn they can be heard giving their characteristic cry, which may be described as a shrill, slow twitter, about four notes to the second. At night, and especially when hunting nesting sites, they will sometimes be attracted to a light on shore. They doubtless make several trips to the nests each night, but during the day they keep well to sea, in pairs or family parties, and when pressed too closely, will rise to the wind and fly some distance rather than dive. When attacked by a Duck Hawk while flying, they will suffer themselves to be caught rather than take to the water, but a wounded bird will almost make one believe that he has turned fish.

It has been stated (12) that this species will vomit a thin yellow oil when handled, after the manner of petrels, but of approximately a hundred and fifty live birds which I have handled, not one has shown any inclination to do this, neither do their stomachs contain any oil, only a clotted, greenish slime in those that I have taken, and very little of that. It seems probable that this is only an indigestible residue, and that they are partial to all forms of small crustacea and other sea life. I believe, however, that they very seldom eat fish.

13. **Brachyramphus craveri** (Salvadori)

CRAVERI MURRELET

Brachyramphus craveri (1) van Rossem, Condor, xvii, 1915, p. 74. (2) Grinnell, Pac. Coast Avif., 11, 1915, p. 175.

Near the Coronados on August 13, 1914, A. van Rossem (1) and L. M. Huey secured six murrelets that conform to the descriptions of *craveri*. J. Grinnell (2) suggests that the characters as given for this species are due merely to age. I have had little experience with this form, but am inclined to think that the difference between *craveri* and *hypoleucus* is not due to age, for I have handled scores of birds of the latter race, and none of them have had dark under-wing coverts. As *hypoleucus* wanders well north of its breeding range after the nesting season, it is only natural that *craveri* should do likewise.

14. **Cephus columba** Pallas

PIGEON GUILLEMOT

Uria columba (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79. (2) Henshaw, Rep. Wheeler Surv., 1876, p. 278. (3) Streater, Proc. Sta. Barbara Soc. Nat. Hist., 1, 1887, p. 22.

Cepphus columba (4) Baird, Brewer and Ridgway, Water Birds N. Am., II, 1884, p. 495. (5) Blake, Auk, IV, 1887, p. 328. (6) Streater, Orn. & Ool., XIII, 1888, p. 53. (7) Grinnell, Pasadena Acad. Sci., I, 1897, p. 23. (8) Grinnell, Pasadena Acad. Sci., II, 1898, p. 6. (9) Davie, Nests & Eggs N. Am. Birds, 5th ed., 1898, p. 18. (10) Grinnell, Pac. Coast Avif., 3, 1902, p. 11. (11) Linton, Condor, X, 1908, p. 125. (12) Willett, Condor, XII, 1910, p. 172. (13) A. O. U. Check-list, 3d ed., 1910, p. 31. (14) Willett, Pac. Coast Avif., 7, 1912, p. 12. (15) Wright and Snyder, Condor, XV, 1913, p. 88. (16) Grinnell, Pac. Coast Avif., 11, 1915, p. 19.

Pigeon Guillemot (17) Willett, Condor, XII, 1910, p. 171.

Common resident about the northern islands. J. G. Cooper (1) recorded this species from San Clemente in the sixties, and Willett (14) saw three birds near San Nicolas, June 26, 1911. I have seen a few near Catalina during April, and J. Grinnell (8) noted several in the same locality in December, 1897. The most southerly breeding station recorded is Santa Barbara Island, where J. Grinnell (8) found fresh sets of eggs May 15, 1897, and H. Wright (15) saw birds carrying food into the caves July 3, 1912.

D. R. Dickey (MS) says that on Anacapa, June 22, 1913, these birds were nesting in almost every tidal cave. Sites were chosen well back in the dark, where the dripping water and dank moisture would seem to make it impossible for eggs to hatch, but, nevertheless, most of the nests contained young.

H. Wright (15) found them breeding in considerable numbers near the north end of Santa Cruz Island, July 10, 1912, and A. van Rossem and I saw several off shore from Prisoners Harbor, April 24, 1911. On San Miguel, G. Willett (12) says they were breeding commonly in the caves and niches all around the island. On June 23, 1910, he found the contents of the nests to vary from fresh eggs to young of all sizes.

15. ***Uria troille californica*** (H. Bryant)

CALIFORNIA MURRE

Uria t[roille]. californica (1) Willett, Condor, XII, 1910, p. 172.

Uria troille californica (2) Willett, Pac. Coast Avif., 7, 1912, p. 12. (3) Wright and Snyder, Condor, XV, 1913, p. 88. (4) Grinnell, Pac. Coast Avif., 11, 1915, p. 19.

Records from the mainland indicate that during the winter, this bird may be found as far south as Catalina at least. During the spring they occur in some numbers in the vicinity of Santa Cruz Island, where A. van Rossem and I encountered them in April, 1911, but the only place in this group where they have been found breeding is on Prince Islet, near San Miguel. J. S. Appleton and H. C. Burt (2) discovered this colony on June 6, 1906, and took fresh and slightly incubated eggs. H. Wright (3) states that on July 12, 1912, there were several small colonies there, aggregating probably one hundred pairs, which at this date mostly had young.

16. ***Rissa tridactyla pollicaris*** Ridgway

PACIFIC KITTIWAKE

Rissa tridactyla pollicaris (1) Anthony, Auk, XV, 1898, p. 267. (2) Willett, Pac. Coast Avif., 7, 1912, p. 13.

Probably a regular winter visitant, although there are but few records. A.

W. Anthony (1) says that during the winters of 1896, '97 and '98 he found it of regular though not common occurrence about Los Coronados Islands. As these birds keep well away from the shore, they are more easily overlooked than are the other gulls.

17. **Larus glaucescens** Naumann

GLAUCOUS-WINGED GULL

Larus glaucescens (1) Grinnell, Pasadena Acad. Sci., II, 1898, p. 6. (2) Breninger, Auk, XXI, 1904, p. 219. (3) Howell and van Rossem, Condor, XIII, 1911, p. 209. (4) Willett, Pac. Coast Avif., 7, 1912, p. 13. (5) Cooke, U. S. Dept. Agric., Bull. 292, 1915, p. 27.

A regular though not plentiful winter visitant. G. F. Breninger (2) noted immature birds but no adults at San Clemente during February, 1903, and D. R. Dickey, L. M. Huey and I saw one or two immatures daily during our visit to the same locality from March 22 to April 11, 1915. J. Grinnell (1) recorded the species from Catalina in December, 1897, and on May 1, 1911, A. van Rossem (3) saw three individuals at close range on Santa Cruz Island.

18. **Larus occidentalis** Audubon

WESTERN GULL

Larus occidentalis (1) Cooper, Proc. Calif. Acad. Sci., IV, 1870, p. 79. (2) Baird, Brewer and Ridgway, Water Birds N. Am., II, 1884, p. 231. (3) Streater, Proc. Sta. Barbara Soc. Nat. Hist., I, 1887, p. 22. (4) Blake, Auk, IV, 1887, p. 329. (5) Streater, Orn. & Ool., XIII, 1888, p. 53. (6) Saunders, Cat. Birds Brit. Mus., XXV, 1896, p. 258. (7) Grinnell, Pasadena Acad. Sci., I, 1897, p. 23. (8) Grinnell, Pasadena Acad. Sci., II, 1898, p. 6. (9) Grinnell, Pac. Coast Avif., 3, 1902, p. 12. (10) Grinnell and Daggett, Auk, XX, 1903, pp. 30, 37. (11) Breninger, Auk, XXI, 1904, p. 219. (12) Anthony, Auk, XXIII, 1906, p. 135. (13) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (14) Linton, Condor, X, 1908, p. 125. (15) Wright, Condor, XI, 1909, p. 98. (16) Osburn, Condor, XI, 1909, p. 193. (17) Linton, Condor, XI, 1909, p. 193. (18) Willett, Condor, XII, 1910, p. 173. (19) Osburn, Condor, XIII, 1911, p. 32. (20) Burt, Condor, XIII, 1911, p. 164. (21) Willett, Pac. Coast Avif., 7, 1912, p. 14. (22) Wright and Snyder, Condor, XV, 1913, pp. 86, 89. (23) Grinnell, Pac. Coast Avif., 11, 1915, p. 21. (24) Cooke, U. S. Dept. Agric., Bull. 292, 1915, p. 34.

Larus argentatus var. *occidentalis* (25) Henshaw, Rep. Wheeler Surv., 1876, p. 276.

Western Gull (26) Willett, Condor, XII, 1910, p. 171.

Permanent and abundant resident, breeding on all islands that are not infested with foxes, and when the latter condition prevails, on the nearby detached rocks. The Western Gull begins selecting a nesting site the first part of April, and eggs are usually deposited during the last week in that month and first of May. Some of the young are able to fly by the first of July, but, of course, if a first set is destroyed, unfledged young may be found late in the summer.

During the fall and winter *occidentalis* is a highly valued citizen, but I defy anyone to visit a breeding colony and not wish, in the heat of anger, that every bird of the species might drop dead. If a colony of cormorants, pelicans or murre is disturbed, there is always a cloud of the larine robbers ready to pounce on the unprotected eggs, and puncture as many of them as possible. They are

particularly fond of newly hatched cormorants and will gulp them down with the utmost satisfaction. If the youngster is too large or if it happens to be a pelican chick instead, they will just as cheerfully peck a hole in its skull, just to be doing something. A. W. Anthony (12) saw one pull an adult Cassin Auklet from a shallow hole, and swallow it with the same relish that it did the egg a moment later, and he has watched them in the act of dismembering half grown cormorants. As a rule, however, this destruction takes place only when a human intruder invades the colonies; if we would deny ourselves the pleasure of walking through these in the nesting season, it would certainly help to put the economic value of *occidentalis* on the right side of the ledger.

19. **Larus argentatus** Pontoppidan

HERRING GULL

Larus argentatus (1) Grinnell, Pasadena Acad. Sci., II, 1898, p. 7. (2) Dawson, Condor, xvii, 1915, p. 204.

Probably of regular occurrence in winter. On April 5, 1915, I noted two adults of this species at San Clemente, and during the following week, one or two were seen daily about the harbor. J. Grinnell (1) found that it was present in small numbers at Catalina during December, 1897, and secured one specimen. While at Santa Cruz Island in April, 1915, W. L. Dawson (2) saw two of these birds at close range.

20. **Larus californicus** Lawrence

CALIFORNIA GULL

Larus californicus (1) Grinnell, Pasadena Acad. Sci., I, 1897, p. 23. (2) Breninger, Auk, xxi, 1904, p. 219. (3) Linton, Condor, x, 1908, p. 82. (4) Osburn, Condor, xi, 1909, p. 136. (5) Willett, Pac. Coast Avif., 7, 1912, p. 14. (6) Cooke, U. S. Dept. Agric., Bull. 292, 1915, p. 41.

Undoubtedly common about all the islands during the winter months. C. B. Linton (3) says they were common at San Clemente during January and February, 1907; and during the latter part of March and first of April, 1915, in the same locality, D. R. Dickey, L. M. Huey and I noted them daily in company with the Western Gulls. A. van Rossem saw several at Santa Cruz Island April 24, 1911, and C. B. Linton (MS) has taken specimens there.

21. **Larus delawarensis** Ord

RING-BILLED GULL

Larus delawarensis (1) Howell and van Rossem, Condor, xiii, 1911, p. 209.

As on the mainland, this species is probably almost as common in winter as the last, but in some plumages it is so difficult to distinguish between the two that it is impossible to determine their relative abundance. I have seen a few individuals at Catalina in April, and during the same month, 1911, A. van Rossem and I positively identified several at Santa Cruz Island.

22. **Larus brachyrhynchus** Richardson

SHORT-BILLED GULL

The only record for this species is that of three immature specimens taken by A. van Rossem (MS) at Catalina, February 11, 1910, two of which are now in my collection.

23. **Larus heermanni** Cassin

HEERMANN GULL

Blasipus belcheri (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79.

Larus heermanni (2) Baird, Brewer and Ridgway, Water Birds N. Am., II, 1884, p. 253.

(3) Blake, Auk, iv, 1887, p. 329. (4) Grinnell, Pasadena Acad. Sci., I, 1887, p. 24.

(5) Grinnell and Daggett, Auk, xx, 1903, pp. 28, 30, 37. (6) Breninger, Auk, XXI,

1904, p. 219. (7) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 142. (8) Linton, Condor,

x, 1908, p. 82. (9) Linton, Condor, x, 1908, p. 125. (10) Willett, Condor, XII,

1910, p. 173. (11) Willett, Pac. Coast Avif., 7, 1912, p. 14. (12) Cooke, U. S. Dept.

Agric., Bull. 292, 1915, p. 49.

Larus heermanni (13) Streater, Proc. Sta. Barbara Soc. Nat. Hist., I, 1887, p. 22. (14)

Wright and Snyder, Condor, xv, 1913, p. 89.

Larus heermanni (15) Streater, Orn. & Ool., XIII, 1888, p. 54.

These birds are to be met with off the coast of southern California the year round, but the majority leave for the south about March. During July, birds of the year begin reaching us. Heermann (2) said that this gull breeds on the Coronados, and J. G. Cooper, that it probably did so on other islands south of San Francisco. As it is now pretty well proven that the species does not nest on the seaward coast north of Cape San Lucas at least, there must have been mistakes in regard to the above statements.

The Heermann Gull as a rule is not as fond of coming close to shore as are the other gulls, but prefers to stay out in the channel, where the usual method of securing a meal is to haunt some patient pelican and wildly grab at any fish which the latter may capture. C. B. Linton (8) found that at Santa Cruz Island, during November and December, 1907, their principal food consisted of shrimps which they caught in the kelp, and I have watched them catching sardines two or three inches long.

24. **Larus philadelphia** (Ord)

BONAPARTE GULL

Larus philadelphia (1) Howell and van Rossem, Condor, XIII, 1911, p. 209.

Abundant during migrations along the mainland coast, but seldom wandering out to the islands. During the latter part of April, 1911, A. van Rossem and I (1) noted several at Santa Cruz Island.

25. **Xema sabini** (J. Sabine)

SABINE GULL

Xema sabini (1) Willett, Pac. Coast Avif., 7, 1912, p. 15. (2) Wright, Condor, xv, 1913,

p. 227. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 23. (4) Cooke, U. S. Dept. Agric.,

Bull. 292, 1915, p. 65.

Probably a regular migrant in the channel well out from shore. H. Wright (1) took a pair near Santa Cruz Island August 6, 1909, and a female near the Coronados August 20, 1910. On August 11, 1912, he (2) saw a flock of eight or ten birds about ten miles from Santa Cruz Island, and on August 1, another flock between the latter and Santa Barbara Island. E. W. Nelson informs me that he has also seen small flocks in the channel during the fall.

26.

***Sterna maxima* Boddaert**

ROYAL TERN

Sterna regia (1) Henshaw, Rep. Wheeler Surv., 1876, p. 277.

Sterna maxima (2) Baird, Brewer and Ridgway, Water Birds N. Am., II, 1884, p. 286.

(3) Blake, Auk, IV, 1887, p. 329. (4) Streater, Orn. & Ool., XIII, 1888, p. 54. (5) Grinnell, Pasadena Acad. Sci., II, 1898, p. 7. (6) Grinnell, Pac. Coast Avif., 3, 1902, p. 13. (7) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 29. (8) Linton, Condor, X, 1908, p. 82. (9) Linton, Condor, X, 1908, p. 126. (10) Willett, Condor, XII, 1910, p. 173. (11) Willett, Pac. Coast Avif., 7, 1912, p. 15. (12) Grinnell, Pac. Coast Avif., 11, 1915, p. 24.

Present among the islands throughout the year, but rather rare in spring. I have seen several of these beautiful birds in the vicinity of the Coronados during the early summer. C. B. Linton (11) noted a few near San Nicolas June 17, 1910, where C. P. Streater (4) also saw them in the fall of 1886. Linton (8) also reported the species as very common during October, December and January, 1907, at San Clemente, but few were seen after February 5. J. Grinnell (5) found it numerous in the vicinity of Catalina during the winter, and I have noted a few individuals there in April. E. W. Blake (3) recorded it from Santa Cruz Island in July and August, and C. B. Linton (9) says it was common there during November and December, 1907.

H. W. Henshaw (1) was informed that the species bred in numbers on San Miguel, but it seems unlikely that it has done so in recent years at least, as several have made special searches for nests there. G. Willett (10), however, saw several immature birds near the west end of the island June 17, 1910.

27.

***Sterna forsteri* Nuttall**

FORSTER TERN

Sterna forsteri (1) Grinnell and Daggett, Auk, XX, 1903, pp. 32, 37.

Reported only in spring and summer, but doubtless occurring sparingly in the fall and winter as well. Several were seen by J. Grinnell and F. S. Daggett (1) while approaching the Coronados, August 6, 1902, and I have noted an occasional bird the early part of July in the same locality. I also several times saw what I believe was the same individual near Catalina in April, 1907. I have included the above records under *Sterna forsteri* simply because the first were so reported, and I have added my own observation to it because *forsteri* is the commoner form in the region. Recent investigations have shown that *S. hirundo* is almost as common off the coast of southern California as is *forsteri*, and the individuals seen may have been of either species. Undoubtedly both do occur near the islands at times.

28.

Diomedea nigripes Audubon

BLACK-FOOTED ALBATROSS

Diomedea nigripes (1) Grinnell, Pasadena Acad. Sci., I, 1897, p. 24.

Rather rare straggler to the channel from the open sea. J. Grinnell (1) saw a single specimen between San Nicolas and San Clemente islands May 27, 1897, and another between the latter and Catalina June 8 of the same year. He (MS) also noted several between Catalina and Santa Barbara islands August 27, 1903.

29.

Diomedea albatrus Pallas

SHORT-TAILED ALBATROSS

Diomedea brachyura (1) Cooper, Proc. Calif. Acad. Sci., IV, 1870, p. 79.

Diomedea albatrus (2) Baird, Brewer and Ridgway, Water Birds N. Am., II, 1884, p. 354.

(3) Grinnell, Pasadena Acad. Sci., II, 1898, p. 8. (4) Willett, Pac. Coast Avif., 7, 1912, p. 17.

Diomedea albatros (5) Streater, Orn. & Ool., XIII, 1888, p. 54.

Probably slightly more numerous in the channel than is the last mentioned species. J. G. Cooper (1) says that these birds occur near San Clemente and San Nicolas, and C. P. Streater (5) saw quite a number between the latter point and the mainland. C. B. Linton (4) has the head of one that was taken alive by his cook on San Nicolas Island, and Dr. J. G. Cooper told Grinnell (3) that he had taken the species near Catalina.

30.

Fulmarus glacialis glupischa Stejneger

PACIFIC FULMAR

Fulmarus glacialis glupischa (1) Grinnell, Pasadena Acad. Sci., II, 1898, p. 8.

Fulmarus glacialis glupischa (2) Linton, Condor, X, 1908, p. 82. (3) Linton, Condor, X, 1908, p. 126. (4) Willett, Pac. Coast Avif., 7, 1912, p. 17.

Abundant at sea during certain times of the year. C. B. Linton (2) says that he has often seen these birds during the winter, while going from the mainland to San Clemente, but that he noted none near shore. J. Grinnell (1) found them very common about Catalina in December, 1897, and on April 27, 1908, I found the decomposed remains of one in the same locality. C. B. Linton and G. Willett (3) took several in the dark phase, and one in the light phase of plumage, near the shores of Santa Cruz Island, November 25 and December 4, 1907. They also saw the species in the vicinity of Anacapa about the same time.

Occasionally during the winter these birds flock to the fishing banks sixty miles off San Pedro, by the thousands. They are then usually very tame, coming right up to the boats, and endeavoring to snatch fish as they are hauled aboard. The men often catch them in their hands to watch the stupid actions of the birds when placed on deck.

31.

Puffinus creatopus Coues

PINK-FOOTED SHEARWATER

Puffinus creatopus (1) Coues, Proc. Acad. Nat. Sci. Phila., XVI, 1864, p. 131. (2) Cooper,

Proc. Calif. Acad. Sci., iv, 1868, p. 11. (3) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79. (4) Baird, Brewer and Ridgway, Water Birds N. Am., II, 1884, p. 384. (5) Grinnell, Pasadena Acad. Sci., I, 1897, p. 24. (6) Grinnell, Pasadena Acad. Sci., II, 1898, p. 8. (7) Godman, Monog. Petrels, II, 1908, p. 101. (8) Willett, Condor, XII, 1910, p. 173. (9) Willett, Pac. Coast Avif., 7, 1912, p. 18. (10) Wright and Snyder, Condor, xv, 1913, p. 89.

Abundant during summer, fall, and the first part of the winter. Originally described from a bird taken by J. G. Cooper (1) near San Nicolas Island. Cooper (4) found it to be the most abundant and easily approached species of Tubinares near San Nicolas, where the water is shallow and small fish numerous. I have seen individuals around the Coronados during the months of June and July; and L. M. Huey (MS) saw a few in the same locality on August 13, 1914. H. A. Gaylord (6) noted birds near Catalina May 12, 1897. A. van Rossem and I met with the species the last of April and first of May, 1911, near Santa Cruz Island. G. Willett (8) recorded it from Santa Cruz and Santa Rosa, June 7, 1910, where, by the 24th it had become quite plentiful, and the same writer (9) encountered it near Anacapa and Santa Cruz in November and December, 1907.

32.

Puffinus opisthomelas Coues

BLACK-VENTED SHEARWATER

Puffinus opisthomelas (1) Anthony, Auk, XIII, 1896, p. 225. (2) Grinnell, Pasadena Acad. Sci., I, 1897, p. 24. (3) Grinnell, Pasadena Acad. Sci., II, 1898, p. 8. (4) Anthony, Auk, XVII, 1900, p. 247. (5) Grinnell, Pac. Coast Avif., 3, 1902, p. 15. (6) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 35. (7) Godman, Monog. Petrels, II, 1908, p. 109. (8) Linton, Condor, x, 1908, p. 126. (9) Osburn, Condor, xi, 1909, p. 136. (10) Linton, Condor, xi, 1909, p. 193. (11) Howell, Condor, XII, 1910, p. 186. (12) Willett, Pac. Coast Avif., 7, 1912, p. 18. (13) Grinnell, Pac. Coast Avif., 11, 1915, p. 26. *Puffinus gavia* (14) Breninger, Auk, XXI, 1904, p. 219.

Abundant except in the breeding season, sometimes making its appearance in early May, but not becoming plentiful until some time later. Remains until February at least. During July, August and September these birds are particularly abundant in the channel. I noted half a dozen individuals several times during the middle of May, 1910, near the Coronados (11), and J. Grinnell (2) saw several off Catalina May 12, 1897. C. B. Linton (10) saw the species near San Clemente in the winter of 1908, and G. Willett (12) encountered it several times near Santa Cruz Island in November, 1907.

As has been stated in print many times, there are four eggs that were said to be of this species, in the National Museum, collected by Captain Scammon on Santa Barbara Island. As most of us on this coast have viewed the above record with considerable distrust, I wrote Dr. C. W. Richmond in regard to it, eliciting the following: "The eggs are in all probability those of Cassin's Auklet (*Pt. aleuticus*) with which they agree in size and texture of shell. They had written on them, in pencil, 'Egg of the Mutton Bird, Santa Barbara Id. Cal.' From this beginning someone had added (on the data blank) '*Puffinus gavia?*', and as the eggs of *Puffinus* were not common in our collection at that time, the determination passed muster for the time being". This undoubtedly solves the question. *Opisthomelas* nests in large colonies, and as it does not invariably

nest on the same island in consecutive years, there is still hope that it may some time be found breeding at least as far north as the Coronados.

33.

Puffinus griseus (Gmelin)

SOOTY SHEARWATER

Nectris fuliginosus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79.

* *Puffinus griseus* (2) Grinnell, Pasadena Acad. Sci., i, 1897, p. 24. (3) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 229. (4) Linton, Condor, x, 1908, p. 126. (5) Linton, Condor, xi, 1909, p. 193. (6) Willett, Condor, xii, 1910, pp. 170, 174. (7) Willett, Pac. Coast Avif., 7, 1912, p. 18. (8) Wright and Snyder, Condor, xv, 1913, p. 89.

This, our commonest shearwater, is found in the channel throughout the year, but is less common during the winter months. It often occurs in company with *creatopus* and more rarely with *opisthomelas*. In late spring and early summer Sooty Shearwaters migrate through the channel in flocks numbering tens of thousands, these sometimes taking the greater part of a day to pass a given point.

34.

Oceanodroma kaedingi Anthony

KAEDING PETREL

Oceanodroma kaedingi (1) Willett, Pac. Coast Avif., 7, 1912, p. 19.

The only record for this species is that of an adult male which flew aboard the Fisheries ship "Albatross" near San Clemente Island, March 22, 1904, and was captured by L. H. Miller (1). I am told by the fishermen that at certain times during the winter, small petrels will congregate on the fishing banks in great flocks. As Anthony described this bird from Lower California, and as it breeds to the north of us, it undoubtedly migrates past the islands.

35.

Oceanodroma melania (Bonaparte)

BLACK PETREL

Oceanodroma townsendi (1) Anthony, Auk, xi, 1894, p. 231. (2) A. O. U. Committee, Auk, xii, 1895, p. 168.

Oceanodroma melania (3) Grinnell, Pasadena Acad. Sci., i, 1897, p. 25. (4) Anthony, Auk, xv, 1898, p. 140. (5) Grinnell, Pac. Coast Avif., 3, 1902, p. 16. (6) Brewster, Birds Cape Region Lower Calif., 1902, p. 32. (7) Grinnell and Daggett, Auk, xx, 1903, pp. 30, 37. (8) Godman, Monog. Petrels, i, 1907, p. 24. (9) Linton, Condor, x, 1908, p. 82. (10) Linton, Condor, x, 1908, p. 126. (11) Willett, Condor, xii, 1910, p. 174. (12) A. O. U. Check-list, 3d ed., 1910, p. 57. (13) Osburn, Condor, xiii, 1911, p. 31. (14) Willett, Pac. Coast Avif., 7, 1912, p. 19. (15) van Rossem, Condor, xvii, 1915, p. 76. (16) Grinnell, Pac. Coast Avif., 11, 1915, p. 29.

O[ceanodroma]. melania (17) Coues, Key N. Am. Birds, 5th ed., 1903, p. 1043.

Black Petrel (18) Willett, Condor, xii, 1910, p. 170.

Breeds on Los Coronados Islands. Fairly common in the channel throughout the year. Under the heading of this species J. Grinnell (3) states that small petrels of some kind were heard at night on the east end of San Nicolas, and at Mosquito Harbor at San Clemente, in May, 1897. In the channel between Clemente and Anacapa the species has been recorded commonly, but near none of

the intervening islands. Near Anacapa G. Willett (18) found it common June 5, 1910; and H. Wright (Condor, xv, 1913, pp. 87, 90) noted the remains of either a Black or Socorro Petrel on the island itself, July 5, 1912. It is likely, however, that this was a bird caught at sea by a Duck Hawk, and, when partly eaten, dropped on the island.

A. W. Anthony (4) visited the Coronados April 21, 1896, and found that *melania* was then mating and hunting nesting sites. He gives their notes as "Tuc-a-roo, tuc-tuc-a-roo", which is a very good rendition of their call. When D. R. Dickey (MS) visited the islands May 15, 1914, no petrels were observed, although the colonies were gone over most carefully by three people. On May 26 a few pairs were found together on the nests, but no eggs had been laid; on June 12, fresh eggs were the rule. My first fresh egg in 1910 was found June 17, but on the same date in 1913, A. van Rossem and I found that incubation was slightly more advanced. The earliest date that I have seen downy young was July 4. On August 13, 1914, A. van Rossem and L. M. Huey (MS) say that all the young birds were small, not more than a week old and most of them newly hatched. One fresh egg was discovered besides several incubated ones.

These birds do not nest in colonies but are apt to be scattered anywhere about the islands. Where especially favorable sites occur, however, several nests may be within a few feet of each other. The best place to look for eggs is under or between good sized boulders. Here a little dirt may be scratched away at the entrance of the nest cavity in order to make room. From over a hundred nests examined I have found only half a dozen occupying true burrows that may have been excavated by the birds themselves, but as these were all in a colony of *O. socorroensis*, I prefer to believe that they were originally made by the latter, and later preëmpted by *melania*. As many more were in very old burrows of the Cassin Auklet. For a short time after completing the nest site, and before the egg is deposited, both birds of a pair will be found occupying the burrow during the day, but after laying, only one parent, either male or female, will be found at home. No structural material is used, the egg being laid on the bare ground. It is usually pure white, but rarely there is a suspicion of a lavender wreath about the larger end. I find that the average measurements of thirty-six specimens are 1.39x1.02 inches. Extremes are 1.28 to 1.48 in length, and .96 to 1.08 in diameter. D. R. Dickey and A. van Rossem (MS) state that the bird, while at or on the nest during the night, utters a note suggestive of the song of the wren-tit.

The young are covered, except the chin, with slaty down, and are most unattractive little things. This down clings to the end of the plumage until after the body feathers at least have made their full growth. Nine times out of ten, when removed from the nest, the old bird will vomit a short stream of dark, orange colored oil, several times repeated, to a distance of four feet or more. She will savagely bite the finger of her captor and will even lay hold of her own wing in her rage. The oil has the typical petrel pungence, comparable to no other odor with which I am familiar, but to those who have spent happy days in the colonies, it is not unpleasant. It will cling to specimens after they have been shut up in cases for years. This oil, by regurgitation, constitutes the food of the

nestlings. It is generally conceded that the young of the rock lobster is the main food supply of all our small California petrels, as A. W. Anthony (4) has pointed out. From these the oil in the stomach must be secreted, and quite rapidly at that, for birds taken early in the morning after a night at sea contain much oil and only a recognizable trace of the crawfish, in addition to a very little green slime. The oil gland of this species is a dark gray in contrast to the creamy color of that of *socorroensis*.

One often encounters lone individuals of these birds at sea during the day, flapping just above the waves in an aimless and erratic manner. A. W. Anthony (1), however, secured one from a flock of some two hundred birds. They suffer considerably from the depredations of the Duck Hawks, as their desiccated remains upon the islands bear mute witness. They begin visiting the nests about 8:30 P. M. and are very active until shortly before dawn. Pitching in from the sea they come like big black bats, rocking to the breeze and uttering their loud weird call.

36.

Oceanodroma homochroa (Coues)

ASHY PETREL

Cymochorea homochroa (1) Henshaw, Rep. Wheeler Surv., 1876, p. 277. (2) Baird, Brewer and Ridgway, Water Birds N. Am., II, 1884, p. 412.

Oceanodroma homochroa (3) Salvin, Cat. Birds Brit. Mus., xxv, 1896, p. 356. (4) Grinnell, Pac. Coast Avif., 3, 1902, p. 16. (5) Reed, N. Am. Birds' Eggs, 1904, p. 54. (6) Godman, Monog. Petrels, I, 1907, p. 29. (7) A. O. U. Check-list, 3d ed., 1910, p. 57. (8) Willett, Pac. Coast Avif., 7, 1912, p. 19. (9) Wright and Snyder, Condor, xv, 1913, p. 88. (10) Wright, Condor, xv, 1913, p. 229. (11) Grinnell, Pac. Coast Avif., 11, 1915, p. 28.

[*Oceanodroma*]. *homochroa* (12) Coues, Key N. Am. Birds, 5th ed., 1903, p. 1043.

Fairly common in the channel at certain times. Breeds on Santa Cruz, and possibly on San Miguel. G. Willett (8) found this species to be plentiful in the channel between San Nicolas and Santa Barbara islands in June, 1911, and L. H. Miller has an adult female that he took near the latter place April 10, 1904.

H. Wright (9) discovered them nesting in Painted Cave, Santa Cruz Island, July 10, 1912. Four eggs and one small young were all that he found, deposited on the bare exposed ledges in the dark parts of the cave. On June 23, 1913, D. R. Dickey (MS) visited this locality and found that apparently but one pair were nesting, for after a very thorough search, a single bird was located sitting on a slightly incubated egg high above the water, in one of the side pockets of the big cave.

H. W. Henshaw (1) received from Capt. Forney a specimen that was taken on San Miguel, where the latter said that it bred in great numbers. G. Willett (8) as well as others have made a careful search of this island without finding indications of breeding petrels. It is quite possible that a few pairs may breed in the caves of the main island, or on Prince Islet, but it is doubtful if the foxes would allow any large colonies of small pelagic birds to become established on San Miguel proper.

37. **Oceanodroma socorroensis** C. H. Townsend

SOCORRO PETREL

Oceanodroma socorroensis (1) Townsend, Proc. U. S. Nat. Mus., XIII, 1890, p. 134. (2) Anthony, Auk, XII, 1895, p. 387. (3) A. O. U. Committee, Auk, XIV, 1897, p. 117. (4) Anthony, Auk, XV, 1898, p. 140. (5) Davie, Nests & Eggs N. Am. Birds, 5th ed., 1898, p. 58. (6) Grinnell, Pac. Coast Avif., 3, 1902, p. 16. (7) Grinnell and Daggett, Auk, XX, 1903, pp. 31, 37. (8) Reed, N. Am. Birds' Eggs, 1904, p. 54. (9) Osburn, Condor, XIII, 1911, p. 31. (12) Willett, Pac. Coast Avif., 7, 1912, p. 20. (13) van Rossem, Condor, XVII, 1915, p. 76. (14) Grinnell, Pac. Coast Avif., 11, 1915, p. 28. *Oceanodroma socorroensis* (15) Coues, Key N. Am. Birds, 5th ed., 1903, p. 1044. *Oceanodroma monorhis* (16) Godman, Monog. Petrels, I, 1907, p. 33.

