The Responses of Salt-marsh Birds to Extremely High Tides.—The highest high tides occur when the sun and moon are in conjunction. There are two periods each year during which this condition is approached or attained on the Pacific Coast of North America. One of these periods is in June and July, the other from November to January. At these times the tidal level at the Golden Gate of San Francisco Bay, California, may be as much as +7.0 feet. Due to the funnel effect of the tapering southern arm of San Francisco Bay the tidal level at Alviso, Santa Clara County, is approximately 2.6 feet higher than at the Golden Gate.

The highest high tides of June and July occurred during the night in 1949 and 1950, and no observations were made, but the winter high highs in these years reached their maximal points during daylight. On November 19, 1949, the highest level was +6.7 feet at the Golden Gate and +9.3 feet at Alviso at 11:56 a.m. (Tide Tables, Pacific Ocean, U. S. Coast and Geodetic Survey). By 11:00 a.m. the water was already high enough to have covered all the mud flats and low *Salicornia* and only the taller emergent plants such as *Spartina* were visible in the salt marsh in the vicinity of the San Jose City Dump, approximately one mile east of Alviso. The larger shorebirds, principally Willets (*Catoptrophorus semipalmatus*), were flying about and settling on any emergent object. The smaller Least (*Erolia minutilla*) and Western (*Erolia mauri*) sandpipers were perching on floating boards and competing for space on the still emergent parts of levees.

Nearly 100 small land birds, which were wintering along the dikes and roads, were concentrated on the levee along which I walked into the marsh. As I proceeded, the birds moved ahead rather than flying across the open water now covering the marshes. The flock was composed to the extent of approximately 75 per cent of Song Sparrows (*Passerella melodia*); there were a few Savannah Sparrows (*Passerculus sandwichensis*) and White-crowned Sparrows (*Zonotrichia leucophrys*), five or more Long-billed Marsh Wrens (*Telmatodytes palustris*), and one Yellow-throat (*Geothlypis trichas*). At least 10 Short-eared Owls (*Asio flammeus*) flushed in front of me as I walked a two-mile section of the levee. One, hunting along the levee, flew past at shoulder height less than three feet away.

On December 17, 1949, the highest tidal level at the Golden Gate again was +6.7 feet. The highest point reached the Alviso railroad bridge (Southern Pacific) over Coyote Creek slough at 10:43 a.m. Because of the convolutions of tidal channels in the marsh there is a lag of approximately one hour between the maximum level at the railroad bridge and that in the marshlands east of Alviso. On this date, in company with Keith L. Dixon and Robert L. Rudd, a rowboat was launched at 9:30 a.m. from the road which follows the outfall of the sewer line which empties into Coyote Creek. The incoming tide carried the boat into a section of salt marsh between Alviso and the San Jose dump. By 10:00 a.m. all mud flats were covered.

At 10:30 the first Virginia Rail (*Rallus limicola*) was collected and in the next half hour three more Virginia Rails and two Soras (*Porzana carolina*) were taken. By noon five Virginia Rails and four Soras had been collected and at least seven more Virginias and 10 Soras had been seen. One obviously tired Sora was followed in the boat as it twice flushed and flew. The third time we approached the swimming bird it dived beneath the surface and remained submerged for several seconds. It dived four more times and was timed for submerged periods of 20 and 25 seconds. After each dive it was noticeably more waterlogged and fatigued. Finally we came slowly up to it as it floated and picked it up without a struggle. When released on land an hour later, the bird walked about for several minutes, then took flight and returned to the marsh. All the rails which were clinging to the emergent stems of *Spartina* were easily visible. Several were observed swimming in the open water. Three Clapper Rails (*Rallus obsoletus*) were seen and others were heard.

On December 18, 1949, the maximum level at the Golden Gate was +6.8. The high point arrived at Alviso at 11:25 a.m. and was approximately +9.4 feet. The weather was overcast and cold with occasional rain squalls. In company with Matthew F. Vessel and Albert Wool a rowboat was launched at 10:00 a.m. and the tide carried us to the main marsh area approximately one mile east of Alviso. In the next four hours we saw approximately 10 Clapper Rails, 12 to 15 Virginia Rails and 15 to 20 Soras. One noticeably waterlogged Sora was forced to dive twice as we pursued it. The third time it dived I could see it swimming approximately six inches beneath the surface and, plunging my hand into the water, was able to catch it. It too recovered and was later released in apparent good health. On December 17 Albert Wool had captured a Virginia Rail by hand as it crouched on a levee during the high point of the tide. A Clapper Rail on the 18th was observed swimming across an area of open

water with a mouse (probably *Reithrodontomys*) in its bill. A California Gull (*Larus californicus*) dropped down and struck the rail, which released the mouse, whereupon the gull picked it up and flew off.

