

OBSERVATIONS ON THE BEHAVIOR OF COLOR-BANDED CALIFORNIA THRASHERS

WITH THREE ILLUSTRATIONS

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The following observations on California Thrashers (*Toxostoma redivivum*) were made from November 8, 1935, to June 2, 1936, and from September 16, 1936, to June 1, 1937, at 241 South Holliston Avenue, Pasadena, California. My banding station was located on the open balcony of our rear second-story apartment. From this balcony and the windows of the apartment, I was able to identify with field glasses color-banded birds over an area of approximately 32,000 square feet, or about three-quarters of an acre, comprising seven back yards of neighboring residences.

These casually gardenized yards were situated in a pleasant old residential district. Bounded on the east and west by houses, they contained the usual human paraphernalia of cement driveways, garages and sheds. In addition was a varied and favorable bird environment: a dense cypress hedge 15 to 20 feet high and 5 feet thick, which supported many nests, a 50-foot cypress tree, three large untrimmed Washington palms, several large oaks, seven walnut trees, and numerous citrus and deciduous fruit trees. An abandoned dirt tennis court and several fence corners grew abundantly to weeds; morning-glory and honeysuckle vines flourished on two garages and on an old barn. Flower plots, low hedges and dense shrubs completed the picture. Each of the yards had an available water supply, either dripping water faucets, bird baths, or small fish ponds.

The winter of 1935-1936 was mild, even for southern California, with moderate rains and few frosts. The winter of 1936-1937 was one of record cold. From Christmas to March, night frosts were almost continuous. Plant damage was heavy.

In spite of the fact that children and adults, cats and dogs, and automobiles, frequently occupied the area, a large and healthy bird population maintained itself. Common resident species, beside the thrashers, were Western Mockingbirds, Song Sparrows, Brown and Spotted towhees, and California Jays. A flock of California Quail used the yards as part of their feeding ground and at least two pairs nested in it. House Finches and Gambel Sparrows were periodically numerous; Brewer Blackbirds became numerous the second spring. A Sharp-shinned Hawk was seen in the area only once, when it attacked a trapped sparrow on the balcony. Human residents were indifferent or mildly friendly to the birds. Pet cats were the chief enemies of birds.

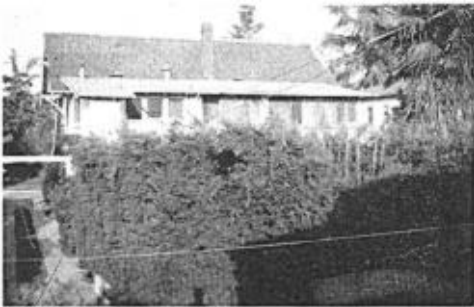


Fig. 15. View east from observation post on balcony. Black spot in hedge marks site of nests A, B, and D.



Fig. 16. View southwest from balcony, showing west ends of yards 241 and 247.

Two-cell W.B.B.A. traps were placed in the window boxes of the balcony and baited with walnut meats. Food was always offered outside as well as inside the traps. During the second year, the thrashers fed and bathed frequently in the window boxes; occasional repeats to the traps enabled me to check the bands. Homemade colored celluloid bands were used, one to a bird in addition to the Biological Survey band being sufficient for identification because of the small numbers of individuals studied; the colors were still distinct at the end of the period of observation. In the following discussions, the individual birds are designated by the color and position of their bands.

CHRONOLOGY OF THRASHERS FROM NOVEMBER 8, 1935, TO JUNE 1, 1937

| | | |
|---|---------------------|--|
| AP Female | White Male | AG Droop-wing Female |
| B-317147 | A-433227 | A-373203 |
| Banded Nov. 25, '35. Last seen Dec. 29, '35, feeding with White and two young in yards. | Banded Nov. 27, '37 | Banded March 24, '36. First seen Jan. 4, '36. Gradually accepted as mate by White. |

Nest A

In dense cypress hedge. Nov. 8, '35, parents carry food to nest. Two young first seen out of nest Nov. 26.

RA Im. A-373202 banded Feb. 18, '36. March 10, '36, White chased from yards; last day seen.

Unbanded, lived in yards at least until Feb., '36.

Nest B

Feb. 20, '36, White carried twig to same location as Nest A. March 19, nest deserted.

Nest C

White first seen carrying insect west of old barn May 1, '36.