Breeds commonly on the smallest island of Los Coronados group. A. W. Anthony (4) says that on the Coronados, April 24, 1896, he found a number of nearly finished burrows and one bird. June 12, 1914, D. R. Dickey (MS) found several pairs of birds but no eggs. It will therefore be seen that *socorroensis* begins preparing the burrows nearly two months before laying. This species breeds only in burrows which are excavated by the birds themselves, and for this reason, to be looked for only where there is a deposit of light loam, sometimes overgrown with a dense mat of bushes. The tunnels are usually about two feet long, enlarged at the end. In the majority of cases they turn either to the right or left a few inches from the entrance, which latter seems unusually small for the size of the bird and is more than twice as wide as high. Occasionally the egg is laid on the bare ground, but usually there is a flimsy platform of any bits of twigs and rootlets that may be handy. The egg has a wreath of faint lavender dots and tracings about the larger end. The average measurement of forty-two which I have had in my possession, is 1.18x.89 inches, and the extremes are 1.09 to 1.23 in length, and .82 to .97 in diameter. I believe that the nesting dates of the Black and Socorro petrels will run about the same. In 1910 I did not find an egg of the latter until June 22, while those of the former were taken a week previous. In 1913 A. van Rossem and I found the opposite to hold good, for during the latter half of June slightly incubated eggs of *socorroensis* was the rule, while those of *melania* were still fresh.

Unlike their larger relative, Socorro Petrels but rarely vomit oil when removed from the nest, but will often do so immediately after having been released from the hand. This oil is substantially the same as that secreted by *melania*, but sometimes contains flakes of whitish mucous matter, in addition to a little green slime and a tiny rock lobster or two. Some birds taken by A. van Rossem (MS) in 1914, contained what appeared to be young squid about an inch long. In the hand one is impressed by the frailty and apparent weakness of these birds. When released they launch forth in an uncertain manner, twisting and turning in their nighthawk-like flight. If placed upon the ground they poke confusedly about among the bushes.

F. Godman (16) considers this species and *Oceanodroma monorhis* of the western Pacific, to be indistinguishable, although the type of the latter is of a lighter gray on the head and throat than is the former. Dr. Hartert (MS) of

the Tring Museum tells me that in addition to the above differences, *monorhis* averages larger than *socorroensis*, and that he considers the two species not quite the same. As for the light gray or plumbeous shade of the head of our bird, and presumably the other, this should not be taken as a specific character. In freshly taken breeding birds it is very noticeable, but after the skin is laid away in a cabinet for a year or two, the head becomes as dark as the rest of the body.

As is well known, this species has two extreme color phases. In one the rump is of the same color as the back and underparts, while in the other, the rump is almost entirely white. One of the latter was described under the name *Oceanodroma monorhis chapmani* (Berlepsch, Auk, xxiii, 1906, p. 185). Every degree of intergradation occurs between the two types. I have studied this out as thoroughly as possible and although I have been unable to reach any positive conclusion in regard to the significance of this variation, I shall give the facts as they appear to me in order that they may form the basis from which others may work in the future.

I judge that when, in a given species, there are two distinct phases with every degree of intergradation between, this species is in process of evolution from one type to the other. Thus *socorroensis* was originally either a dark-rumped or a white-rumped race, and is now evolving to the other extreme. Birds collected in 1902 by F. S. Daggett show a ratio of white- to dark-rumped birds of 1 to 9. In 1910 I found the proportion of those which I took on the Coronados was in the neighborhood of 1 to 5, while in 1913 the ratio was not far from 1 to 2½. However, A. van Rossem (13) and L. M. Huey found that on August 13, 1914, the ratio had gone back to about 1 to 4. J. Grinnell and F. S. Daggett (7) seem to think that these petrels are descended from a wide-spread, white-rumped ancestor, and of course this may be true; but from the averages taken during the first part of three nesting seasons, it will be seen that the proportion of light-rumped birds is quite rapidly increasing, and it seems reasonable to conclude that in a relatively short time, a dark-rumped specimen of *socorroensis* will be rare.

Another possible, though improbable, explanation of the occurrence of the two types, is that two species, a white- and a dark-rumped one, have bred together and hybridized too recently for the characters of the resulting hybrid to have become thoroughly fixed. If this was the case, the birds of one of the extreme phases should closely approach some other species, which, as far as I am aware, it does not do. Also the two phases occur among the breeding birds of both the Coronados and San Benito islands, and it does not appear likely that the crossing of two species would occur upon the two islands simultaneously.

In order to discover whether there is any size difference between the two phases, I measured a series of a hundred and forty-three birds collected by D. R. Dickey, A. van Rossem, F. S. Daggett and myself. I divided the birds into four groups according to the amount of white exhibited, calling them dark, medium, light and white. The number of birds in each group was, respectively, 45, 46, 19 and 24. Measurements of the extremes, dark and white, show that the former is slightly greater in length (taken only of birds in the flesh) wing, tail, bill, tarsus, middle toe and fork of tail. This held good also in comparative group meas-

urements of males and females. The greatest difference was shown in the length of wing of the dark and the white males, which varied 4 millimeters. There were 69 males and 65 females. Comparison showed that the greater wing coverts (the light patch) of the white-rumped birds are of a more grayish tinge and a lighter shade than are those of the dark-rumped, and in the former the throat is more plumbeous than in specimens of the latter collected at the same time. In short, the differences seem pronounced enough to warrant recognizing a subspecies, if it was not for the vital fact that the two extreme types may repeatedly be found together in the burrows before the egg is deposited. This precludes the possibility of a valid subspecies.

38. **Phalacrocorax auritus albociliatus** Ridgway

FARALLON CORMORANT

Graculus dilophus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79. (2) Henshaw, Rep. Wheeler Surv., 1876, p. 275.

Phalacrocorax dilophus albociliatus (3) Baird, Brewer and Ridgway, Water Birds N. Am. II, 1884, p. 153. (4) Streater, Orn. & Ool. XIII, 1888, p. 54. (5) Grinnell, Pasadena Acad. Sci., I, 1897, p. 25. (6) Grinnell, Pasadena Acad. Sci., II, 1898, p. 9. (7) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (8) Linton, Condor, x, 1908, p. 126.

Phalacrocorax dilophus (9) Streater, Proc. Sta. Barbara Soc. Nat. Hist., I, 1887, p. 23. Farallon Cormorant (10) Beck, Bull. Cooper Orn. Club, I, 1899, p. 85. (11) Willett, Condor, XII, 1910, p. 170.

Phalacrocorax auritus albociliatus (12) Grinnell, Pac. Coast Avif., 3, 1902, p. 16. (13) Grinnell and Daggett, Auk, xx, 1903, pp. 32, 37. (14) Linton, Condor, x, 1908, p. 82. (15) Wright, Condor, xi, 1909, p. 99. (16) Osburn, Condor, xi, 1909, p. 136. (17) Willett, Pac. Coast Avif., 7, 1912, p. 20. (18) Wright and Snyder, Condor, xv, 1913, p. 90. (19) Grinnell, Pac. Coast Avif., 11, 1915, p. 29.

Phalacrocorax a[uritus]. albociliatus (20) Willett, Condor, XII, 1910, p. 173.

Common resident, breeding on most of the islands. This species is an abundant breeder on the Coronados, the principal colonies being located on north island. In the spring of 1897, J. Grinnell (5) noted immature birds commonly at San Nicolas, but none were found breeding. At San Clemente C. B. Linton (14) recorded the species as fairly common during the winter months, a flock of some two hundred birds being seen February 5, 1907.

I have found a few old nests, too early in the season for eggs, among those of the Brandt Cormorant, on Ship Rock, near Catalina. This is the only time that I have ever noted nests of the two species within a few feet of each other. Large numbers breed on Santa Barbara Island, where, towards the latter part of April, they begin coming in from the sea, to select and start repairing the old nests. J. Grinnell (5) notes, however, that on May 15, 1907, only two sets of eggs had as yet been laid. D. R. Dickey (MS) states that there were quite a number breeding on Anacapa in 1913, and H. Wright (18) found a few pairs with newly completed nests there as late as July 5, 1912. R. H. Beck (10) says that in 1895 there were birds breeding on a rock near Scorpion Harbor, Santa Cruz Island; and on Prince Islet, San Miguel, G. Willett (20) recorded quite a large colony with nearly full grown young and eggs in various stages, June 15, 1910.

The nests of *albociliatus* can always be told at a glance from those of the two following species. They are quite bulky and well made, and are invariably formed of weed stems, small sticks, or whatever similar material is handy. They are always placed (on these islands) on the ground, usually on a high hillside. Although breeding in colonies, these are seldom compact ones, and where a pelican colony is available, they prefer to build among the nests of the latter. Three, more rarely four, and occasionally five, eggs are laid, but because of the depredations of the gulls the breeding season is a long one. In addition, the time when eggs are deposited would seem to vary greatly from year to year (as is the case with our other cormorants as well), for A. van Rossem (*MS*) took a set of five eggs on the Coronados March 26, 1909, while J. Grinnell and F. S. Daggett (*13*) found two nests with eggs, and several containing small young, in the same locality, August 7, 1902.

39. *Phalacrocorax penicillatus* (Brandt)

BRANDT CORMORANT

Graculus penicillatus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79. (2) Henshaw, Rep. Wheeler Surv., 1876, p. 276.
Phalacrocorax penicillatus (3) Baird, Brewer and Ridgway, Water Birds, N. Am., ii, 1884, p. 159. (4) Streater, Proc. Sta. Barbara Soc. Nat. Hist., i, 1887, p. 23. (5) Blake, Auk, iv, 1887, p. 329. (6) Streater, Orn. & Ool., xiii, 1888, p. 54. (7) Grinnell, Pasadena Acad. Sci., i, 1897, p. 25. (8) Grinnell, Pasadena Acad. Sci., ii, 1898, p. 9. (9) Ogilvie-Grant, Cat. Birds Brit. Mus., xxvi, 1898, p. 364. (10) Grinnell, Pac. Coast Avif., 3, 1902, p. 16. (11) Brewster, Birds Cape Region Lower Calif., 1902, p. 37. (12) Grinnell and Daggett, Auk, xx, 1903, pp. 32, 37. (13) Breninger, Auk, xxi, 1904, p. 219. (14) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 141. (15) Linton, Condor, x, 1908, p. 82. (16) Linton, Condor, x, 1908, p. 126. (17) Wright, Condor, xi, 1909, p. 99. (18) Osburn, Condor, xi, 1909, p. 136. (19) Willett, Condor, xii, 1910, p. 173. (20) Osburn, Condor, xiii, 1911, p. 32. (21) Willett, Pac. Coast, Avif., 7, 1912, p. 20. (22) Wright and Snyder, Condor, xv, 1913, pp. 86, 90. (23) Grinnell, Pac. Coast Avif., 11, 1915, p. 30.

This, our commonest species of the genus, is to be found about the shores of all the islands and the adjacent mainland, breeding on or near all the islands that have suitable rocky promontories. There are perhaps a dozen colonies of these birds on the Coronados, distributed over all four of the islands. J. Grinnell and F. S. Daggett (*12*) found that they had completed nesting operations for the year there by August 7, 1902.

C. B. Linton (*15*) noted immense flocks on San Clemente during January and February, 1907. These flew back and forth daily, between their roosts on the northwest coast and the feeding grounds, and I observed the same thing there the first part of April, 1915. Linton took specimens in breeding plumage in February and March, and reported the species as breeding in small numbers on the northwest coast of the island.

J. Grinnell (*7*) states that there is a small colony on the north side of San Nicolas Island, and C. B. Linton (*21*) saw incomplete sets there April 3, 1910. They breed in limited numbers on several large detached rocks near Catalina. There are large rookeries on Santa Barbara Island, where I found fresh eggs

May 1, 1908. H. Wright (22) records a few pairs nesting on the cliffs of Anacapa, July 5, 1912. At Santa Cruz Island a small number nest near Scorpion Harbor, and they probably breed on or near Santa Rosa Island, but as there has been so little work done in this locality, this is merely a supposition on my part. On Prince Islet, San Miguel, G. Willett (19) found several large rookeries. In the morning of June 15, 1910, he passed a colony of about a hundred nests with eggs, but in the afternoon the gulls had left not a dozen eggs. He took a set of six there.

I believe that as a rule these birds begin nesting slightly in advance of the Farallon Cormorant. The nest is a rather compact but not bulky affair of sea weed, and is always placed in colonies on a low cliff or shelf of rock, from fifteen to a hundred or more feet above the water. From three to five eggs, and very rarely six, constitute a full set. At the approach of an intruder the young exhibit great stupidity, the half grown ones unconcernedly walking off a high ledge to fall on the rocks below, mortally disabled. During the winter they will often gather in flocks numbering thousands of individuals, to roost at night in some favorite spot, dispersing in the morning in quest of food. I have seen an incredible number in the early morning leaving a sand flat on which they had spent the night.

40. *Phalacrocorax pelagicus resplendens* Audubon

BAIRD CORMORANT

- Graculus violaceus* var. *bairdi* (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79.
Phalacrocorax pelagicus resplendens (2) Baird, Brewer and Ridgway, Water Birds N. Am., II, 1884, p. 162. (3) Blake, Auk, iv, 1887, p. 329. (4) Streater, Orn. & Ool., XIII, 1888, p. 54. (5) Grinnell, Pasadena Acad. Sci., I, 1897, p. 26. (6) Grinnell, Pasadena Acad. Sci., II, 1898, p. 9. (7) Grinnell, Pac. Coast Avif., 3, 1902, p. 16. (8) Linton, Condor, x, 1908, p. 83. (9) Linton, Condor, x, 1908, p. 126. (10) Osburn, Condor, XI, 1909, p. 137. (11) Willett, Pac. Coast Avif., 7, 1912, p. 20. (12) Wright and Snyder, Condor, xv, 1913, pp. 87, 90. (13) Grinnell, Pac. Coast Avif., 11, 1915, p. 30.
Phalacrocorax violaceus (14) Streater, Proc. Sta. Barbara Soc. Nat. Hist., I, 1887, p. 23.
Phalacrocorax pelagicus (15) Ogilvie-Grant, Cat. Birds Brit. Mus., xxvi, 1898, p. 362.
 Baird Cormorant (16) Beck, Bull. Cooper Orn. Club, I, 1899, p. 85. (17) Willett, Condor, XII, 1910, pp. 170, 172.
P[halacrocorax]. pelagicus resplendens (18) Breninger, Auk, XXI, 1904, p. 219.
Phalacrocorax resplendens (19) Willett, Condor, XII, 1910, p. 173.

Fairly plentiful resident among the islands, though not nearly as numerous as the last two forms. Rather rare in the southern part of the territory covered by this paper, but increasing in numbers towards the northern part. H. W. Henshaw (2) found them congregated in great numbers on the channel islands in the early days, but since that time they must have decreased, for at present I do not think that anyone could describe their numerical standing in such words.

I know of one rookery on the Coronados of perhaps a dozen scattered nests, and there may be others. C. B. Linton (8) records seeing a few pairs in breeding plumage near Mosquito Harbor, San Clemente, during March, 1907. Near a large detached rock off the southwest end of the same island, D. R. Dickey and

L. M. Huey saw several the last of March, 1915. I think it doubtful if the species breeds at Catalina, at least on the east side. J. Grinnell (5) found small numbers nesting on Santa Barbara Island in the spring of 1897, with but two or three nests in any one group. H. Wright (12) noted several small colonies above the entrance to the caves on Anacapa, July 6, 1912, and says that the birds were very shy indeed. R. H. Beck (16) recorded the species as breeding on the rock at Scorpion Harbor, Santa Cruz Island, in 1895, and C. B. Linton (9) saw both adults and birds of the year in the same locality during November and December, 1907. G. Willett (19) found them breeding commonly on the cliffs of San Miguel. June 19, 1910, some of the nests held young, but in most of them were eggs, a few of which proved to be fresh.

Nests of this cormorant are a good deal like those of the last as to construction, but are notable for the fact that they are just about inaccessible, being built in the niches of cliffs above the sea. The birds seem to stay in the open sea more than either of the two foregoing, and I have been informed that they bring up sea weed where there is none to be had within a hundred and sixty feet of the surface, so they are unusually expert divers.

41. **Pelecanus californicus** Ridgway

CALIFORNIA BROWN PELICAN

Pelecanus fuscus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79. (2) Henshaw, Rep. Wheeler Surv., 1876, p. 275.

Pelecanus [fuscus?] californicus (3) Baird, Brewer and Ridgway, Water Birds N. Am., II, 1884, pp. 143 (140-2).

Pelecanus californicus (4) Blake, Auk, iv, 1887, p. 329. (5) Streater, Orn. & Ool., XIII, 1888, p. 54. (6) Anthony, Proc. Calif. Acad. Sci., 2d series, II, 1889, p. 85. (7) Grinnell, Pasadena Acad. Sci., I, 1897, p. 26. (8) Grinnell, Pasadena Acad. Sci., II, 1898, p. 9. (9) Grinnell, Pac. Coast Avif., 3, 1902, p. 16. (10) Brewster, Birds Cape Region Lower Calif., 1902, p. 38. (11) Grinnell and Daggett, Auk, xx, 1903, pp. 32, 37. (12) Breninger, Auk, XXI, 1904, p. 219. (13) Reed, N. Am. Birds' Eggs, 1904, p. 67. (14) Linton, Condor, x, 1908, p. 83. (15) Linton, Condor, x, 1908, p. 126. (16) Wright, Condor, xi, 1909, p. 99. (17) Osburn, Condor, xi, 1909, p. 136. (18) Willett, Condor, XII, 1910, pp. 171, 173. (19) Burt, Condor, XIII, 1911, p. 166. (20) Willett, Pac. Coast Avif., 7, 1912, p. 21. (21) Wright and Snyder, Condor, xv, 1913, pp. 86, 90. (22) Grinnell, Pac. Coast Avif., 11, 1915, p. 31.

Brown Pelican (23) Holder, Museum, v, 1899, p. 71.

Pelican (24) Peyton, Oologist, xxx, 1913, p. 78.

Abundant resident throughout the region, but breeding on only a few islands. A large colony nests on the south end of the south island of the Coronados group, and another on north island. June 14, 1911, G. Willett (20) found about twenty-five pairs breeding on Santa Barbara Island, while July 2, 1912, H. Wright (21) reported three or four hundred birds with downy young at the same place. C. F. Holder (23) first recorded nests of this bird from Anacapa. The rookery seemed to him to be inaccessible, but there were four or five acres packed with the birds, and the amount of guano indicated that the colony was an old one. This was in August, 1898. Since that time the island has been occupied by the birds in some years, and vacant in others. H. Wright (20) found several

nests with young on Santa Cruz Island in July, 1909, and G. Willett (18) reported five nests of young on Prince Islet, San Miguel, June 15, 1910.

In several instances I have noted pelicans beginning to repair nests the last of April, while H. C. Burt (19) saw some at Anacapa flying with sea weed in their bills, March 17, 1911. This, coupled with other observations made by me farther south, in Mexico, indicates that the time for nest building and laying varies considerably in different colonies. The nests on the Coronados are made mostly out of sticks from a certain bush that grows there. L. M. Huey (MS) tells me that he has watched the pelicans gathering this material, and that they secure it in the same way that they fish, namely, by flying along and then diving at the bush, landing feet instead of head first, however, and in this way breaking the bush down. He affirms that he has seen opuntia cactus that had evidently been flattened down by the pelicans in the same manner, in mistake for the other bush. One can imagine the surprise of the bird after such a maneuver!

As the pelicans suffer much from the depredations of the gulls, fresh eggs from second layings may be found well into July. The young leave the nest when less than half the size of the parents, and it is quite ludicrous to watch the compact flocks of fluffy, solemn youngsters parading sedately about the rookeries. When the primaries are quite well grown, they frequently hop off a shelf of rock into one of the many patches of cactus, and it is not unusual to encounter one literally bristling with the spines. When able to fly, but before ever having tried to do so, they will sometimes take to the air at the approach of danger, and go careening out to sea on unsteady wings, then manage the turn, and come shooting back on the wind. They are unversed in the art of alighting, however, and sometimes hit the cliff full speed, which is a signal for every gull in sight to sail happily down to investigate the dying bird. When camped near the colonies, one may see a line or wedge of these great birds go silently by at any hour of the night, undoubtedly belated homecomers from some far fishing ground.

42. **Fregata aquila** (Linnaeus)

MAN-O'-WAR-BIRD

Tachypetes aquilus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79.

Fregata aquila (2) Grinnell, Pac. Coast Avif., 11, 1915, p. 31.

J. G. Cooper (1) states that this species was said to occur at Catalina, but of course it could only have been a straggler in that locality. On June 29, 1913, L. M. Huey called the attention of F. Stephens, A. van Rossem, D. R. Dickey and myself, to an individual of this species that was soaring over the island towards the south. It was perfectly identified by all of us.

43. **Mergus serrator** Linnaeus

RED-BREASTED MERGANSER

Mergus serrator (1) Grinnell, Pasadena Acad. Sci., II, 1898, p. 10. (2) Linton, Condor, xi, 1909, p. 193. (3) Willett, Pac. Coast Avif., 7, 1912, p. 22.

Merganser serrator (4) Linton, Condor, x, 1908, p. 126.

Fairly common winter visitant to the islands. J. Grinnell (1) noted birds

at Catalina in December, 1897, and I saw several lone individuals there the latter part of April, 1907. While at San Clemente from March 23 to April 11, 1915, I saw a single individual almost daily, and C. B. Linton (3) has noted the species there as late as May 3, 1909. During November and December, 1907, at Santa Cruz Island, the last mentioned writer (4) frequently saw it feeding among the tide pools.

44. **Dafila acuta** (Linnaeus)

PINTAIL

While in camp on San Clemente, April 4, 1915, a female of this species flew close over D. R. Dickey and myself. She acted in a peculiar way, circling about over the camp, and then flying high up the hillside along the shore. We judged that she was a wounded bird that had made her way to the island.

45. **Oidemia americana** Swainson

SCOTER

Oidemia americana (1) Grinnell, Pasadena Acad. Sci., II, 1898, p. 12. (2) Grinnell, Pac. Coast Avif., 3, 1902, p. 20. (3) A. O. U. Check-list, 3d ed., 1910, p. 80. (4) Willett, Pac. Coast Avif., 7, 1912, p. 26. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 38.

Occasional at the islands in winter. J. G. Cooper told J. Grinnell (2) that he had taken this species at Catalina.

46. **Oidemia deglandi** Bonaparte

WHITE-WINGED SCOTER

Melanetta velvetina (1) Henshaw, Rep. Wheeler Surv., 1876, p. 274.

Oidemia deglandi (2) Grinnell, Pasadena Acad. Sci., II, 1898, p. 12. (3) Linton, Condor, x, 1908, p. 126. (4) Willett, Condor, XII, 1910, p. 173. (5) Willett, Pac. Coast Avif., 7, 1912, p. 26. (6) Grinnell, Pac. Coast Avif., 11, 1915, p. 38.

Abundant in winter about the islands, a few non-breeders remaining all summer. The majority arrive the latter part of September and remain until May. F. Stephens (2) found it common at Catalina the latter part of March, 1893, and I have seen it repeatedly there during April. G. Willett (3) saw several at Santa Cruz Island during November, 1907, and (5) found immatures common at San Miguel, the middle of June, 1910.

47. **Oidemia perspicillata** (Linnaeus)

SURF SCOTER

Pelionetta perspicillata (1) Streater, Proc. Sta. Barbara Soc. Nat. Hist., I, 1887, p. 23.

Oidemia perspicillata (2) Streater, Orn. & Ool., XIII, 1888, p. 54. (3) Grinnell, Pasadena, Acad. Sci., II, 1898, p. 12. (4) Linton, Condor, x, 1908, p. 126. (5) Linton, Condor, XI, 1909, p. 193. (6) Willett, Condor, XII, 1910, p. 173. (7) Willett, Pac. Coast Avif., 7, 1912, p. 26.

Most numerous one of the genus, remaining with us all winter, and an occasional non-breeder spending the summer. C. B. Linton (5) saw several at Clemente during the winter of 1908, and D. R. Dickey and I saw a flock of five

there April 10, 1915. J. Grinnell (3) found it very numerous at Catalina during December, 1897, and I have noted it in abundance there throughout April. I have also seen a few near Santa Barbara Island the first of May. C. B. Linton (4) found adults and immatures to be common at Santa Cruz Island, November and December, 1907, and A. van Rossem and I saw them from time to time in the same locality during the latter part of April, 1911. G. Willett (6) recorded them as common at San Miguel Island, the middle of June, 1910, and C. P. Streater (1) stated that he saw immature birds there and was under the impression that they bred in the locality, which supposition is, of course, extremely unlikely. Willett (7) also saw a male at Santa Rosa Island, June 8, 1910. All of our scoters prefer the ocean in the vicinity of sandy beaches, and so are not nearly as common at the islands as they are along the neighboring mainland.

48. **Chen hyperboreus hyperboreus** (Pallas)

SNOW GOOSE

Chen hyperboreus hyperboreus (1) Dawson, Condor, xvii, 1915, p. 204.

While on Santa Cruz Island in April, 1915, W. L. Dawson (1) saw a pair of these birds that were kept in captivity at the ranch house. They were winged, of course, and had been taken from flocks numbering several thousand which visited the island during the winter of 1914.

49. **Anser albifrons gambeli** Hartlaub

WHITE-FRONTED GOOSE

Anser gambeli (1) Linton, Condor, x, 1908, p. 126.

C. B. Linton (1) found this goose abundant on Santa Rosa Island in November, 1907, and he (MS) informs me that the fishermen at Santa Cruz Island are in the habit of running over to Santa Rosa to get them for Christmas. I have been told by several fishermen that a goose, probably this one, is found on Anacapa in flocks during part of the winter.

50. **Ardea herodias herodias** Linnaeus

GREAT BLUE HERON

Ardea herodias (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79. (2) Blake, Auk, iv, 1887, p. 329. (3) Grinnell, Pasadena Acad. Sci., i, 1897, p. 26. (4) Breninger, Auk, xxi, 1904, p. 223. (5) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 141. (6) Linton, Condor, x, 1908, p. 83. (7) Linton, Condor, x, 1908, p. 126. (8) Wright, Condor, xi, 1909, p. 100. (9) Wright and Snyder, Condor, xv, 1913, p. 91.

Ardea herodias herodias (10) Willett, Pac. Coast Avif., 7, 1912, p. 30.

Ardea herodias oligista (11) Oberholser, Proc. U. S. Nat. Mus., xliii, 1913, p. 553.

Ardea herodias hyperonca (12) Grinnell, Pac. Coast Avif., 11, 1915, p. 43.

Fairly common about all of the islands but evidently breeding on only a few of them. I have seen these birds all through the spring and early summer standing on the kelp beds in the vicinity of the Coronados.

From San Clemente, H. C. Oberholser (11) has described a subspecies, the

type being an almost adult male taken August 26, 1894. It is similar to the mainland bird, but smaller, and the describer says that in addition to the type locality, it probably occurs on Santa Cruz, San Nicolas, Anacapa and Catalina. Now I am very familiar with the Coronados Islands, having lived on them for as long as two months at a time, and I am morally certain that no herons breed there. Besides, I have seen one as far as five miles from the islands, flying towards the mainland. In addition, G. Willett (*MS*) says that he has seen them in flight between Anacapa and the mainland. If they fly back and forth from these two islands, it is reasonable to suppose that they do the same from the others, and if this is the case it is hard to believe that an island subspecies exists.

I have before me two Great Blue Herons from the islands, one from the collection of A. van Rossem, shot by him on San Clemente, September 30, 1908, the other, from my own collection, taken on Catalina by H. Wright, May 25, 1908. Although they are both males, and, as far as I can tell, near the age of Mr. Oberholser's type, I can see no difference to warrant separation of the island bird. Following are the average measurements of the eleven specimens of *A. h. hyperonca* from the Pacific slope of California as given by Mr. Oberholser in his original description of that subspecies, his measurements of the type of *oligista*, and the average of my two island specimens.

	Wing	Tail	Culmen	Tarsus	Toe ¹
11 <i>A. h. hyperonca</i>	485.7	184.7	142.7	180.5	107.2
type, <i>A. h. oligista</i>	433	187	149	184	101
2 skins from islands.....	492	182.5	148.7	182.3	113

¹Middle toe without claw.

Some allowance should of course be made for two different people taking measurements, but even with a generous margin to allow for variation in this, it will be seen that my two birds have even longer wings and middle toes than the mainland ones, while the shortness of these two members was the chief claim to subspecific rank of the type of *oligista*.

C. B. Linton (*MS*) saw several Great Blue Herons at San Nicolas during January, 1911, and I have seen an occasional individual at Catalina at different times of the year. H. Wright (9) records one at Anacapa, July 5, 1912, and A. van Rossem and I saw a number at Santa Cruz in April, 1911.

In the vicinity of the islands these birds spend most of their time perched on the kelp beds waiting for fish. The kelp sinks under them to a certain extent, and they appear as if their legs were but half the length that they really are. Those that breed upon the islands build their nests in niches of the cliffs.

51. *Butorides virescens anthonyi* (Mearns)

ANTHONY GREEN HERON

Butorides virescens anthonyi (1) Oberholser, Proc. U. S. Nat. Mus., XLII, 1912, p. 543.

H. C. Oberholser (*MS*) informs me that his record for this bird on the Coronados (1) is based on a specimen taken in that locality by A. W. Anthony, May 11, 1885. C. B. Linton (*MS*) tells me that he also secured a bird on Santa Cruz Island.

52. **Nycticorax nycticorax naevius** (Boddaert)

BLACK-CROWNED NIGHT HERON

Nycticorax nycticorax naevius (1) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (2) Willett, Pac. Coast Avif., 7, 1912, p. 31.

E. A. Mearns (1) saw a bird of this species on San Clemente Island, August 22 to 29, 1894.

53. **Porzana carolina** (Linnaeus)

SORA

Porzana carolina (1) Linton, Condor, xi, 1909, p. 193.

C. B. Linton (1) found the partly eaten remains of one of these birds on San Clemente Island during the winter of 1908.

54. **Fulica americana** Gmelin

COOT

Fulica americana (1) Linton, Condor, x, 1908, p. 126.

But one record, that of a bird seen by C. B. Linton (1) December 18, 1907, at Prisoner's Harbor, Santa Cruz Island.

55. **Phalaropus fulicarius** (Linnaeus)

RED PHALAROPE

Crymophilus fulicarius (1) Streater, Orn. & Ool., XIII, 1888, p. 54. (2) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (3) Linton, Condor, x, 1908, p. 126.

Phalaropus fulicarius (4) Willett, Pac. Coast Avif., 7, 1912, p. 33. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 48.

Abundant at certain times during the migrations about the islands. On April 10, 1911, I saw two of these birds feeding near the rocks of Catalina, and E. A. Mearns (2) took specimens at San Clemente, August 22 to 29, 1894. C. P. Streater (1) observed a number in the kelp fields near San Nicolas during the middle of the fall, and C. B. Linton and G. Willett (3) found them abundant in the vicinity of Anacapa and Santa Cruz islands until November 27. By December 5 the majority had left for the south.

56. **Lobipes lobatus** (Linnaeus)

NORTHERN PHALAROPE

Lobipes lobatus (1) Willett, Pac. Coast Avif., 7, 1912, p. 34.

Abundant migrant in the open channel, but few are seen near the shores of the islands. C. B. Linton (1) took two birds from a large flock near Santa Cruz Island, October 21, 1908, and A. van Rossem and I saw a few in the same locality May 2, 1911.

57. **Recurvirostra americana** Gmelin

AVOCET

Recurvirostra americana (1) Henshaw, Rep. Wheeler Surv., 1876, p. 270.

H. W. Henshaw (1) reports that during the middle of June, 1875, on Santa Cruz Island, several of these birds had paired and were living on the beaches. He thought that they may have been breeding, but in this conclusion I believe that he may have been mistaken.

58. **Himantopus mexicanus** (Müller)

BLACK-NECKED STILT

Himantopus mexicanus (1) Grinnell, Pasadena Acad. Sci., I, 1897, p. 26. (2) Grinnell, Pac. Coast Avif., 11, 1915, p. 49.

J. Grinnell (1) shot a male of this species May 25, 1897, that was standing at the edge of a pool on San Nicolas Island, and C. B. Linton (MS) secured one in the same locality.

59. **Macrorhamphus griseus scolopaceus** (Say)

LONG-BILLED DOWITCHER

Macrorhamphus scolopaceus (1) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141.

Macrorhamphus griseus scolopaceus (2) Willett, Pac. Coast Avif., 7, 1912, p. 35.

E. A. Mearns (1) reports having seen this bird on San Clemente Island, May 22 to 29, 1894.

60. **Pisobia bairdi** (Coues)

BAIRD SANDPIPER

Pisobia bairdi (1) Grinnell, Condor, XI, 1909, p. 139. (2) Willett, Pac. Coast Avif., 7, 1912, p. 36. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 50.

An immature male of this species was taken at Catalina, September 1, 1907, by H. Wright (1).

61. **Pisobia minutilla** (Vieillot)

LEAST SANDPIPER

Actodromas minutilla (1) Cooper, Proc. Calif. Acad. Sci., IV, 1870, p. 79.

Tringa minutilla (2) Linton, Condor, X, 1908, p. 126.

Pisobia minutilla (3) Linton, Condor, XI, 1909, p. 194.

Common during migration on the sandy beaches of the islands. At San Clemente, C. B. Linton (3) saw flocks of these birds, and took a few specimens in December, 1908. He (MS) also saw many at San Nicolas during January, 1911. J. G. Cooper (1) recorded it from Catalina, and Linton (2) met with it at Santa Cruz Island during November and December, 1907. In the same locality, May 1, 1911, A. van Rossem and I saw a flock of what we believed to be this species.

62. **Ereunetes mauri** Cabanis

WESTERN SANDPIPER

Ereunetes mauri (1) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (2) Linton, Condor, XI, 1909, p. 194. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 51.

Probably a fairly common migrant on the sandy beaches of the islands. E.

A. Mearns (1) shot some of these birds at San Clemente from August 22 to 29, 1894, and C. B. Linton (2) states that at the same place he met with it together with the last species during December, 1908.