In one clump of *Spartina* three Virginia Rails were found huddled in contact with one another. A fourth was six feet away on some *Salicornia*. In another clump of *Spartina* we found one Clapper Rail, three Soras, and two Norway rats (*Rattus norvegicus*). Many other Norway rats were seen and several meadow mice (*Microtus californicus*) and harvest mice (*Reithrodontomys megalotis*) were observed. All these mammals swam readily. One Norway rat was picked up as it swam feebly, in obvious distress. When placed in the boat, it lay gasping and died within an hour, apparently from drowning.

The tide on December 8, 1950, reached +7.0 feet at the Golden Gate and +10.3 feet at Alviso. This tide flooded the town of Alviso, causing considerable damage. With David Nelson a rowboat was again used to observe in the marsh. In a period of two hours we saw five Clapper Rails, four Virginia Rails, and four Soras. A Virginia and a Sora were collected.

On December 9 the tide attained the same maximum as on December 8. By walking and wading out the roadway paralleling the sewer outfall the Southern Pacific tracks were reached. The water was over the tracks in some places and over the ties in most portions of the marsh crossing. Many Norway rats taking refuge on the railroad levee had been killed by trains. At least 50 dead rats were noted in a one-half mile section and 30 to 40 living ones were seen in the same distance. More than 30 *Microtus* were seen and 20 shrews (*Sorex vagrans*) were captured alive when found hiding under loose boards and rubble on a small island.

Many gulls, probably mostly California Gulls and Ring-billed Gulls (*Larus delawarensis*), were seen to drop down into the marsh. One gull was observed with a mouse in its bill. A Marsh Hawk (*Circus cyaneus*) was watched as it made a strike at an area of emergent vegetation, presumably in an attempt to capture a small mammal.

It is decidedly unusual to see either Virginia Rails or Soras in the San Francisco Bay salt marshes during periods of low or average tides when the vegetation is not submerged. From the evidence of these several days of observation during unusually high tides these species seem to be fairly common during the winter.—CHARLES G. SIBLEY, *Department of Conservation, Cornell University, Ithaca, New York, March 6, 1955.*

Early Nesting of Golden-crowned Kinglet.—Saunders (Pac. Coast Avif. No. 14, 1921:163) states that the Golden-crowned Kinglet (*Regulus satrapa*) undoubtedly breeds in Montana, as it is common all summer in the mountains, but that the nest appears not to have been found and recorded. He adds that young were seen out of the nest at Flathead Lake on July 23, 1914. On March 19, 1941, among evergreens two miles north of Libby, Montana, I heard kinglets calling from a Douglas fir, and in the same tree discovered a nest that was new, green, covered with moss, and practically complete. A male Golden-crowned Kinglet flew down from it to a branch. A moment later, a female with material in her bill flew into the semi-pendant nest. This event followed an abnormally warm winter and early spring. For some time Golden-crowns, wintering in these woods, had been trooping by themselves rather than with the chickadees and nuthatches.

On March 20 both kinglets carried material to the nest, and I noted: "It is 7 feet out on a down-sweeping branch near its tip, 25 feet up. Saw Golden-crown enter, test and turn about in it and shape interior for more than a minute, then fly down and gather moss from upper side of Douglas fir limbs. Nest tree stands in Douglas fir border grove of conifer and broadleaf woods. Just to the south are arid yellow pine flats."

On March 21 the pair of kinglets was observed at the nest. After April 8 the spot was visited infrequently. On May 2 the nest was found to have been recently destroyed.

Dawson and Bowles (Birds Wash., 1909:267) mention a nest with half-grown young on April 9 in western Washington. Bent (U. S. Nat. Mus. Bull. 196, 1949:397) quotes Rathbun in regard to the Golden-crowned Kinglet, referring to the vicinity of Seattle, Washington: "We have seen it carrying material for its nest as early as April 4; . . . the bird was gathering bits of green moss from a decayed log, which would indicate the earlier stage of construction; and we have a record of unfledged young in the nest on May 17."