AY Im. B-317155 Rescued from cat and banded while White nearby May 19, '36. Not seen again.

(No observations from June 2, 1936, to Sept. 16, 1936. On return in September, White and Droop-wing constantly seen in yards until Feb., 1937, but no nest building activity.)

Nest D

Feb. 19, '37, White and Droop-wing both carry nesting material to same location as Nests A and B.

YA Im. 35-337330 Banded April 7, '37, few days out of nest. Mauled by cat April 10. Died April 12.

Feathers found later; killed by cat about April 7, '37?

Nest E

Droop-wing carried twig April 8, '37. May 5 Droop-wing and White both carried insects south of house at 255.

Unbanded. First seen out of nest May 20, '37. In company of White when observations discontinued June 1, 1937.

Chronology.—All the thrashers resident in the area formed one family. One adult male (White) was present during the entire period. With the help of his mate (AP) he successfully raised two young thrashers during November, 1935. AP disappeared about December 29, 1935, and within a week a new female appeared (AG Droop-wing). This bird was clearly distinguished in the field, even before banding, by a permanent disfigurement of seven primary feathers in her left wing which were set at a slight angle to the rest of the feathers, but which did not hinder her materially in flying or in other normal activities. After several weeks, Droop-wing was accepted by White as his new mate. The sex of the birds, which were identical in plumage, was established when Droop-wing many times assumed the female mating position. I once saw Droop-wing

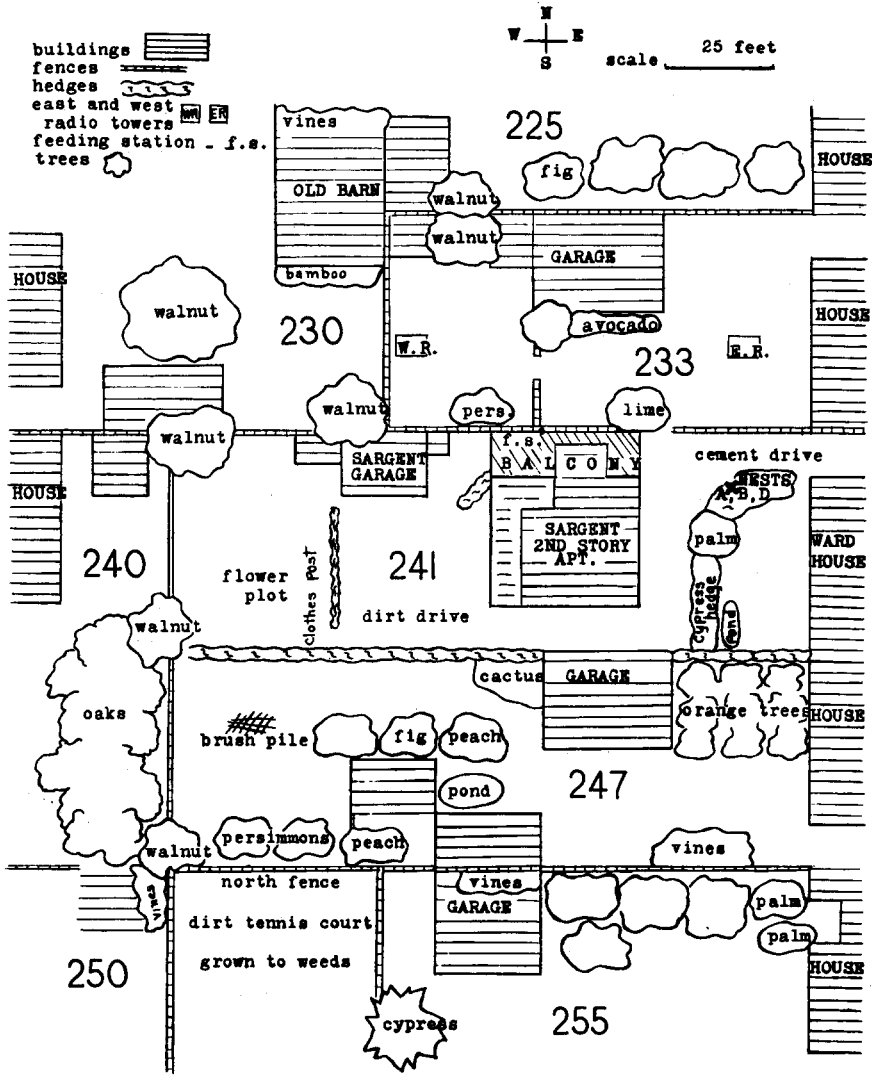


Fig. 17. Map of area in which color-banded thrashers were observed.

mounted, but was not able positively to identify White as the mounter. During the spring of 1936 and the spring of 1937, Droop-wing and White were observed to build four nests; they were still occupying the area when I left on June 1, 1937.

