

BULLETIN OF THE  
SANTA CLARA VALLEY AUDUBON  
SOCIETY

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BIRD NAVIGATION

As with all areas of human knowledge, the mysteries of bird migration have steadily decreased under the attack of objective investigation. Less than 150 years ago it was still believed by many that the birds which disappeared in the fall spent the winter in hibernation in the muddy bottoms of lakes and ponds. When the fact that these species actually migrated to areas of milder climate became generally accepted there followed a period of "arm-chair" theorizing on their probable routes, the significance of the movements, and the methods of navigation. The routes were solved largely by the technique of banding. The remarkably precise time schedule upon which migrants arrive and depart has been found to be regulated by the regularly recurrent annual cycle of changing day-length. It was the problem of "orientation" or "navigation" which provided the most stubborn puzzle. How did a migrating bird find its way?

The fact that individual birds returned year after year to the same wintering or breeding area has long been established. Banded individuals of many species have been retrapped at the same spot in consecutive years following their departure and return on their migratory flights. Many theories have been suggested but all have been found to be either entirely without foundation (e.g. following magnetic lines of force) or only partially explanatory (e.g. following topography).

The possibility that the sun was instinctively utilized by migrating birds as an orienting point had long been postulated. The principal argument against it was that the daily traverse of the sun from east to west would require constant compensation on the part of the migrating bird. Recently this hypothesis has been experimentally tested by Dr. Gustav Kramer (1950. Proc. Xth. International Ornith. Congress, 269-280) of Wilhelmshaven, Germany. Kramer reasoned that if the sun is the environmental phenomenon which provides the migrating bird with a means of orientation then an experimental set-up which could change the apparent direction of the sun relative to the bird should cause the bird to change direction accordingly. His method was classically simple. A round cage containing six equally spaced windows was constructed. Each window was equipped with a hinged shutter and on each shutter a mirror was mounted. By manipulation of the shutters the angle of the sun's rays entering the cage could be modified. A European Starling which was in the migratory phase of the annual cycle was placed in the cage and the shutters were opened wide so as to admit sunlight, unchanged as to its direction. The Starling made repeated attempts to fly---almost without exception it flew toward the northwest side of the cage which would be the normal direction for a free-living spring migrant Starling. After establishing the fact that the captive bird did actually try to fly in the normal migratory direction, Kramer moved the mirrors so that the light entering the cage was deflected 90 degrees. The captive bird promptly began flying toward a point 90 degrees from the normal migratory direction! The experiment was repeated and each time it was found possible to cause the captive bird to fly toward what would be the correct migratory direction with reference to the sunlight entering the cage. Here at last is proof that the sun does indeed provide the means of orientation, at least for some diurnal migrants. There still remains the problem of nocturnal migrants but Kramer's experiment will certainly direct further research along profitable pathways.

Charles Sibley

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FIELD OBSERVATIONS. Mrs. Boylan picked up a dead Virginia Rail in Mt. Hermon, Oct. 29. At Al Wool's pond, east of Milpitas, a Sora Rail on Nov. 1 and about 40 Canada Geese in a nearby field, Nov. 28. From Los Altos, Lynn Robbins reports Golden-crowned Kinglets in Nov. Eva McRae reports a Red-shafted Flicker eating the blue berries of Boston Ivy on the SJSC campus this month and Etta Smith observed the same thing at her home on The Alameda in San Jose.

## CALENDAR FOR DECEMBER

WEDNESDAY MORNING BIRD TRIP, December 3, to Mrs. Arthur Jones's garden where food trays and bird baths attract many birds. Mrs. Jones is planning an easy walk up the canyon from her place. Meet at the Quito Fire Station, next to La Hacienda Inn, on Saratoga-Los Gatos Rd., about half-way between Saratoga and Los Gatos, at 8:45 a.m.

THE SECOND AUDUBON SCREEN TOUR comes on next Friday evening, December 5, when Robert C. Hermes, artist and nature photographer, presents his "Bonaventure Diary." Bonaventure Island, in the Gulf of St. Lawrence, has one of the largest bird colonies of North America. Gannets, murrelets, kittiwakes, and puffins come year after year to its red sandstone cliffs to raise their young. The Screen Tour not only takes its audience into the heart of this colony but also shows the rural beauty of the little island, with its old-world customs and traditions.

The Screen Tour will be presented at 8:00 a.m. in the Montgomery Theatre, San Jose Civic Auditorium. From all accounts this Screen Tour is interesting and beautifully filmed, and should have lots of publicity. Tickets are \$0.85 (students, \$0.55) and can be had at the Auditorium box office the evening of the performance. Season tickets will also be on sale at the box office that evening, in case you did not get one.