63. **Calidris leucophaea** (Pallas)

SANDERLING

Calidris arenaria (1) Henshaw, Rep. Wheeler Surv., 1876, p. 271. (2) Breninger, Auk, **xxi**, 1904, p. 222. (3) Linton, Condor, **x**, 1908, p. 126.

Calidris leucophaea (4) Linton, Condor, **xi**, 1909, p. 194. (5) Willett, Pac. Coast Avif., **7**, 1912, p. 37. (6) Grinnell, Pac. Coast Avif., **11**, 1915, p. 51.

Common winter visitant to suitable parts of the islands. C. B. Linton (5) has found this species on San Nicolas as late as May 30. He (4) says that it is common during the winter at San Clemente, where Breninger (2) also found flocks in February, 1903. Linton (3) has noted it on Santa Cruz Island during November and December, 1907.

64. **Totanus melanoleucus** (Gmelin)

GREATER YELLOW-LEGS

Totanus melanoleucus (1) Streater, Orn. & Ool., **xiii**, 1888, p. 53. (2) Osburn, Condor, **xi**, 1909, p. 137.

C. P. Streater (1) reports having seen one of these birds on Santa Cruz Island in 1886. No specimen was obtained, and it is with some hesitation that I include the species. As it is a common migrant on the mainland, however, and not hard to identify in life, I have ventured to do so.

65. **Helodromas solitarius cinnamomeus** (Brewster)

WESTERN SOLITARY SANDPIPER

Totanus solitarius (1) Streater, Orn. & Ool., **xiii**, 1888, p. 53.

Helodromas solitarius cinnamomeus (2) Mearns, Bull. U. S. Nat. Mus., **lvi**, 1907, p. 141. (3) Willett, Pac. Coast Avif., **7**, 1912, p. 38.

Rather rare migrant. C. P. Streater (1) met with this bird on both San Nicolas and Santa Cruz islands in 1886, and E. A. Mearns (2) reported it from San Clemente the latter part of August, 1894.

66. **Catoptrophorus semipalmatus inornatus** (Brewster)

WESTERN WILLET

Symphemia semipalmata inornata (1) Streater, Orn. & Ool., **xiii**, 1888, p. 54.

Catoptrophorus s[emipalmatus]. inornatus (2) Willett, Condor, **xii**, 1910, p. 173.

Catoptrophorus semipalmatus inornatus (3) Willett, Pac. Coast Avif., **7**, 1912, p. 38.

Regular migrant to suitable parts of the islands. C. P. Streater (1) reported it from San Nicolas in the fall of 1886, and C. B. Linton (MS) met with it upon the same island during January, 1911. G. Willett (2) records a flock of ten or twelve birds seen at the west end of San Miguel, June 17, 1910.

67.

Heteractitis incanus (Gmelin)

WANDERING TATTLER

Heteroscelus incanus (1) Henshaw, Rep. Wheeler Surv., 1876, p. 272. (2) Baird, Brewer and Ridgway, Water Birds N. Am., I, 1884, p. 291.

Heteractitis incanus (3) Blake, Auk, IV, 1887, p. 329. (4) Sharpe, Cat. Birds Brit. Mus., XXIV, 1896, p. 455. (5) Grinnell, Pasadena Acad. Sci., I, 1897, p. 26. (6) Grinnell, Pasadena Acad. Sci., II, 1898, p. 18. (7) Grinnell and Daggett, Auk, XX, 1903, pp. 33, 37. (8) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (9) Linton, Condor, X, 1908, p. 83. (10) Linton, Condor, X, 1908, p. 126. (11) Grinnell, Condor, X, 1908, p. 130. (12) Wright, Condor, XI, 1909, p. 100. (13) Osburn, Condor, XI, 1909, p. 137. (14) Willett, Condor, XII, 1910, p. 173. (15) Howell, Condor, XII, 1910, p. 186. (16) Burt, Condor, XIII, 1911, p. 164. (17) Willett, Pac. Coast Avif., 7, 1912, p. 38. (18) Grinnell, Pac. Coast Avif., 11, 1915, p. 53.

Wandering Tattler (19) Willett, Condor, XII, 1910, p. 171.

Common migrant to all the islands, and recorded during every month of the year. Most abundant from August to the first part of May. Almost every ornithologist who has visited the islands in winter has met with this bird, and there are about a dozen records for non-breeders during the summer months. They are fond of frequenting the foam-sprayed rocks off shore, singly or in twos, and not infrequently in the company of Black Turnstones. Here, when observed, they will squat motionless or steal over a ridge of rock.

68.

Actitis macularia (Linnaeus)

SPOTTED SANDPIPER

Actitis macularia (1) Grinnell, Pasadena Acad. Sci., I, 1897, p. 26. (2) Grinnell, Pasadena Acad. Sci., II, 1898, p. 18. (3) Grinnell and Daggett, Auk, XX, 1903, pp. 33, 37. (4) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (5) Linton, Condor, X, 1908, p. 83. (6) Linton, Condor, X, 1908, p. 126. (7) Grinnell, Condor, X, 1908, p. 130. (8) Osburn, Condor, XI, 1909, p. 137. (9) Willett, Pac. Coast Avif., 7, 1912, p. 39.

Actitis macularius (10) Grinnell, Pac. Coast Avif., 11, 1915, p. 53.

Common on the islands in winter, and, as with the last mentioned species, occurring during every month of the year. On the Coronados I have seen them repeatedly in the spring and occasionally during the early summer; J. Grinnell and F. S. Daggett (3) note two seen August 6, 1902, in the same locality. C. B. Linton (5) found the species fairly common at Clemente during the fall and winter of 1907, and I saw a bird on the rocks there March 29, 1915. J. Grinnell (2) reports it as tolerably common at Catalina in December, 1897, and I have seen individuals both here and at Santa Barbara Island in late April and early May. Grinnell (7) also saw several at Anacapa, September 4, 1903; Linton (6) found numbers at Santa Cruz Island in November and December, 1907, where A. van Rossem and I noted them during the latter part of April, 1911.

69.

Numenius hudsonicus Latham

HUDSONIAN CURLEW

Numenius hudsonicus (1) Grinnell and Daggett, Auk, XX, 1903, pp. 33, 37. (2) Breninger, Auk, XXI, 1904, p. 222. (3) Linton, Condor, X, 1908, p. 126. (4) Cooke, Bull. U. S. Biol. Surv., XXXV revised, 1912, p. 74. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 54.

Probably a regular but not very common migrant. J. Grinnell and F. S. Daggett (1) observed two of this species flying over the Coronados, August 7, 1902; Breninger (2) noted a few at San Clemente in February, 1903; C. B. Linton (3) took a bird December 8, 1907, at Santa Cruz, and (MS) has also seen birds on San Nicolas.

70. **Squatarola squatarola** (Linnaeus)

BLACK-BELLIED PLOVER

Squatarola helvetica (1) Baird, Brewer and Ridgway, Water Birds N. Am., 1, 1884, p. 136. *Squatarola squatarola* (2) Breninger, Auk, XXI, 1904, p. 218. (3) Linton, Condor, x, 1908, p. 126. (4) Willett, Pac. Coast Avif., 7, 1912, p. 39.

Rather common migrant at suitable localities. C. B. Linton (4) saw one of these birds in full summer plumage at San Nicolas Island, June 1, 1910, and G. F. Breninger (2) observed thousands on the shores of San Clemente in February, 1903. J. G. Cooper (1) took a female on Catalina, November 1, 1861, now in the Museum of Vertebrate Zoology at Berkeley, and C. B. Linton (3) found it common on Santa Cruz during November and December, 1907, large flocks being seen feeding on the mesas one half to one mile inland.

71. **Oxyechus vociferus** (Linnaeus)

KILLDEER

Aegialitis vocifera (1) Linton, Condor, x, 1908, p. 126.

Straggles to the islands in the winter. I saw a lone individual of this species, March 25, 1915, at a little pond on the top of San Clemente Island. C. B. Linton (MS) noted several on San Nicolas in January, and a number on Santa Cruz during November and December, 1907.

72. **Aegialitis semipalmata** (Bonaparte)

SEMIPALMATED PLOVER

Aegialitis semipalmata (1) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (2) Willett, Pac. Coast Avif., 7, 1912, p. 40.

Evidently a rather rare winter straggler from the mainland. E. A. Mearns (1) took this species on San Clemente the latter part of August, 1894, and C. B. Linton (2) saw it at San Nicolas, April 18 and May 6, 1910.

73. **Aegialitis nivosa** Cassin

SNOWY PLOVER

Aegialitis nivosa (1) Grinnell, Pasadena Acad. Sci., 1, 1897, p. 26. (2) Linton, Condor, x, 1908, p. 83. (3) Linton, Condor, x, 1908, p. 126. (4) Willett, Pac. Coast Avif., 7, 1912, p. 40. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 55.

Found on most of the sandy beaches of the islands, where apparently breeding. C. B. Linton (2) saw a flock of fifteen or twenty birds on San Clemente, October 15, 1907, and says (MS) that they breed on San Nicolas. He (3) also reported it as fairly common during the late fall of 1907 at Santa Cruz Island. O. W. Howard (4) has seen it at San Miguel during the summer months.

74. **Podasocys montanus** (J. K. Townsend)

MOUNTAIN PLOVER

Podasocys montana (1) Breninger, Auk, xxi, 1904, p. 222.

Podasocys montanus (2) Willett, Pac. Coast Avif., 7, 1912, p. 41. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 56.

G. F. Breninger (1) took one of these birds on San Clemente in February, 1903, and states that he was informed that they wintered on the island in large numbers. If this was the case they are undoubtedly much rarer there at this time than formerly, as is also true in the lowlands of the adjacent mainland.

75. **Aphriza virgata** (Gmelin)

SURF-BIRD

Aphriza virgata (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79. (2) Baird, Brewer and Ridgway, Water Birds N. Am., i, 1884, p. 127. (3) Grinnell, Pac. Coast Avif., 3, 1902, p. 28. (4) Willett, Pac. Coast Avif., 7, 1912, p. 41. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 56.

Rare migrant on the islands though probably commoner there than on the mainland opposite. C. B. Linton (4) took an adult on San Nicolas, May 15, 1909, and J. G. Cooper (1) saw birds on Santa Barbara and Catalina islands which he took to be of this species. L. M. Loomis (4) says that R. H. Beck secured several on San Miguel from March 13 to April 1, 1903. My experience with this species on the mainland leads me to believe that it is a rapid migrant, and in the habit of making long flights, touching usually only at certain favorable promontories and headlands in its line of travel. If this is the case, the islands should be favorite resting places for the birds, and I believe that systematic work on the rocks of the Santa Barbara group at the right season would prove them to be not so rare as they are usually considered. Indications are that during the spring, the first week in May is the most likely time to look for them.

76. **Arenaria interpres morinella** (Linnaeus)

RUDDY TURNSTONE

Arenaria interpres morinella (1) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 141. (2) Grinnell, Condor, xi, 1909, p. 139. (3) Willett, Pac. Coast Avif., 7, 1912, p. 41. (4) Wright and Snyder, Condor, xv, 1913, p. 91.

Probably a regular though not a plentiful migrant. E. A. Mearns (1) took this bird at San Clemente in late August, 1894, and C. B. Linton (3) found it fairly common on the rocks of San Nicolas from March 30 to May 11, 1910. H. Wright (2) shot an immature male at Catalina, September 3, 1907, and (4) saw one at Pelican Harbor, Santa Cruz Island, July 8, 1912. C. B. Linton (3) noted two birds on San Miguel, October 15, 1910.

77. **Arenaria melanocephala** (Vigors)

BLACK TURNSTONE

Stripsilas melanocephalus (1) Henshaw, Rep. Wheeler Surv., 1876, p. 270.

Arenaria melanocephala (2) Blake, Auk, iv, 1887, p. 329. (3) Streater, Orn. & Ool., xiii,

1888, p. 53. (4) Sharpe, Cat. Birds Brit. Mus., xxiv, 1896, pp. 102, 729. (5) Grinnell, Pasadena Acad. Sci., I, 1897, p. 26. (6) Grinnell, Pasadena Acad. Sci., II, 1898, p. 19. (7) Davie, Nests & Eggs N. Am. Birds, 5th ed., 1898, p. 159. (8) Grinnell and Daggett, Auk, xx, 1903, pp. 33, 37. (9) Breninger, Auk, xxi, 1904, p. 218. (10) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (11) Linton, Condor, x, 1908, p. 83. (12) Linton, Condor, x, 1908, p. 126. (13) Grinnell, Condor, x, 1908, p. 130. (14) Wright, Condor, xi, 1909, p. 100. (15) Osburn, Condor, xi, 1909, p. 137. (16) Willett, Condor, xii, 1910, p. 173. (17) Cooke, Bull. U. S. Biol. Surv., xxxv revised, 1912, p. 99. (18) Willett, Pac. Coast Avif., 7, 1912, p. 42.

An abundant migrant, and common throughout the winter. Non-breeders occasionally seen all through the summer. The majority arrive about the middle of August and leave the middle of May. Breeding plumage is assumed towards the last of April. This is by far the most abundant shore bird on the islands, much more so than on the mainland, occurring in flocks of as many as thirty individuals, and frequenting the rockiest shores.

78.

Haematopus frazari Brewster

FRAZAR OYSTER-CATCHER

Haematopus palliatus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1868, p. 8. (2) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79. (3) Baird, Brewer and Ridgway, Water Birds N. Am., I, 1884, p. 113.

Haematopus frazari (4) Davie, Nests & Eggs N. Am. Birds, 5th ed., 1898, p. 161. (5) Brewster, Birds Cape Region Lower Calif., 1902, p. 74. (6) Grinnell, Pac. Coast Avif., 3, 1902, p. 29. (7) Grinnell and Daggett, Auk, xx, 1903, pp. 29, 33, 37. (8) Osburn, Condor, xiii, 1911, p. 76. (9) Cooke, Bull. U. S. Biol. Surv., xxxv revised, 1912, p. 42. (10) Willett, Pac. Coast Avif., 7, 1912, p. 42. (11) Grinnell, Pac. Coast Avif., 11, 1915, p. 57.

Rare straggler from farther south during the late summer. J. Grinnell (7) took one specimen on the Coronados, August 6, 1902, and saw another the following day. J. G. Cooper (2) shot a female on Santa Barbara Island, June 2, 1863, that held an egg nearly ready to be laid. Although this would indicate that the bird was breeding in the vicinity, we have no cause to suppose that the species has bred within our range since that time at least.

79.

Haematopus bachmani Audubon

BLACK OYSTER-CATCHER

Haematopus niger (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 79. (2) Henshaw, Rep. Wheeler Surv., 1876, p. 270. (3) Baird, Brewer and Ridgway, Water Birds N. Am., I, 1884, p. 116. (4) Streater, Proc. Sta. Barbara Soc. Nat. Hist., I, 1887, p. 22. (5) Sharpe, Cat. Birds Brit. Mus., xxiv, 1896, p. 121.

Haematopus bachmani (6) Blake, Auk, iv, 1887, p. 329. (7) Streater, Orn. & Ool., xiii, 1888, p. 53. (8) Brewster, Birds Cape Region Lower Calif., 1902, p. 75. (9) Grinnell and Daggett, Auk, xx, 1903, pp. 33, 37. (10) Linton, Condor, x, 1908, p. 126. (11) Grinnell, Condor, x, 1908, p. 130. (12) Wright, Condor, xi, 1909, p. 100. (13) Osburn, Condor, xi, 1909, p. 137. (14) Willett, Condor, xii, 1910, p. 173. (15) Osburn, Condor, xiii, 1911, p. 32. (16) Burt, Condor, xiii, 1911, p. 164. (17) Willett, Pac. Coast Avif., 7, 1912, p. 42. (18) Wright and Snyder, Condor, xv, 1913, pp. 87, 91. (19) Grinnell, Pac. Coast Avif., 11, 1915, p. 57.

Haematopus bachmani (20) Streater, Orn. & Ool., xiii, 1888, p. 54.

Black Oystercatcher (21) Swarth, Bull. Cooper Orn. Club, 1, 1899, p. 85. (22) Willett, Condor, XII, 1910, p. 171.

Fairly common resident on some of the islands. There were at least four pairs of these birds nesting on the Coronados in 1910, and I several times encountered the downy young after the middle of June. Breeds on the Coronados, Santa Barbara, Anacapa, Santa Cruz, San Miguel and Santa Rosa islands. Most plentiful on the last, where G. Willett (14) took five sets of eggs, June 17, 1910.

Data would seem to indicate that these birds do not lay much before the middle of May. Usually three and more rarely four eggs are laid. In winter the legs and feet are yellow, but towards spring they become bright red. Certain rocky points are selected by the birds, and to these are often brought the barnacles which they pry off the rocks. These are worked over at leisure, and at one such depot on the Coronados which I examined, there was fully a bushel of shells.

80. *Lophortyx californica vallicola* (Ridgway)

VALLEY QUAIL

Lophortyx californicus (1) Cooper, Proc. Calif. Acad. Sci., IV, 1870, p. 79. (2) Cooper, Land Birds Calif., I, 1870, p. 550. (3) Henshaw, Rep. Wheeler Surv., 1876, p. 266.

Callipepla californica vallicola (4) Grinnell, Pasadena Acad. Sci., I, 1897, p. 12. (5) Grinnell, Auk, XV, 1898, p. 234.

Lophortyx californicus vallicola (6) Oberholser, Proc. U. S. Nat. Mus., XXII, 1900, p. 229. (7) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 142. (8) Wright, Condor, XI, 1909, p. 100. (9) Howell, Condor, XII, 1910, p. 187.

Lophortyx catalinensis (10) Grinnell, Auk, XXIII, 1906, p. 262. (11) [Childs], Warbler, III, 1907, p. 1. (12) Richardson, Condor, XI, 1908, p. 66. (13) Grinnell, Condor, X, 1908, p. 94. (14) A. O. U. Committee, Auk, XXV, 1908, p. 391.

Lophortyx sp ? (15) Osburn, Condor, XI, 1909, p. 137.

Lophortyx californica vallicola (16) Willett, Pac. Coast Avif., 7, 1912, p. 43. (17) Grinnell, Pac. Coast Avif., 11, 1915, p. 59.

Lophortyx californica catalinensis (18) Grinnell, Pac. Coast Avif., 8, 1912, p. 10. (19) Grinnell, Pac. Coast Avif., 11, 1915, p. 59.

Rather rare on the Coronados; common on Catalina. There are at present a few pairs on south island of the Coronados. L. M. Huey (MS) remembers years ago to have heard talk of a Mr. Babcock of San Diego establishing a hunting preserve upon the island, and believes that the birds were introduced at that time. They now seem to have a rather precarious foothold there, and it is likely that Duck Hawks and wild house cats will exterminate them in the near future. In coloration, individuals may be found which somewhat approach *californica*, but the majority have the markings of *vallicola*. It is not improbable that a part of the birds which were liberated, were of each race. They are essentially the same as birds from the mainland, four birds from my collection differing only to a slight degree in having shorter bills and middle toes, and longer tails, an insufficient difference to warrant separation.

Mr. Howland of San Clemente Island, tells me that there were two or three dozen birds liberated there in 1913, but that he has not seen any of them very recently. G. Willett (16), however, records the species previous to that time (in 1912) as occasional on San Clemente, so that introduction may have taken place at an earlier period.

The Catalina quail was separated by J. Grinnell (10), the type being a bird collected November 25, 1904. He says that it is about nine per cent larger than *vallicola*, and darker and more brownish dorsally than *californica*. Tail longer, bill heavier, toes and tarsus stouter, than in either mainland race. It was not accepted by the A. O. U. Committee (14), but all the birds which I have seen could be easily told from either of the mainland forms, and I believe it to be a good subspecies. They are abundant on the island. A half finished nest found by C. H. Richardson (12) in April, 1907, differed in no manner from that of mainland *vallicola*.

H. W. Henshaw (3) states that quail were at one time introduced on Santa Cruz Island, but as none have been taken there as far as I know, they have probably disappeared, and there is no way of knowing whether they were *californica* or *vallicola*.

81. **Zenaidura macroura marginella** (Woodhouse)

WESTERN MOURNING DOVE

Zenaidura carolinensis (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (2) Richardson, Condor, x, 1908, p. 66.

Zenaidura macroura (3) Blake, Auk, iv, 1887, p. 329. (4) Keeler, Zoc, i, 1891, p. 339. (5) Grinnell, Pasadena Acad. Sci., i, 1897, pp. 5, 9, 13. (6) Grinnell, Auk, xv, 1898, p. 234. (7) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 141. (8) Linton, Condor, x, 1908, p. 83. (9) Linton, Condor, x, 1908, p. 127.

Zenaidura macroura marginella (10) Mearns, Auk, xxviii, 1911, p. 490. (11) A. O. U. Committee, Auk, xxix, 1912, p. 381. (12) Wright and Snyder, Condor, xv, 1913, p. 91. (13) Grinnell, Pac. Coast Avif., 11, 1915, p. 62. (14) Ridgway, Birds North & Mid. Am., vii, 1916, p. 347.

Zenaidura macroura carolinensis (15) Willett, Pac. Coast Avif., 7, 1912, p. 44.

Rather common resident of certain of the islands. J. Grinnell (5) found this bird quite numerous near the lower end of San Clemente during the spring of 1897. Twenty or thirty of them roosted in a small clump of cherry trees in a ravine, coming to it just at dusk. Two nests were found by him on June 3 and 6, respectively, both being situated on horizontal branches of wild cherry. In the treeless northern part of the island, however, they are distinctly rare, and I saw but a single individual during a three weeks stay in the spring of 1915.

I have noted them in some numbers on Catalina, and C. H. Richardson (2) found that they pair in April there. J. Grinnell (5) saw about a dozen birds on San Nicolas in May, 1897, and remarks that a specimen secured is very much darker than any he had seen from the mainland. He also saw about the same number on Santa Barbara Island in May, 1897, but on the first of that month, 1908, I could find but a single bird in the locality. This is such a small barren island that one feels surprised at meeting these birds. They, in addition to some of the other land birds, must get their supply of moisture from the ice plant which grows so abundantly.

A. van Rossem and I found doves to be common on Santa Cruz the latter part of April, 1911, where they seemed partial to the upper edges of the bare grass lands, and to the borders of the little canyons. Here H. Wright (12) found a nest containing a single egg, July 7, 1912.

82. **Circus hudsonius** (Linnaeus)

MARSH HAWK

Circus hudsonius (1) van Rossem, Condor, xi, 1909, p. 208. (2) Burt, Condor, xiii, 1911, p. 166. (3) Willett, Pac. Coast Avif., 7, 1912, p. 46.

Evidently a straggler to the islands. A. van Rossem (1) shot a female on the Coronados, April 6, 1909; H. C. Burt (2) took an immature male on Anacapa, March 15, 1911; and C. B. Linton (MS) tells me that he has seen the species on Santa Cruz.

83. **Accipiter velox** (Wilson)

SHARP-SHINNED HAWK

Accipiter velox (1) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 44. (2) Richardson, Condor, x, 1908, p. 66. (3) Linton, Condor, xi, 1909, p. 194. (4) Willett, Pac. Coast Avif., 7, 1912, p. 46.

Probably not rare during the fall, winter and early spring. On San Clemente, C. B. Linton (3) saw several of these birds during December, 1908; C. H. Richardson (2) recorded one from Catalina, April 19, 1905; and J. Mailliard (1) lists it as having occurred on Santa Cruz in April, 1908.

84. **Accipiter cooperi** (Bonaparte)

COOPER HAWK

Accipiter cooperi (1) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 44. (2) Howell and van Rossem, Condor, xiii, 1911, p. 209. (3) Willett, Pac. Coast Avif., 7, 1912, p. 46. (4) Grinnell, Pac. Coast Avif., 11, 1915, p. 64.

Recorded only from Santa Cruz Island, where I believe it to be resident in small numbers. J. Mailliard (1) lists the species from that locality during April, 1908, and on April 25, 1911, I (2) saw a pair at the lower edge of the pines which acted very much as if they had a nest near by.

85. **Buteo borealis calurus** Cassin

WESTERN RED-TAIL

Buteo borealis calurus (1) Grinnell, Auk, xv, 1898, p. 234. (2) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 44. (3) Breninger, Auk, xxi, 1904, p. 220. (4) Richardson, Condor, x, 1908, p. 66. (5) Linton, Condor, x, 1908, p. 83. (6) Linton, Condor, x, 1908, p. 127. (7) Grinnell, Pac. Coast Avif., 11, 1915, p. 65.

Fairly common resident of the larger islands. C. B. Linton (5) says that several pairs were nesting on San Clemente in 1907, and L. M. Huey (MS) saw a bird there March 25, 1915. I have found it common in the early spring at Catalina, and on April 11, 1911, discovered in a tree a nest that held two pipped eggs. J. Grinnell (1) saw two or three every day when he was there in December, 1897. C. B. Linton (6) noted several on Santa Cruz during November and December, 1907, and A. van Rossem and I saw one there May 1, 1911.

86.

Buteo swainsoni Bonaparte

SWAINSON HAWK

Buteo montanus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 77.

Buteo swainsoni (2) Howell and van Rossem, Condor, xiii, 1911, p. 209. (3) Willett, Pac. Coast Avif., 7, 1912, p. 47. (4) Grinnell, Pac. Coast Avif., 11, 1915, p. 66.

Occurs on two of the islands at least. J. G. Cooper (1) says that the species was present at Catalina, and F. S. Daggett (3) found it common there from August 1 to 16, 1898, one specimen having been taken. I (2) obtained a good view of one on Santa Cruz, April 30, 1911.

87.

Haliaeetus leucocephalus leucocephalus (Linnaeus)

BALD EAGLE

Haliaeetus leucocephalus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 77. (2) Cooper, Land Birds Calif., i, 1870, p. 452. (3) Henshaw, Rep. Wheeler Surv., 1876, p. 264.

Haliaeetus leucocephalus (4) Blake, Auk, iv, 1887, p. 329. (5) Streater, Orn. & Ool., xiii, 1888, p. 53. (6) Belding, Land Birds Pac. Dist., 1890, p. 41. (7) Keeler, Zoe, i, 1891, p. 339. (8) Grinnell, Pasadena Acad. Sci., i, 1897, pp. 5, 9, 13. (9) Grinnell, Auk, xv, 1898, p. 234. (10) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 42. (11) Grinnell and Daggett, Auk, xx, 1903, pp. 33, 37. (12) Breninger, Auk, xxi, 1904, p. 219. (13) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 141. (14) Richardson, Condor, x, 1908, p. 66. (15) Linton, Condor, x, 1908, p. 83. (16) Grinnell, Condor, x, 1908, p. 130. (17) Burt, Condor, xiii, 1911, p. 164. (18) Howell and van Rossem, Condor, xiii, 1911, p. 209.

Haliaeetus leucocephalus leucocephalus (19) Grinnell, Pac. Coast Avif., 3, 1902, p. 33. (20) Linton, Condor, x, 1908, p. 127. (21) Willett, Pac. Coast Avif., 7, 1912, p. 48. (22) Wright and Snyder, Condor, xv, 1913, p. 86. (23) Grinnell, Pac. Coast Avif., 11, 1915, p. 67.

Bald Eagle (24) Willett, Condor, xii, 1910, p. 171.

Common resident of the Santa Barbara group. J. Grinnell and F. S. Daggett (11) saw an eagle on the Coronados, August 6, 1902, and were told that a pair of them had a nest. One of these birds was later killed, and during my several visits since 1910 I have never seen one.

D. R. Dickey, L. M. Huey and I found them numerous on San Clemente in the spring of 1915, and a pair that occupied an accessible nest still had eggs April 3. C. B. Linton (15) says that scattered about the base of the cliffs where the nests were situated, were numerous skeletons of sheep and young lambs, but Mr. Howland told us that during fifteen years of almost continued residence on the island, he had never seen an eagle carrying a lamb but once, and that was one that had died a natural death. He was quite sure that they did not molest the sheep at all. Worked into the material that formed the above nest found by Mr. Dickey, was the dessicated remains of a whole fox.

Eagles are reported as abundant on San Nicolas, and J. G. Cooper (2) states that on July 9, in the sixties, he saw more than thirty birds in immature plumage soaring about the north end of Catalina. A number are killed here annually by tourists and shepherders, until now they are not quite so abundant. Still, several individuals may be seen at almost any time, and many of their nests are on

the cliffs. These are sometimes also built in the wind-blown trees near the precipices.

I have seen eagles about Santa Barbara Island, as have others, but as the island is rather small, I think it probable that there is but one resident pair. Several pairs are resident on Anacapa, and it is interesting to note, as H. C. Burt (17) remarks, that all the sticks which enter into the construction of nests on this island, must laboriously be carried across five miles of sea from Santa Cruz Island. On the latter island they are said to kill lambs occasionally, and so are undoubtedly shot by the herders at every opportunity. A. van Rossem and I (18) found that most of the birds nested on the sea cliffs, but one nest was found in a large tree, well back in a canyon. This nest, on May 2, 1911, held a single young the size of a hen.

The Bald Eagle occurs on San Miguel and undoubtedly on Santa Rosa as well.

The majority would seem to lay the first part of February, but fresh eggs may be found until late March.

88.

Falco mexicanus Schlegel

PRAIRIE FALCON

Falco mexicanus (1) Streater, Orn. & Ool., XIII, 1888, p. 53. (2) Keeler, Zoe, I, 1891, p. 340.

Both C. P. Streater (1) and C. A. Keeler (2) record the Prairie Falcon from San Miguel, but no one else has since found it.

89.

Falco peregrinus anatum Bonaparte

DUCK HAWK

Falco communis var. *anatum* (1) Henshaw, Rep. Wheeler Surv., 1876, p. 262.

Falco nigripes (2) Cooper, Proc. Calif. Acad. Sci., IV, 1870, p. 77. (3) Cooper, Land Birds Calif., I, 1870, p. 456.

Falco peregrinus anatum (4) Belding, Land Birds Pac. Dist., 1890, p. 42. (5) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 44. (6) Breninger, Auk, XXI, 1904, p. 220. (7) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (8) Linton, Condor, X, 1908, p. 83. (9) Linton, Condor, X, 1908, p. 127. (10) Wright, Condor, XI, 1909, p. 100. (11) Howell, Condor, XII, 1910, p. 186. (12) Burt, Condor, XIII, 1911, p. 166. (13) Willett, Pac. Coast Avif., 7, 1912, p. 49. (14) Wright and Snyder, Condor, XV, 1913, p. 91. (15) Grinnell, Pac. Coast Avif., 11, 1915, p. 67.

Falco anatum anatum (16) Grinnell and Daggett, Auk, XX, 1903, pp. 33, 37.

Duck Hawk (17) Willett, Condor, XII, 1910, p. 171.

Common resident of all the islands. At least three and probably four pairs of these birds breed on the Coronados. During late March and early April, 1915, on San Clemente, I repeatedly saw a pair, but was unable to locate their nesting site. G. Willett (13) took a set of four eggs on Catalina, April 8, 1904, and I have observed several of the birds on the northwest part of the island. I flushed a pair from the cliff on the seaward side of Santa Barbara Island, where they undoubtedly had a nest of young, May 1, 1908, and H. C. Burt (12) noted a pair on Anacapa. On Santa Cruz, O. W. Howard (13) collected a set April 5, 1906,

and C. B. Linton (9) says it is quite common there. Willett (17) found Duck Hawks to be common on San Miguel the middle of June, 1910.

Where there are colonies of small pelagic birds, these falcons are the commonest. They usually nest on inaccessible cliffs, but on north island of the Coronados group, they breed on ledges in the caves of the hillsides, and are easily accessible without a rope. A. van Rossem (MS) found a set of eggs there that were deposited on a bare ridge close to a path. Fresh eggs may be looked for during the last half of March and first of April.

J. Grinnell and F. S. Daggett (16), on the Coronados, found skins of the Western Gull turned wrong side out over the head, leaving the skeletons picked clean, and believe that the hawks were responsible. H. Linton and G. Willett (9) saw one take a Red Phalarope from the kelp near the shore of Santa Cruz Island. First one and then another of a pair of falcons chased the little fellow until he was tired out. C. B. Linton (9) states that Black Turnstones are a favorite prey. As previously stated, they do great damage among the colonies of petrels, auklets and murrelets during the nesting season, while in winter, not even that expert diver the Rhinoceros Auklet is immune from their successful attacks. I have found that when the young Duck Hawks are thoroughly strong on the wing, the majority forsake the islands, and probably spend the rest of the season along the mainland coast. On the Coronados, June 8, 1913, A. van Rossem shot an immature bird which tumbled down a cliff. As we were approaching it in a skiff two hours later, an adult arose from the carcass, and upon examination we found that the whole back and one wing had been eaten away, so the species evidently has cannibalistic tendencies.

90.

Falco columbarius columbarius Linnaeus

PIGEON HAWK

Falco columbarius (1) Linton, Condor, x, 1908, p. 127.

Rather rare winter visitant. While D. R. Dickey was removing a fox from a trap on San Clemente Island, March 30, 1915, a pair of these birds circled closely around him for two or three minutes. He says that there could have been no mistake in identification, and from then until we left, April 11, we several times saw what were evidently the same birds. C. B. Linton (1) noted a few in the canyons of Santa Cruz Island during November and December, 1907.

91.

Falco sparverius phalaena (Lesson)

DESERT SPARROW HAWK

Falco sparverius deserticolus (1) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 44.

Falco sparverius (2) Linton, Condor, x, 1908, p. 83. (3) Wright and Snyder, Condor, xv, 1913, p. 91.

Falco sparverius phalaena (4) Linton, Condor, x, 1908, p. 127. (5) Osburn, Condor, XI, 1909, p. 137. (6) Burt, Condor, XIII, 1911, p. 166.

Sparrow Hawk (7) Willett, Condor, XII, 1910, p. 172.

Reported from several islands, and probably resident. C. B. Linton (MS) says that he has seen these birds on San Nicolas Island; he (2) recorded them as occasional on San Clemente, in 1907. H. C. Burt (6) reported a pair on Ana-

capa, March 15, 1911, and A. van Rossem (*MS*) noted two on Santa Cruz, April 25 of the same year. In the latter locality Linton (4) secured a pair during December, 1907, and G. Willett (7) saw the wings of a female that was shot on San Miguel in 1910.