Chasing of new female.—Female AP remained in the yards during December, 1935, in company of White and the two young birds of the November nest (A). She was never heard to utter any note except the warning *chup* note. On December 29, 1935, she fed about the yards as usual, but she was never seen after that day.

On January 4, 1936, I first recorded a thrasher "with drooping primaries" which was vigorously chased from yard 241. On January 6 White was seen in full chase after this unbanded thrasher. White was a couple of feet behind Droop-wing who twisted and turned, doubling back occasionally. White chased Droop-wing north out of yard 233; then he fed south to the cypress at 255 and sang. Shortly, Droop-wing reappeared, ran directly *toward the singing* and was again chased north of 233. This alternate chasing and returning continued all day. Both birds *chumped* frequently.

The next day, after a chase, White flew to the Ward palm and sang; Droop-wing then reappeared on the old barn and warbled a note or two.

On January 9, while White sang from 255, Droop-wing *also sang loudly and sweetly* in 230. Later, after another chase, White fed in the old tennis court and, a few feet away, Droop-wing also fed.

On the 10th, in a tree in front of the house at 225, I saw Droop-wing perched with head and tail uptilted, fluttering her wings slightly. About three feet away, a second thrasher, which I could not see, sang softly.

The following day, after a slow chase north from 255 to 241, White stopped to feed, and Droop-wing also stopped, fluttering her wings with head and tail up at a sharp angle. White again charged at her, Droop-wing dodged, and they ran in circles within yard 241, finally disappearing northward.

On January 15, I started watching the thrashers at 7:45 a.m., when White and Droop-wing fed about 10 feet apart in 247. At 8:30, White chased Droop-wing around in circles about 15 feet in diameter in yard 241; they kept this up without stopping for 12 round trips. Ten minutes later both were feeding 15 feet apart in 247. At 9:35, White flew to the Ward palm and sang, loudly and sweetly. In a lull in his song, I heard a short song from Droop-wing from the fig tree in 225. She flew down and a minute later appeared on the east radio tower in 233, hopping nearly to the top. She was now only about 30 feet from White, at about the same height, and in plain sight. White continued to sing, but he commenced to move about in the palm. Droop-wing perched on the radio tower and began a counterpoint somewhat softer than White's song. *Both sang for about fifteen minutes.* Droop-wing then stopped singing and sat quietly for ten minutes longer, vibrating her wings with a slight, rapid movement. White moved about from the palm to the cypress hedge, finally singing from the site of Nest A. Droop-wing uttered a few more notes of song. Suddenly, White's song ceased and he flew directly at Droop-wing on the radio tower. With a squawk, she flew to the garage roof in 233, White in pursuit. Both ran across 225 and disappeared north.

On the 16th and 17th, White sang vigorously, but I saw no chases. On January 21, Droop-wing was chased briefly. On the 22nd, Droop-wing gave a short harsh song on the east radio tower, then flew north. During the rest of January, White and Droop-wing were frequently seen feeding in the same yard. On several occasions White chased Droop-wing for a few feet, but in each case they shortly resumed feeding.

On February 4, White picked up a piece of bermuda grass and dropped it again. On the 5th he repeated this, singing in the Ward palm with the "sweetness of a rusty saw." On February 20 he carried a twig into the cypress at the point of Nest A. During

the month from February 5 until March 6, White was not once observed to chase Droop-wing, although both adults frequently chased the young thrashers of the November brood.

On March 6, Droop-wing uttered a few squeaky notes and later fluttered her wings slightly and preened. White chased her several times this day and two days later, when she again sang a few notes. On March 10, White chased Droop-wing briefly, and after a long pursuit finally drove out young RA. White was never again seen to chase Droop-wing. Hereafter they fed quietly, close together, as had White and his first mate AP. On March 12, 1936, they both carried twigs into the cypress to start Nest B, and throughout the rest of the period until June 1, 1937, they lived in the yards in a close partnership.