REGULAR DECEMBER MEETING will be held on Monday, December 8, at 8:00 p.m. in Room 210, Science Building, San Jose State College. George Lindsey, in the Department of Botany at Stanford University, is being asked to show the color motion pictures which he took on the Sefton Expedition to the Gulf of Mexico. One of our members who has seen the pictures writes that "there are fine shots of various aspects of the natural history of the area: an exciting sequence of a large migrating school of dolphins; pictures of unafraid Elephant Seals . . . ; nice views of cacti in bloom; shots of . . . colorful fish; . . . large lizards; and good pictures of young Brown Pelicans and winsome young Blue-footed Boobies." If Mr. Lindsey can not come to the meeting, we have a substitute program in mind.  
Charles G. Sibley, Program Chairman

FIELD TRIP on Saturday, December 13, to Huddart Park near Woodside. Mr. and Mrs. C. L. Sleeper will lead this trip into this new county park in the hills. Meet at Old Woodside Store on Kings Mountain Road at 8:45 a.m. (or at Caldwell's Store in Woodside at 8:30). Bring lunch.

WEDNESDAY MORNING BIRD TRIP, December 17, to Mrs. Ransom Davis's garden in Menlo Park, where many birds come for the food and water which Mrs. Davis sets out for them. The trip will include other gardens in the neighborhood. Meet at 1140 San Mateo Drive at 9:00 a.m.

THE ANNUAL CHRISTMAS BIRD COUNT will be taken on Sunday, December 28. This will be the twenty-second year in which the Santa Clara Valley Audubon Society has taken a "Christmas Census" and the fifty-third since the idea was first proposed by Dr. Frank Chapman. Groups in all parts of the country will be making their counts during the Christmas season. The results are published by the National Audubon Society in its Audubon Field Notes. We need lots of help—the more eyes the better—so plan to participate this year. We want to cover the area in our 15-mile diameter circle as completely as possible, to obtain the best possible index to its bird population. Meet at corner of E. San Carlos and 5th Streets at 8:00 a.m. At the meeting place the leaders, Mr. and Mrs. Albert J. Wool, will explain the rules of the count and outline the procedure to be followed. Bring lunch.

"JUNGLE ISLAND", the color motion picture which was made by Dr. Lloyd G. Ingles, Professor of Zoology at Fresno State College, while on his sabbatical leave on Barro Colorado Island in Panama, will be presented by Dr. Ingles, Tuesday evening, December 30, at San Jose State College, Room 210, Science Building, at 8:00 p.m. Members of the Santa Clara Valley Audubon Society and their friends are invited to attend.

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FIELD TRIP DATES FOR JANUARY (details in January Bulletin)

Wednesday morning bird trips, January 7 and January 21  
January 18, Sunday, to San Martin area, with the William R. Ouderkirks  
January 31, Saturday, to Crystal Springs Lake, with Mrs. R. W. Wright

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F I E L D T R I P R E P O R T S

PALO ALTO YACHT HARBOR, November 9, 1952. The trip started out chill, damp and foggy but it was an enthusiastic group of bird watchers which followed Dr. Malcolm Miller around the duck pond and along a road out into the marshes. The ebb tide had just begun and shorebirds were waiting along the edges of the sloughs for mud flats to be uncovered. The two-hour trip produced: a Pacific Loon, 3 Pied-billed Grebes, Mallards, Pintails, 2 Shovellers, a male Canvas-back, a female Scaup, 2 Ruddy Ducks, 2 Marsh Hawks, a Sparrow Hawk, a male Ring-necked Pheasant, Coots, Killdeers, Long-billed and Hudsonian curlews, Willets, 2 Greater Yellow-legs, Least and Red-backed sandpipers, Dowitchers, Marbled Godwits, 3 Avocets, Glaucous-winged and Ring-billed gulls, Rock Doves, an Anna Hummingbird, a Belted Kingfisher, a Red-shafted Flicker, a Black Shrike, a Long-billed Marsh Wren, American Pipits, a Loggerhead Shrike, Audubon Warblers, a Yellow-throat, Western Meadowlarks, Red-winged and Brewer blackbirds, House Finches, American Goldfinches, and Savannah, White-crowned and Song sparrows.