92. **Pandion haliaëtus carolinensis** (Gmelin)

OSPREY

Pandion carolinensis (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 77. (2) Grinnell, Pac. Coast Avif., 3, 1902, p. 34. (3) Linton, Condor, x, 1908, p. 127.

Pandion haliaëtus carolinensis (4) Streater, Orn. & Ool., xiii, 1888, p. 53.

Pandion haliaëtus carolinensis (5) Belding, Land Birds Pac. Dist., 1890, p. 46. (6) Grinnell, Pasadena Acad. Sci., i, 1897, pp. 9, 14. (7) Breninger, Auk, xxi, 1904, p. 219. (8) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 141. (9) Linton, Condor, x, 1908, p. 83. (10) Willett, Pac. Coast Avif., 7, 1912, p. 49. (11) Grinnell, Pac. Coast Avif., 11, 1915, p. 69.

Fairly common breeder on some of the islands, but the majority seem to winter south of us. I think it doubtful if any of these birds nest on the Coronados, and have seen but one in that locality, this on June 30, 1913. We noted a good many at San Clemente in the early spring of 1915, and were told of a number of nests; C. B. Linton (9) says that they are plentiful at San Nicolas. Present in some numbers at Catalina, but not as abundant as formerly, owing to the predations of the tourists. Still every detached rock of any height has its resident pair. C. P. Streater (4) reported the species from Santa Cruz in 1886, and Linton (3) noted one bird there, November 20, 1907. These two are the northernmost island records, and it is not believed that the species breeds on the islands, north of Catalina. The time for egg laying seems to vary considerably. I have found fresh eggs as early as March 7, and have watched birds constructing a nest April 28.

93. **Aluco pratincola** (Bonaparte)

BARN OWL

Strix pratincola (1) Linton, Condor, x, 1908, p. 127.

Aluco pratincola (2) van Rossem, Condor, xi, 1909, p. 208. (3) Howell and van Rossem, Condor, xiii, 1911, p. 209. (4) Willett, Pac. Coast Avif., 7, 1912, p. 50. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 69.

Tyto perlata pratincola (6) Ridgway, Birds North & Mid. Am., vi, 1914, p. 607.

Rather rare resident of some of the islands. A. van Rossem (2) saw one on the Coronados, April 9, 1909, which I am inclined to think was a straggler from the mainland, as no one else has met with it there, and this group has been very thoroughly worked. G. Willett (1) shot a specimen on Santa Cruz, November 20, 1907, and A. van Rossem and I saw one there on the night of April 27, 1911. H. C. Burt (4) collected a bird on Anacapa.

94. **Asio wilsonianus** (Lesson)

LONG-EARED OWL

Asio wilsonianus (1) Linton, Condor, xi, 1909, p. 194. (2) van Rossem, Condor, xi, 1909,

p. 208. (3) Willett, Pac. Coast Avif., 7, 1912, p. 50. (4) Grinnell, Pac. Coast Avif., 11, 1915, p. 69.

Rather rare resident of San Clemente and Catalina. Accidental on the Coronados, where J. B. Dixon (2) saw one April 7, 1909. C. B. Linton (1) met with four, one of which he shot, on San Clemente, during December, 1908. O. W. Howard (3) found six nearly half-grown young in an old raven's nest on Catalina in April, 1909, and I saw a single adult in the same locality, April 11, 1910.

95. **Asio flammeus** (Pontoppidan)

SHORT-EARED OWL

Asio flammeus (1) Grinnell, Auk, xv, 1898, p. 234. (2) Willett, Pac. Coast Avif., 7, 1912, p. 50.

Asio accipitrinus (3) Osburn, Condor, xi, 1909, p. 137.

Casual wanderer to the islands. J. Grinnell (1) saw a newly mounted specimen of this owl on Catalina during the latter part of December, 1897, that had been shot the week before.

96. **Bubo virginianus pacificus** Cassin

PACIFIC HORNED OWL

Bubo virginianus pacificus (1) Willett, Pac. Coast Avif., 7, 1912, p. 53.

O. W. Howard (1) saw a horned owl on Santa Cruz Island, April 29, 1906, which was presumably this form. It may either be a rare resident of the island, or the one specimen may have wandered from the mainland.

97. **Speotyto cunicularia hypogaea** (Bonaparte)

BURROWING OWL

Athene cunicularia (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 77.

S[peotyto]. cunicularia hypogaea (2) Streater, Orn. & Ool., xiii, 1888, p. 54.

Speotyto cunicularia hypogaea (3) Townsend, Proc. U. S. Nat. Mus., xiii, 1890, p. 140.

(4) Keeler, Zoe, i, 1891, p. 340. (5) Grinnell, Auk, xv, 1898, p. 234. (6) Breninger, Auk, xxi, 1904, p. 222. (7) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 141. (8) Linton, Condor, x, 1908, p. 84. (9) Linton, Condor, x, 1908, p. 127. (10) van Rossem, Condor, xi, 1909, p. 208. (11) Willett, Pac. Coast Avif., 7, 1912, p. 53. (12) Ridgway, Birds North & Mid. Am., vi, 1914, p. 817.

Burrowing Owl (13) Willett, Condor, xii, 1910, p. 172. (14) Burt, Condor, xiii, 1911, p. 166.

Resident on the islands but not common. A. van Rossem (10) shot a female on the Coronados, April 8, 1909, but it must be rare there as I have never observed it during any of my visits. C. A. Keeler (4) recorded the species from San Nicolas as well as from San Clemente, on certain parts of which it is to be found in some numbers. J. Grinnell (5) saw one on Catalina during December, 1897, and was told that it was quite numerous at times. I saw a single individual here several times in April, 1911. It seems to be lacking on Santa Barbara Island. H. C. Burt (14) was informed that the species had been seen at different times on Anacapa. C. B. Linton (9) reports the bird as fairly common in suitable places on Santa Cruz, and states that they average a trifle paler than mainland

specimens, with slightly different measurements. Mr. Ward, in charge of San Miguel Island, told Willett (13) that there were a few there.

98.

Ceryle alcyon (Linnaeus)

BELTED KINGFISHER

Ceryle alcyon (1) Blake, Auk, iv, 1887, p. 329. (2) Streater, Orn. & Ool., XIII, 1888, p. 53. (3) Keeler, Zoe, I, 1891, p. 339. (4) Grinnell, Pasadena Acad. Sci., I, 1897, p. 14. (5) Grinnell, Auk, xv, 1898, p. 234. (6) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (7) Linton, Condor, x, 1908, p. 84. (8) Linton, Condor, x, 1908, p. 127. (9) Grinnell, Condor, x, 1908, p. 130. (10) Osburn, Condor, XI, 1909, p. 137. (11) Willett, Pac. Coast Avif., 7, 1912, p. 84.

Regular migrant to the islands. A. van Rossem saw one on the Coronados, August 13, 1914. One was seen almost daily about our camp on San Clemente in late March and early April, 1915, and it has been recorded from there in the fall. J. Grinnell (5) found it fairly common at Catalina in December, 1897, and he (9) shot one on Anacapa, September 4, 1903. Reported in some numbers by various writers from July to December on Santa Cruz.

99.

Sphyrapicus ruber ruber (Gmelin)

RED-BREASTED SAPSUCKER

Sphyrapicus varius nuchalis (1) Linton, Condor, x, 1908, p. 84. (2) Ridgway, Birds North & Mid. Am., VI, 1914, p. 280. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 80. *Sphyrapicus ruber ruber* (4) Willett, Pac. Coast Avif., 7, 1912, p. 56.

Rather rare winter visitant to the larger islands. C. B. Linton (1) took two immature birds of this form on San Clemente, October 11, 1907, which he erroneously recorded as *S. v. nuchalis*. I have seen their marks on trees on Catalina, and April 8, 1911, I caught sight of a distant bird which was probably of this species. On Santa Cruz Island, during the latter part of April, A. van Rossem and I repeatedly saw trees that had been worked on by some sapsucker.

100.

Asyndesmus lewisi Riley

LEWIS WOODPECKER

Asyndesmus lewisi (1) Dawson, Condor, XVII, 1915, p. 204.

On Santa Cruz Island, April 4, 1915, W. L. Dawson (1) saw a single individual on one of the outlying barns of the main ranch. It was not again encountered.

101.

Colaptes cafer collaris Vigors

RED-SHAFTED FLICKER

Colaptes mexicanus (1) Cooper, Proc. Calif. Acad. Sci., IV, 1870, p. 77.

Colaptes (2) Blake, Auk, IV, 1887, p. 329.

Colaptes cafer (3) Streater, Orn. & Ool., XIII, 1888, p. 53. (4) Grinnell, Auk, XV, 1898, p. 234. (5) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 44. (6) Oberholser, Proc. U. S. Nat. Mus., XXII, 1900, p. 229.

Colaptes cafer (?) (7) Keeler, Zoe, I, 1891, p. 339.

Colaptes cafer collaris (8) Richardson, Condor, X, 1908, p. 66. (9) Linton, Condor, X,

1908, p. 127. (10) Howell and van Rossem, Condor, XIII, 1911, p. 209. (11) Willett, Pac. Coast Avif., 7, 1912, p. 57. (12) Wright and Snyder, Condor, xv, 1913, p. 91. *C[olaptes]. a[uratus]. luteus* (13) Howell and van Rossem, Condor, XIII, 1911, p. 209.

Rather common resident of Santa Cruz, and present on Catalina during the winter at least. J. Grinnell (4) met with these birds in some numbers on Catalina during December, 1897, flushing them from the north slopes, where they were digging in the damp turf for larvae. I have noted two or three here in early April. C. H. Richardson (8) considers them to be merely winter visitants in this locality, as he was unable to find any old nesting holes. H. Linton (MS) shot one on San Nicolas in May, 1910, which he presented to G. Willett.

Numerous on Santa Cruz, and although no nests have been reported, they surely breed as they are present throughout the year. A. van Rossem and I found them exceedingly shy. We stated (10, 13) that many birds were seen in which the usual red was replaced by yellow, and judged accordingly that there were also Northern Flickers present, or at least hybrids which closely approached the latter. I have since changed this opinion, and consider, that whatever may be the correct explanation of the occurrence of the so-called hybrid flickers that are reported from many parts of the west, the birds of Santa Cruz are amenable to the same influences that cause the red of the linnets here often to be replaced by yellow.

102. ***Phalaenoptilus nuttalli californicus*** Ridgway

DUSKY POOR-WILL

Phalaenoptilus nuttalli californicus (1) Grinnell, Pasadena Acad. Sci., I, 1897, p. 14. (2) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 142. (3) Richardson, Condor, x, 1908, p. 66. (4) Willett, Pac. Coast Avif., 7, 1912, p. 57. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 84.

A regular but not common migrant through the southern islands. J. Grinnell (1) says that on San Clemente from March 30 to April 2, 1897, this bird was heard each evening, and a female was secured March 31. As no one else has heard them there, the above would indicate that perhaps there was an unusually heavy migratory wave of them passing through that year. C. H. Richardson (3) has seen them occasionally in April on Catalina, and during 1911 I saw two birds on the 8th of that month and another on the 10th. O. W. Howard (MS) shot a bird on Anacapa Island, April 6, 1906.

103. ***Chordeiles acutipennis texensis*** Lawrence

TEXAS NIGHTHAWK

Chordeiles acutipennis texensis (1) Willett, Pac. Coast Avif., 7, 1912, p. 58. (2) Grinnell, Pac. Coast Avif., 11, 1915, p. 85.

G. Willett (1) shot an adult female on Santa Barbara Island, June 20, 1911, and dissection showed her to be breeding. Although a careful search was made during the succeeding days, her mate could not be located, and it is barely possible that she had wandered over from one of the larger islands the night before.

104. **Chaetura vauxi** (J. K. Townsend)

VAUX SWIFT

Chaetura vauxi (1) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 44. (2) Willett, Pac. Coast Avif., 7, 1912, p. 59.

Noted by J. Mailliard (1) on Santa Cruz Island during April, 1898.

105. **Aeronautes melanoleucus** (Baird)

WHITE-THROATED SWIFT

Aeronautes melanoleucus (1) Grinnell, Pasadena Acad. Sci., I, 1897, pp. 9, 15. (2) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 43. (3) Breninger, Auk, XXI, 1904, p. 220. (4) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 142. (5) Richardson, Condor, X, 1908, p. 66. (6) Linton, Condor, X, 1908, p. 84. (7) Linton, Condor, X, 1908, p. 127. (8) Osburn, Condor, XI, 1909, p. 137. (9) Ridgway, Birds North & Mid. Am., V, 1911, p. 688. (10) Willett, Pac. Coast Avif., 7, 1912, p. 59. (11) Grinnell, Pac. Coast Avif., 11, 1915, p. 86.

Aeronautes melanoleucus (12) Wright, Condor, XI, 1909, p. 100.

White-throated Swift (13) Willett, Condor, XII, 1910, p. 171.

Fairly common on most of the islands, and evidently breeding in suitable localities. A. van Rossem and I noted a small flock on the Coronados, June 25, 1913, and the former shot a female which contained a well developed egg. They were probably nesting on the high sand-stone cliffs on the south side of south island. J. Grinnell (1) records this species from San Nicolas in May, 1897; on San Clemente, D. R. Dickey, L. M. Huey and I saw them several times in the early spring of 1915. Here at Howland's Bay, C. B. Linton (6) saw them entering crevices in the cliffs, March 7, 1907. I have repeatedly observed them darting about the high ridges of Catalina in the spring, and G. Willett (13) found a number of them present on Anacapa, June 5, 1910. A. van Rossem and I saw small flocks on Santa Cruz the latter part of April, 1911, and C. B. Linton (7) recorded several there in December, 1907.

106. **Calypte costae** (Bourcier)

COSTA HUMMINGBIRD

Calypte costae (1) Grinnell, Pasadena Acad. Sci., I, 1897, p. 15. (2) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 142. (3) Willett, Pac. Coast Avif., 7, 1912, p. 60. (4) Grinnell, Pac. Coast Avif., 11, 1915, p. 86.

Breeds on some of the islands. During several visits to the Coronados in spring, I have found this hummer frequenting the low bushes that straggle over the cliff bordering the cove on south island. It seems to be a fairly common breeder and is very much in evidence near its home site, making pugnacious sallies after other birds and even attacking any gull that chances near. J. Grinnell (1) records a single adult male on San Clemente, March 30, 1897, but considers that it was merely a migrant. G. Willett (3) found it rather common among the cactus patches of Santa Barbara Island in June, 1911, and on the 19th, noted a female feeding young just out of the nest.

107.

***Calypte anna* (Lesson)**

ANNA HUMMINGBIRD

Calypte anna (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (2) Grinnell, Auk, xv, 1898, p. 235. (3) Mailliard, Bull. Cooper Orn. Club, I, 1899, pp. 42, 44. (4) Richardson, Condor, x, 1908, p. 66. (5) Linton, Condor, x 1908 p. 127. (6) Osburn, Condor, xi, 1909, p. 137. (7) Ridgway, Birds North & Mid Am., v, 1911, p. 621. (8) Willett, Pac. Coast Avif., 7, 1912, p. 60. (9) Grinnell, Pac. Coast Avif., 11, 1915, p. 87.

Not rare on the islands, breeding on some of them at least. May 17, 1910, I saw a single male of this species on the Coronados. On San Clemente, for several days during the latter part of March, 1915, one collected bits of cotton from the vicinity of our skinning table. At Catalina J. Grinnell (2) shot an adult female and saw another the last of December, 1897, which indicates that they may spend the entire winter in that locality, and C. H. Richardson (4) saw a few there in April. C. B. Linton (5) found them to be fairly common on Santa Cruz during November and December, 1907, and A. van Rossem and I saw several there the latter part of April, 1911, the former taking two males on the 29th and 30th, respectively.

108.

***Selasphorus alleni* Henshaw**

ALLEN HUMMINGBIRD

Selasphorus rufus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (2) Cooper, Land Birds Calif., I, 1870, p. 356.

Trochilus rufus (3) Blake, Auk, iv, 1887, p. 329. (4) Keeler, Zoe, I, 1891, p. 339.

Selasphorus alleni. (5) Grinnell, Pasadena Acad. Sci., I, 1897, p. 15. (6) Grinnell, Auk, xv, 1898, p. 234. (7) Grinnell, Bull. Cooper Orn. Club, I, 1899, p. 18. (8) Mailliard, Bull. Cooper Orn. Club, I, 1899, pp. 42, 44. (9) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 230. (10) Grinnell, Pac. Coast Avif., 3, 1902, p. 41. (11) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 142. (12) Richardson, Condor, x, 1908, p. 66. (13) Linton, Condor, x, 1908, p. 84. (14) Linton, Condor, x, 1908, p. 127. (15) Wright, Condor, xi, 1909, p. 100. (16) van Rossem Condor, xi, 1909, p. 208. (17) Willett, Condor, xii, 1910, p. 171. (18) Ridgway, Birds North & Mid. Am., v, 1911, p. 610. (19) Willett, Pac. Coast Avif., 7, 1912, p. 61. (20) Snyder, Condor, xvi, 1914, p. 182. (21) Shephardson, Condor, xvii, 1915, p. 130. (22) Grinnell, Pac. Coast Avif., 11, 1915, p. 88.

Common resident. On the Coronados A. van Rossem (16) found these birds to be very common in April, 1909, and H. Wright (15) noted what he believed to be this form the last part of June, 1908. On San Clemente J. Grinnell (5) met with them commonly along the ravines, the latter part of March, 1897, and one nest was found. This, as well as a number of other nests found by C. B. Linton (13), was composed chiefly of sheeps wool, with the usual covering of lichens and plant fiber.

The species is especially abundant on Catalina, where I have observed that the birds are partial to the clumps of wild tobacco, though not by any means confined to its vicinity. As an instance of its numbers here, G. K. Snyder (20) during fifty-five minutes on March 20, 1914, examining, with the aid of a cumbersome ladder, about thirty trees for possible nests, discovered and inspected elev-

en. Several of these were newly completed, and two held young almost ready to fly. This hummingbird breeds mostly in the trees above stream beds.

J. G. Cooper (1) reported the species from Santa Barbara Island, and V. W. Owen (17) saw a male on the top of Anacapa, June 5, 1910. On Santa Cruz, A. van Rossem and I remarked a few the last of April, 1911, E. W. Blake (3) recorded the species as very common in July and August, while C. B. Linton (14) saw several and shot a male, November 24, 1907.

109. **Tyrannus verticalis** Say

ARKANSAS KINGBIRD

Tyrannus verticalis (1) Mailliard, Bull. Cooper Orn. Club, 1, 1899, p. 45. (2) Linton, Condor, x, 1908, p. 82.

Casual migrant. On San Clemente C. B. Linton (2) saw one of these birds April 3, 1907, and another on the 5th. J. Mailliard (1) took a specimen on Santa Cruz in April, 1898, and W. L. Dawson (MS) saw two in the same locality, one on April 6, 1915, and the other on the 19th.

110. **Tyrannus vociferans** Swainson

CASSIN KINGBIRD

Tyrannus vociferans (1) Linton, Condor, x, 1908, p. 127. (2) van Rossem, Condor, xi, 1909, p. 208. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 89.

Occasional migrant. A. van Rossem (2) recorded a pair from the Coronados in April, 1909. On Santa Cruz C. B. Linton (1) saw a bird November 24, 1907, which he believes was of this species.

111. **Myiarchus cinerascens cinerascens** (Lawrence)

ASH-THROATED FLYCATCHER

Accidental on the islands. J. Grinnell (MS) obtained a good view of one of these birds among some walnut trees on Santa Cruz Island, September 3, 1903.

112. **Sayornis sayus** (Bonaparte)

SAY PHOEBE

Sayornis saya (1) Grinnell, Auk, xv, 1898, p. 235. (2) Breninger, Auk, xxi, 1904, p. 223. (3) Linton, Condor, x, 1908, p. 84. (4) Linton, Condor, x, 1908, p. 127. (5) Osburn, Condor, xi, 1909, p. 137.

Sayornis sayus (6) Grinnell, Pac. Coast Avif., 11, 1915, p. 90.

A not uncommon winter visitant. C. B. Linton (3) says that on San Clemente these birds are common over the whole island in winter, and I saw one there as late as April 11, 1915. J. Grinnell (1) noted the species in some numbers on Catalina the latter part of December, 1897, and C. B. Linton (MS) has seen it on San Nicolas in January. At Santa Cruz Island the latter writer recorded it as fairly common during November and December, 1907.

113. **Sayornis nigricans** (Swainson)

BLACK PHOEBE

Sayornis nigricans (1) Blake, Auk, iv, 1887, p. 329. (2) Streater, Orn. & Ool., xiii, 1888, p. 54. (3) Keeler, Zoe, i, 1891, p. 339. (4) Grinnell, Auk, xv, 1898, p. 234. (5) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 45. (6) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 230. (7) Breninger, Auk, xxi, 1904, p. 223. (8) Richardson, Condor, x, 1908, p. 67. (9) Linton, Condor, x, 1908, p. 84. (10) Linton, Condor, x, 1908, p. 127. (11) Willett, Pac. Coast Avif., 7, 1912, p. 63. (12) Wright and Snyder, Condor, xv, 1913, p. 91. (13) Grinnell, Pac. Coast Avif., 11, 1915, p. 90.

Resident but not in large numbers. C. A. Keeler (3) recorded this species from San Nicolas. On San Clemente it is rather rare and confined to the north-west coast. C. B. Linton (9) found an unfinished nest there March 20, 1907, and I saw a single bird March 27, 1915, the only one during a three weeks stay. At Catalina I have seen occasional birds during April, and J. Grinnell (4) noted three in December, 1897. It was present, but not in numbers, on Santa Cruz when A. van Rossem and I were there in late April, 1911. A nest which we kept under observation contained pipped eggs April 26. Linton (10) found it fairly common here during November and December, 1907. C. P. Streater (6) took two adults on Santa Rosa in July, 1892.

114. **Myiochanes richardsoni richardsoni** (Swainson)

WESTERN WOOD PEWEE

Contopus richardsonii (1) Grinnell, Pasadena Acad. Sci., i, 1897, pp. 10, 15.
Horizopus richardsonii (2) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 142.
Contopus richardsoni richardsoni (3) Linton, Condor, x, 1908, p. 127.
Myiochanes richardsoni richardsoni (4) Willett, Pac. Coast Avif., 7, 1912, p. 64.

A not uncommon migrant. L. M. Huey (MS) shot a female on the Coronados, May 18, 1913, and the same day saw about four others flycatching from the large boulders near the water. On San Clemente, J. Grinnell (1) saw one June 3, 1897, and considers that although rather late in the season, it was a migrant. He took a female on San Nicolas Island, May 20, and a male on the 23rd. C. B. Linton (3) states that he heard several among the pines of Santa Cruz Island in December, 1907, but collected no birds. As this is two months after they leave southern California, and there is not another winter record for the state, it is extremely likely that Linton was mistaken in supposing that the notes which he heard emanated from this species.

115. **Empidonax difficilis difficilis** Baird

WESTERN FLYCATCHER

Empidonax difficilis (1) Blake, Auk, iv, 1887, p. 329. (2) Keeler, Zoe, i, 1891, p. 339. (3) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 45. (4) Richardson, Condor, x, 1908, p. 67. (5) Linton, Condor, x, 1908, p. 84. (6) Linton, Condor, x, 1908, p. 127. (7) Osburn, Condor, xi, 1909, p. 137.
Empidonax insulicola (8) Oberholser, Auk, xiv, 1897, p. 300. (9) Grinnell, Pasadena Acad. Sci., i, 1897, p. 15. (10) Black, Auk, xiv, 1897, p. 405. (11) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 42. (12) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 230. (13) A. O. U. Committee, Auk, xviii, 1901, p. 302. (14) Bailey, Handb.

Birds West. U. S., 2d ed., 1904, p. 260. (15) Grinnell, Condor, VII, 1905, p. 50. (16) C(hilds), Warbler, II, 1906, p. 33. (17) Grinnell, Condor, VIII, 1906, p. 74. (18) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (19) A. O. U. Committee, Auk, XXV, 1908, p. 353.

E[mpidonax]. insulicola (20) Coues, Key N. Am. Birds, 5th ed., 1903, p. 531.

Empidonax difficilis difficilis (21) Ridgway, Birds North & Mid. Am., IV, 1907, p. 578.

(22) Willett, Pac. Coast Avif., 7, 1912, p. 64. (23) Wright and Snyder, Condor, XV, 1913, p. 91. (24) Grinnell, Pac. Coast Avif., 11, 1915, p. 91.

Common in summer on the larger islands. The subspecies *insulicola* was described by H. C. Oberholser (8) from a specimen taken on Santa Rosa Island, July 3, 1892. From *difficilis* it was said to differ in being darker, browner above, especially the head, and paler below, especially anteriorly. There is a great deal of individual and seasonal variation in birds from the mainland, and upon bringing large series together since that time, other writers have claimed that the insular bird was not entitled to subspecific rank, wherefore it was subsequently rejected by the A. O. U. Committee (19).

C. B. Linton (5) states that the earliest birds he saw on Clemente were a pair on April 1, 1907, and that but three or four were noted as late as October. They are quite numerous on Catalina and mostly frequent the shady dark parts of the canyons. A. van Rossem and I found the species to be not particularly numerous and rather shy on Santa Cruz in April, 1911. Linton (6) saw and heard several there throughout November and as late as December 15, 1907.

A variety of situations are used as nesting sites, the favorite being in an irregularity of a cliff or large boulder; but the fork of a small tree, a niche in a large trunk, or the wall of a sea cave is often chosen. Two broods are raised each season. I have found uncompleted nests after the middle of April, and "Black" (E. W. Blake) (10) has noted a pair building as late as July 10, 1886.

116. ***Empidonax trailli trailli*** (Audubon)

TRAILL FLYCATCHER

Empidonax traillii (1) Osburn, Condor, XI, 1909, p. 137.

C. C. Lamb (MS) shot one of these birds on the south island of the Coronados group April 4, 1908.

117. ***Empidonax hammondi*** (Xantus)

HAMMOND FLYCATCHER

Empidonax hammondi ? (1) Cooper, Proc. Calif. Acad. Sci., IV, 1870, p. 77.

L. M. Huey (MS) shot a single specimen on San Clemente Island, April 9, 1915. Also reported conditionally by J. G. Cooper (1) from Catalina and Santa Barbara islands. However, as the latter failed to report *difficilis* in the same paper, it is quite possible that the birds which he saw were referable to the latter species.

118. **Otocoris alpestris insularis** C. H. Townsend

ISLAND HORNED LARK

- Phileremos cornutus* (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78.
Eremophila alpestris var. *chrysolaeama* (2) Henshaw, Rep. Wheeler Surv., 1876, p. 248.
Otocoris alpestris rubea (3) Henshaw, Auk, III, 1886, p. 453.
Otocoris alpestris ——— (4) Blake, Auk, iv, 1887, p. 329.
O[tocoris]. alpestris rubea (5) Streater, Orn. & Ool., XIII, 1888, p. 54.
Otocoris alpestris strigata (6) Dwight, Auk, VII, 1890, pp. 151, 158. (7) Keeler, Zoe, I, 1891, p. 339. (8) Grinnell, Pasadena Acad. Sci., I, 1897, pp. 5, 10, 16. (9) Davie, Nests & Eggs N. Am. Birds, 5th ed., 1898, p. 318.
Otocoris alpestris insularis (10) Townsend, Proc. U. S. Nat. Mus., XIII, 1890, p. 140. (11) Bendire, Life Hist. N. Am. Birds, II, 1895, p. 347. (12) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 41. (13) Oberholser, Proc. U. S. Nat. Mus., XXII, 1900, p. 230. (14) Oberholser, Proc. U. S. Nat. Mus., XXIV, 1902, p. 839. (15) A. O. U. Committee, Auk, XX, 1903, p. 345. (16) Breninger, Auk, XXI, 1904, p. 222. (17) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141. (18) Ridgway, Birds North & Mid. Am., IV, 1907, p. 317. (19) Linton, Condor, X, 1908, p. 84. (20) Linton, Condor, X, 1908, p. 181. (21) A. O. U. Check-list, 3d ed., 1910, p. 221. (22) Howell and van Rossem, Condor, XIII, 1911, p. 209. (23) Willett, Pac. Coast Avif., 7, 1912, p. 66. (24) Grinnell, Pac. Coast Avif., 8, 1912, p. 16. (25) Wright and Snyder, Condor, XV, 1913, p. 91. (26) Grinnell, Pac. Coast Avif., 11, 1915, p. 95.
Horned Lark (27) Beck, Bull. Cooper Orn. Club, I, 1899, p. 85. (28) Willett, Condor, XII, 1910, p. 171.
Otocoris insularis (29) Grinnell, Pac. Coast Avif., 3, 1902, p. 45. (30) Linton, Condor, X, 1908, p. 127.
O[tocorys]. a[lpestris]. insularis (31) Coues, Key N. Am. Birds, 5th ed., 1903, p. 508.
O[tocoris]. a[lpestris]. insularis (32) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 269. (33) Reed, N. Am. Birds' Eggs, 1904, p. 228.
Otocoris a[lpestris]. insularis (34) Willett, Condor, XII, 1910, p. 172. (35) Burt, Condor, XIII, 1911, pp. 164, 166.

Resident of the islands. Abundant on some of them and rather rare on others. Not found on the Coronados. This subspecies was originally described by C. H. Townsend (10) from an adult male taken on San Clemente, January 25, 1889. It differs from *actia* in its decidedly darker coloration, and from *strigata* in being slightly darker, with the buffy markings grayer, and underparts of body usually without yellow. Regarding this form Ridgway (18) says "The characters . . . are most pronounced in specimens from the more northern islands of San Miguel, Santa Rosa and Santa Cruz, those from the more southern islands of San Clemente, Santa Barbara, San Nicolas and Santa Catalina inclining towards the mainland form, *O. a. actia*, thus indicating the origin of this insular form." This would probably indicate that the island form originated from the latter, but the more northern islands, having a damper climate, would tend to create characters more closely approaching those of *strigata* of the humid northwest. (See also Oberholser [14].)

C. B. Linton (20) secured one of these birds, a male, from a large flock at Alamitos Bay, Los Angeles County, on January 18, 1908 (the date given in the published record is erroneous). It may be a regular winter visitant to the mainland coast, but I think it more likely that this bird was either an individual that

had accidentally wandered from the islands, or a case of unusual variation of *actia*.

D. R. Dickey, L. M. Huey and I found horned larks most abundant on the open uplands of the northwest end of San Clemente in the spring of 1915. Young on the wing were noted March 25; and during the first week in April second sets were being laid with remarkable uniformity. A number of nests were found, containing either two or three eggs. They were located at the edge of the ice plants, or in the lee of a wisp of grass.

J. Grinnell (8) says that it was the commonest species on San Nicolas, but that (*MS*) on Catalina horned larks were decidedly rare except at the northwest end. Here he heard them on the hillsides near Johnson's Harbor, August 27, 1903; G. Willett (*MS*) saw them occasionally on this part of the island during March, 1905. On Santa Barbara Island the larks are everywhere under one's feet. A nest which I discovered May 1, 1910, held a single egg and was of the usual construction, flimsily built of dry grass only. H. C. Burt (35) reports the species as common on Anacapa.

A number of observers have found it in numbers on the more exposed portions of Santa Cruz Island, but it is inclined to be local here, for in the vicinity of Prisoner's Harbor in the spring of 1911, A. van Rossem and I made a very diligent search for it without results. H. W. Henshaw (11) found a nest here, placed in one of a large pile of abalone shells, overgrown with herbage. He said that horned larks occurred in flocks of both sexes all through June.

G. Willett (34) found this to be one of the commonest land birds on San Miguel. They had evidently raised one brood and were starting to nest again the middle of June, 1910. Here, on June 21 of the same year, O. W. Howard (23) collected a set of three eggs, in which incubation had begun. Several have reported the species from Santa Rosa, but it does not seem to be especially abundant there. Eggs are indistinguishable from those of *actia*. From the above dates I judge that this subspecies must raise at least three broods a season.

119.

Aphelocoma insularis Henshaw

SANTA CRUZ JAY

- Cyanocitta floridana* var., *californica* (1) Henshaw, Rep. Wheeler Surv., 1876, p. 253.
Aphelocoma insularis (2) Henshaw, Auk, III, 1886, p. 452. (3) Ridgway, Man. N. Am. Birds, 1887, p. 593. (4) Blake, Auk, IV, 1887, p. 329. (5) Streater, Orn. & Ool., XIII, 1888, p. 53. (6) Chapman, Auk, V, 1888, p. 396. (7) A. O. U. Committee, Auk, VI, 1889, p. 11. (8) Townsend, Proc. U. S. Nat. Mus., XIII, 1890, p. 141. (9) Belding, Land Birds Pac. Dist., 1890, p. 111. (10) Keeler, Zoe, I, 1891, pp. 339, 342. (11) Bendire, Life Hist. N. Am. Birds, II, 1895, p. 379. (12) Davie, Nests & Eggs N. Am. Birds, 5th ed., 1898, p. 326. (13) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 42. (14) Mailliard, Condor, II, 1900, p. 42. (15) Oberholser, Proc. U. S. Nat. Mus., XXII, 1900, p. 230. (16) Grinnell, Pac. Coast Avif., 3, 1902, p. 46. (17) Reed, N. Am. Birds' Eggs, 1904, p. 232. (18) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 276. (19) Ridgway, Birds North & Mid. Am., III, 1904, p. 331. (20) Linton, Condor, X, 1908, p. 127. (21) A. O. U. Check-list, 3d ed., 1910, p. 225. (22) Howell and van Rossem, Condor, XIII, 1911, p. 209. (23) Willett, Pac. Coast Avif., 7, 1912, p. 68. (24) Grinnell, Pac. Coast Avif., 8, 1912, p. 18. (25) Wright and Snyder, Condor, XV, 1913,

p. 91. (26) Grinnell, Pac. Coast Avif., 11, 1915, p. 98. (27) Dawson, Condor, xvii, 1915, p. 203.

