PELICANS IN THE CITY OF LIMA, PERU

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The coast of Peru is inordinately rich in species and numbers of seabirds. The birds, including the Peruvian Pelican (*Pelecanus thagus*), are dependent in their diets on an abundance of coastal anchovies (*Engraulis ringens*), characteristic of the cool nutrient-rich Humboldt Current. During most austral summers a warm counter-current, El Niño, invades from the equator toward northern Peru and causes vast losses of sealife, including the birds in the food-chains (Murphy, Oceanic birds of South America, Vol. 1, MacMillan Co., New York, 1936). This year (1972) El Niño was much more extensive than usual in its southern expansion (believed to occur in 7-year cycles), and concomitantly there was a complete destruction or disappearance of the normal planktonic life and small fishes. The counter-current remained through the austral winter and seabirds must have perished by the hundreds of thousands as noted in other abnormal years (O.A.S., The Guano Islands of Peru, Pan American Union, Washington, D.C., 1954). During August 1972 I made repeated observations along and off the coast of Lima, noting great numbers of weak and starving pelicans, cormorants (three species), boobies, and other pelagic birds. Skuas (*Catharacta skua*) fed on individuals that had already died.

With such total lack of food, the seabirds wandered extensively in the region of Lima, with cormorants invading inland pastures (Dorst, South America, Random House, New York, 1967) and groups of pelicans constantly flying about the city. Since it was an extreme year, the pelican invasion was impressive and it received considerable attention. Typical problems created by the influx of birds are summarized briefly below.

A power blackout for an entire district of Lima was caused by pelicans roosting on high-tension cables ("Ultima Hora," 5 August). Downtown traffic was disrupted by the night-roosting of pelicans along city roadways. Piers or ships handling fish cargo were mobbed by hundreds of dying pelicans ("Ultima Hora," 1 August). Buildings were defaced by groups of roosting pelicans. A variety of similar events were reported in the local news media through the month, as many visitors inquired about this avian anomaly.

It is noteworthy that the thousands of ill-fated seabirds were all concentrated about the environs of metropolitan Lima and the port district of Callao; almost no pelicans were observed on miles of coast north or south of the city. The attraction of the port is undoubtedly the various fishing industries with their concomitant fish scraps, albeit limited because of the poor year. The attraction of the city proper is more difficult to evaluate, although pelicans were observed at concentrations of refuse, and they reportedly took waste food. The Brown Pelican (*Pelecanus occidentalis*) is known to scavenge (Palmer [ed.], Handbook of North American birds, Yale Univ. Press, New Haven, 1962), and the urban behavior of the Peruvian Pelicans may simply be an extreme modification of foraging in a year of famine.

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SOME BIRDS OF ISLA PUNTA ARENAS, PACIFIC COAST, COLOMBIA

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Although general distributions of birds on the Pacific Coast of Colombia are known (R. Meyer de Schauensee, A guide to the birds of South America, Livingston Publ., Wynnewood, Pa., 1970), there are no lists of the species that may be commonly found in a specific habitat. During a year spent in Cali, Colombia, where we netted and observed birds, we made several brief excursions to the Buenaventura area on the Pacific Coast. Disturbed vegetation is increasingly widespread in this area due to lumbering and general development. A listing of the common birds in this habitat, in such an area of potential ornithological interest, may be useful. We compiled the list that follows during 7 days of observation, 24–29, 31 March 1971 on Isla Punta Arenas. The list includes the Dwarf Cuckoo (*Coccyzus pumilus*), which is well outside its reported range, and a number of North American migrants, including the Common Yellowthroat (*Geothlypis trichas*), which is recorded as casual in Colombia (R. Meyer de Schauensee, op. cit.).