To escape the chilly fog and the hunters' guns along the bay shore, the group retired to Searsville Lake for lunch in the sunshine and a hike around the lake to see: 2 Pied-billed Grebes, 2 Great Blue Herons, several Mallards and Pintails, a handsome male Baldpate, several Ring-necked and Ruddy ducks, many Coots, a Mourning Dove, Acorn Woodpeckers, a Downy Woodpecker, Scrub Jays, Chestnut-backed Chickadees, a Plain Titmouse, Bushtits, 2 White-breasted Nuthatches, Wren-tits, a Bewick Wren, a California Thrasher, Hermit Thrushes, Robins, Western Bluebirds, 2 or 3 Ruby-crowned Kinglets, a Hutton Vireo, Audubon Warblers, Red-winged and Brewer blackbirds, Green-backed Goldfinches, Spotted and Brown towhees, 2 Fox Sparrows, Oregon Juncos, Golden-crowned and White-crowned sparrows, and a Song Sparrow.

Lynn Robbins

WEDNESDAY MORNING BIRD TRIP, November 19, 1952. Birding at Dr. and Mrs. Harold Ray's "Holly Farm" in Woodside proved to be quite a stretch of heart and mind. Giant Coast Live Oaks and enormous California Laurels, standing in the lawns about the house and in the freshly tilled ground beyond, sheltered Varied Thrushes and other birds; but the promised Cedar Waxwings had flown the large Madrones which were in full fruit, like Strawberry Trees. However, in nearby Coast Redwoods, with warm sunlight upon them, Chestnut-backed Chickadees and Pine Siskins were doing trapeze acts to get at the seeds in the many small cones. Down the wooded path farther on were two Hermit Thrushes, two Brown Creepers, a Townsend Warbler, and a Red-breasted Sapsucker. The piercing call of

a Red-bellied Hawk was heard several times, and finally the bird came into view as it sailed clear from the trees. Best of all, along the path, was a lesson in the niceties of bird identification. A Hutton Vireo, a Ruby-crowned Kinglet, and a Golden-crowned Kinglet appeared in rapid succession. They were complete with call notes, tricks of behavior, and repeat performances, so that even though the Ruby-crowned Kinglet did not go into a "swivet" and show its ruby crown, each bird was unmistakable.

In addition to the birds already mentioned the list for the morning included: Anna Hummingbird, Red-shafted Flicker, Hairy Woodpecker, Black Phoebe, Steller and Scrub jays, Plain Titmouse, Bushtit, White-breasted Nuthatch, Bewick Wren, Robin, House Finch, Green-backed Goldfinch, Spotted and Brown Towhees, Oregon Junco, Golden-crowned Sparrow.

Marjorie S. Davis, Leader

HALL'S VALLEY AND SMITH CREEK, November 23, 1952. The day was bright and clear, but a cold wind hampered bird watching. What good birding we had was at Grand View on the Mt. Hamilton Road where we made our first stop. A sheltered water trough and a leaking water tank had attracted many of the following birds which were recorded there: Sparrow Hawk, Red-shafted Flicker, Scrub Jay, Crow, Mockingbird, Robin, Western Bluebird, American Pipit, Western Meadowlark, Brewer Blackbird, House Finch, Pine Siskin, American and Green-backed goldfinches, Lark Sparrow, Oregon Junco, and White-crowned Sparrow.

At the reservoir in Hall's Valley the wind was at least 20 m.p.h. The ducks were few—Pintail, Shoveller, Canvas-back, and Ruddy Duck—numbering not more than 30 birds. The only other birds on the water were Coots. In the pasture land about the reservoir were large flocks of Crows and Brewer Blackbirds, many Western Meadowlarks, and a few Yellow-billed Magpies. Other birds listed here included: Great Blue Heron, Red-tailed and Sparrow hawks, Killdeer, Acorn and Downy woodpeckers, Black Phoebe, Loggerhead Shrike, Pine Siskin, and American and Green-backed goldfinches.

Our hope that it would not be windy at Smith Creek was in vain. After picnicking in a sunny, protected spot, a few persistent birders bucked the wind and listed the following: California Quail, Red-shafted Flicker, Black Phoebe, Steller and Scrub jays, White-breasted Nuthatch, Brown Creeper, Western Bluebird, Hermit Thrush, Golden-crowned and Ruby-crowned kinglets, Purple Finch, Brown Towhee, Oregon Junco, White-crowned and Golden-crowned sparrows.

The cheerful note for the day was the autumn coloring. The Black Oaks and poplars were golden in the bright sunlight.

Clyde and Agnes Prusman, Leaders

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Meetings are held on the second Monday of each month (except July and August) alternately in San Jose and Palo Alto. Guests are welcome.