Chasing of young thrasher.—During the first two weeks of January, 1936, I continued to see the two young thrashers of Nest A in the area. These unbanded young could still be distinguished by their scraggly feathers and a characteristic hunched posture not exhibited by the adults. They fed independently about the yards and took no part in White's chases of Droop-wing; the adult birds had up to this time paid little attention to them.

On January 20 I noted: "Young thrasher feeding under persimmon 247 when Droop-wing thrasher makes short rush at him—young thrasher gives ground and continues feeding under walnut in corner. . . ."

On January 24, White suddenly chased a young thrasher energetically about yard 247. The following day White chased Droop-wing in circles in 247 and 255, while a young thrasher kept out of the line of fire; later White chased a young thrasher in 247, then sang in 255.

From this time on into February, White devoted more time to the chasing of the young thrashers, and less to the chasing of Droop-wing. He sang often and vigorously from all parts of the yards. The chasing of the young birds varied considerably. Sometimes White pursued a young bird in short rushes through a couple of yards; at other times, after flying directly at a young bird, and occupying his position, White would resume feeding. Droop-wing chased a young thrasher but once.

On February 18 a young thrasher finally entered the trap; White remained nearby while he was banded (RA). I recorded RA as still having a few juvenal feathers. This same day White flew into the cypress with a long stick in his bill.

On February 19 White chased RA mildly in yard 247, but they soon fed. The second young bird, still unbanded, was also seen feeding. During the following days, White continued to carry sticks into the Ward cypress, and to sing actively. RA and the young unbanded thrasher, as well as Droop-wing, were seen often about the yards, feeding. RA was chased mildly February 26, and vigorously the evening of the 28th on the house roof in 255.

On March 10 at 9:10 a.m., White chased Droop-wing briefly in 247 and 241. At 10:30 I saw Droop-wing chasing RA round and round in the walnut trees in 230. A moment later Droop-wing was on the old barn, *chupping*, and White and RA were in 230. A twenty minute chase began, in which White pursued RA through the tree tops with scarcely a pause. They flew from 230 to 240, back to 230, then directly northward to about 215. RA doubled back to 230, was chased northward again to 215. Again he flew back to the trees in 230, was chased to 233, to 240, back to 230. Here White and RA paused, then both flew south into 240 and disappeared in the trees. Droop-wing now appeared feeding on the ground in 230. Shortly after, White joined her and they fed peacefully a few feet apart.

About two hours later I saw RA feeding for a moment in 230 west of the old barn. This was my last record of RA.

Nest A.—When observations on the thrashers were begun in November, 1935, the two adults were carrying food to the nest in the cypress. They carried food daily from November 8 to 16; brief songs were heard on the 12th and the 16th. On the 22nd I counted three Jerusalem crickets carried to the cypress by the adults within an hour and a half. On the 24th, an adult on our roof sang squeakily through a cricket, gulped it down, and continued singing.

Female AP was trapped and banded on November 25. The next day I first saw a young bird with one adult. It cheeped and the adult fed it. It ran rapidly, but did not seem able to fly much.

On November 27, the male, White, was trapped and banded. Later that day I saw him accompanied by a young thrasher whose tail was still short and held at an angle, and its bill slender, shorter and not so curved as that of his parent. The next day I discovered that there were *two* young thrashers: "Could clearly see both of them in 247. AP was feeding one. Then both parents fed, then one parent fed both babies. Babies kept as close as possible to parent, twittering, with mouths open. Parent occasionally ate an insect itself."

On December 4, 1935, AP, followed by a young bird, ran rapidly east in 247 and flew up on the garage in yard 247. The young bird flew easily. Ten minutes later White was in 247, with a young bird following.

AP fed both young thrashers in 230 on December 15. The young birds also dug for themselves, but frequently begged of AP. This was the last day I saw the young birds fed, although they continued to accompany the adults about the yards the rest of December.

Nest B.—White first carried a twig to the same location as Nest A on February 20, 1936. On March 12, *both* White and his new mate Droop-wing carried weeds to the nest. On March 19, our neighbors the Wards cut six feet off the top of the cypress hedge, exposing the nest. On March 24, I first captured Droop-wing, whom I had seen constantly about the yards since January, and color banded her *AG*. Her belly was swollen and bare of down feathers and the anus was protruding and swollen, as if she were about to lay eggs or was incubating. The flesh was healthy and firm. Later the same day, White dug up a fat worm and ran with it near the cypress. However, no further nesting activity was observed at the cypress at this time or until the following spring, when the hedge had grown back to its original height.