A[*phelocoma*]. *insularis* (28) Ridgway, Man. N. Am. Birds, 1887, p. 355. (29) Coues, Key N. Am. Birds, 5th ed., 1903, p. 498.

Santa Cruz Jay (30) Beck, Bull. Cooper Orn. Club, 1, 1899, p. 6.

Peculiar to Santa Cruz Island, where it is an abundant resident. This species was first described by H. W. Henshaw (2) from three birds collected by him in June, 1875. In coloration it most nearly approaches *A. c. obscura*, but is very much darker and much larger. It differs from *californica* in greater size, deeper colors, especially the brown of the back, and in having blue instead of white under tail coverts. As with the mainland birds, the males are larger than the females, but not to a degree that can be noticed without comparison of specimens.

During July and August E. W. Blake (4) found the Santa Cruz Jay to be impudently familiar, but when A. van Rossem and I (22) were on the island during the breeding season, we found the opposite to be the case. Although the birds were very common, we might easily have overlooked them entirely. Never a sound did one make unless its mate was shot, and it was useless to try for them by walking through their haunts. However, if we would select a likely spot and sit quiet for a few moments, one would usually approach from the rear and silently examine the intruders from a distance of several yards.

It is truly surprising to note the number of old jays' nests upon the island. These must either last for a greater number of years than is the case elsewhere, or else the birds are in the habit of building extra or dummy nests. The favorite sites seem to be in the tops of the local "palo fierro" (ironwood) trees, though many were noted in low oaks or large bushes, mostly on the sides of the canyons. Construction is the same as that employed by the mainland form. The latter part of April, 1911, all the females shot had already laid, and I believe that a large majority then had small young. Two nests that I examined on the 28th (22) were some twenty feet up in ironwoods, and held, respectively, two small young and an addled egg, and three young, half grown. R. H. Beck (30) found four nests with eggs May 8, 1898, and I believe that the time for fresh eggs varies considerably in different seasons. Eight of the above eggs average 1.16x.88 inches. Extremes are 1.10 to 1.21, in length, and .84 to .92 in diameter.

In the late fall C. B. Linton (20) found that the birds near the shore were nearly all females, while in the high pines males predominated. They are not equally common over the entire island, but seem to prefer the neighborhood of the pines and heavy brush. Smugglers Cove is a good place to look for them.

120.

Corvus corax sinuatus Wagler

RAVEN

Corvus carnivorus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (2) Cooper, Land Birds Calif., 1, 1870, p. 283.

Corvus corax var. *carnivorus* (3) Henshaw, Rep. Wheeler Surv., 1876, p. 251.

Corvus corax sinuatus (4) Blake, Auk, iv, 1887, p. 329. (5) Streater, Orn. & Ool., xiii, 1888, p. 54. (6) Keeler, Zoe, 1, 1891, p. 339. (7) Zahn, Avifauna, 1, 1895, p. 24. (8) Grinnell, Pasadena Acad. Sci., 1, 1897, pp. 6, 10, 16. (9) Grinnell, Auk, xv, 1898, p. 234. (10) Mailliard, Bull. Cooper Orn. Club, 1, 1899, p. 45. (11) Oberholser, Proc.

- U. S. Nat. Mus., xxii, 1900, p. 231. (12) Grinnell, Pac. Coast Avif., 3, 1902, p. 46. (13) Grinnell and Daggett, Auk, xx, 1903, pp. 33, 37. (14) Breninger, Auk, xxi, 1904, p. 219. (15) Richardson, Condor, x, 1908, p. 67. (16) Linton, Condor, x, 1908, p. 84. (17) Linton, Condor, x, 1908, p. 127. (18) Grinnell, Condor, x, 1908, p. 130. (19) Wright, Condor, xi, 1909, p. 100. (20) Osburn, Condor, xi, 1911, p. 137. (21) Burt, Condor, xiii, 1911, p. 167. (22) Howell and van Rossem, Condor, xiii, 1911, p. 210. (23) Willett, Pac. Coast Avif., 7, 1912, p. 68. (24) Wright and Snyder, Condor, xv, 1913, p. 91. (25) Grinnell, Pac. Coast Avif., 11, 1915, p. 99.
- Raven (26) Beck, Bull. Cooper Orn. Club, i, 1899, p. 86. (27) Willett, Condor, xii, 1910, p. 172.
- Corvus corax clarionensis* (28) Ridgway, Birds North & Mid. Am., iii, 1904, p. 264. (29) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 141.

Common resident. In regard to the status of the raven of the islands, I must confess to a feeling of uncertainty. Ridgway (28) identifies birds from Clemente and Catalina as *C. c. clarionensis*, stating that although not quite as small as the latter in its typical form, excepting the tarsus, they are nevertheless nearer to it than they are to the mainland birds. *Clarionensis* is similar to *sinuatus* but smaller, especially the bill, and was described from a single specimen (Rothschild & Hartert, Novit. Zool., ix, 1902, p. 381.). The type may have been merely a particularly small specimen from the locality where it was secured. At any rate, all the island specimens examined average well below the measurements for *sinuatus*, as given by Ridgway (28). Three skins from my collection, compare with Rothschild's type from Clarion Island, Mexico, as follows—

Locality	Wing	Tail	Culmen	Tarsus	Toe ¹	Date	Sex
Catalina Id.	371	217	65	67	42	5-25-08	♀
Catalina Id.	370	210	68	70	46	2-11-10	♀
Catalina Id.	365	216	65	69	42	2-17-10	♂
Clarion Id.	395	...	64	70	♂

¹Middle toe without claw.

On the Coronados there are at least two resident pairs, one breeding on the sandstone cliffs on south island, and the other on the west end of the same. On San Clemente, G. F. Breninger (14) remarks that during February, 1903, he saw thirty-eight at one time, and that there were "seven nests within a hundred yards". Although still decidedly common, they do not now occur there in such great numbers, for they are persistently poisoned by the sheepmen, who assert that they are in the habit of pecking out the eyes of very young lambs. They are quite common on San Nicolas Island.

At Catalina there is always a flock of these birds in the vicinity of the garbage dump near Avalon. Many of them breed in the pockets of the nearby cliffs, but the birds are so wary that it is no easy matter to locate the nests. I have also found many old nests in trees in different parts of the island. In such a situation C. H. Richardson (15) took a set of five fresh and one slightly addled egg, March 19, 1905.

Two or three pairs breed on the cliffs of Santa Barbara Island, where J. Grinnell (8) states that they evidently subsist on the eggs and young of the sea birds which nest so numerously in that locality. On Anacapa, H. C. Burt (21) found a nest ready for eggs March 17, 1911, and is sure that there was only one

pair on the island. A. van Rossem and I (22) discovered two nests, not twenty feet apart, on the sea cliffs of Santa Cruz Island, April 28, 1911. Both held small young. While there we occupied a large pothole at the base of a cliff, and when absent from camp, these birds would enter to investigate. This was much to the detriment of a couple of fine sets of eggs which we once left uncovered. G. Willett (27) says that these birds are common on San Miguel, and H. Wright (24) found an old nest on Santa Rosa that evidently belonged to a raven.

121. **Molothrus ater obscurus** (Gmelin)

DWARF COWBIRD

Molothrus ater obscurus (1) Colburn, Condor, xvii, 1915, p. 165.

On September 5, 1914, L. M. Huey (MS) shot an immature male cowbird on the Coronados, that was catching flies in the air from a large boulder near the water's edge. J. Grinnell identified this specimen as *M. a. artemisiae*, although he stated that the bill is not quite the right shape for that form. As I am following the A. O. U. *Check-list*, the specimen would fall under the above heading. A. E. Colburn (1) records the capture of an additional specimen, an adult male, in the same locality, May 31, 1915.

122. **Xanthocephalus xanthocephalus** (Bonaparte)

YELLOW-HEADED BLACKBIRD

Xanthocephalus xanthocephalus (1) Dawson, Condor, xvii, 1915, p. 204.

While at Santa Cruz Island in the spring of 1915, W. L. Dawson (1) saw a mounted specimen of this species which had been taken by Mr. Lucchelli, of the island, during the previous year.

123. **Sturnella neglecta** Audubon

WESTERN MEADOWLARK

Sturnella neglecta (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (2) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 231. (3) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 142. (4) Linton, Condor, x, 1908, p. 84. (5) Linton, Condor, x, 1908, p. 128. (6) Burt, Condor, xiii, 1911, pp. 164, 166. (7) Willett, Pac. Coast Avif., 7, 1912, p. 71. (8) Wright and Snyder, Condor, xv, 1913, p. 91. (9) Grinnell, Pac. Coast Avif., 11, 1915, p. 104.

Sturnella magna var. *neglecta* (10) Henshaw, Rep. Wheeler Surv., 1876, p. 250.

Sturnella magna neglecta (11) Henshaw, Auk, iii, 1886, p. 453. (12) Streater, Orn. & Ool., xiii, 1888, p. 54. (13) Keeler, Zoe, i, 1891, p. 339. (14) Grinnell, Pasadena Acad. Sci., i, 1897, pp. 6, 16. (15) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 45. (16) Breninger, Auk, xxi, 1904, p. 222.

Common resident on most of the islands. We found these birds numerous back from the shore of San Clemente Island in the spring of 1915. D. R. Dickey saw young on the wing as early as April 9. J. Grinnell (14) says that specimens from there taken by him the last of March and first of April, 1897, in comparison with birds in corresponding plumage from Pasadena, are darker and have larger feet. I saw a single Western Meadowlark on Catalina, April 11, 1911, and a few on Santa Barbara Island, May 1, 1908. H. C. Burt (6) records Meadowlarks

as very common on Anacapa in March, 1911. A. van Rossem and I found them to be fairly common on the grass lands of Santa Cruz Island in the spring of 1911. A nest of six slightly incubated eggs was found on April 28. H. C. Oberholser (2) mentions two specimens taken on San Miguel in June, 1892, and H. Wright (8) noted the species on Santa Rosa, July 10, 1912.

124. **Icterus cucullatus nelsoni** Ridgway

ARIZONA HOODED ORIOLE

Icterus cucullatus nelsoni (1) Richardson, Condor, x, 1908, p. 66. (2) Grinnell, Pac. Coast Avif., 11, 1915, p. 105.

C. H. Richardson (1) heard one of these birds at Catalina, April 16, 1906. During the middle of April, 1911, and towards the last of that month, 1908, I repeatedly saw one or possibly two pairs in the grounds of the Banning residence, a mile from Avalon. I twice flushed the female from an inaccessible nest in a palm tree on the lawn, and presume that there were eggs at this date.

125. **Icterus bullocki** (Swainson)

BULLOCK ORIOLE

Icterus bullocki (1) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 45. (2) Linton, Condor, x, 1908, p. 84. (3) van Rossem, Condor, xi, 1909, p. 208. (4) Willett, Pac. Coast Avif., 7, 1912, p. 72. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 105.

Regular migrant in small numbers. On the Coronados, A. van Rossem (3) shot a male and saw others during early April, 1909, and I found a dead male there June 10, 1910. C. B. Linton (2) shot a specimen on San Clemente, March 31, 1907, and another on San Nicolas Island, March 30 or 31, 1910. J. Mailliard (1) mentions the species as occurring on Santa Cruz during April, 1908, and W. L. Dawson (MS) saw one there April 20, 1915.

126. **Euphagus carolinus** (Müller)

RUSTY BLACKBIRD

Euphagus carolinus (1) Linton, Condor, xi, 1909, p. 194. (2) Willett, Pac. Coast Avif., 7, 1912, p. 72. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 105.

The only record of the Rusty Blackbird for the state of California is that of an adult male shot by C. B. Linton (1) on San Clemente Island, November 20, 1908, and now no. 21271, Museum of Vertebrate Zoology at Berkeley.

127. **Euphagus cyanocephalus** (Wagler)

BREWER BLACKBIRD

Scolecoph[agus]. cyanocephalus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78.

Scolecophagus cyanocephalus (2) Streater, Orn. & Ool., XIII, 1888, p. 54. (3) Keeler, Zoe, I, 1891, p. 340.

Euphagus cyanocephalus (4) Grinnell, Pac. Coast Avif., 11, 1915, p. 106.

Brewer Blackbird (5) Willett, Condor, xii, 1910, p. 172.

Evidently a rather rare straggler to the islands. C. A. Keeler (3) listed this bird from San Nicolas, and C. P. Streater (2) met with it in the same locality

during the fall of 1886. J. G. Cooper (1) encountered it on Catalina in October only, and Mr. Ward, in charge of San Miguel, told G. Willett (5) that there had been three around his house and barn in the spring of 1910.

128. **Carpodacus purpureus californicus** Baird

CALIFORNIA PURPLE FINCH

Carpodacus purpureus californicus (1) Linton, Condor, x, 1908, p. 128.

C. B. Linton (1) shot one in the pines of Santa Cruz Island, December 16, 1907, and saw several others at the same time.

129. **Carpodacus mexicanus clementis** Mearns

SAN CLEMENTE HOUSE FINCH

Carpodacus frontalis (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (2) Henshaw, Rep. Wheeler Surv., 1876, p. 238. (3) Townsend, Proc. U. S. Nat. Mus., xiii, 1890, p. 139.

Carpodacus frontalis rhodocolpus (4) Henshaw, Auk, iii, 1886, p. 453. (5) Blake, Auk, iv, 1887, p. 330.

Carpodacus mexicanus frontalis (6) Streater, Orn. & Ool., xiii, 1888, p. 53. (7) Keeler, Zoe, i, 1891, p. 339. (8) Grinnell, Pasadena Acad. Sci., i, 1897, pp. 6, 10, 16. (9) Grinnell, Auk, xv, 1898, p. 234. (10) Mailliard, Bull. Cooper Orn. Club, i, 1899, pp. 41, 44. (11) Grinnell, Pac. Coast Avif., 11, 1915, p. 107.

Carpodacus clementis (12) Mearns, Auk, xv, 1898, p. 258. (13) Grinnell, Pac. Coast Avif., 3, 1902, p. 49. (14) Grinnell and Daggett, Auk, xx, 1903, pp. 33, 37. (15) Linton, Condor, x, 1908, p. 84. (16) Linton, Condor, x, 1908, p. 128. (17) Osburn, Condor, xi, 1909, p. 137.

Carpodacus mexicanus clementis (18) A. O. U. Committee, Auk, xvi, 1899, p. 114. (19) McGregor, Condor, ii, 1900, p. 35. (20) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 231. (21) Ridgway, Birds North & Mid. Am., i, 1901, p. 140. (22) Reed, N. Am. Birds' Eggs, 1904, p. 246. (23) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 141. (24) Richardson, Condor, x, 1908, p. 67. (25) Wright, Condor, xi, 1909, p. 100. (26) A. O. U. Check-list, 3d ed., 1910, p. 244. (27) Osburn, Condor, xiii, 1911, p. 32. (28) Howell and van Rossem, Condor, xiii, 1911, p. 210. (29) Willett, Pac. Coast Avif., 7, 1912, p. 73. (30) Grinnell, Pac. Coast Avif., 8, 1912, p. 20. (31) Wright and Snyder, Condor, xv, 1913, p. 91. (32) Grinnell, Pac. Coast Avif., 11, 1915, p. 108.

C[arpodacus]. m[exicanus]. clementis (33) Coues, Key N. Am. Birds, 5th ed., 1903, p. 383. (34) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 313.

Carpodacus frontalis clementae (35) Breninger, Auk, xxi, 1904, p. 221.

Carpodacus m[exicanus]. clementis (36) Willett, Condor, xii, 1910, p. 172.

Abundant resident of all the islands, but less so on San Nicolas and San Miguel. Originally described by E. A. Mearns (12) from specimens taken on San Clemente Island, August 25, 1894. Subspecific characters in comparison with mainland birds are: larger legs, feet and bill, wings and tail slightly shorter; striping below broader, and coloration brighter. Two phases of coloration occur in this form, the usual red phase and another in which the red is replaced by yellow. Every intergradation between these two is encountered. I have seen specimens in which the yellow was of very limited extent, a male marked like a female except for a faint red tinge on the chest, a female showing a trace of red, and another with a tinge of yellow.

The breeding season is a long one, and at least three broods must be raised each year. G. F. Breninger (35) found several sets of four and five eggs on San Clemente in February, 1903, and I repeatedly saw young on the wing there during the last of March, 1915. J. Grinnell and F. S. Daggett (14) noted a nest on the Coronados, August 6, 1902, which held small young. The eggs are indistinguishable from those of the mainland bird. The average measurements for a series of nine eggs taken by J. Grinnell (8) on San Clemente is .82x.59 inches. Nesting sites originally were in cactus plants or in niches of cliffs, but the birds are now taking advantage of the chance to occupy more sheltered situations in buildings and sheds, where such occur. I have even known one to take possession of a nest of the Western Flycatcher (28) with one egg of the rightful owner still in place, but as to whether the latter had first deserted of her own accord, I am unable to say. Linnets are fond of congregating about the opuntia patches, on the ripe fruit of which they feed extensively.

Being in doubt as to the identity of birds from Santa Cruz Island, I sent a small series to J. Grinnell for his opinion. He agrees with me in considering the bills of these birds indistinguishable from those of mainland specimens. Among examples from the mainland which he had in the Museum collection, he also found birds more heavily marked than my Santa Cruz specimens.

I believe in subspecies, and think that any form that has a *constant* character of differentiation should be recognized. I cannot see, however, why any race, only two thirds or so of which show the subspecific characters, should have formal place in the catalog of our avifauna. I have gathered together a good sized series of the island *Carpodacus* and have examined many more. I have not taken many measurements of bills and feet, as these often vary in a manner that cannot be shown by calipers, but I have compared them very carefully in the hand, where relative bulk is more apparent. In a large series these members do average a very little larger in the island than in mainland birds, but specimens of the latter may be found which surpass those of the former in the size of both culmen and feet. I have a female taken in Covina, California, the streaking of whose under parts is much heavier than any island female examined, and I have seen males from the mainland just as heavily streaked as any of the insular birds. The latter probably do average heavier in this respect, but there is a large number in which this criterion does not hold good. In the matter of comparative lengths of wing and tail, the following table speaks for itself. Specimens in very worn plumage have not been compared.

	Wing	Tail
33 males from mainland (Los Angeles Co.).....	77.6	58.6
53 males from San Clemente Island	78.6	58.4
9 males from Santa Cruz Island	77.	58.4

In making the above comparisons I am indebted for the loan of specimens to the Museum of History, Science and Art, of Los Angeles, through F. S. Daggett, and to the U. S. Biological Survey, through E. W. Nelson. As but few females were available, I have given measurements of males only. My large series from the type locality certainly goes to show that birds from there at least have not a shorter wing, and to all intents, no shorter tail than mainland birds. The

wing measurement of the few birds from Santa Cruz, while slightly less, is not enough so to merit recognition on this character. I have examined two males from San Miguel, one from Santa Barbara and two from Los Coronados Islands, but these are all in such worn plumages as to be well nigh worthless in the present connection. In coloration, while the island birds are frequently more brilliant than is usual among mainland specimens, occasional individuals of the latter are sometimes still more intense. We therefore have not a single constant criterion whereby *clementis* can be identified, though possibly larger series from some of the other islands, as the Coronados, Santa Barbara or San Miguel may develop some such character.

130. ***Loxia curvirostra stricklandi* Ridgway**

MEXICAN CROSSBILL

Loxia curvirostra stricklandi (1) Howell and van Rossem, Condor, XIII, 1911, p. 210. (2) Willett, Pac. Coast Avif., 7, 1912, p. 74.

Loxia curvirostra bendirei (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 108.

A. van Rossem and I (1) discovered these birds to be present on Santa Cruz Island in the spring of 1911, in numbers sufficient to preclude the possibility of their being merely stragglers to the region. They were found only in the pine timber below the high ridges in the vicinity of Prisoner's Harbor, and we were pretty sure, with careful searching, to encounter them each time that we went to this region, though they were rather wild and hard to locate. Van Rossem saw a pair April 28, and shot the male, I shot a pair from a flock of eight on May 1, and the former took the female to a pair, and saw three others, on the 2nd.

There is the possibility that these birds were merely winter visitants, but I personally believe that they are resident on the island. The date was a late one for them to be lingering in a winter home, and they were evidently beginning to pair off. Another point is that, although a little low zonally, these pine woods have a very boreal appearance and should provide a suitable home for them.

I have, with the help of J. Grinnell, carefully compared the three island birds now available with the large series of *Loxia* in the Berkeley Museum of Vertebrate Zoology. They are practically indistinguishable from *L. c. bendirei*, and so are much closer to *stricklandi* than to *minor*.

131. ***Passer domesticus* (Linnaeus)**

ENGLISH SPARROW

Passer domesticus (1) Dawson, Condor, XVII, 1915, p. 204.

As yet, only accidental on the islands. On San Clemente, March 30, 1915, L. M. Huey and I each saw a male of this species during different times of the day. This was at the corrals, and as we did not see the bird again, I am hoping that the charge of shot which I sent after him took effect. W. L. Dawson (1) also noted a lone female on Santa Cruz, April 18, 1915.

132. **Astragalinus psaltria hesperophilus** Oberholser

GREEN-BACKED GOLDFINCH

Spinus psaltria (1) Grinnell, Auk, xv, 1898, p. 235. (2) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 42.

Astragalinus psaltria (3) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 45.

Astragalinus psaltria hesperophilus (4) Richardson, Condor, x, 1908, p. 67. (5) Linton, Condor, x, 1908, p. 128. (6) Grinnell, Pac. Coast Avif., 11, 1915, p. 110.

Rather rare on the islands. I have noted a limited number of these birds on Catalina several times during the early spring of different years, and J. Grinnell (1) saw three pairs there the last of December, 1897. J. Mailliard (2, 3) recorded the species from Santa Cruz Island in April, 1898, and C. B. Linton (5) saw several and shot one during November, 1907, in the same locality. From the above dates one cannot be sure that this bird breeds on the islands, but I think it likely that it is resident where found at all.

133. **Astragalinus lawrencei** (Cassin)

LAWRENCE GOLDFINCH

Spinus lawrencei (1) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 42.

Astragalinus lawrencei (2) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 45. (3) Richardson, Condor, x, 1908, p. 67. (4) Grinnell, Pac. Coast Avif., 11, 1915, p. 110.

Occurs in about the same numbers as the last. I noted a pair of these birds among the eucalypti of Avalon, Catalina Island, May 4, 1908, and C. H. Richardson (3) states that he has seen the species there several times during the same month. J. Mailliard (1, 2) reports it as present on Santa Cruz Island in April, 1898, and W. L. Dawson (MS) saw it several times near the ranch house there during April, 1915.

134. **Spinus pinus** (Wilson)

PINE SISKIN

Spinus pinus pinus (1) Dawson, Condor, xvii, 1915, p. 204.

While on Santa Cruz Island from April 3 to 22, 1915, W. L. Dawson (1) several times encountered this species in the Monterey pine belt.

135. **Passerculus sandwichensis alaudinus** Bonaparte

WESTERN SAVANNAH SPARROW

Ammodramus sandwichensis alaudinus (1) Townsend, Proc. U. S. Nat. Mus., xiii, 1890, p. 141. (2) Keeler, Zoe, I, 1891, p. 341. (3) Grinnell, Pasadena Acad. Sci., I, 1897, p. 17. (4) Linton, Condor, x, 1908, p. 128.

Passerculus sandwichensis alaudinus (5) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 142. (6) Linton, Condor, xi, 1909, p. 194. (7) Willett, Pac. Coast Avif., 7, 1912, p. 77. (8) Grinnell, Pac. Coast Avif., 11, 1915, p. 113.

Ammodramus sandwichensis bryanti (9) Linton, Condor, x, 1908, p. 128.

Probably a regular though not common migrant to suitable localities. J. Grinnell (3) shot one bird and saw several others along the grassy margin of a slough at the mouth of a canyon on San Clemente, March 30, 1897; C. B. Linton

(6) noted several there during December, 1908; and I took a female March 31, 1915, that was feeding in the corral near a barn. Linton (*MS*) also saw several on San Nicolas in January, 1911. He (9) shot a bird on Santa Cruz Island and saw two others, in December, 1907, which he recorded as *bryanti*, but which has proved to be of this form (7). C. H. Townsend (1) secured a specimen in the same locality February 6, 1889.

136. ***Chondestes grammacus strigatus* Swainson**

WESTERN LARK SPARROW

Chondestes grammacus strigatus (1) Linton, Condor, x, 1908, p. 128. (2) Grinnell, Pac. Coast Avif., 11, 1915, p. 115.

C. B. Linton (1) saw several of these birds on Santa Cruz Island, and collected one in December, 1907.

137. ***Zonotrichia querula* (Nuttall)**

HARRIS SPARROW

Zonotrichia querula (1) Linton, Condor, x, 1908, p. 84. (2) Willett, Pac. Coast Avif., 7, 1912, p. 79. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 116.

C. B. Linton (1) took a specimen of this species, sex undetermined, on San Clemente Island, October 15, 1907. It is now in the University of California Museum of Vertebrate Zoology.

138. ***Zonotrichia leucophrys gambeli* (Nuttall)**

GAMBEL SPARROW

Zonotrichia gambeli (1) Cooper, Proc. Calif. Acad. Sci., IV, 1870, p. 78.

Zonotrichia leucophrys intermedia (2) Streets, Bull. U. S. Nat. Mus., VII, 1877, p. 11. (3) Keeler, Zoe, I, 1891, p. 341. (4) Grinnell, Pasadena Acad. Sci., I, 1897, p. 17. (5) Grinnell, Auk, xv, 1898, p. 235. (6) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 41.

Zonotrichia gambeli intermedia (7) Townsend, Proc. U. S. Nat. Mus., XIII, 1890, pp. 139, 141.

Zonotrichia leucophrys gambeli (8) Oberholser, Proc. U. S. Nat. Mus., XXII, 1900, p. 232.

(9) Richardson, Condor, x, 1908, p. 67. (10) Linton, Condor, x, 1908, p. 85. (11) Linton, Condor, x, 1908, p. 128. (12) Osburn, Condor, XI, 1909, p. 137. (13) Howell and van Rossem, Condor, XIII, 1911, p. 210. (14) Willett, Pac. Coast Avif., 7, 1912, p. 79. (15) Grinnell, Pac. Coast Avif., 11, 1915, p. 116.

Zonotrichia leucophrys gambelii (16) Mearns, Bull. U. S. Nat. Mus. LVI, 1907, p. 142.

Abundant winter visitant. Probably arrives in September and leaves the first part of May. Streets (2) reports one taken on the Coronados, but I imagine that it does not occur there in great numbers, as I have never seen it during the early spring in that locality. We found it most abundant on San Clemente in the spring of 1915. By the time we left the island, April 11, the birds were beginning to bunch up in larger flocks than noted when we first arrived, and the majority were evidently thinking about moving on. Birds were repeatedly noticed chasing each other.

J. Grinnell (5) states that the species was numerous at Catalina in December, 1897, and I have found it to be well distributed over the island in April. C.

H. Townsend (7) notes a specimen taken on Santa Barbara Island, February 13, 1889, and on Santa Cruz, C. B. Linton (11) says that it was common everywhere during November and December, 1907. A. van Rossem and I found it scattered over the hillsides of that island, usually in pairs, up to the time we left, May 2, 1911.

139.

Zonotrichia coronata (Pallas)

GOLDEN-CROWNED SPARROW

Zonotrichia coronata (1) Townsend, Proc. U. S. Nat. Mus., XIII, 1890, pp. 139, 141. (2) Keeler, Zoe, I, 1891, p. 341. (3) Grinnell, Pasadena Acad. Sci., I, 1897, p. 18. (4) Grinnell, Auk, xv, 1898, p. 235. (5) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 45. (6) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 142. (7) Richardson, Condor, x, 1908, p. 67. (8) Linton, Condor, x, 1908, p. 85. (9) Linton, Condor, x, 1908, p. 128. (10) A. O. U. Check-list, 3d ed., 1910, p. 262. (11) Howell and van Rossem, Condor, XIII, 1911, p. 210. (12) Willett, Pac. Coast Avif., 7, 1912, p. 80. (13) Grinnell, Pac. Coast Avif., 11, 1915, p. 117.

Common winter visitant but does not occur in flocks, as does the last. L. M. Huey and I saw numbers of this species on San Clemente from March 23 to April 11, 1915, but they were rather shy. On Catalina during April I have seen two or three of these birds every time I spent a few hours in the brush. C. H. Townsend (1) records a specimen taken on Santa Barbara Island, February 13, 1889. C. B. Linton (9) says it was fairly common on Santa Cruz during November and December, 1907, and I (11) saw two birds there as late as April 24, 1911.

140.

Spizella passerina arizonae Coues

WESTERN CHIPPING SPARROW

Spizella socialis (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (2) Cooper, Land Birds Calif., I, 1870, p. 208.

Spizella socialis var. *arizonae* (3) Henshaw, Rep. Wheeler Surv., 1876, p. 244.

Spizella socialis arizonae (4) Blake, Auk, iv, 1887, p. 330. (5) Belding, Land Birds Pac. Dist., 1890, p. 155. (6) Keeler, Zoe, I, 1891, p. 339. (7) Grinnell, Pasadena Acad. Sci., I, 1897, p. 18. (8) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 42. (9) Oberholser, Proc. U. S. Nat. Mus., XXII, 1900, p. 232. (10) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 142. (11) Richardson, Condor, x, 1908, p. 68.

Spizella passerina arizonae (12) Linton, Condor, XI, 1909, p. 194. (13) Osburn, Condor, XI, 1909, p. 137. (14) Willett, Pac. Coast Avif., 7, 1912, p. 80. (15) Grinnell, Pac. Coast Avif., 11, 1915, p. 118.

Chipping Sparrow (16) Willett, Condor, XII, 1910, p. 171.

Resident in rather small numbers on some of the islands. J. Grinnell (7) noted a few on San Clemente in the spring of 1897, and from the actions of a pair, he judged that they had a nest nearby. C. B. Linton (12) shot two birds there in December, 1908. I have seen them occasionally on Catalina during April. In June, one year in the sixties, J. G. Cooper (1) noted a flock of them on the same island. A. van Rossem and I saw a number on Santa Cruz in April, 1911, and J. Grinnell (MS) found them plentiful there during the first part of September, 1903. G. Willett (16) reported the species as plentiful on Santa Rosa Island, June 7, 1910.

141. **Spizella atrogularis** (Cabanis)

BLACK-CHINNED SPARROW

Spizella atrogularis (1) Linton, Condor, xi, 1909, p. 194. (2) Grinnell, Pac. Coast Avif., 11, 1915, p. 119.

The single record is of a female shot by C. B. Linton (1) on San Clemente Island, December 5, 1908.

142. **Junco hyemalis thurberi** Anthony

THURBER JUNCO

Junco hiemalis oregonus (1) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 45.

Junco hyemalis thurberi (2) Linton, Condor, x, 1908, p. 85. (3) Linton, Condor, x, 1908, p. 128. (4) Willett, Pac. Coast Avif., 7, 1912, p. 82.

Junco oregonus oregonus (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 120.

Junco oregonus thurberi (6) Grinnell, Pac. Coast Avif., 11, 1915, p. 120.

Rare winter visitant. C. B. Linton (2) collected a bird on San Clemente Island, October 13, 1907, he (4) saw one on San Nicolas, March 31, 1910, and (3) took a pair on Santa Cruz November 28, 1907. In the latter locality J. Mailliard (1) shot a female in April, 1898, which he ascribed to *oregonus*. He (MS) now, however, believes that it is *thurberi*.

143. **Amphispiza belli** (Cassin)

BELL SPARROW

Poospiza belli (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (2) Cooper, Land Birds Calif., i, 1870, p. 204.

Amphispiza belli (3) Townsend, Proc. U. S. Nat. Mus., xiii, 1890, p. 140. (4) Belding, Land Birds Pac. Dist., 1890, p. 162. (5) Keeler, Zoe, i, 1891, p. 340. (6) Grinnell, Pasadena Acad. Sci., i, 1897, p. 18. (7) Breninger, Auk, xxi, 1904, p. 221. (8) Linton, Condor, x, 1908, p. 85. (9) A. O. U. Check-list, 3d ed., 1910, p. 269. (10) Willett, Pac. Coast Avif., 7, 1912, p. 82. (11) Grinnell, Pac. Coast Avif., 11, 1915, p. 121.

Amphispiza belli clementae (12) Ridgway, Auk, xv, 1898, p. 230. (13) A. O. U. Committee, Auk, xviii, 1901, p. 313. (14) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 141.

Amphispiza belli belli (15) Ridgway, Birds North & Mid. Am., i, 1901, p. 268.

Bell Sparrow (16) Willett, Condor, xii, 1910, p. 171.

Common resident of San Clemente, San Nicolas and Santa Rosa islands. R. Ridgway (12) described a subspecies, *A. b. clementae*, from San Clemente, similar to *belli* in coloration, but larger and with a relatively larger bill. The difference, however, has not been considered to be sufficiently pronounced to justify the recognition of the subspecies. On San Clemente the species is common on the mesa lands back from the shore, and L. M. Huey and I found several nests with piped eggs and young the latter part of March, 1915. They were situated in scrubby brush a few inches above the ground.

J. G. Cooper (1, 2) reported a specimen of the Bell Sparrow from Santa Barbara Island. There is a specimen of *Melospiza m. graminea* in juvenal plumage, in the Museum of Vertebrate Zoology at Berkeley, from Santa Barbara Island, marked in Dr. Cooper's handwriting "May 30, 1863, *Poospiza belli* or *Peu-*

cea ruficeps". Under the circumstances the species cannot be credited to the fauna of that island.

Several writers state that it is common on San Nicolas, and G. Willett (16) reported it as numerous in the brush of Santa Rosa Island in June, 1910.