Isla Punta Arenas is a private island in the Buenaventura bay, separated from the mainland by a channel 100 m wide. Mangroves (abbreviated Ma in the following list) and coconut plantations (abbreviated C), both of which are flooded at high tide, cover about 140 ha of the total 240 ha (593 acres). In places the mangroves exceed 10 m in height, making them the tallest vegetation on the island. A tangled second growth (abbreviated SG) about 5 m tall covers most of the upland part of the island, which reaches about 20 m altitude. A few taller trees emerge above the general canopy. About 30 ha of the high ground is grassy pasture sprinkled with shrubby melastomes and ferns (abbreviated P). In the cleared section is a 0.5-ha artificial freshwater lake (abbreviated L) with a few clumps of bamboo on its shores. Caymans and some large fish live in the lake. About 20 cattle graze the pasture. Extensive mudflats and sandbars (abbreviated Mu) surround the island, extending out about 400 m during low tide. Some birds were seen only on the bay (abbreviated B).

The Buenaventura area is classified in the Holdridge system as Pluvial Tropical Forest, since it has a mean annual rainfall of 8.34 m and the average temperature is about 27°C (L. S. Espinal, Visión ecológica del Departamento del Valle del Cauca, Universidad del Valle, Cali, 1968). However, during

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our stay it rained only on two nights and one afternoon.

We ran five mist nets for about 95 net-hr in mangroves or pasture edge, and six nets for 13 net-hr in second growth. We identified collected specimens by comparison with skins in the collection at the Universidad Nacional in Bogotá. Species thus identified are marked * in the list below, and these specimens are deposited in the collection at the Universidad del Valle, Cali. Nomenclature follows Meyer de Schauensee (1970, op. cit.).

The letters and numbers following each species name in this list indicate its habitat (see above) and the frequency with which it was seen. This frequency scale is an indication of abundance, but not strictly proportional to it. Birds seen only in cohesive flocks were seen less frequently although their numbers may have been greater than solitary species. The scale is: 1 = only one seen; 2 = two or three seen; 3 = two or three seen daily; 4 = a few more daily; 5 = seen quite frequently.

Pelecanus occidentalis. Brown Pelican. B; 5.

Phalacrocorax olivaceus. Neotropic Cormorant. B; 1.

Fregata magnificens. Magnificent Frigatebird. Soaring, B; 5.

Florida caerulea. Little Blue Heron. Mu, L; 3.

Butorides striatus. Striated Heron. L; 2.

Bubulcus ibis. Cattle Egret. P, L; about 30 followed the cattle.

Egretta thula. Snowy Egret. Mu, Ma, L; 3.

Nyctanassa violacea. Yellow-crowned Night-heron. Mu, L; 3. A colony of about 30 individuals was at the lake, where about 10 active nests, some with eggs, some with large nestlings, were in a dying tree that leaned over the water. Two nests were placed high in bamboo near this tree.

Coragyps atratus. Black Vulture. Soaring; 3.

Cathartes aura. Turkey Vulture. Soaring; 4.

Pandion haliaetus. Osprey. Soaring; 3.

Charadrius sp. Plover. Mu; 4.

Actitis macularia. Spotted Sandpiper. Mu, Ma; 3. One was spotted, apparently in breeding plumage.

Catoptrophorus semipalmatus. Willet. Mu; 1.

Calidris sp. Sandpiper, probably Western or Semipalmated. Mu; 4. Occasional small flocks on the beach.

Numenius phaeopus. Whimbrel. Mu; 1.

Larus atricilla. Laughing Gull. B; 5. Mostly black-headed adults, but some immatures and winter-plumaged individuals were present.

Columba probably *cayennensis.* Pigeon, probably Pale-vented. SG; 3. Scattered in pairs, often heard calling.

Amazona sp. Parrot. SG; 2.

Coccyzus pumilus. Dwarf Cuckoo. Ma, C, P; 2. One pair and their recently fledged juvenile were seen. They must have nested on the island. This species of open woodlands of northern Colombia and Venezuela has not been recorded from the Pacific Coast. The rusty throat, plain dark gray upperparts, rounded, narrowly white-tipped tail, red eye, and emphatic, harsh call make it unmistakable. The shorter, higher calls of the young, gray-throated bird are characteristic also. After studying this species for 4 months in Cali, we are positive of the identification.