Nest C.—During April, 1936, I saw little of White and Droop-wing. On May 1 and May 9, White carried insects west of the old barn. On May 10 he *chuffed* vigorously at a cat in 233, picked up worms, carried them about and then swallowed them, and also gave a high plaintive *whew kew* note I had never heard before. Droop-wing remained nearby, uneasy but silent. On May 19 I heard a thin, shrill squeaking in 233 and mockers, thrashers, brown towhees, and grosbeaks immediately collected, scolding furiously. I ran down at once and grabbed a young thrasher out of the clutches of a cat. Although breathing hard, it showed no sign of injury, and it was banded *AY*. When released, the juvenile climbed into a hedge by the balcony and sat there for several hours, during which time it was fed by White. I never saw it again.

On May 23, a week before we left for the summer, I saw White fly directly against Droop-wing in 230, fluttering his wings, but could not be certain that he mounted her.

Nest D.—White and Droop-wing spent the fall and winter of 1936 quietly feeding in the yards. On February 15, 1937, I noted White in vigorous song. On February 19 Droop-wing and White *both* were seen carrying long twigs into the cypress, just about

where the nest was in November, 1935. The following day White silently chased a *chupping* unbanded adult from 241 and 230. On February 23 both White and Droop-wing carried large loads of fine material to the nest. They worked quickly and silently—several loads were carried in fifteen minutes. One of Droop-wing's loads was fibrous, like shreds from palm fronds; she picked this material off the ground in 233. White sang three times from 233.

On February 25 White gradually and silently chased an unbanded adult southeast from yard 240 into yard 255. The next day the pair wandered through 233, picking up very fine stems and fibers—both carried a good load to the cypress. On March 2, after singing energetically from several points in yards 240 and 247, White opened his beak as if gulping, then ran up to Droop-wing and touched her bill, which was also open, then both disappeared in 247. Two days later the pair fed unhurriedly about yard 247, Droop-wing sunbathed, and White sang lazily, a syllable or two at a time.

A dramatic chase that lasted a good half hour occurred on March 5. Droop-wing was first seen chasing an unbanded slender-appearing adult thrasher in the walnut in 225; soon White joined the chase. The unbanded bird doubled and twisted time after time so that they chased up and down, and around and around in the same tree, all of them *chupping* steadily. Once or twice the pair succeeded in driving the intruder further north, but *twice* the bird was seen suddenly to fly directly to the nest site! Immediately White and Droop-wing followed and drove it forth again into 233 and hence eventually into 225, but it was an arduous process for all concerned. When last seen, all three birds were in the walnut in 225. Droop-wing made constant rushes at the unbanded bird, which as constantly retreated and doubled back in the tree. White alternated his chasing with perching and low song. *Droop-wing also sang a few notes.* The unbanded bird *chopped*, its bill open.

March 6 was a perplexing day. At 10 a.m. White sang in the walnut in 225, then flew to the east radio tower in 233 and into the cypress at x, the point of the nest. A moment later Droop-wing appeared here and flew into 233, where *she sang for some time*, not very loud or sweet but a legitimate song.

At 10:30 White and Droop-wing were about a foot apart in 233, digging vigorously. White got a Jerusalem cricket, pulled it out, mauled it about, hit it, and gulped down a leg or two. Then, while Droop-wing watched, he carried the insect to the nest! He was out almost at once into 225 where Droop-wing had meanwhile run. In ten minutes he returned to the cypress, while Droop-wing ran through the yards from 233 to 250. Then Droop-wing appeared in our walnut, singing loudly! *While Droop-wing sang in our walnut, an unbanded thrasher in the walnut in 240 hopped about, then tilted its tail and fluttered its wings.* Presently the strange bird flew down into 240. Droop-wing then flew down into 233 and dug there. White now flew out of the cypress, dug about in 233 then climbed to the top of the walnut in 233 and sang long and loudly. Droop-wing flew into the walnut and gradually hopped higher and higher until she was at the top—only about a foot from White, then she opened her bill. Both birds sat silently for a minute or two, then White flew down into 230. Droop-wing sat and *sang* for a couple of minutes longer. In the afternoon, about 2 p.m., Droop-wing sang loudly on the garage roof in 233. Later she *chopped* here, and White flew from the cypress onto the roof.