144. ***Aimophila ruficeps ruficeps*** (Cassin)

RUFIOUS-CROWNED SPARROW

Peucaea ruficeps (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (2) Cooper, Land Birds Calif., i, 1870, p. 218. (3) Henshaw, Rep. Wheeler Surv., 1876, p. 244. (4) Belding, Land Birds Pac. Dist., 1890, p. 163.

Aimophila ruficeps ruficeps (5) Ridgway, Birds North & Mid. Am., i, 1901, p. 247. (6) Linton, Condor, x, 1908, p. 128. (7) A. O. U. Check-list, 3d ed., 1910, p. 272. (8) Willett, Pac. Coast Avif., 7, 1912, p. 83. (9) Grinnell, Pac. Coast Avif., 11, 1915, p. 122.

Aimophila ruficeps (10) Howell and van Rossem, Condor, XIII, 1911, p. 210.

Common resident on Santa Cruz, and has been taken on Catalina. J. G. Cooper took two adults in worn plumage on Catalina, June 19 and 28, 1863, now in the collection of the Museum of Vertebrate Zoology at Berkeley. As far as I know, no one has since met with the species in this locality.

On Santa Cruz, in December, 1907, C. B. Linton (6) encountered a flock of some forty or fifty birds feeding on a hillside. During April, 1911, A. van Rossem and I (10) found them rather common in suitable places. A female which I shot on the 26th had no feathers on the abdomen, indicating that she was incubating at the time.

Through the kindness of J. E. Thayer and J. Grinnell, I recently assembled a series of thirteen specimens of this species from Santa Cruz Island, and eighty-three from the mainland. The conclusion reached is that the island birds differ from the continental ones in having slightly shorter wing, bill and middle toe, and longer tail and tarsus. The bill is wider at the base, and the tarsus heavier. The underparts seem to average slightly darker, and there is less tendency to buffiness on the chin. The upper parts are about the same in the two lots. Although these differences are readily apparent in a series, there is no constant criterion, and therefore, according to my opinion, no justification in naming a new form.

145. ***Melospiza melodia graminea*** C. H. Townsend

SANTA BARBARA SONG SPARROW

Poospiza belli (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78.

Melospiza heermanni (2) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (3) Cooper, Land Birds Calif., i, 1870, p. 213.

Melospiza fasciata samuelis (4) Henshaw, Auk, III, 1886, p. 453.

Melospiza fasciata graminea (5) Townsend, Proc. U. S. Nat. Mus., XIII, 1890, p. 139. (6) A. O. U. Committee, Auk, VIII, 1891, p. 86. (7) Grinnell, Pasadena Acad. Sci., i, 1897, p. 6. (8) Davie, Nests & Eggs N. Am. Birds, 5th ed., 1898, p. 392. (9) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 44.

Melospiza fasciata samuelis (?) (10) Keeler, Zoe, i, 1891, p. 339.

M[elospiza]. fasciata graminea (11) Keeler, Zoe, i, 1891, p. 342.

M[elospiza]. f[asciata]. graminea (12) Beck, Bull. Cooper Orn. Club, i, 1899, p. 86.

Melospiza melodia graminea (13) Oberholser, Auk, XVI, 1899, p. 183. (14) A. O. U.

- Check-list, 3d ed., 1910, p. 274. (15) Howell and van Rossem, Condor, XIII, 1911, p. 210. (16) Willett, Pac. Coast Avif., 7, 1912, p. 84. (17) Grinnell, Pac. Coast Avif., 8, 1912, p. 22. (18) Wright and Snyder, Condor, xv, 1913, p. 91. (19) Grinnell, Pac. Coast Avif., 11, 1915, p. 125.
- Melospiza cinerea graminea* (20) Ridgway, Birds North & Mid. Am., I, 1901, p. 369. (21) A. O. U. Committee, Auk, xx, 1903, p. 35.
- Melospiza graminea* (22) Grinnell, Pac. Coast Avif., 3, 1902, p. 56.
- M[elospiza]. m[elodia]. graminea* (23) Coues, Key N. Am. Birds, 5th ed., 1903, p. 420.
- M[elospiza]. c[inerea]. graminea* (24) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 358. (25) Reed, N. Am. Birds' Eggs, 1904, p. 267.
- Melospiza graminea* (?) (26) Linton, Condor, x, 1908, p. 128.

Abundant resident of Santa Barbara Island, and less common on Santa Cruz. C. H. Townsend (5) described this subspecies from an adult male taken on Santa Barbara Island, February 12, 1889. It is quite similar to the next form (*Melospiza m. clementae*), but much smaller. In the type locality the first of May, 1908, I found these birds fairly swarming, flushing from the short scrub at my approach and flitting to the tops of nearby bushes. J. Grinnell (7) says that during the middle of May, 1897, full grown juveniles were numerous, and the adults apparently engaged in building their second nests. Their song, notes and actions were just as those of the mainland bird. He and H. Gaylord discovered five nests, a typical one being supported by the obliquely-growing twigs of a bush, and lined and internally composed of fine yellow grasses, in marked contrast to the larger brown grass and weed stems of which this nest is basally built. From three to five eggs are laid. Five sets, aggregating nineteen eggs, secured on May 14 and 15, average .61x.78 inches. Extremes are .70 to .82 in length, and .57 to .64 in diameter. The markings are indistinguishable from those of the eggs of the mainland bird. As previously mentioned there is a young bird in the Museum of Vertebrate Zoology (no. 4142), taken on Santa Barbara Island, May 30, 1863, by J. G. Cooper, and labelled by him "*Poospiza belli* or *Peucea ruficeps*".

A. van Rossem (15) heard two song sparrows near Prisoner's Harbor, Santa Cruz Island the last of April, 1911, but we failed to see any. J. Mailliard (9) states that during April, 1898, he found none except in a certain cypress hedge. If those were shot several more would appear to take their places in a day or two. C. B. Linton (26) found them fairly common on this island in November and December, 1907. Coues (23) says that the subspecies occurs on the adjacent mainland during the winter, but I know of no specimen having been taken to confirm this statement and consider the occurrence as doubtful in the extreme.

On Catalina Island, in April, 1908, I twice heard the song of this species in the same patch of brush. No song sparrow has been taken on this island. If the bird that I heard was one of a resident race it was probably of the subspecies *graminea*, but if a migrant or winter visitant, it is more likely to have been a straggler from the mainland.

146. ***Melospiza melodia clementae*** C. H. Townsend

SAN CLEMENTE SONG SPARROW

Melospiza heermanni (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78.

- Melospiza fasciata clementae* (2) Townsend, Proc. U. S. Nat. Mus., XIII, 1890, p. 139. (3) Keeler, Zoe, I, 1891, p. 342. (4) A. O. U. Committee, Auk, VIII, 1891, p. 86. (5) Grinnell, Pasadena Acad. Sci., I, 1897, p. 18. (6) Davie, Nests & Eggs N. Am. Birds, 5th ed., 1898, p. 392.
- Melospiza fasciata samuelis* (?) (7) Keeler, Zoe, I, 1891, p. 339.
- Melospiza melodia clementae* (8) McGregor, Bull. Cooper Orn. Club, I, 1899, p. 88. (9) Oberholser, Auk, XVI, 1899, p. 183. (10) Oberholser, Proc. U. S. Nat. Mus., XIII, 1900, p. 232. (11) A. O. U. Check-list, 3d ed., 1910, p. 274. (12) Willett, Pac. Coast Avif., 7, 1912, p. 84. (13) Grinnell, Pac. Coast Avif., 8, 1912, p. 22. (14) Grinnell, Pac. Coast Avif., 11, 1915, p. 126.
- Melospiza cinerea clementae* (15) Ridgway, Birds North & Mid. Am., I, 1901, p. 368. (16) A. O. U. Committee, Auk, XX, 1903, p. 351.
- Melospiza clementae* (17) Grinnell, Pac. Coast Avif., 3, 1902, p. 56. (18) Linton, Condor, X, 1908, p. 85.
- Melospiza coronatorum* (19) Grinnell and Daggett, Auk, XX, 1903, p. 34. (20) Wright, Condor, XI, 1909, p. 100. (21) Osburn, Condor, XI, 1909, p. 137.
- M[elospiza]. m[elodia]. clementae* (22) Coues, Key N. Am. Birds, 5th ed., 1903, p. 421.
- M[elospiza]. c[inerea]. clementae* (23) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 359. (24) Reed, N. Am. Birds' Eggs, 1904, p. 267.
- Song Sparrow (25) Breninger, Auk, XXI, 1904, p. 221.
- Melospiza m[elodia]. clementae* (26) Willett, Condor, XII, 1910, p. 172.
- Melospiza m[elodia]. coronatorum* (27) Osburn, Condor, XIII, 1911, p. 32.

Common resident of Los Coronados, San Clemente, San Miguel and Santa Rosa islands. Originally described by C. H. Townsend (2) from an adult male taken on San Clemente Island, January 25, 1889. Quite similar to *cooperi* but slightly larger, with coloration grayer, back light olive-grayish and black streaks narrower.

J. Grinnell and F. S. Daggett (19) described another subspecies from the Coronados, the type being an adult male taken August 7, 1902. The coloration is said to be about the same as that of *clementae* but tarsus shorter and bill smaller. This form is not recognized by the A. O. U. Committee, but the characters certainly hold good in the case of all specimens which I have examined. Song Sparrows are not especially numerous on most parts of the Coronados, but are pretty evenly distributed over the four islands. The latter part of May, 1914, D. R. Dickey (*MS*) and party discovered seven nests. These were situated either in the low bushes, the carpet of ice plant, or on the ground. The sets, of three or four eggs, seemed to be fresh at this date, and were undoubtedly the second laying, but as all birds must necessarily breed on rather steep hillsides, a surprising number of eggs had been broken by pebbles rolling or bouncing into the nests from higher up the slope. Grass, fine weed stems, and some gull feathers are the usual material.

Song Sparrows are most abundant on San Clemente where their habit of nesting in wisps of grass that grow in the opuntia patches is favorable to their rapid increase. In late April, 1915, D. R. Dickey, L. M. Huey and I found many nests situated as above and a few in thorny bushes or in low weeds. Most of them held young at this date. I saw a juvenile strong on the wing and with tail almost full length, March 27, after which date they were common; and on April 9 I shot one that had almost entirely completed the post-juvinal molt

How many broods each season they may raise I do not know, but there must be three at least. Their notes are very similar to those of the mainland birds.

G. Willett (26) reports that in June, 1910, this was one of the commonest birds on San Miguel, and several writers have recorded it as present on Santa Rosa Island in considerable numbers. Just why *graminea* should occur in the intermediate territory between the extreme ranges of *clementae*, with climatic and food conditions apparently very similar, is a problem in distribution on which I am able to throw no light.

147. **Melospiza lincolni lincolni** (Audubon)

LINCOLN SPARROW

Melospiza lincolni (1) Grinnell, Pasadena Acad. Sci., 1, 1897, p. 19. (2) Grinnell, Auk, xv, 1898, p. 235. (3) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 142.

Melospiza lincolni (4) Mailliard, Bull. Cooper Orn. Club, 1, 1899, p. 45. (5) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 232.

Melospiza lincolni lincolni (6) Willett, Pac. Coast Avif., 7, 1912, p. 85. (7) Grinnell, Pac. Coast Avif., 11, 1915, p. 128.

Evidently a rather rare but regular winter visitant. J. Grinnell (1) took one bird and saw another on San Clemente, March 30, 1897. He (2) also saw one on two occasions in a dooryard on Catalina in December, 1897, and there was an adult female taken here by C. P. Streater (5) during April, 1892. Collected also by J. Mailliard (4) in April, 1898, on Santa Cruz Island.

148. **Passerella iliaca unalaschensis** (Gmelin)

SHUMAGIN FOX SPARROW

Passerella. *iliaca unalaschensis* (1) Streater, Orn. & Ool., xiii, 1888, p. 53.

Passerella iliaca unalaschensis (2) Linton, Condor, xi, 1909, p. 194. (3) Willett, Pac. Coast Avif., 7, 1912, p. 85. (4) Grinnell, Pac. Coast Avif., 11, 1915, p. 128.

During the winter months fox sparrows occur on the islands in considerable numbers, but as they have been reported so often on sight identification alone, it is hard to judge the relative numbers of the several forms.

C. B. Linton (2) took a female of the subspecies *unalaschensis* on San Clemente Island, November 21, 1908, pronounced by J. Grinnell as not typical. A. van Rossem shot one on Santa Cruz, April 27, 1911, and I saw another which may or may not have been of this form.

149. **Passerella iliaca megarhyncha** Baird

THICK-BILLED FOX SPARROW

Passerella iliaca megarhyncha (1) Grinnell, Auk, xv, 1898, p. 235. (2) Oberholser, Proc.

U. S. Nat. Mus., xxii, 1900, p. 232. (3) Willett, Pac. Coast Avif., 7, 1912, p. 86. (4) Grinnell, Pac. Coast Avif., 11, 1915, p. 129.

On Catalina, during late December, 1897, J. Grinnell (1) took four specimens referable to this race; C. P. Streater (2) shot three typical ones in April, 1892, and A. van Rossem (3) secured a pair February 15, 1910. I shot a female on San Clemente, March 28, 1915. On the day before I had seen a bird which appeared to be of the same subspecies. G. Willett (3) collected an adult female

on Santa Cruz, November 24, 1907. I may be mistaken, but I believe that *megarhyncha* is the most numerous one of the four fox sparrows that are found on the islands, with *insularis* a close second.

150. **Passerella iliaca stephensi** Anthony

STEPHENS FOX SPARROW

Passerella iliaca stephensi (1) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 233. (2) Grinnell, Pac. Coast Avif., 3, 1902, p. 58. (3) Linton, Condor, x, 1908, p. 128. (4) Willett, Pac. Coast Avif., 7, 1912, p. 86. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 131.

In April I have found fox sparrows in numbers on Catalina, and one that I secured on the 8th is indistinguishable from breeding birds of the San Bernardino Mountains. C. P. Streater shot a pair in this locality April 19 and 21, 1892, which Oberholser (1) pronounces of this subspecies. C. B. Linton (3) secured one in the underbrush near the top of Santa Cruz Island, December 14, 1907.

151. **Passerella iliaca insularis** Ridgway

KADIAK FOX SPARROW

Passerella iliaca unalaschcensis (1) Grinnell, Auk, xv, 1898, p. 235.
Passerella iliaca insularis (2) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 232. (3) Grinnell, Pac. Coast Avif., 3, 1902, p. 57. (4) Linton, Condor, x, 1908, p. 85. (5) Linton, Condor, x, 1908, p. 128. (6) Willett Pac. Coast Avif., 7, 1912, p. 87. (7) Grinnell, Pac. Coast Avif., 11, 1915, p. 129.
Passerella iliaca insularis (?) (8) Richardson, Condor, x, 1908, p. 68.
Passerella iliaca sinuosa (9) Grinnell, Pac. Coast Avif., 11, 1915, p. 129.

C. B. Linton (4) obtained several of these birds on San Clemente Island in the winter of 1907-8, the first on October 5, and the last April 1. C. P. Streater (2) shot one on Catalina in April, 1892, A. van Rossem (MS) a female February 15, 1910, and J. Grinnell (1) three in December, 1897. C. B. Linton and G. Willett (5) also took several in the pines of Santa Cruz Island during November and December, 1907.

152. **Pipilo maculatus oregonus** Bell

OREGON TOWHEE

Pipilo maculatus oregonus (1) Linton, Condor, xi, 1909, p. 194. (2) Willett, Pac. Coast Avif., 7, 1912, p. 87. (3) Swarth, Condor, xv, 1913, p. 172. (4) Grinnell, Pac. Coast Avif., 11, 1915, p. 132.

C. B. Linton (1) secured an adult female of this form on San Clemente, December 4, 1908, the specimen now being in the University of California Museum of Vertebrate Zoology. The fact of this bird having been taken so far from its usual range is surprising, but although there is of course the possibility that it may be an individual variant of *clementae*, it is in appearance unquestionably nearer to *oregonus* than to the local bird (3).

153.

Pipilo maculatus clementae Grinnell

SAN CLEMENTE TOWHEE

- Pipilo megalonyx* (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (2) Cooper, Land Birds Calif., 1870, p. 242.
- Pipilo maculatus megalonyx* (3) Belding, Land Birds Pac. Dist., 1890, p. 171. (4) Townsend, Proc. U. S. Nat. Mus., xiii, 1890, p. 140. (5) Grinnell, Auk, xv, 1898, p. 234.
- Pipilo clementae* (6) Grinnell, Auk, xiv, 1897, p. 294. (7) Grinnell, Pasadena Acad. Sci., i, 1897, p. 19. (8) Grinnell, Pac. Coast Avif., 3, 1902, p. 58. (9) Linton, Condor, x, 1908, p. 85.
- Pipilo maculatus clementae* (10) A. O. U. Committee, Auk, xvi, 1899, p. 120. (11) Ridgway, Birds North & Mid. Am., i, 1901, p. 418. (12) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 141. (13) Richardson, Condor, x, 1908, p. 68. (14) A. O. U. Check-list, 3d ed., 1910, p. 280. (15) Willett, Pac. Coast Avif., 7, 1912, p. 87. (16) Grinnell, Pac. Coast Avif., 8, 1912, p. 22. (17) Grinnell, Pac. Coast Avif., 11, 1915, p. 133.
- P[ipilo]. m[aculatus]. clementis* (18) Coues, Key N. Am. Birds, 5th ed., 1903, p. 460.
- P[ipilo]. m[aculatus]. clementae* (19) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 366. (20) Reed, N. Am. Birds' Eggs, 1904, p. 270. (21) Swarth, Condor, xv, 1913, p. 168.

Common resident of San Clemente, Santa Catalina and Santa Rosa islands. Originally described by J. Grinnell (6) from a male taken on San Clemente Island, March 31, 1897. It differs from *megalonyx* in being slightly larger, especially the bill and feet, and with lower back and rump grayer. C. B. Linton (9) says that the birds are common near Mosquito Harbor, San Clemente Island. In October, 1907, they were shaking the twigs of the wild cherry trees and then flying down to feed on the fallen fruit. They practically do not occur on the western end of the island, for during a three weeks stay, a single call note from a dense patch of cactus was all that D. R. Dickey, L. M. Huey and I saw or heard of them.

I have found them in some numbers on Catalina during April. In the early mornings the males will mount some bush and send forth their characteristic note by the hour, but later in the day they scratch among the leaves in the shade of the bushes. Here they are rather hard to locate, and unless approached with due caution, will dive into the bush and become hopelessly lost in the scrub on the other side. R. M. Perez (15) took three sets of eggs here from April 13 to 16, 1911, in which incubation was advanced.

A single bird was reported from Santa Barbara Island by J. G. Cooper (1). If correct in regard to the locality of the specimen, it must have been a straggler either from Catalina or Santa Cruz. If from the latter island, it would of course be referable to the next form. Reported as not rare on Santa Rosa. A. van Rossem (MS) tells me that the note of the towhees on San Clemente has none of the querulous upward inflection of that of *megalonyx*, and is shorter and more insistent. I have also been impressed by the unusual tone of the notes of this form on Catalina.

154.

Pipilo maculatus megalonyx Baird

SAN DIEGO TOWHEE

- Pipilo maculatus* var. *megalonyx* (1) Henshaw, Rep. Wheeler Surv., 1876, p. 247.

- Pipilo maculatus megalonyx* (2) Blake, Auk, iv, 1887, p. 330. (3) Belding, Land Birds Pac. Dist., 1890, p. 171. (4) Townsend, Proc. U. S. Nat. Mus., xiii, 1890, p. 140. (5) Keeler, Zoe, i, 1891, p. 339. (6) Linton, Condor, x, 1908, p. 208. (7) Swarth, Condor, xv, 1913, p. 168. (8) Grinnell, Pac. Coast Avif., 11, 1915, p. 132.
- Pipilo maculatus oregonus* (9) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 42. (10) Beck, Bull. Cooper Orn. Club, i, 1899, p. 86.
- Pipilo maculatus clementae* (11) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 233. (12) Ridgway, Birds North & Mid. Am., i, 1901, p. 418. (13) Howell and van Rossem, Condor, xiii, 1911, p. 210. (14) Willett, Pac. Coast Avif., 7, 1912, p. 87. (15) Wright and Snyder, Condor, xv, 1913, p. 91.
- Pipilo clementae* (?) (16) Linton, Condor, x, 1908, p. 128.
- Pipilo maculatus* subsp. (17) Osburn, Condor, xi, 1909, p. 139.
- Spurred Towhee (18) Willett, Condor, xii, 1910, p. 171.

The towhees of Santa Cruz Island have usually been classed with the last race, but several observers have placed them otherwise. While we were on the island in April, 1911, A. van Rossem called my attention to the fact that the call and song of the birds in that locality were precisely like those of *megalonyx* on the mainland, whereas the notes of the towhees from the other islands are considerably different. The few birds from Santa Cruz Island in my collection are easily distinguished from Catalina specimens, but cannot be told from birds from Los Angeles County. H. S. Swarth (7) presents this fact very clearly, and after examining large series, identifies Santa Cruz Island birds as *megalonyx*. He infers that towhees from Santa Rosa Island would also be referable to the mainland race, but until an adequate series from that locality has been examined, I provisionally place them with *clementae*.

Towhees are not abundant on Santa Cruz. In the spring they are shy and little in evidence, but in the fall, when their numbers have been increased by the yearly crop of youngsters, they are rather more common, scratching among the leaves of the brushy hillsides.

Osburn (17) reported having seen a spotted towhee on the Coronados. If there was no mistake in regard to the record, this bird was probably a straggler from the mainland, for it is certain that no *Pipilo* is resident on that group of islands.

155. **Zamelodia melanocephala** (Swainson)

BLACK-HEADED GROSBEAK

Habia melanocephala (1) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 45.

Zamelodia melanocephala capitalis (2) Grinnell, Pac. Coast Avif., 11, 1915, p. 135.

On Santa Cruz Island, J. Mailliard (1 and MS) shot a male April 27, 1898, and saw several more. W. L. Dawson (MS) also saw a male that was in the possession of Mr. Luechelli of that island.

156. **Guiraca caerulea lazula** (Lesson)

WESTERN BLUE GROSBEAK

Guiraca caerulea lazula (1) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 44. (2) Willett, Pac. Coast Avif., 7, 1912, p. 88.

Guiraca caerulea salicarius (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 136.

J. Mailliard (1) shot two males and saw another, April 30, 1898, on Santa Cruz.

157.

Passerina amoena (Say)

LAZULI BUNTING

Cyanospiza amoena (1) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 45. (2) Richardson, Condor, x, 1908, p. 68.

Passerina amoena (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 136.

Sometimes rather common during migration. C. H. Richardson (2) states that he has seen this species occasionally during April in the canyons of Catalina. J. Mailliard (1) shot a specimen on Santa Cruz Island, April 14, 1898, and (MS) saw several more on the 21st, while W. L. Dawson (MS) says that it formed the principal part of a migration wave that reached that locality April 19, 1915.

158.

Piranga ludoviciana (Wilson)

WESTERN Tanager

Piranga ludoviciana (1) Linton, Condor, x, 1908, p. 85. (2) Howell, Condor, XII, 1910, p. 187.

Regular migrant in small numbers. I (2) saw a male on the Coronados, May 26 and 27, 1910, which seemed to feel very much out of place. D. R. Dickey, L. M. Huey and I noted one feeding on some low bushes on San Clemente, March 23, 1915, and C. B. Linton (1) saw several in the same locality during the spring of 1907. J. Grinnell (MS) heard one on the hillside of Santa Cruz Island, September 3, 1903.

159.

Piranga rubra cooperi Ridgway

COOPER Tanager

Piranga rubra cooperi (1) Linton, Condor, x, 1908, p. 85. (2) Willett, Pac. Coast Avif., 7, 1912, p. 89. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 137.

A female of this species was secured by C. B. Linton (1) on San Clemente, October 11, 1907, and is now in the collection of J. E. Thayer.

160.

Hirundo erythrogastra Boddaert

BARN SWALLOW

Hirundo horreorum (1) Cooper, Proc. Calif. Acad. Sci., IV, 1870, p. 78. (2) Henshaw, Rep. Wheeler Surv., 1876, p. 235.

Chelidon erythrogaster (3) Blake, Auk, IV, 1887, p. 330. (4) Belding, Land Birds Pac. Dist., 1890, p. 187. (5) Keeler, Zoe, I, 1891, p. 339.

Hirundo erythrogaster (6) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 45.

Hirundo erythrogastra (7) Howell and van Rossem, Condor, XIII, 1911, p. 210. (8) Willett, Pac. Coast Avif., 7, 1912, p. 90. (9) Wright and Snyder, Condor, XV, 1913, p. 91.

Common summer visitant on some of the islands. A limited number occur on the Coronados during the spring and summer, breeding in the sea caves where their nests must frequently be dampened by the spray. D. R. Dickey and L. M.

Huey (*MS*) noted two or three birds about the caves of San Clemente in April, 1915, and G. Willett (*MS*) says he saw them building commonly in the caves of Catalina during April, 1904. H. Wright (*9*) saw birds on Santa Barbara Island, July 2 and 3, 1912, and he found a nest with an addled egg on Anacapa, July 1. Abundant on Santa Cruz, where, in April, 1911, we found them nesting in a certain large tide cave in such numbers that their twittering could be heard a long distance away. They frequently visited a spring near camp for the purpose of gathering mud, sometimes trailing long wisps of grass in their wakes.

161. **Tachycineta thalassina lepida** Mearns

NORTHERN VIOLET-GREEN SWALLOW

On San Clemente Island, April 9, 1915, one of these birds flew close over D. R. Dickey and L. M. Huey, permitting certain identification.

162. **Bombycilla cedrorum** Vieillot

CEDAR WAXWING

Ampelis cedrorum (1) Grinnell, Pasadena Acad. Sci., I, 1897, p. 19. (2) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 142.

Bombycilla cedrorum (3) Willett, Pac. Coast Avif., 7, 1912, p. 91. (4) Dawson, Condor, xvii, 1915, p. 204. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 140.

Irregular visitant. On San Clemente, J. Grinnell (1) saw a single bird May 31, 1897, which was unmistakably of this species. W. L. Dawson (4) noted a flock of about forty birds on Santa Cruz Island, April 11, 1915, which remained among the holly bushes for a week or more.

163. **Lanius ludovicianus anthonyi** Mearns

ISLAND SHRIKE

Collyrio excubitorides (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78.

Collurio ludovicianus var. *excubitorides* (2) Henshaw, Rep. Wheeler Surv., 1876, p. 237.

Lanius ludovicianus excubitorides (3) Blake, Auk, iv, 1887, p. 330.

Lanius ludovicianus gambeli (4) Keeler, Zoe, I, 1891, p. 339. (5) Grinnell, Pasadena Acad. Sci., I, 1897, p. 19. (6) Grinnell, Auk, xv, 1898, p. 234.

Lanius ludovicianus anthonyi (7) Mearns, Auk, xv, 1898, p. 261. (8) A. O. U. Committee, Auk, xvi, 1899, p. 122. (9) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 42. (10) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 233. (11) Ridgway, Birds North & Mid. Am., III, 1904, p. 251. (12) A. O. U. Check-list, 3d ed., 1910, p. 297. (13) Howell and van Rossem, Condor, XIII, 1911, p. 210. (14) Willett, Pac. Coast Avif., 7, 1912, p. 92. (15) Grinnell, Pac. Coast Avif., 8, 1912, p. 18. (16) Grinnell, Pac. Coast Avif., 11, 1915, p. 142.

Lanius anthonyi (17) Grinnell, Pac. Coast Avif., 3, 1902, p. 62. (18) Linton, Condor, x, 1908, p. 128.

L[anius]. [ludovicianus]. anthonyi (19) Coues, Key N. Am. Birds, 5th ed., 1903, p. 372.

(20) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 393. (21) Reed, N. Am. Birds' Eggs, 1904, p. 283.

Lanius ludovicianus mearnsi (22) Ridgway, Proc. Biol. Soc. Wash., xvi, 1903, p. 108.

(23) Ridgway, Birds North & Mid. Am., III, 1904, p. 252. (24) A. O. U. Committee, Auk, xxi, 1904, p. 416. (25) A. O. U. Committee, Auk, xxvi, 1909, p. 296.

Lanius (26) Breninger, Auk, xxi, 1904, p. 223.

Lanius sp. ? (27) Richardson, Condor, x, 1908, p. 68.

Lanius mearnsi (28) Linton, Condor, x, 1908, p. 182.

Lanius [*udovicianus*]. *mearnsi* (29) Linton, Condor, x, 1908, p. 182.

Lanius [*udovicianus*]. *anthonyi* (30) Linton, Condor, x, 1908, p. 182.

Fairly common resident of most of the islands. Originally described by E. A. Mearns (7) from a specimen collected by R. H. Beck on Santa Cruz Island, May 6, 1897. Darker and smaller than *gambeli*. Another island subspecies, *L. l. mearnsi* was described by R. Ridgway (22, 23) and was at one time accepted by the A. O. U. Committee (24), but after its validity had been questioned by a number of writers, it was finally discarded (25). The type was from San Clemente Island and its characters as given, were: similar to *anthonyi* but upper parts darker and upper tail coverts abruptly white, more white on scapulars, white spot at base of primaries larger, and underparts less strongly tinged with gray.

On San Clemente these birds are distributed over most of the island. In an especially favorable little canyon several pairs will congregate, and I have found two pairs breeding in such a place not a hundred yards apart, while a third nest was within a quarter of a mile. On either side of this wash, however, there were no birds for long distances. C. B. Linton (28) found a nest of small young March 1, 1907, and I encountered a family of juveniles that were strong on the wing, March 23, 1915. During the first part of April, second nests were in process of construction. On the western end of the island at least, the nest is almost invariably placed a couple of feet above the ground in a certain kind of thorny bush, and is substantially constructed of twigs and weed stems and lined with sheep wool.

On Catalina shrikes are rather rare, and I have seen only an occasional individual. C. H. Richardson (27) met fully fledged young here that were being fed by the parents in April. Reported from Santa Barbara Island by J. G. Cooper (1), but no one else has met with the species there. H. Robertson and V. W. Owen (14) saw a pair, and found a nest full of young, on Anacapa, June 4, 1899, apparently the only record for this island.

In the vicinity of Prisoner's Harbor, Santa Cruz Island, A. van Rossem and I found shrikes to be decidedly rare. A favorite perch was at the very top of some tall dead pine, and from this the bird would fly when the observer was a surprisingly long distance off. J. Mailliard (9) found two nests here during April, 1898, one, containing a set of seven eggs, placed in the middle of a brush pile, and the other, with six eggs, in a gum tree. Present on Santa Rosa, where H. J. Lelande and O. W. Howard (14) saw a bird June 8, 1910.

Numerically I believe that this subspecies is one of the rarest birds in the country, and it is certainly one of the very shyest of the small land birds. No matter what strategy the hunter employs, the shrikes seem perfectly capable of matching it, and except near the nest, it is well nigh hopeless to try and get within gunshot of one. Even the alarmed shrieking of their own offspring will fail to attract them. While on Clemente in the spring of 1915, I collected the male and three young of a family of these birds. The following day I took the female of another nest a short distance away, but did not try to deprive the

small young of their remaining parent. What was my surprise two days later to find that the single male and the other female had combined forces and were feeding the youngsters of the second nest. I verified this by shooting the male, and his new mate continued to feed her adopted children. We were pretty well acquainted with the shrike population of that section of Clemente, and no matter which birds we shot, there always seemed to be others that came in to take their places and join forces with the widows and widowers.

164. **Vireo huttoni huttoni** Cassin

HUTTON VIREO

Vireo huttoni (1) Belding, Land Birds Pac. Dist., 1890, p. 203. (2) Townsend, Proc. U. S. Nat. Mus., XIII, 1890, p. 141. (3) Keeler, Zoe, I, 1891, p. 341.

Vireo huttoni (?) (4) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 44.

Vireo mailliardorum (5) Grinnell, Condor, V, 1903, p. 157. (6) Linton, Condor, X, 1908, p. 181.

Vireo huttoni mailliardorum (7) Ridgway, Birds North & Mid. Am., III, 1904, p. 743. (8) Linton, Condor, X, 1908, p. 128.

Vireo huttoni huttoni (9) Willett, Pac. Coast Avif., 7, 1912, p. 93. (10) Grinnell, Pac. Coast Avif., 11, 1915, p. 143.

Rather common resident of Santa Cruz, and present on Catalina. In the latter locality F. Stephens (1) took a female during August, 1886. A subspecies, *V. mailliardorum* was described from Santa Cruz Island by J. Grinnell (5). Said to be slightly smaller than *huttoni*, especially the bill, darker, more leaden olive above and a little more buffy yellow below posteriorly. The differences, however, were deemed by the A. O. U. Committee as too slight for recognition. A. van Rossem and I found the species fairly common on Santa Cruz in April, 1911, and we took several specimens. C. B. Linton (8) reported it as present in some numbers during November and December, 1907.

165. **Vermivora celata celata** (Say)

ORANGE-CROWNED WARBLER

Helminthophila celata celata (1) Linton, Condor, X, 1908, p. 128.

Vermivora celata celata (2) Grinnell, Pac. Coast Avif., 11, 1915, p. 145.

C. B. Linton (1) shot a bird of this species on Santa Cruz Island, November 29, 1907, which was afterwards lost. Both he and G. Willett, who was with him at the time, inform me, however, that there was not the slightest doubt but that the specimen was referable to this form.

166. **Vermivora celata sordida** (C. H. Townsend)

DUSKY WARBLER

Helminthophaga celata (1) Cooper, Proc. Calif. Acad. Sci., IV, 1870, p. 78. (2) Cooper, Land Birds Calif., I, 1870, p. 83. (3) Henshaw, Rep. Wheeler Surv., 1876, p. 233.

Helminthophila celata lutescens (4) Henshaw, Auk, III, 1886, p. 453. (5) Blake, Auk, IV, 1887, p. 330. (6) Belding, Land Birds Pac. Dist., 1890, p. 206.

