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PELAGIC RED CRABS AS FOOD FOR GULLS: A POSSIBLE BENEFIT OF EL NIÑO

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Swarms of live pelagic red crabs (*Pleuroncodes planipes*) began appearing in the surf and on beaches at San Nicolas Island (SNI; 33°15'N, 119°30'W), off southern California, in late December 1982. Although these crustaceans have occurred as far north as Monterey (Schmitt 1921, Glynn 1961), their distribution is centered off the western coast of Baja California and they occur only rarely in the Southern California Bight (SCB; Boyd 1967, Mais 1974). The most recent occurrence of this species north into the SCB was in 1972/1973 when a weak El Niño developed (G. Antonelis, pers. comm.). El Niño is defined as the appearance and persistence, for 6 to 18 months, of anomalously warm water in the Eastern Tropical Pacific (ETP) and is usually accompanied by large reductions in plankton, fish, and seabirds in many areas of the ETP (Barber and Chavez 1983, Cane 1983, Rasmussen and Wallace 1983). The most intense and unusual El Niño event in modern history began in May 1982 and was well developed by late autumn (Rasmussen and Hall 1983). This climatic change, which warmed coastal surface waters, and perhaps altered current flow in the SCB, appears to explain the northward extension of *Pleuroncodes* in 1982/1983.

The crabs continued to wash up on the beaches at SNI through July 1983 although they appeared to be most abundant from January through March and in early May. We also saw large numbers of crabs in the waters near San Miguel, San Clemente, Santa Catalina, Santa Barbara, and Los Coronados islands and in San Diego Bay.

From late December 1982 to early January 1983, the number of roosting Herring Gulls (*Larus argentatus*) also increased at several areas at SNI. This species is generally

uncommon at and around the Southern California Channel Islands in winter although adults have been reported to be fairly common further offshore at that season (Yocom 1947, Sanger 1973, Harrington 1975, Garrett and Dunn 1981). Townsend (1968) reported "small numbers" of Herring Gulls at SNI from September through March, and Rett (1947) also noted these gulls in spring at SNI. Hunt et al. (1980) found 40 Herring Gulls at SNI in March 1976. We have also observed small numbers of these gulls at SNI in past years (Table 1). However, in late January 1983, 10,000 to 12,000 Herring Gulls roosted on SNI. These gulls were abundant through March and remained, in lesser numbers, through late April. Groups of several thousand birds roosted at four sites on SNI on rocky and sandy beaches and on rock ledges near the surf. These birds fed on live red crabs in the surf, or occasionally on those recently washed ashore. Small numbers of Ring-billed (*Larus delawarensis*), Heermann's (*L. heermanni*) and California (*L. californicus*) gulls were also present in winter 1983 but were not more abundant than in previous years (Table 1).

Western Gulls (*L. occidentalis*) breed at the western end of SNI in summer and roost there during other seasons (Schreiber 1970). In winter and spring, they usually roost on rookery areas at night, leave just after sunrise, and return just before or shortly after sunset. Roosts are usually abandoned by all birds during the day except during stormy or very foggy weather, when most birds remain at roosts continuously. In winter, roosting adult Western Gulls are territorial at rookery areas and presumably occupy those territories that are later used for breeding. Small groups of adult and immature gulls also roost along the coastline near the west end of SNI in late afternoon and during stormy or foggy weather. In winter and early spring 1983, when red crabs were abundant, most gulls roosted on territories at rookery areas continuously, regardless of weather. Individuals apparently left occasionally, however, to feed on red crabs in the surf and on those washed up on nearby beaches; feces and regurgitated pellets were composed almost entirely of crab exoskeletons in winter and early spring, 1983.

We also observed large numbers of Herring Gulls (8,000 to 10,000) and Western Gulls (1,000 to 2,000) roosting on several beaches on the northwest coast of San Miguel Island (SMI; 34°02'N, 120°22'W) and feeding on red crabs in the surf in late February 1983. Although we have no data on absolute abundance of Herring Gulls at SMI in past years, these gulls were relatively uncommon in winter from 1979 to 1982 (Stewart, pers. observ.). Hunt et al.