On March 7, Droop-wing and White were seen separately leaving and entering the cypress at x, their bills empty. In the afternoon Droop-wing uttered one short phrase of song.

On March 9, at 12:30 and 1:40 p.m., White approached the cypress from 233, whereupon Droop-wing flew out from x and he flew in. The second time, she lit near

him on the cement drive, crouched, elevated her tail straight up and fluttered her wings. He paid no attention, after a second flying into the cypress, and she fed in 233. In the afternoon, White twice sang loudly.

Again on March 13, White flew to the wire north of the cypress, and sat there a minute, uttering very soft *chucks*, scarcely audible. Droop-wing appeared at x and clung to an outer branch, vibrating her wings slightly, with head and tail tilted up. Then White hopped into the cypress and Droop-wing flew off southward. This alternation on the nest, one flying in as the other flew out, was also observed on March 16 and 19.

On March 21, for the first time since March 6, White flew into the cypress, as Droop-wing flew out, with a worm in his bill. On March 27, he twice flew into x with insects.

On March 30 White sang in 233, a few notes at a time; later Droop-wing and White joined in vigorous *chupping* at a cat near the cypress. On April 3, both White and Droop-wing carried insects high into the cypress. Later White sang in 233. On April 5, Droop-wing carried an insect to the same spot in the cypress.

A young thrasher, in company of White, was first seen out of the nest on April 7. It was captured and banded YA the same evening as it attempted to follow White on to the garage roof in 233. I saw it many times on April 8 and 9, following White and Droop-wing about the yards where it was fed by them. On April 8 the cypress was cut back again, exposing the empty nest. Two days later a cat cornered and clawed at YA before the clamor of the adults brought me to the rescue. The next two days, White and Droop-wing continued to feed this youngster, but although it showed no external sign of injury, it grew gradually weaker, sitting quietly with its wings drooped and its eyes closed. It finally died on April 12. A pile of immature thrasher feathers afterward found near the cypress indicated that a second young bird may also have been killed by a cat shortly after leaving the nest.

Nest E.—On April 8, 1937, I noted Droop-wing "carrying a long twig." On the day of YA's death, April 12, after attempting to feed YA in 247, Droop-wing wandered off and twice picked up a long stick and dropped it again. Six days later White silently chased an unbanded adult thrasher from yard 233 to the front of house 233. On April 23 White disappeared south of house 247 with a Jerusalem cricket in his bill. From April 24 to May 3, the two thrashers were seen occasionally, feeding separately; they were never seen together. On May 5 Droop-wing and White both carried insects south of the house in 255. White carried walnut meats to the vines in 247 and sang vigorously on May 19. The next day I first saw a young thrasher in 247; both White and Droop-wing fed it. This unbanded young thrasher, now well feathered, fed about the yards with White, and White sang, on the day we left, June 1, 1937.

Song and singing posts of male.—White sang during every month from November, 1935, through June, 1936. On our return in September, 1936, he was again observed in song. He sang in October, although this fall there was no nest building activity and only occasional chasing of strange thrashers. During November and December, 1936, and January, 1937, White and Droop-wing frequently fed about the the yards and several times chased strange thrashers. No singing was recorded in November; I noted White singing in December only once, and once in January heard a thrasher singing in the distance. Singing was heard February 11, 1937. On February 15 White was several times heard in powerful song. Four days later he started Nest D, and sang almost daily until we left in June, 1937.

Much of White's singing was done from the high points near nests A, B, and D—the palm, the east radio tower in 233, and the roof of our apartment. Other occasional

perches included all the high spots of the area such as roofs of garages, tops of fruit trees, the 15-foot fence of the tennis court and the 50-foot cypress tree in 255. It was seldom possible to distinguish White when he sang in this dense and distant cypress tree, but a number of times he flew, still singing, directly from the tree to nearer points. White did not fly to, or sing from, the roofs of the single and two-story houses which bounded the yards to the east and west, with the exception of the house in 255.

Thrasher singing was sometimes heard outside my area of observation and I have no way of proving that these distant singers were not White. No other thrashers except White and Droop-wing were ever observed to sing within the area.