H[elminthophila]. celata lutescens (7) Streater, Orn. & Ool., XIII, 1888, p. 53.

Helminthophila celata lutescens (?) (8) Keeler, Zoe, I, 1891, p. 339.

Helminthophila celata sordida (9) Townsend, Proc. U. S. Nat. Mus., XIII, 1890, pp. 139,

141. (10) A. O. U. Committee, *Auk*, viii, 1891, p. 87. (11) Grinnell, *Pasadena Acad. Sci.*, i, 1897, p. 20. (12) Davie, *Nests & Eggs N. Am. Birds*, 5th ed., 1898, p. 432. (13) Grinnell, *Pasadena Acad. Sci.*, ii, 1898, p. 44. (14) Grinnell, *Auk*, xv, 1898, pp. 234, 236. (15) Grinnell, *Bull. Cooper Orn. Club*, i, 1899, p. 17. (16) Mailliard, *Bull. Cooper Orn. Club*, i, 1899, p. 42. (17) Oberholser, *Proc. U. S. Nat. Mus.*, xxii, 1900, p. 233. (18) Ridgway, *Birds North & Mid. Am.*, ii, 1902, p. 467. (19) Cooke, *Bull. U. S. Biol. Surv.*, xviii, 1904, p. 42. (20) Howard, *Warbler*, ii, 1906, p. 8. (21) Chapman, *Warblers N. Am.*, 1907, p. 91. (22) Richardson, *Condor*, x, 1908, p. 68. (23) Wright, *Condor*, xi, 1909, p. 100.
- Dusky Warbler (24) Beck, *Bull. Cooper Orn. Club*, i, 1899, p. 86. (25) (Snyder), *Oologist*, xxvi, 1909, p. 188.
- Helminthophila sordida* (26) Grinnell, *Pac. Coast Avif.*, 3, 1902, p. 63. (27) Linton, *Condor*, x, 1908, p. 86. (28) Linton, *Condor*, x, 1908, p. 128.
- H[elminthophila]. c[elata]. sordida* (29) Coues, *Key N. Am. Birds*, 5th ed., 1903, p. 315. (30) Bailey, *Handb. Birds West. U. S.*, 2d ed., 1904, p. 405. (31) Reed, *N. Am. Birds' Eggs*, 1904, p. 292.
- Vermivora celata sordida* (32) Oberholser, *Auk*, xxii, 1905, p. 245. (33) Mearns, *Bull. U. S. Nat. Mus.*, lvi, 1907, p. 141. (34) A. O. U. Check-list, 3d ed., 1910, p. 308. (35) Willett, *Pac. Coast Avif.*, 7, 1912, p. 95. (36) Grinnell, *Pac. Coast Avif.*, 8, 1912, p. 18. (37) Wright & Snyder, *Condor*, xv, 1913, p. 92. (38) Grinnell, *Pac. Coast Avif.*, 11, 1915, p. 146.
- Herminthophila c[elata]. sordida* (39) Cooke, *Auk*, xxii, 1905, p. 297.
- Helminthophila celata* (40) Osburn, *Condor*, xi, 1909, p. 138.

Reported from all the islands except San Nicolas. This subspecies was first described by C. H. Townsend (9) from a male taken on San Clemente, January 25, 1889. From *lutescens* it differs in being darker, with larger feet and bill, and slightly shorter wings.

On the Coronados I have found the Dusky Warbler common, frequenting mostly the denser growth of bushes on the hillsides. On May 27, 1914, D. R. Dickey (*MS*) found four nests in a certain kind of scrubby bush, the lower or downhill sides of which are always grown with gray moss. All four nests were situated in clumps of this, but were empty.

Common on the eastern part of San Clemente, where O. W. Howard (20) found several sets of eggs in April, and young ready to leave the nest the first week in May. On the western end of the island, however, the species is almost lacking, as two or possibly three birds were all that three of us heard or saw during a three week's stay in the early spring of 1915.

On Catalina I have found it rather abundant in the darker canyons and on the wooded hillsides. In April, 1907 and 1908, I discovered several nests with eggs or newly hatched young, but in the same month of 1911, although I found the birds to be unusually common, they showed no indications of building, and a diligent search for a week failed to reveal a single nest. Here during the last of December, 1897, J. Grinnell (14) says that they were feeding on the fruit of the opuntia, which had stained their digestive organs and the surrounding tissue a bright red.

Reported provisionally from Santa Barbara Island by J. G. Cooper (1), but its occurrence there has not been confirmed, and he may have been mistaken in the birds he saw. On Anacapa, however, it occurs in limited numbers, and H. J. Lelande (35) took a set of four slightly incubated eggs there April 6, 1906.

On Santa Cruz, A. van Rossem and I met with numbers of these warblers during April, 1911, and C. B. Linton (28) reported them very common there in November and December, 1907. J. Mailliard (16) says that the note of the birds he heard was longer and stronger than that of *lutescens*, with two louder additional notes at the end of the trill. C. H. Townsend (9) mentions a specimen that was secured on Santa Rosa, January 7, 1889, and O. W. Howard (MS) says that he has observed this form on San Miguel.

On a small peninsula near Coronado Beach, known as the Spanish Bight, and now the aviation camp, I noted many Dusky Warblers, and found three incomplete nests April 6, 1910. A. M. Ingersoll (MS) has also found nests at Point Loma, nearby. It occurs in limited numbers on the islands during the fall and winter, but the majority migrate to the mainland, where they may be found in the lowlands from the Mexican line to Santa Barbara County.

The usual nesting site of the Lutescent Warbler is on the ground, but I have never heard of *sordida* building in such a situation. On the smaller barren islands, such as the Coronados and Todos Santos (where it is common), they build in a bush or tangle of vines, a foot or so above the ground, and the nest is always mainly constructed of gray moss, where this is to be had, lined with a little fine grass. On the larger islands, where there are good-sized trees, the site chosen may be a thicket of vines several feet above the bed of a stream, a small shrub, say four feet up, or perhaps an oak as much as fifteen feet above the ground. In such case the nest is quite substantially made of leaves, twigs, bark, rootlets, and often a little sheep wool. Three or four eggs constitute a set, and at least two broods of young are raised each year.

167. ***Dendroica coronata* (Linnaeus)**

MYRTLE WARBLER

Dendroica coronata (1) Grinnell, Pasadena Acad. Sci., I, 1897, p. 7. (2) Linton, Condor, XI, 1909, p. 194. (3) Willett, Pac. Coast Avif., 7, 1912, p. 96.

Dendroica coronata hooveri (4) Grinnell, Pac. Coast Avif., 3, 1902, p. 64. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 147.

Uncommon winter visitant to the islands. C. B. Linton (2) recorded this species as fairly common on San Clemente in the winter of 1908, and J. Grinnell (1) shot an adult female on Santa Barbara Island, May 15, 1897, the only one seen.

168. ***Dendroica auduboni auduboni* (J. K. Townsend)**

AUDUBON WARBLER

Dendroica auduboni (1) Grinnell, Pasadena Acad. Sci., I, 1897, p. 20. (2) Grinnell, Auk, XV, 1898, p. 236. (3) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 45. (4) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 142. (5) Richardson, Condor, X, 1908, p. 68. (6) Linton, Condor, X, 1908, p. 86. (7) van Rossem, Condor, XI, 1909, p. 208. (8) Howell and van Rossem, Condor, XIII, 1911, p. 210. (9) Grinnell, Pac. Coast Avif., 11, 1915, p. 148.

Audubon Warbler (10) Grinnell, Bull. Cooper Orn. Club, I, 1899, p. 17.

Abundant winter visitant. Arrives in October and leaves in April. A. van Rossem (7) found this species very common on the Coronados the first week in April, 1909, and we noted it on San Clemente up to the same time in 1915. It was very numerous on Catalina during my several visits in April, especially so in 1911, while during December, 1897, J. Grinnell (10) says that it was even on the beaches, busily engaged in flycatching within a few feet of the surf. On Santa Cruz, A. van Rossem and I (8) found a few still present the last week in April, 1911.

169. ***Dendroica magnolia*** (Wilson)

MAGNOLIA WARBLER

Dendroica maculosa (1) Grinnell, Pasadena Acad. Sci., 1, 1897, p. 7.

Dendroica magnolia (2) Willett, Pac. Coast Avif., 7, 1912, p. 96. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 148.

J. Grinnell (1) shot an adult male of this species on Santa Barbara Island, May 15, 1897. It was the only one seen.

170. ***Dendroica nigrescens*** (J. K. Townsend)

BLACK-THROATED GRAY WARBLER

Dendroica nigrescens (1) Dawson, Condor, xvii, 1915, p. 204.

In a little canyon on Santa Cruz Island, W. L. Dawson (1) obtained a close view of two singing males on the morning of April 19, 1915.

171. ***Dendroica townsendi*** (J. K. Townsend)

TOWNSEND WARBLER

Dendroica townsendi (1) Grinnell, Pasadena Acad. Sci., 1, 1897, p. 7. (2) Linton, Condor x, 1908, p. 128. (3) Linton, Condor, xi, 1909, p. 194. (4) Willett, Pac. Coast Avif., 7, 1912, p. 97. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 149.

Probably a regular migrant, although not common. An occasional individual may spend the winter. On San Clemente Island, C. B. Linton (3) shot a Townsend Warbler while it was flying along the beach, in December, 1908. H. Gaylord and J. Grinnell (1) each shot a female on Santa Barbara Island, May 16, 1897, and Linton (2) secured a bird on Santa Cruz, December 13, 1907.

172. ***Dendroica occidentalis*** (J. K. Townsend)

HERMIT WARBLER

Dendroica occidentalis (1) Grinnell, Pasadena Acad. Sci., 1, 1897, p. 7. (2) Willett, Pac. Coast Avif., 7, 1912, p. 97. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 149.

H. Gaylord (1) took an adult female on Santa Barbara Island, May 14, 1897, and he and J. Grinnell saw three more the same day.

173. ***Geothlypis trichas arizela*** Oberholser

PACIFIC YELLOWTHROAT

Yellowthroat (1) Howell, Condor, xii, 1910, p. 187.

Accidental on the islands. While on the Coronados, June 11, 1910, I (1) encountered two yellowthroats on a dry hillside. They were not at all wary and I had an excellent opportunity of observing them, but was at the time without a gun. When I recorded this I stated the opinion of another to the effect that they probably were not *arizela*, but I now feel no hesitation in referring them to that race. On San Clemente, in a canyon thickly overgrown with succulent vines, I clearly saw a male yellowthroat, March 23, 1915, as it flitted before me and became lost in the thick growth. It was probably this form.

174. **Wilsonia pusilla pileolata** (Pallas)

PILEOLATED WARBLER

Myiodioides pusillus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, pp. 78, 80.

Sylvania pusilla pileolata (2) Grinnell, Pasadena Acad. Sci., i, 1897, p. 8.

Wilsonia pusilla pileolata (3) Grinnell, Condor, v, 1903, p. 80. (4) Willett, Pac. Coast Avif., 7, 1912, p. 98. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 152.

Rather uncommon migrant. J. G. Cooper (1) recorded what was probably this subspecies from Catalina Island in October, 1863. On Santa Barbara Island, May 14, 15 and 16, 1897, J. Grinnell and H. Gaylord (2) noted several each day in the weeds of a small ravine. Two males and three females were taken.

175. **Anthus rubescens** (Tunstall)

PIPIIT

Anthus pensilvanicus (1) Linton, Condor, x, 1908, p. 86. (2) Linton, Condor, x, 1908, p. 128.

Anthus rubescens (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 153.

Fairly rare winter visitant. C. B. Linton (1) shot a specimen on San Clemente, October 18, 1907, and (2) saw several on Santa Cruz Island during November and December of the same year.

176. **Mimus polyglottos leucopterus** (Vigors)

WESTERN MOCKINGBIRD

Mimus polyglottos (1) Belding, Land Birds Pac. Dist., 1890, p. 226. (2) Grinnell, Pasadena Acad. Sci., i, 1897, p. 20. (3) Grinnell, Auk, xv, 1898, p. 234. (4) Mailliard, Bull. Cooper Orn. Club, i, 1899, p. 42. (5) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 233.

Mockingbird (6) Grinnell, Bull. Cooper Orn. Club, i, 1899, p. 17.

Mimus polyglottos leucopterus (7) Breninger, Auk, xxi, 1904, p. 223. (8) Richardson, Condor, viii, 1906, p. 56. (9) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 142. (10) Ridgway, Birds North & Mid. Am., iv, 1907, p. 229. (11) Richardson, Condor, x, 1908, p. 68. (12) Linton, Condor, x, 1908, p. 86. (13) Linton, Condor, x, 1908, p. 128. (14) A. O. U. Check-list, 3d ed., 1910, p. 331. (15) Burt, Condor, xiii, 1911, p. 166. (16) Grinnell, Auk, xxviii, 1911, p. 294. (17) Willett, Pac. Coast Avif., 7, 1912, p. 100. (18) Grinnell, Pac. Coast Avif., 11, 1915, p. 153.

Common resident of San Clemente, Santa Catalina and Santa Cruz islands. Occurs also on Anacapa. On San Clemente, during 1903, G. F. Breninger (7) found this species breeding sparingly, about half a dozen pairs being on the isl-

and, but the birds have evidently increased amazingly since that time, for now they are commoner than I have ever seen them elsewhere. Several nests held small young before the first of April, 1915, and a number with eggs were found by us. J. Grinnell (2) states that birds from this island at least are lighter dorsally than those from the mainland, and this also holds good in the case of my single specimen. I have found mockingbirds common on Catalina in the early spring, and Grinnell (6) says that in December, 1908, they were feeding on the fruit of the cholla cactus, which had stained their faces bright red. C. H. Richardson (11) here heard one imitating the call of a Western Gull.

H. C. Burt (15) heard one singing on Anacapa, March 16, 1911. Near Prisoner's Harbor, Santa Cruz Island, A. van Rossem and I found them to be rather rare, only two being encountered during our stay in the spring of 1911, but C. B. Linton (13) reported them fairly common in November and December of 1907.

177.

Salpinctes obsoletus obsoletus (Say)

ROCK WREN

Salpinctes obsoletus (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (2) Henshaw, Rep. Wheeler Surv., 1876, p. 231. (3) Streater, Orn. & Ool., xiii, 1888, p. 54. (4) Belding, Land Birds Pac. Dist., 1890, p. 229. (5) Townsend, Proc. U. S. Nat. Mus., xiii, 1890, p. 141. (6) Keeler, Zoe, I, 1891, p. 339. (7) Grinnell, Pasadena Acad. Sci., I, 1897, pp. 8, 20. (8) Grinnell, Auk, xv, 1898, p. 236. (9) Mailliard, Bull. Cooper Orn. Club, I, 1899, pp. 41, 45. (10) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 233. (11) Grinnell, Pac. Coast Avif., 3, 1902, p. 68. (12) Grinnell and Daggett, Auk, xx, 1903, pp. 33, 37. (13) Breninger, Auk, xxi, 1904, p. 223. (14) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 141. (15) Linton, Condor, x, 1908, p. 128. (16) Grinnell, Condor, x, 1908, p. 130. (17) Wright, Condor, xi, 1909, p. 100. (18) Osburn, Condor, xi, 1909, p. 138. (19) Willett, Condor, xii, 1910, p. 171.

Salpinctes pulverius (20) Grinnell, Pac. Coast Avif., 3, 1902, p. 68.

Salpinctes obsoletus obsoletus (21) Ridgway, Birds North & Mid. Am., iii, 1904, p. 646. (22) A. O. U. Check-list, 3d ed., 1910, p. 336. (23) Willett, Pac. Coast Avif., 7, 1912, p. 101. (24) Wright and Snyder, Condor, xv, 1913, p. 92. (25) Swarth, Condor, xvi, 1914, p. 211. (26) Grinnell, Pac. Coast Avif., 11, 1915, p. 156.

Salpinctes obsoletus pulverius (27) Linton, Condor, x, 1908, p. 86.

Common resident on all the islands except San Nicolas. On the Coronados I have frequently met with this species on all four islands. Most numerous well back from the shore and towards the tops of the islands. On San Clemente it is fairly common, and D. R. Dickey shot a juvenile as early as April 9, 1915. During my several visits to Catalina in the spring, these birds were almost rare, but J. Grinnell (MS) found them to be very common everywhere on the flats, as well as among the rocks, near Johnson Harbor the latter part of August, 1903. G. Willett (19) says they are common on Anacapa, and O. W. Howard (23) took a set of seven slightly incubated eggs there April 30, 1906. On May 1, 1908, I noted them in some numbers on Santa Barbara Island, and a couple of pairs were engaged in nest building, probably for the second time that year. Near Prisoner's Harbor, Santa Cruz, A. van Rossem and I found the species rare in the spring of 1911, but C. B. Linton (15) recorded it as fairly numerous there during November and December, 1907. There are single records of this bird

from San Miguel and Santa Rosa. G. Willett (19), in June, 1910, found it to be one of the commonest birds on San Miguel, and during the same month he noted it on Santa Rosa also.

J. Grinnell (20) at one time referred birds from San Clemente to *S. o. pulverius*, but H. S. Swarth (25), after having examined larger series, states that birds from that island are indistinguishable from those of the mainland.

178. **Salpinctes obsoletus pulverius** Grinnell

SAN NICOLAS ROCK WREN

Salpinctes obsoletus (1) Streater, Orn. & Ool., XIII, 1888, p. 54. (2) Keeler, Zoe, I, 1891, p. 340. (3) Grinnell, Pasadena Acad. Sci., I, 1897, p. 10.
Salpinctes obsoletus pulverius (4) Grinnell, Auk, xv, 1898, p. 237. (5) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 443. (6) Ridgway, Birds North & Mid. Am., III, 1904, p. 649. (7) Linton, Condor, x, 1908, p. 129. (8) A. O. U. Committee, Auk, xxv, 1908, p. 350. (9) A. O. U. Check-list, 3d ed., 1910, p. 336. (10) Linton, Condor, XIII, 1911, p. 109. (11) Linton, Auk, xxviii, 1911, p. 489. (12) Willett, Pac. Coast Avif., 7, 1912, p. 101. (13) Grinnell, Pac. Coast Avif., 8, 1912, p. 17. (14) Swarth, Condor, xvi, 1914, p. 211. (15) Grinnell, Pac. Coast Avif., 11, 1915, p. 157.
Salpinctes pulverius (16) Grinnell, Pac. Coast Avif., 3, 1902, p. 68.

Confined to San Nicolas Island where it is a common resident. Originally described by J. Grinnell (4) from birds taken on San Nicolas, May 19, 1897. Characterized as differing from *obsoletus* in larger feet and bill, and more buffy coloration. H. S. Swarth (14), after assembling all available specimens of this genus from the Pacific Coast, states that although the buffy coloration is very pronounced in San Nicolas specimens with worn and abraded plumage, it is merely an adventitious acquisition and one that cannot be regarded as a subspecific character, for birds taken in freshly acquired autumnal plumage are indistinguishable in color and pattern from mainland birds in similar feather. He thus comes to the conclusion that the only subspecific difference is a slightly greater length of culmen.

J. Grinnell (3) found these birds shy, and the adults especially, hard to approach. They were very numerous over the whole island, but unusually so along the dry watercourses. From May 19 to 26, 1897, he found juvenals more abundant than adults. As G. Willett (12) discovered a nest in a sandstone cliff containing a single fresh egg, as late as June 24, 1911, they must raise at least two broods each year. On April 14, 1911, C. B. Linton (7) noted a pair carrying nesting material into a crack under the eaves of a storehouse close to where sheep were being sheared, but like the mainland bird, the usual site chosen is a pocket in a boulder or cliff. A set of six incubated eggs collected by H. Gaylord from a crack in a clayey bank of a gully, May 22, 1897, average .80x.64 inches.

179. **Catherpes mexicanus conspersus** Ridgway

CANYON WREN

Catherpes mexicanus conspersus (1) van Rossem, Condor, xi, 1909, p. 208.

On the Coronados, March 29, 1909, A. van Rossem (1) shot an adult male *Catherpes* which J. Grinnell pronounced *C. m. polioptilus*, stating that it was

nearer *conspersus* than *punctulatus*. This specimen is now in my collection, and is even lighter than any examples of *conspersus* which I have.

180. **Catherpes mexicanus punctulatus** Ridgway

DOTTED CANYON WREN

Catherpes mexicanus punctulatus (1) Linton, Condor, x, 1908, p. 128. (2) Willett, Pac. Coast Avif., 7, 1912, p. 101. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 157.

C. B. Linton (1) shot one of these birds on Santa Cruz Island, December 19, 1907.

181. **Thryomanes bewicki charienturus** Oberholser

SAN DIEGO WREN

Thryothorus bewickii (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78.

Thryomanes bewickii spilurus (2) Blake, Auk, iv, 1887, p. 330. (3) Grinnell, Auk, xv, 1898, pp. 234, 236. (4) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 42. (5) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 446.

Thryothorus bewickii bairdi (6) Townsend, Proc. U. S. Nat. Mus., xiii, 1890, p. 140. (7) Keeler, Zoe, I, 1891, p. 339.

Thryomanes bewickii charienturus (8) Oberholser, Proc. U. S. Nat. Mus., xxi, 1898, p. 435. (9) Allen, Auk, xvi, 1899, p. 346. (10) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 233. (11) A. O. U. Committee, Auk, xviii, 1901, p. 307. (12) Ridgway, Birds North & Mid. Am., iii, 1904, p. 561.

Thryomanes bewickii nesophilus (13) Oberholser, Proc. U. S. Nat. Mus., xxi, 1898, p. 442. (14) Allen, Auk, xvi, 1899, p. 350. (15) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 234. (16) A. O. U. Committee, Auk, xviii, 1901, p. 314. (17) Ridgway, Birds North & Mid. Am., iii, 1904, p. 562.

Vigors Wren (18) Grinnell, Bull. Cooper Orn. Club, I, 1899, p. 17.

Thryomanes nesophilus (19) Grinnell, Pac. Coast Avif., 3, 1902, p. 69. (20) Linton, Condor, x, 1908, p. 128.

Thryomanes bewicki charienturus (21) Richardson, Condor, x, 1908, p. 68. (22) A. O. U. Check-list, 3d ed., 1910, p. 339. (23) Howell and van Rossem, Condor, xiii, 1911, p. 210.

Thryomanes bewicki catalinae (24) Grinnell, Univ. Calif. Pub. Zool., v, 1910, p. 308. (25) Willett, Pac. Coast Avif., 7, 1912, p. 102. (26) Grinnell, Pac. Coast Avif., 8, 1912, p. 16. (27) A. O. U. Committee, Auk, xxix, 1912, p. 387. (28) Grinnell, Pac. Coast Avif., 11, 1915, p. 158. (29) Swarth, Proc. Calif. Acad. Sci., 4th Ser., vi, no. 4, 1916, p. 78.

Thryomanes bewicki nesophilus (30) Grinnell, Univ. Calif. Pub. Zool., v, 1910, p. 308. (31) Willett, Pac. Coast Avif., 7, 1912, p. 102. (32) Grinnell, Pac. Coast Avif., 8, 1912, p. 17. (33) Wright and Snyder, Condor, xv, 1913, p. 92. (34) Grinnell, Pac. Coast Avif., 11, 1915, p. 158. (35) Swarth, Proc. Calif. Acad. Sci., 4th Ser. vi, no. 4, 1916, p. 78.

Common resident of Catalina, Santa Cruz and Santa Rosa islands. J. Grinnell (24) described a subspecies from Catalina, the type being an adult male taken by him December 24, 1897. Its characters as given are: darker coloration dorsally than *charienturus*, with heavier bill and larger feet. From *leucophrys* it differs in being darker and less ashy, with more heavily barred undertail coverts. The differences are rather slight, although constant in all specimens which I have examined, and it was rejected by the A. O. U. Committee (27).

In habits the Catalina wren is very similar to that of the mainland, being met with in the dry, heavy brush and in the wooded canyon bottoms. The birds prefer to breed in the latter places, selecting a knot hole or crack in a tree trunk, and in such a situation, on April 11, 1911, I found a nest which held one fresh egg. The species has been ascribed to Santa Barbara and San Nicolas islands by J. G. Cooper (1), but no one has since reported it from either place.

Another subspecies, *T. b. nesophilus* was described by H. C. Oberholser (13) from a bird taken on Santa Cruz Island by C. H. Townsend, February 7, 1889. From *charienturus* it is said to differ in being darker and more rufescent above, and from *spilurus* in being lighter and grayer with a longer bill. H. S. Swarth (35) states that he finds birds from Santa Cruz Island most nearly like *charienturus*, and that the difference is very slight indeed, specimens being practically indistinguishable from birds that occupy the intermediate coastal region between the ranges of *charienturus* and *spilurus*. It is inferred that this applies also to the wrens of Santa Rosa Island.

On Santa Cruz these wrens may be met with wherever fairly dense brush occurs. J. Mailliard (4) states that they have but one song, sounding different from that of their mainland cousins, who have several. In this locality during the latter part of April, 1911, A. van Rossem and I found a nest containing half grown young among the rafters of a small shack.

182.

Thryomanes leucophrys (Anthony)

SAN CLEMENTE WREN

- Thryothorus bewickii* (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78.
Thryothorus bewickii bairdi (2) Townsend, Proc. U. S. Nat. Mus., XIII, 1890, p. 140. (3) Keeler, Zoe, I, 1891, p. 340.
Thryothorus leucophrys (4) Anthony, Auk, XII, 1895, p. 51. (5) A. O. U. Committee, Auk, XII, 1895, p. 166. (6) Grinnell, Pasadena Acad. Sci., I, 1897, p. 21. (7) Davie, Nests and Eggs N. Am. Birds, 5th ed., 1898, p. 473.
Thryomanes bewickii leucophrys (8) Oberholser, Proc. U. S. Nat. Mus., XXI, 1898, p. 443. (9) Ridgway, Birds North & Mid. Am., II, 1904, p. 563. (10) Mearns, Bull. U. S. Nat. Mus., LVI, 1907, p. 141.
Thryomanes leucophrys (11) Grinnell, Pac. Coast Avif., 3, 1902, p. 69. (12) Breninger, Auk, XXI, 1904, p. 221. (13) Bailey, Handb. Birds West. U. S., 2d ed., 1904, p. 448. (14) Reed, N. Am. Birds' Eggs, 1904, p. 316. (15) Linton, Condor, x, 1908, p. 86. (16) A. O. U. Check-list, 3d ed., 1910, p. 339. (17) Willett, Pac. Coast Avif., 7, 1912, p. 102.
T[Thryomanes]. leucophrys (18) Coues, Key N. Am. Birds, 5th ed., 1903, p. 296.
Thryomanes bewickii leucophrys (19) Grinnell, Univ. Calif. Pub. Zool., v, 1910, p. 308. (20) Grinnell, Pac. Coast Avif., 8, 1912, p. 16. (21) Grinnell, Pac. Coast Avif., 11, 1915, p. 158. (22) Swarth, Proc. Calif. Acad. Sci., 4th Ser., VI, no. 4, 1916, p. 79.

Abundant resident of San Clemente Island. Originally described by A. W. Anthony (4). Differs from *charienturus* in coloration being grayer, under tail coverts less heavily barred, and wing and bill decidedly longer. These wrens are evenly distributed over San Clemente, frequenting the densest thorn bushes and cactus patches, from the tops of which their loud clear song, differing but little from that of the mainland bird, is given. Before one is within good range of them they will casually hop down into the lower cactus, and it is very hard indeed

to make them show themselves again. If it is in a low thorn bush that they disappear, no amount of trampling will bring a bird forth, but as soon as one steps off the bush, out he pops and away to another one. I shot a juvenal with fully grown tail, April 2, 1915, and from then on the youngsters were not rare. The eggs have evidently never been discovered, but I believe that the nest is invariably built in the center of a dense patch of cactus. While I was trying to remove a dead bird from such a place, on March 29, and smashing the cactus as I went, I uncovered an unfinished nest, probably pertaining to this species. It was wedged under and between cactus leaves some eight inches above the ground, a three inch ball formed of soft fiber, and with the entrance on one side. Two days later when I returned, some little lining had been added, but the situation had been so disturbed that it was deserted before eggs were laid.

183. **Troglodytes aedon parkmani** Audubon

WESTERN HOUSE WREN

J. Grinnell (*MS*) secured an immature male on Santa Cruz Island, September 3, 1903.

184. **Nannus hiemalis pacificus** (Baird)

WESTERN WINTER WREN

Nannus hiemalis pacificus (1) Willett, *Pac. Coast Avif.*, 7, 1912, p. 102. (2) Grinnell, *Pac. Coast Avif.*, 11, 1915, p. 159.

The single record is that of a female taken by C. B. Linton (1) on Santa Cruz Island, October 23, 1908.

185. **Telmatodytes palustris paludicola** (Baird)

TULE WREN

On San Nicolas Island, during January, 1911, C. B. Linton (*MS*) found a pair of these birds about a spring. As he noted them at the same spot for several weeks, there is small chance that the identity was incorrect. Many specimens of marsh wrens taken in the lowlands of Los Angeles County during the winter months, however, are referable to *T. p. plesius*, so it is not impossible that the birds which Linton observed were of the latter race.

186. **Sitta canadensis** Linnaeus

RED-BREASTED NUTHATCH

Sitta canadensis (1) Howell and van Rossem, *Condor*, XIII, 1911, p. 210. (2) Willett, *Pac. Coast Avif.*, 7, 1912, p. 104. (3) Grinnell, *Pac. Coast Avif.*, 11, 1915, p. 161.

During four or five trips to the wooded top of Santa Cruz Island during the latter part of April, 1911, A. van Rossem and I (1) saw a couple of dozen of these birds, and took six specimens. These average a very little smaller than birds from the mainland and the east, but are otherwise indistinguishable. On May 1 I watched an individual excavating a nesting site in a dead stub, so they evidently remain during the entire year. C. B. Linton (2) shot three October 3 and 4, 1908.

187. ***Psaltriparus minimus minimus*** (J. K. Townsend)

COAST BUSH-TIT

Psaltria minimus californicus (1) Mailliard, Bull. Cooper Orn. Club, 1, 1899, p. 45.

Psaltriparus minimus minimus (2) Linton, Condor, x, 1908, p. 129. (3) Swarth, Auk, xxxi, 1914, p. 499. (4) Grinnell, Pac. Coast Avif., 11, 1915, p. 165.

Psaltriparus minimus californicus (5) Willett, Pac. Coast Avif., 7, 1912, p. 105. (6) Wright and Snyder, Condor, xv, 1913, p. 92.

Common resident of Santa Cruz Island, and occurs on Catalina. In the brushy oak timber and on the canyon sides of Santa Cruz, these tiny birds are often met with. During late April, 1911, A. van Rossem and I found them to be rather common. H. Wright and G. K. Snyder (6) noted a flock in the brush, July 7, 1912, and C. B. Linton (2) recorded several seen during November and December, 1907. G. Willett (*MS*) says he has seen quite a few in the western oak region of Catalina in the springs of 1904 and 1905.

H. S. Swarth (3), in his paper relating to this genus, reports conclusively that the island bird is *minimus* and not *californicus* as some times recorded.

188. ***Regulus satrapa olivaceus*** Baird

WESTERN GOLDEN-CROWNED KINGLET

Regulus satrapa olivaceus (1) Willett, Pac. Coast Avif., 7, 1912, p. 105. (2) Grinnell, Pac. Coast Avif., 11, 1915, p. 167.

C. B. Linton (1) shot a pair on Santa Cruz Island, October 21, 1908.

189. ***Regulus calendula calendula*** (Linnaeus)

RUBY-CROWNED KINGLET

Regulus calendula (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78. (2) Grinnell, Auk, xv, 1898, p. 236. (3) Linton, Condor, x, 1908, p. 129.

Regulus calendula calendula (4) Willett, Pac. Coast Avif., 7, 1912, p. 106.

Probably a regular but fairly rare winter visitant to suitable localities. J. Grinnell (2) noted a very few of these birds on Catalina the last of December, 1897, and C. B. Linton (3) found them rather common on Santa Cruz during November and December, 1907.

190. ***Polioptila caerulea obscura*** Ridgway

WESTERN GNATCATCHER

Polioptila melanura (1) Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78.

Polioptila caerulea obscura (2) Linton, Condor, x, 1908, p. 129. (3) Osburn, Condor, xi, 1909, p. 138. (4) Willett, Pac. Coast Avif., 7, 1912, p. 106. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 168.

Rather rare on Catalina and Santa Cruz islands, but probably resident. G. Willett (*MS*) occasionally met with them on the western part of Catalina during March, 1905. The specimen, now in the Berkeley Museum of Vertebrate Zoology, which J. G. Cooper (1) took on Catalina in 1861, and which he labelled *P. melanura*, proves to be *obscura*. C. B. Linton and G. Willett (2) heard gnatcatchers several times on Santa Cruz Island in November and December, 1907, and a male was secured October 21, 1908.

191. ***Hylocichla ustulata ustulata* (Nuttall)**

RUSSET-BACKED THRUSH

Turdus ustulatus (1) Grinnell, Pasadena Acad. Sci., I, 1897, p. 8.

Hylocichla ustulata (2) Linton, Condor, x, 1908, p. 86.

Hylocichla ustulata ustulata (3) Linton, Condor, x, 1908, p. 129. (4) Willett, Pac. Coast Avif., 7, 1912, p. 107. (5) Grinnell, Pac. Coast Avif., 11, 1915, p. 169.

Probably a fairly common transient. C. B. Linton (2) states that on San Clemente during October, 1907, these birds were common in the larger canyons. On Santa Barbara, J. Grinnell (1) saw three and secured a female, May 16, 1897. Linton (3) also shot one on Santa Cruz Island in the late fall of 1907.

192. ***Hylocichla guttata guttata* (Pallas)**

ALASKA HERMIT THRUSH

Turdus aonalaschkae (1) Grinnell, Pasadena Acad. Sci., I, 1897, p. 21. (2) Grinnell, Auk, xv, 1898, p. 236.