Crotophaga ani. Smooth-billed Ani. P; a flock of about 10 was seen at the grazed end of the island.

Otus sp. Screech-owl. P; 1.

Nyctidromus albicollis. Pauraque. P; 2. One was caught in mist nets and identified in the hand.

Streptoprocne zonaris. White-collared Swift. Soaring; 3.

**Hylocharis grayi.* Blue-headed Sapphire. Ma, C, P, SG; 5. A male caught had testes 2 mm diameter.

**Amazilia tzacatl.* Rufous-tailed Hummingbird. Ma, C, P, SG; 5. A male caught had testes 2 mm diameter.

Ceryle torquata. Ringed Kingfisher. Trees near water; 2.

Melanerpes pucherani. Black-cheeked Woodpecker. C; 2.

Synallaxis brachyura. Slaty Spinetail. Ma, C; 1.

**Myrmotherula surinamensis.* Streaked Antwren. Ma; 3. A female had largest ova 0.5 mm diameter.

**Manacus vitellinus.* Golden-collared Manakin. SG; 1. One female, with developed brood patch and largest ovum 4 mm diameter, was caught. This orange-legged specimen matched the good series of *vitellinus* in Bogotá.

Tyrannus melancholicus. Tropical Kingbird. C, P; 5. One seen carrying nesting material.

Myiozetetes cayanensis. Rusty-margined Flycatcher. C, P; 5.

**Myiarchus ferox.* Short-crested Flycatcher. Ma, P, SG; 3. On 24 March a pair was feeding nestlings in a hole in a large tree at the outer edge of the mangroves. One caught 31 March had a developed brood patch; another, 27 March, had minute ova.

**Elaenia flavogaster.* Yellow-bellied Elaenia. C, P, SG; 5. Two caught had edematous brood patches, and a male had testes 9 × 5 mm.

Stelgidopteryx ruficollis. Rough-winged Swallow. P; 5. Pale-rumped race only.

Hirundo rustica. Barn Swallow. P; about 50 sighted throughout the week, often flocked together. Many were molting and very pale below.

Thryothorus nigricapillus. Bay Wren. Ma, C; 1.

Troglodytes aedon. House Wren. P; 2. A pair was feeding young in a nest under the roof of the house.

Turdus probably *ignobilis.* Robin, probably Black-billed. SG; 1.

Polioptila plumbea. Tropical Gnatcatcher. Ma, SG; 3.

Molothrus bonariensis. Shiny Cowbird. C, P; 4.

Cassidix mexicanus. Great-tailed Grackle. Mu, Ma, C, P, L; 5.

**Icterus chrysater.* Yellow-backed Oriole. C, P; 3. A female had largest ovum 2 mm diameter.

**Dendroica petechia.* Yellow Warbler. Ma, C, SG; 5. Often heard singing. Probably all the resident race. A male had testes 6 × 4 mm and 2 × 3 mm.

**Dendroica castanea.* Bay-breasted Warbler. Ma, C; 1. One caught 28 March was molting into adult male plumage and had an ossified skull, minute testes, and no fat.

**Seiurus noveboracensis.* Northern Waterthrush. Ma, SG; 3. Conspicuous throughout the week. A female with no fat (27 March) and a male with some fat (29 March), both with minute gonads, were caught.

**Geothlypis trichas.* Common Yellowthroat. C, P; one in adult male plumage (black mask with gray hind margin) with minute testes and no fat was caught 27 March. This species is recorded as casual in Colombia (R. Meyer de Schauensee, op. cit.).

**Geothlypis semiflava.* Olive-crowned Yellowthroat. C, P; one with testes 6 × 4 mm was caught.

Setophaga ruticilla. American Redstart. SG; three or four females seen in small flocks with other birds on the days we visited this habitat, 29–31 March.

Coereba flaveola. Bananaquit. Ma, C, P, SG; 5.

Ten caught, including some recently fledged young. One seen building a nest.

**Cyanerpes cyaneus.* Red-legged Honeycreeper. Ma, P, SG; 4. A female had largest ovum 4 mm diameter.

Tangara nigrocincta. Masked Tanager. C, P, SG; 3.