TABLE 1. Counts of roosting gulls at SNI in winter.

Date	<i>L. argentatus</i>		<i>L. occidentalis</i>		<i>L. delawarensis</i>		<i>L. heermanni</i>		<i>L. californicus</i>
	Adults	Immatures	Adults	Immatures	Adults	Immatures	Adults	Immatures	
1 Feb. 1980	104	8	375	29	84	11	15	11	16 (Total)
21 Feb. 1981	91	12	297	31	52 (Total)		19	10	22 (Total)
25 Jan. 1982	123	13	310	20	60 (Total)		25	10	10 (Total)
24 Jan. 1983	10,000-12,000	100-200	2,105*	279*	67 (Total)		13	12	13 (Total)

* Apparent increase due to change in roosting behavior during winter 1982/1983. See text for explanation.

(1980) observed 113 Herring Gulls at SMI in March 1976 and Garrett and Dunn (1981) reported 300 to 500 adult Herring Gulls at SMI on 24 March 1973. Red crabs were also present in waters of the SCB in 1972/1973.

The abundance of red crabs and their susceptibility to predation by gulls may explain the unusual abundance of Herring Gulls at San Nicolas and San Miguel islands from January through March 1983. Swarms of red crabs at San Nicolas Island also appear to account for the difference in Western Gull roosting patterns compared to previous years. Crabs were consistently and readily available as prey to Western Gulls in waters adjacent to their normal roosts in winter and early spring. Western Gulls were apparently feeding primarily, and perhaps solely, on red crabs during this period and most gulls were apparently not foraging at their usual areas. This suggests that in most years gulls spend much of each day either travelling from the island to feeding areas and back, or searching for food in nearby areas.

El Niño events usually cause a depletion of food resources for seabirds (Barber and Chavez 1983). Our findings at San Nicolas and San Miguel islands, however, appear to constitute an instance in which this 1982/1983 "warm event" increased food availability to a local avian population. Alternatively, the increased numbers of Herring Gulls at SNI and SMI and the changes in behavior of Western Gulls may be a secondary consequence of food depletion in areas where these gulls normally feed. In either case the presence of pelagic red crabs did provide an additional, easily exploited food source for these gulls during the 1982/1983 El Niño.

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NOTES ON THE SPECKLED CRAKE (*COTURNICOPS NOTATA*) IN BRAZIL

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The Speckled Crake or Darwin's Rail (*Coturnicops notata*) is a small (14 cm, 30 g) South American rail with contrasting black-and-white plumage, a blackish bill, sooty brown tarsi, and a bright yellow iris, marked by a wide red ring around the pupil. Its taxonomy was revised by Meyer de Schauensee (1962) but its biology is virtually

unknown (Ripley 1977). The species is represented in scientific collections by only 16 skins (Blake 1977).

The patchy distribution of this crake extends from Colombia, Venezuela, and Guyana south to Brazil, Paraguay, Uruguay, and Argentina (Blake 1977). In Brazil, the bird has been reported only from Rio Grande do Sul (Hamburgo Velho) and eastern São Paulo (Ypiranga and Pindamonhangaba; see Pinto 1938, 1964, 1978). Recently, however, we have found it in Taubaté, northeastern São Paulo (23°01'S, 45°33'W), and we report here our fragmentary observations on its habits.

Taubaté is largely an agricultural region (elev. 500 m) and has a hot climate (average annual temperature about 23°C). Here we have found Speckled Crakes in the dense and flooded rice fields of the Paraíba river drainage. Eight other rails in this habitat are *Ortygonax sanguinolentus*, *O. nigricans*, *Pardirallus maculatus*, *Porzana albicollis*, *Poliolimnas flaviventer*, *Laterallus melanophaius*, *Gallinula chloropus*, and *Porphyrula martinica*. Still another crake, *Laterallus leucopyrrhus*, occurs nearby in small marshes on lower hillsides.