Hylocichla aonalaschkae (3) Mailliard, Bull. Cooper Orn. Club, I, 1899, p. 45. (4) Oberholser, Proc. U. S. Nat. Mus., xxii, 1900, p. 234.

Hylocichla guttata (5) Mearns, Bull. U. S. Nat. Mus., lvi, 1907, p. 142.

Visits the islands in small numbers during the winter. J. Grinnell (MS) took a female on San Clemente, March 28, 1897, and two males on Catalina, December 24 and 28, respectively, of the same year. H. C. Oberholser (4) mentions a typical female as having been taken by C. P. Streater on Catalina in April, 1892, and I shot a specimen on Santa Cruz Island, April 27, 1911. These are all the island specimens which I can locate.

193. ***Planesticus migratorius propinquus* (Ridgway)**

WESTERN ROBIN

Planesticus migratorius propinquus (1) Dawson, Condor, xvii, 1915, p. 204.

Casual on the islands. H. Linton told G. Willett (MS) that he had seen a robin on San Nicolas during the winter of 1912. While we were preparing breakfast on San Clemente, April 7, 1915, a single bird flew close above D. R. Dickey and myself, and lit on a rock a hundred yards away. By the time I had secured my gun it had disappeared. W. L. Dawson (1) noted a few on Santa Cruz Island during the first part of April, 1915.

194. ***Ixoreus naevius meruloides* (Swainson)**

NORTHERN VARIED THRUSH

Ixoreus naevius (1) Linton, Condor, x, 1908, p. 86.

Ixoreus naevius meruloides (2) Willett, Pac. Coast Avif., 7, 1912, p. 109. (3) Grinnell, Pac. Coast Avif., 11, 1915, p. 172.

Ixoreus naevius naevius (4) Dawson, Condor, xvii, 1915, p. 204.

Visits the islands in limited numbers during the winter months. Several specimens were taken by C. B. Linton (1) on San Clemente Island from January to April, 1907, and W. L. Dawson (4) noted a single bird, April 5, 1915, and another on the following day, on Santa Cruz.

195. ***Sialia mexicana occidentalis*** J. K. Townsend

WESTERN BLUEBIRD

Sialia mexicana occidentalis (1) Linton, Condor, xi, 1909, p. 194. (2) Willett, Pac. Coast Avif., 7, 1912, p. 109.

Rare migrant. C. B. Linton (1) secured an adult male on San Clemente Island in December 1908, and I saw a single bird on Santa Barbara as late as May 1, 1908.

HYPOTHETICAL LIST

1. ***Priocella glacialisoides*** (A. Smith)

SLENDER-BILLED FULMAR

Fulmarus glacialisoides Baird, Brewer and Ridgway, Water Birds N. Am., II, 1884, p. 374.

A skeleton was found on Catalina Island by J. G. Cooper, which he ascribed to this species. Systematic collecting off the islands should produce records of this bird, but the above instance of its occurrence is inconclusive.

2. ***Oceanites oceanicus*** (Kuhl)

WILSON PETREL

Oceanites oceanicus Cooper, Proc. Calif. Acad. Sci., IV, 1868, p. 11.

J. G. Cooper saw a white-rumped petrel near San Nicolas Island in July, 1863, which he ascribed to this form. In all probability a case of mistaken identity.

3. ***Marila affinis*** (Eyton)

LESSER SCAUP DUCK

Aythya affinis Linton, Condor, x, 1908, p. 83.

On San Clemente Island during February, 1907, C. B. Linton saw several ducks which he believed to be of this species. I personally believe it very likely that the species is occasionally found about the islands, but as Linton himself is not at all sure of his identification of the birds seen, I have thought it best to relegate the record to the hypothetical list.

4. ***Branta canadensis***, subsp.

On Santa Cruz Island, April 25, 1911, a single goose of this group flew over A. van Rossem. He is of the opinion that it was *B. c. hutchinsi*, and it seems likely that such was the case.

5. ***Totanus flavipes*** (Gmelin)

YELLOWLEGS

C. C. Lamb informs me that while he and R. H. Beck were on the Coronados, April 11, 1908, the latter shot a yellowlegs which they believed was small enough

for this species, rather than the larger *T. melanoleucus*, but the present location of the specimen is unknown.

6. **Micropallas whitneyi** (J. G. Cooper)

ELF OWL

Microthene whitneyi ? Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 77.

J. G. Cooper thought that he heard an owl one night on Santa Barbara Island, and ascribed the sound to this species, provisionally. Its occurrence is extremely improbable.

7. **Geococcyx californianus** (Lesson)

ROAD-RUNNER

Geococcyx californianus Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 77. Grinnell, Condor, ix, 1907, p. 52.

J. G. Cooper reported this bird from Catalina Island, but J. Grinnell, in his article on the California distribution of the species, states that he does not know of its occurrence on any of the islands. It is possible that during the sixties it occurred on Catalina and has since become extirpated, but as none has been reported since, it is safer to conclude that there was some mistake in regard to the first record.

8. **Dryobates nuttalli** (Gambel)

NUTTALL WOODPECKER

Picus nuttalli ? Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 77.

J. G. Cooper listed this bird from Catalina, but mentions that he is uncertain in regard to it.

9. **Zonotrichia leucophrys nuttalli** Ridgway

NUTTALL SPARROW

Zonotrichia leucophrys nuttalli Dawson, Condor, xvii, 1915, p. 204.

W. L. Dawson states that while on Santa Cruz Island during the middle of April, 1915, "individuals of this small dark type were seen at close range". This subspecies is too hard to distinguish in life for a sight record to be conclusive.

10. **Progne subis hesperia** Brewster

WESTERN MARTIN

Progne purpurea ? Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78.

Recorded provisionally from Catalina by J. G. Cooper.

11. **Riparia riparia** (Linnaeus)

BANK SWALLOW

Clivicola riparia Streater, Orn. & Ool., xiii, 1888, p. 54.

Reported from San Miguel in 1886 by C. P. Streater. Although it is by no

means impossible that this species may occur upon the islands occasionally, the above unsubstantiated record is inconclusive.

12. **Vireosylva gilva swainsoni** (Baird)

WESTERN WARBLING VIREO

Vireosylva gilva swainsoni Dawson, Condor, xvii, 1915, p. 204.

W. L. Dawson states that he heard one of these birds on Santa Cruz during the morning of April 4, 1915. This identification is too uncertain to stand as a record.

13. **Hylocichla guttata nanus** (Audubon)

DWARF HERMIT THRUSH

Turdus nanus Cooper, Proc. Calif. Acad. Sci., iv, 1870, p. 78.

Hylocichla guttata nana Richardson, Condor, x, 1908, p. 68. Linton, Condor, x, 1908, p. 86. Linton, Condor, x, 1908, p. 129.

Hylocichla guttata nanus Willett, Pac. Coast Avif., 7, 1912, p. 108.

It is with considerable hesitation that I place this subspecies in the hypothetical list. The presence of *nanus* upon the islands in winter is to be expected, and there are several records of its occurrence, but I can learn of no definitely identified specimens ever having been taken, and so must include the form conditionally.

TABULATION OF SPECIES BY ISLANDS

To facilitate comparison of the avifauna of the several islands, I have prepared the following table. Although there are many species which certainly occur on all the islands, though recorded from but a few, I have not taken this fact into account, having marked with an asterisk (*) only those birds which have been definitely reported from the several islands.

	Los Coronados Id.	San Clemente Id.	San Nicolas Id.	Santa Catalina Id.	Santa Barbara Id.	Anacapa Id.	Santa Cruz Id.	Santa Rosa Id.	San Miguel Id.
1. <i>Aechmophorus occidentalis</i>		*			*		*		
2. <i>Colymbus auritus</i>		*					*		
3. <i>Colymbus n. californicus</i>		*	*	*			*		
4. <i>Podilymbus podiceps</i>		*					*		
5. <i>Gavia immer</i>							*		
6. <i>Gavia pacifica</i>		*		*			*		
7. <i>Gavia stellata</i>							*		
8. <i>Lunda cirrhata</i>			*	*	*	*	*		*
9. <i>Cerorhinca monocerata</i>	*	*		*	*	*	*		
10. <i>Ptychoramphus aleuticus</i>	*	*		*	*	*	*		*
11. <i>Synthliboramphus antiquus</i>		*		*		*	*		
12. <i>Brachyramphus hypoleucus</i>	*	*			*	*	*		
13. <i>Brachyramphus craveri</i>	*								
14. <i>Cepphus columba</i>		*	*	*	*	*	*		*
15. <i>Uria t. californica</i>							*		
16. <i>Rissa t. pollicaris</i>	*						*		
17. <i>Larus glaucescens</i>		*		*			*		
18. <i>Larus occidentalis</i>	*	*	*	*	*	*	*	*	*
19. <i>Larus argentatus</i>		*		*			*		*
20. <i>Larus californicus</i>		*					*		
21. <i>Larus delawarensis</i>				*			*		
22. <i>Larus brachyrhynchus</i>				*			*		
23. <i>Larus heermanni</i>	*	*	*	*	*		*		*
24. <i>Larus philadelphia</i>							*		*
25. <i>Xema sabini</i>	*				*		*		
26. <i>Sterna maxima</i>	*	*	*	*			*		*
27. <i>Sterna forsteri</i>	*			*			*		
28. <i>Diomedea nigripes</i>		*	*	*	*		*		
29. <i>Diomedea albatrus</i>		*	*	*	*		*		
30. <i>Fulmarus g. glupischa</i>		*		*		*	*		
31. <i>Puffinus creatopus</i>	*	*	*	*		*	*	*	
32. <i>Puffinus opisthomelas</i>	*	*		*		*	*		
33. <i>Puffinus griseus</i>	*	*	*	*	*	*	*	*	*
34. <i>Oceanodroma kaedingi</i>		*					*		
35. <i>Oceanodroma melania</i>	*	?	?			*	*		
36. <i>Oceanodroma homochroa</i>			*		*		*		*
37. <i>Oceanodroma socorroensis</i>	*	*	*	*	*	*	*		*
38. <i>Phalacrocorax a. albociliatus</i>	*	*	*	*	*	*	*		*
39. <i>Phalacrocorax penicillatus</i>	*	*	*	*	*	*	*		*
40. <i>Phalacrocorax p. resplendens</i>	*	*	*	*	*	*	*		*
41. <i>Pelecanus californicus</i>	*	*	*	*	*	*	*	*	*
42. <i>Fregata aquila</i>	*			*			*		
43. <i>Mergus serrator</i>		*		*			*		
44. <i>Dafila acuta</i>		*					*		
45. <i>Oidemia americana</i>				*			*		*
46. <i>Oidemia deglandi</i>				*			*		*
47. <i>Oidemia perspicillata</i>		*		*	*		*	*	*
48. <i>Chen h. hyperboreus</i>							*		
49. <i>Anser a. gambeli</i>						?	*	*	
50. <i>Ardea h. herodias</i>	*	*	*	*		*	*		
51. <i>Butorides v. anthonyi</i>	*						*		
52. <i>Nycticorax n. naevius</i>		*					*		
53. <i>Porzana carolina</i>		*					*		
54. <i>Fulica americana</i>							*		
55. <i>Phalaropus fulicarius</i>		*	*	*		*	*		
56. <i>Lobipes lobatus</i>							*		

	Los Coronados Id.	San Clemente Id.	San Nicolas Id.	Santa Catalina Id.	Santa Barbara Id.	Anacapa Id.	Santa Cruz Id.	Santa Rosa Id.	San Miguel Id.
57. <i>Recurvirostra americana</i>			*				*		
58. <i>Himantopus mexicanus</i>									
59. <i>Macrorhamphus g. scolopaceus</i>		*							
60. <i>Pisobia bairdi</i>				*					
61. <i>Pisobia minutilla</i>		*	*	*			*		
62. <i>Ereunetes mauri</i>		*							
63. <i>Calidris leucophaea</i>		*	*				*		
64. <i>Totanus melanoleucus</i>							*		
65. <i>Helodromas s. cinnamomeus</i>		*	*				*		
66. <i>Catoptrophorus s. inornatus</i>			*						*
67. <i>Heteractitis incanus</i>	*	*	*	*	*	*	*	*	*
68. <i>Actitis macularia</i>	*	*	*	*	*	*	*	*	*
69. <i>Numenius hudsonicus</i>	*	*	*				*		
70. <i>Squatarola squatarola</i>		*	*	*			*		
71. <i>Oxyechus vociferus</i>		*	*				*		
72. <i>Aegialitis semipalmata</i>		*	*						
73. <i>Aegialitis nivosa</i>		*	*				*		*
74. <i>Podasocys montanus</i>		*							
75. <i>Aphriza virgata</i>			*	?	?				*
76. <i>Arenaria i. morinella</i>	*	*	*	*	*	*	*	*	*
77. <i>Arenaria melanocephala</i>	*	*	*	*	*	*	*	*	*
78. <i>Haematopus frazari</i>	*				*	*	*	*	*
79. <i>Haematopus bachmani</i>	*				*	*	*	*	*
80. <i>Lophortyx c. vallicola</i>	*	?		*			?		
81. <i>Zenaidura m. marginella</i>	*	*	*	*	*	*	*	*	*
82. <i>Circus hudsonius</i>	*					*	*	*	*
83. <i>Accipiter velox</i>		*		*			*	*	*
84. <i>Accipiter cooperi</i>							*	*	*
85. <i>Buteo borealis calurus</i>		*		*			*	*	*
86. <i>Buteo swainsoni</i>				*			*	*	*
87. <i>Haliaeetus l. leucocephalus</i>	*	*	*	*	*	*	*	*	*
88. <i>Falco mexicanus</i>									*
89. <i>Falco p. anatum</i>	*	*		*	*	*	*	*	*
90. <i>Falco c. columbarius</i>		*					*	*	*
91. <i>Falco s. phalaena</i>		*	*			*	*	*	*
92. <i>Pandion h. carolinensis</i>	*	*	*	*			*	*	*
93. <i>Aluco pratincola</i>	*					*	*	*	*
94. <i>Asio wilsonianus</i>	*	*		*					
95. <i>Asio flammeus</i>				*					
96. <i>Bubo v. pacificus</i>							*		
97. <i>Speotyto c. hypogaea</i>	*	*	*	*		*	*	*	*
98. <i>Ceryle alcyon</i>	*	*		*		*	*	*	*
99. <i>Sphyrapicus r. ruber</i>		*		?			?		
100. <i>Asyndesmus lewisi</i>							*		
101. <i>Colaptes c. collaris</i>			*	*			*		
102. <i>Phalaenoptilus n. californicus</i>		*		*		*			
103. <i>Chordeiles a. texensis</i>					*				
104. <i>Chaetura vauxi</i>							*		
105. <i>Aeronautes melanoleucus</i>	*	*	*	*		*	*	*	*
106. <i>Calypte costae</i>	*	*			*				
107. <i>Calypte anna</i>	*	*		*		*	*	*	*
108. <i>Selasphorus alleni</i>	*	*		*	*	*	*	*	*
109. <i>Tyrannus verticalis</i>		*					*	*	*
110. <i>Tyrannus vociferans</i>	*						*	*	*
111. <i>Myiarchus c. cinerascens</i>							*	*	*
112. <i>Sayornis sayus</i>		*	*	*			*	*	*

	Los Coronados Id.	San Clemente Id.	San Nicolas Id.	Santa Catalina Id.	Santa Barbara Id.	Anacapa Id.	Santa Cruz Id.	Santa Rosa Id.	San Miguel Id.
113. Sayornis nigricans		*	*	*			*	*	
114. Myiochanes r. richardsoni	*	*	*				*		
115. Empidonax d. difficilis		*		*			*		
116. Empidonax t. trailli	*								
117. Empidonax hammondi		*		?	?		*		
118. Otocoris a. insularis		*	*	*	*	*	*	*	*
119. Aphelocoma insularis							*		
120. Corvus c. sinuatus	*	*	*	*	*	*	*	*	*
121. Molothrus a. obscurus	*						*		
122. Xanthocephalus xanthocephalus							*		
123. Sturnella neglecta		*		*	*	*	*	*	*
124. Icterus c. nelsoni				*			*		
125. Icterus bullocki	*	*	*				*		
126. Euphagus carolinus		*					*		
127. Euphagus cyanocephalus			*	*			*		*
128. Carpodacus p. californicus							*		
129. Carpodacus m. clementis	*	*	*	*	*	*	*	*	*
130. Loxia c. stricklandi							*		
131. Passer domesticus		*					*		
132. Astragalinus p. hesperophilus				*			*		
133. Astragalinus lawrencei				*			*		
134. Spinus pinus							*		
135. Passerculus s. alaudinus		*	*				*		
136. Chondestes g. strigatus							*		
137. Zonotrichia querula		*					*		
138. Zonotrichia l. gambeli	*	*		*	*	*	*		
139. Zonotrichia coronata		*		*	*		*		
140. Spizella p. arizonae		*		*			*	*	
141. Spizella atrogularis		*					*		
142. Junco h. thurberi		*	*				*		
143. Amphispiza belli		*	*				*	*	
144. Aimophila r. ruficeps				*			*		
145. Melospiza m. graminea				?	*		*		
146. Melospiza m. clementae	*	*					*	*	*
147. Melospiza l. lincolni		*		*			*		
148. Passerella i. unalaschcensis		*					*		
149. Passerella i. megarhyncha		*		*			*		
150. Passerella i. stephensi		*		*			*		
151. Passerella i. insularis		*		*			*		
152. Pipilo m. oregonus		*					*		
153. Pipilo m. clementae		*		*	?		*	*	
154. Pipilo m. megalonyx	?						*		
155. Zamelodia melanocephala							*		
156. Guiraca c. lazula							*		
157. Passerina amoena				*			*		
158. Piranga ludoviciana	*	*					*		
159. Piranga r. cooperi		*					*		
160. Hirundo erythrogastra	*	*		*	*	*	*		
161. Tachycineta t. lepida		*					*		
162. Bombycilla cedrorum		*					*		
163. Lanius l. anthonyi		*		*	?	*	*	*	
164. Vireo h. huttoni				*			*		
165. Vermivora c. celata							*		
166. Vermivora c. sordida	*	*		*	?	*	*	*	*
167. Dendroica coronata		*			*		*		

	Los Coronados Id.	San Clemente Id.	San Nicolas Id.	Santa Catalina Id.	Santa Barbara Id.	Anacapa Id.	Santa Cruz Id.	Santa Rosa Id.	San Miguel Id.
168. <i>Dendroica auduboni</i>	*	*		*			*		
169. <i>Dendroica magnolia</i>					*				
170. <i>Dendroica nigrescens</i>							*		
171. <i>Dendroica townsendi</i>		*			*		*		
172. <i>Dendroica occidentalis</i>					*				
173. <i>Geothlypis t. arizela</i>	*	*							
174. <i>Wilsonia p. pileolata</i>				*	*				
175. <i>Anthus rubescens</i>		*					*		
176. <i>Mimus p. leucopterus</i>		*		*		*	*		
177. <i>Salpinctes o. obsoletus</i>	*	*		*	*	*	*	*	*
178. <i>Salpinctes o. pulverius</i>			*						
179. <i>Catherpes m. conspersus</i>	*								
180. <i>Catherpes m. punctulatus</i>							*		
181. <i>Thryomanes b. charienturus</i>				*			*	*	
182. <i>Thryomanes leucophrys</i>		*							
183. <i>Troglodytes a. parkmani</i>							*		
184. <i>Nannus h. pacificus</i>							*		
185. <i>Telmatodytes p. paludicola</i>			*						
186. <i>Sitta canadensis</i>							*		
187. <i>Psaltriparus m. minimus</i>				*			*		
188. <i>Regulus s. olivaceus</i>							*		
189. <i>Regulus c. calendula</i>				*			*		
190. <i>Polioptila c. obscura</i>				*			*		
191. <i>Hylocichla u. ustulata</i>		*			*		*		
192. <i>Hylocichla g. guttata</i>		*		*			*		
193. <i>Planesticus m. propinquus</i>		*	*				*		
194. <i>Ixoreus n. meruloides</i>		*					*		
195. <i>Sialia m. occidentalis</i>		*			*				

These one hundred and ninety-five species and subspecies have been reported from the several islands as shown in the following table. The first column of figures gives the total number of forms accredited to each island; the second, the number of these which have been reported on doubtful grounds.

	Total number of forms	Doubtful
Los Coronados	58	1
San Clemente	114	2
San Nicolas	51	1
Santa Catalina	93	4
Santa Barbara	48	5
Anacapa	39	1
Santa Cruz	141	2
Santa Rosa	21	
San Miguel	35	

Santa Cruz Island has more birds reported from it than the other islands, both because its character is the most diversified, and because it has been rather thoroughly worked for a number of weeks at a time during all parts of the year, by several competent ornithologists. The latter reason is also the main one for San Clemente showing up so well numerically. This island is comparatively barren, with few trees, and there are not a great number of resident species, but it

seems to be in a good line of migration. Santa Catalina is much more diversified than the last, in fact it is next to Santa Cruz in this respect, and if much systematic work were done upon it, I believe that it would surpass San Clemente in the number of species in its avifauna. It is the most often visited of the islands, and many ornithologists of note have collected there, but usually their visits have been limited to several days. The Coronados fall fourth in this list, rather surprising for such small barren spots, but then they are many times more often visited than any other of the smaller islands. It is to be expected that not so many forms occur on San Nicolas, as it is rather barren and well out to sea. The avifauna of Santa Barbara Island is of quite respectable size. It has a good list of water birds, and although there has not been a great deal of work done there for any period of time, it seems to be a favorite resting place for the few small land migrants that pass that way. There has been less systematic work done on Anacapa, but it is much more often visited for periods of several days at a time. The number of species recorded from both San Miguel and Santa Rosa are very small for the size of the islands, but neither is especially attractive to bird life. Then, too, there has not been much work done on San Miguel and less on Santa Rosa, where it is difficult to get a permit to stay on the island.

TABULATION OF SPECIES BY MANNER OF OCCURRENCE

In preparing a table of seasonal occurrence of the different birds, I have been obliged to use my own judgment to a certain extent. That is, when there are but a couple of records for a species during the winter, it is hard to tell for a surety whether it occurs regularly during that time of year, or should be classed as a casual visitant. In such case I have had to consider the conditions under which the record was made, the abundance of the species upon the mainland during the same season, and several other factors. It will therefore be seen that the tables are only approximately correct, but as nearly so as it is possible for me to make them under the circumstances.

RESIDENTS

- | | |
|--|---|
| 1. <i>Lunda cirrhata</i> | 19. <i>Accipiter cooperi</i> |
| 2. <i>Ptychoramphus aleuticus</i> | 20. <i>Buteo borealis calurus</i> |
| 3. <i>Brachyramphus hypoleucus</i> | 21. <i>Haliaeetus leucocephalus leucocephalus</i> |
| 4. <i>Cepphus columba</i> | 22. <i>Falco peregrinus anatum</i> |
| 5. <i>Uria troille californica</i> | 23. <i>Falco sparverius phalaena</i> |
| 6. <i>Larus occidentalis</i> | 24. <i>Pandion haliaëtus carolinensis</i> |
| 7. <i>Oceanodroma melania</i> | 25. <i>Aluco pratincola</i> |
| 8. <i>Oceanodroma homochroa</i> | 26. <i>Asio wilsonianus</i> |
| 9. <i>Oceanodroma socorroensis</i> | 27. <i>Speotyto cunicularia hypogaea</i> |
| 10. <i>Phalacrocorax auritus albociliatus</i> | 28. <i>Colaptes cafer collaris</i> |
| 11. <i>Phalacrocorax penicillatus</i> | 29. <i>Calypte anna</i> |
| 12. <i>Phalacrocorax pelagicus resplendens</i> | 30. <i>Selasphorus alleni</i> |
| 13. <i>Pelecanus californicus</i> | 31. <i>Sayornis nigricans</i> |
| 14. <i>Ardea herodias herodias</i> | 32. <i>Otocoris alpestris insularis</i> |
| 15. <i>Aegialitis nivosa</i> | 33. <i>Aphelocoma insularis</i> |
| 16. <i>Haematopus bachmani</i> | 34. <i>Corvus corax sinuatus</i> |
| 17. <i>Lophortyx californica vallicola</i> | 35. <i>Sturnella neglecta</i> |
| 18. <i>Zenaidura macroura marginella</i> | |

- | | |
|--|--|
| 36. <i>Carpodacus mexicanus clementis</i> | 47. <i>Lanius ludovicianus anthonyi</i> |
| 37. <i>Loxia curvirostra stricklandi</i> | 48. <i>Vireo huttoni huttoni</i> |
| 38. <i>Astragalinus psaltria hesperophilus</i> | 49. <i>Vermivora celata sordida</i> |
| 39. <i>Astragalinus lawrencei</i> | 50. <i>Mimus polyglottos leucopterus</i> |
| 40. <i>Spizella passerina arizonae</i> | 51. <i>Salpinctes obsoletus obsoletus</i> |
| 41. <i>Amphispiza belli</i> | 52. <i>Salpinctes obsoletus pulverius</i> |
| 42. <i>Aimophila ruficeps ruficeps</i> | 53. <i>Thryomanes bewicki charienturus</i> |
| 43. <i>Melospiza melodia graminea</i> | 54. <i>Thryomanes leucophrys</i> |
| 44. <i>Melospiza melodia clementae</i> | 55. <i>Sitta canadensis</i> |
| 45. <i>Pipilo maculatus clementae</i> | 56. <i>Psaltriparus minimus minimus</i> |
| 46. <i>Pipilo maculatus megalonyx</i> | |

The above is a list of species that are supposed to be found on the islands throughout the year, and to breed there. *Vermivora c. sordida*, however, is only partly resident, as a great many individuals migrate to the adjacent mainland for the winter. *O. socorroensis* is probably resident, but this is not absolutely certain. In addition to the above, there is the following list of birds which, although breeding, some to the north, and some to the south of the region treated, and common only when not engaged in the rearing of young in other localities, may nevertheless be encountered upon the islands during all parts of the year.

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|-----------------------------|----------------------------------|
| 1. <i>Larus heermanni</i> | 5. <i>Puffinus griseus</i> |
| 2. <i>Sterna maxima</i> | 6. <i>Heteractitis incanus</i> |
| 3. <i>Diomedea nigripes</i> | 7. <i>Actitis macularia</i> |
| 4. <i>Diomedea albatrus</i> | 8. <i>Arenaria melanocephala</i> |

WINTER VISITANTS

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|---|--|
| 1. <i>Aechmophorus occidentalis</i> | 26. <i>Anser albifrons gambeli</i> |
| 2. <i>Colymbus auritus</i> | 27. <i>Calidris leucophaea</i> |
| 3. <i>Colymbus nigricollis californicus</i> | 28. <i>Oxyechus vociferus</i> |
| 4. <i>Podilymbus podiceps</i> | 29. <i>Podasocys montanus</i> |
| 5. <i>Gavia immer</i> | 30. <i>Accipiter velox</i> |
| 6. <i>Gavia pacifica</i> | 31. <i>Falco columbarius columbarius</i> |
| 7. <i>Gavia stellata</i> | 32. <i>Ceryle alcyon</i> |
| 8. <i>Cerorhinca monocerata</i> | 33. <i>Sphyrapicus ruber ruber</i> |
| 9. <i>Synthliboramphus antiquus</i> | 34. <i>Sayornis sayus</i> |
| 10. <i>Rissa tridactyla pollicaris</i> | 35. <i>Passerculus sandwichensis alaudinus</i> |
| 11. <i>Larus glaucescens</i> | 36. <i>Zonotrichia leucophrys gambeli</i> |
| 12. <i>Larus argentatus</i> | 37. <i>Zonotrichia coronata</i> |
| 13. <i>Larus californicus</i> | 38. <i>Junco hyemalis thurberi</i> |
| 14. <i>Larus delawarensis</i> | 39. <i>Passerella iliaca unalaschensis</i> |
| 15. <i>Larus brachyrhynchus</i> | 40. <i>Passerella iliaca megarhyncha</i> |
| 16. <i>Sterna forsteri</i> | 41. <i>Passerella iliaca stephensi</i> |
| 17. <i>Fulmarus glacialis glupischa</i> | 42. <i>Passerella iliaca insularis</i> |
| 18. <i>Puffinus creatopus</i> | 43. <i>Bombycilla cedrorum</i> |
| 19. <i>Puffinus opisthomelas</i> | 44. <i>Dendroica coronata</i> |
| 20. <i>Oceanodroma kaedingi</i> | 45. <i>Dendroica auduboni auduboni</i> |
| 21. <i>Mergus serrator</i> | 46. <i>Anthus rubescens</i> |
| 22. <i>Oidemia americana</i> | 47. <i>Regulus calendula calendula</i> |
| 23. <i>Oidemia deglandi</i> | 48. <i>Hylocichla guttata guttata</i> |
| 24. <i>Oidemia perspicillata</i> | 49. <i>Planesticus migratorius propinquus</i> |
| 25. <i>Chen hyperboreus hyperboreus</i> | 50. <i>Ixoreus naevius meruloides</i> |

With the above I have included all those birds which come to us after breeding, even though some of them reach us in the middle of the summer months.

SUMMER VISITANTS

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|---|---|
| 1. <i>Chordeiles acutipennis texensis</i> | 4. <i>Empidonax difficilis difficilis</i> |
| 2. <i>Aeronautes melanoleucus</i> | 5. <i>Icterus cucullatus nelsoni</i> |
| 3. <i>Calypte costae</i> | 6. <i>Hirundo erythrogastra</i> |

Of this list, I deem it extremely improbable that *Chordeiles a. texensis* is a regular breeder in the region; a few individuals of *Aeronautes melanoleucus* may possibly spend the winter.

TRANSIENTS

- | | |
|---|---|
| 1. <i>Xema sabini</i> | 13. <i>Phalaenoptilus nuttalli californicus</i> |
| 2. <i>Phalaropus fulicarius</i> | 14. <i>Chaetura vauxi</i> |
| 3. <i>Lobipes lobatus</i> | 15. <i>Tyrannus verticalis</i> |
| 4. <i>Pisobia minutilla</i> | 16. <i>Tyrannus vociferans</i> |
| 5. <i>Ereunetes mauri</i> | 17. <i>Myiochanes richardsoni richardsoni</i> |
| 6. <i>Helodromas solitarius cinnamomeus</i> | 18. <i>Icterus bullocki</i> |
| 7. <i>Catoptrophorus semipalmatus inornatus</i> | 19. <i>Zamelodia melanocephala</i> |
| 8. <i>Numenius hudsonicus</i> | 20. <i>Passerina amoena</i> |
| 9. <i>Squatarola squatarola</i> | 21. <i>Piranga ludoviciana</i> |
| 10. <i>Aegialitis semipalmata</i> | 22. <i>Dendroica townsendi</i> |
| 11. <i>Aphriza virgata</i> | 23. <i>Wilsonia pusilla pileolata</i> |
| 12. <i>Arenaria interpres morinella</i> | 24. <i>Hycloichla ustulata ustulata</i> |
| | 25. <i>Sialia mexicana occidentalis</i> |

Under "Transient" I have put all migrants which one might judge should occur with any degree of regularity, though with some of them it is a question whether it would not be better to label them "Casual".

CASUAL VISITANTS

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| 1. <i>Brachyramphus craveri</i> | 23. <i>Euphagus carolinus</i> |
| 2. <i>Fregata aquila</i> | 24. <i>Euphagus cyanocephalus</i> |
| 3. <i>Dafila acuta</i> | 25. <i>Carpodacus purpureus californicus</i> |
| 4. <i>Butorides virescens anthonyi</i> | 26. <i>Passer domesticus</i> |
| 5. <i>Nycticorax nycticorax naevius</i> | 27. <i>Spinus pinus</i> |
| 6. <i>Porzana carolina</i> | 28. <i>Zonotrichia querula</i> |
| 7. <i>Fulica americana</i> | 29. <i>Spizella atrogularis</i> |
| 8. <i>Recurvirostra americana</i> | 30. <i>Pipilo maculatus oregonus</i> |
| 9. <i>Himantopus mexicanus</i> | 31. <i>Guiraca caerulea lazula</i> |
| 10. <i>Macrorhamphus griseus scolopaceus</i> | 32. <i>Piranga rubra cooperi</i> |
| 11. <i>Pisobia bairdi</i> | 33. <i>Tachycineta thalassina lepida</i> |
| 12. <i>Totanus melanoleucus</i> | 34. <i>Vermivora celata celata</i> |
| 13. <i>Haematopus frazari</i> | 35. <i>Dendroica magnolia</i> |
| 14. <i>Circus hudsonius</i> | 36. <i>Dendroica nigrescens</i> |
| 15. <i>Falco mexicanus</i> | 37. <i>Dendroica occidentalis</i> |
| 16. <i>Asio flammeus</i> | 38. <i>Geothlypis trichas arizela</i> |
| 17. <i>Asyndesmus lewisi</i> | 39. <i>Catherpes mexicanus conspersus</i> |
| 18. <i>Myiarchus cinerascens cinerascens</i> | 40. <i>Catherpes mexicanus punctulatus</i> |
| 19. <i>Empidonax trailli trailli</i> | 41. <i>Troglodytes aedon parkmani</i> |
| 20. <i>Empidonax hammondi</i> | 42. <i>Nannus hiemalis pacificus</i> |
| 21. <i>Molothrus ater obscurus</i> | 43. <i>Telmatodytes palustris paludicola</i> |
| 22. <i>Xanthocephalus xanthocephalus</i> | 44. <i>Regulus satrapa olivaceus</i> |

These are birds which are rare even on the mainland, or which at the present time cannot be classed as regular migrants to the islands, although in the future some of them may be found to pass through the region in considerable numbers.

There are three birds which I am unable to place. *Buteo swainsoni* may be either a rare summer visitant of one or two of the islands, or else a migrant from the coast. *Bubo virginianus pacificus* may be a rare resident of Santa Cruz, or else, what seems more likely, an accidental visitant. The latter term may also apply to *Chondestes grammacus strigatus*, although it is by no means improbable that this sparrow is a resident in small numbers.

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