Thraupis episcopus. Blue-gray Tanager. C, P, SG; 2.

Thraupis palmarum. Palm Tanager. SG; 1.

**Ramphocelus icteronotus.* Yellow-rumped Tanager. Ma, C, P, SG; 5.

Tachyphonus rufus. White-lined Tanager. C, P; 3.

Tachyphonus delatrii. Tawny-crested Tanager. SG; 4. Four caught, including an immature (unossified skull, brown eye).

Saltator albicollis. Streaked Saltator. C, P, SG; 3.

**Sporophila americana.* Variable Seedeater. C, P, SG; 5. Ten caught, including an immature (skull unossified) and a male with testes 4 mm diameter.

Volatinia jacarina. Blue-black Grassquit. P; 5. Often singing.

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WHITE-TAILED KITE PREDATION ON A FLUCTUATING VOLE POPULATION

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White-tailed Kites (*Elanus leucurus*) are obligate predators of diurnal small mammals (Waian and Stendell, Calif. Fish & Game 56:188, 1970). Brown and Amadon (Eagles, Hawks and Falcons of the World, vol. 1, Hamlyn House, Feltham, 414 p. 1968) indicate that movement and nesting of kites are governed to a considerable extent by concentrations of mice, usually voles. Throughout much of the kite's range in California, the vole (*Microtus californicus*) is the major prey species. Hawbecker (Condor 42:106, 1940) noted a correlation between the nesting of White-Tailed Kites and vole density and suggested that a high population of voles is necessary for successful nesting of kites. This note compares annual changes in food habits of White-Tailed Kites with measured changes in the density of California voles in fields over which the kites were hunting.

At Hastings Natural History Reservation in Monterey County, California, populations of small mammals have been censused during the summers of 1969, 1970, and 1971, by means of mark and recapture techniques. The Reservation is a mosaic of grassland, oak woodland, and chaparral. *Microtus* predominately utilize the grassland areas. Estimated vole densities are shown in table 1. Although only one field was censused accurately, search for runways and occasional trapping in all other suitable fields within a 2-mile radius of the kite roosting site indicated vole densities similar to those of the censused field.

TABLE 2. Species composition (%) of prey in kite pellets, 1969–71.

Prey species	Per cent of total prey		
	1969	1970	1971
Microtus	83	85	88
Thomomys	11		8
Reithrodontomys	3	9	3
Dipodomys		4	
Perognathus		2	
Aves			1
Insecta	3		
Number of animals	35	55	129
Number of pellets	28	39	99

Other rodents sharing the grassland with *Microtus* include harvest mice (*Reithrodontomys megalotis*), pocket mice (*Perognathus californicus*), kangaroo rats (*Dipodomys* sp.), and gophers (*Thomomys bottae*). Their relative abundances during the three summers are also given in table 1.

During at least the last 4 years, White-Tailed Kites have occurred on the Hastings Reservation from late winter until late summer. In 1969 and 1970 they nested on the area, but fledged young only in 1970. Although no nest was found in 1971, two adults and four juveniles were seen during the summer months. During 1969 through 1971, kites were observed hunting on the Reservation, particularly over that field where small mammals were censused.

Kite pellets were collected at nests or roosts in the early summer of each year. Pellets were soaked in a dilute solution of potassium hydroxide to dissolve the fur; identification of small mammal remains was based on elements of the skull, particularly teeth.

Voles were the major prey species taken, making up 83%, 84%, and 88% of the individuals for the 3 years (table 2). Gophers were the second most common species taken in 1969 and 1971; none were

TABLE 1. Vole density and abundance of other prey species, 1969–71.

Year	Voles per acre	Relative abundance of other prey species			
		Thomomys	*Perognathus*	*Dipodomys*	*Reithrodontomys*
1969	25	common	uncommon	uncommon	uncommon
1970	>45	common	common	uncommon	uncommon
1971	<1	abundant	uncommon	uncommon	abundant