Song of female.—The singing noted in the course of White's chasing of Droop-wing on March 8, 1936, was the last heard from her that spring. In the fall and winter of 1936, White sang on September 19, 20, 22 and 25. On the 25th, during a thick wet fog, Droop-wing also sang shortly and melodiously. Droop-wing sang once more that fall, on October 18. Her only singing during the spring of 1937 was on March 5, 6, and 7.

Feeding area.—The area in which White fed corresponded closely with the area in which he sang; foraging was often interrupted by singing, usually after hopping or flying to a high perch. Feeding was always on the ground except at my balcony station. When not disturbed by human and animal occupants of the yards, White and his mate and current offspring tended to follow habitual north and south routes through the yards in feeding, and I was often able to keep them under observation for long periods. Beside their insect and walnut diet, the thrashers acquired a taste for bread, raisins, and rotting persimmons.

Behavior toward animal associates.—On May 26, 1936, I was startled to see a large non-native rat run along the wire fence between yards 230 and 233. Droop-wing was feeding on the opposite side of the fence from the rat; as it approached her she raised her wings as if in defense and retreated slightly. The rat faced Droop-wing for an instant, then continued on its way. Droop-wing began to follow it, still on her side of the fence. The rat ran slowly to the end of the fence, then turned and retraced its steps. Droop-wing also turned and followed close behind it, her wings raised a little, but making no sound. The rat disappeared behind the old barn, and Droop-wing returned to her digging.

On April 2, 1937, I witnessed a fight between White and an alligator lizard about 9 inches long. These snake-like lizards are seldom seen in the residential district of Pasadena. The lizard faced the thrasher with head up and jaws open. White raised his wings slightly above his back, as Droop-wing did with the rat, then circled behind the lizard and grabbed its tail. The lizard twisted quickly and faced him, and White dropped the tail, springing back. Again White circled and darted in, jerking the lizard's tail until it got its head around. He repeated this over and over, until the lizard began to wriggle toward a nearby rubbish heap. White hastily followed and yanked it back, but each time the lizard worked a little nearer, until finally it reached safety. White hopped about, but could no longer reach it, and wandered off, digging.

Most of my records show a complete indifference on the part of thrashers toward other birds in the same area. Thrashers and quail fed past each other, rubbing shoulders, as if unaware of each other's presence. However, a few exceptions to this mutual indifference are noted below.

The walnut trees in the yards were a source of food supply for many species; when a flicker or a thrasher found an unopened nut and cracked the shell with hammering blows of its bill, the smaller finches, sparrows, and towhees frequently gathered round to snatch a few crumbs. Sometimes the thrashers were tolerant of such an intrusion,

sometimes not. Thus, on December 15, 1935, "When AP was digging vigorously, not only the young thrashers, but several finches and a blackbird gathered round to share in the spoils. AP several times ran at finches, chasing them away, and even a young thrasher did this."

Twice while White and Droop-wing had young in Nest D, I saw a thrasher fly directly at a jay in 233. The second time I identified the bird as White; he forced the jay to fly north into 225, then went on feeding in 233.

Droop-wing twice took a raisin from a finch on the feeding station, running at the smaller bird until it dropped the raisin, whereupon she ate it herself. Once, however, when she flew onto a window box she found it occupied by a pair of California Quail. The male turned and faced her and she quickly hopped off again.

Disputes with mockingbirds occurred on several occasions. On February 2, 1936, a color-banded mocker twice flew at a young thrasher in 247 and they pecked at each other in a little flurry for an instant, then separated and fed a few feet apart. The thrasher was digging in thick dead leaves here for fallen persimmons.

On November 16, 1936, while White and Droop-wing dug on the ground in 247, a mocker nearby found a large insect. The mocker pecked at the insect, lifting it quickly and dropping it and approaching it with wings partly spread. Suddenly White darted in, seized the insect, and flew away with it.

During April and May of 1937, the resident color-banded mocker included my feeding station in his territory and constantly drove finches, towhees and sparrows from it, scattering them like leaves as he darted on to the balcony. Several times he also attacked White and Droop-wing. White once defended himself vigorously. Thrasher and mocker rose sharply in the air in a flurry of feathers. They dropped to the balcony, returned to the air, and then White flew down into 233 and the mocker to a wire near the balcony. Droop-wing, when attacked, jabbed back with her bill or merely stood unmoving until the mocker retreated and left her to eat in peace.

DISCUSSION AND SUMMARY

1. Of five nests of the California Thrasher that were started, one was deserted at about the egg-laying stage. Five young from the other four nests are known to have successfully left their nests. Cats mauled two of these while they were still being fed by the adults, and this probably accounted for the death of one and the disappearance of the other. Two more young survived to maturity. The fifth was well feathered but still following the male parent when observations ceased.

2. Both male and female took active part in the gathering of nesting material, incubation, and care of young. A quiet period followed completion of the nest, before incubation was begun, in which the male and female were seen feeding together; perhaps mating took place in this period. Three times the male thrasher was observed carrying insects to the nest at the beginning of incubation. Male and female alternated in incubating the eggs, one flying out as the other flew in. The two young birds which survived after leaving the nest of November, 1935, were sometimes both fed by one parent. At other times each adult took charge of one young.

3. When the two young birds of the November nest became independent of their parents, White and AP, they were tolerated about the yards until a new nest was started. They were then chased with increasing vigor by their father, White, and occasionally also by White's second mate, Droop-wing. The banded young, RA, was finally forced to leave the area.

4. White had two mates; the second female appeared a week after the disappearance of the first. It seems possible from the abrupt disappearance of the first mate, AP,

before her offspring were completely independent, that she was killed. The male's vigorous chasing of the new female might have been caused by the interruption of the nesting cycle, the new female being regarded merely as an intruder rather than as a potential mate. It is less likely that the chasing was caused by the abnormality of the wing feathers of this new female. At any rate, once accepted, female Droop-wing remained as the mate for a period of a year and a half during which time she and White built four nests and lived, both in and out of the nesting period (as had White and his first mate, AP) in a close and peaceful partnership.

5. White sang throughout the year. He sang particularly vigorously during nest building, after the young were out of the nest, and during the chasing of his new mate. The chasing of his independent offspring RA and of strange thrashers were sometimes accompanied by loud song, sometimes silent. He also sang at periods when there was no nesting activity and when his song could be attributed to none of the above mentioned situations.

6. Female AP was never heard to utter any sound except the call note, *chup*; she was also never observed in any chases. Female Droop-wing, however, sang a number of times during the period in which she was chased by White, sometimes very sweetly. During the fall of 1936, she was twice observed to utter a few phrases of song when no chasing was noted. Her vigorous singing in March, 1937, was accompanied by vigorous chasing of a strange thrasher from the vicinity of her nest, and by wing fluttering and tail tilting of the strange thrasher. The rest of the period she was silent except for the *chup* note. A possible explanation of her singing might be a combined sexual and territorial urge, first, when a lone male drove her from his feeding and nesting area, and second, when a strange female attempted to invade that area.

7. During the nesting periods, with one exception, strange unbanded thrashers observed in the yards were chased from the yards by White, sometimes aided by Droop-wing. However, when the young birds were out of the nest, there seemed to be more toleration of strange birds, as both unbanded young and adults occasionally remained unmolested in the yards. In the fall and winter of 1936, when there was no nesting activity, both young and adult unbanded thrashers were now and then observed in the area. Sometimes these birds were unmolested; sometimes they were chased by White, or by both White and Droop-wing. It is quite possible that at least a portion of the young unbanded thrashers seen in the area after the nesting periods were unbanded young from Nests A and C, or even from a nest built during my absence in the summer of 1936. Strange birds in the yards were usually silent; a few times I heard a *chup*, but no stranger ever sang.

8. White was never observed in actual battle with another thrasher. There was never the border warfare constantly displayed by the color-banded Mockingbirds and Song Sparrows in the same yards. In these species, members of rival pairs faced each other bill to bill, with unmistakable hostile intent, occasionally rising in an actual pecking flurry before they separated and returned to their respective territories. With White in every case, whether it was a new mate, independent young, or strangers, there was a chase, in which the pursued offered at most only the stubbornly passive resistance of running in circles or of immediately returning to the area from which ousted. Although the extent of the chases varied from a few feet in length to a complete circuit of the yards, and in some cases, beyond them. White's right to attack was never disputed. Two possible explanations can be given for this lack of border warfare. The first is that the thrasher population, in this locality at least, was not dense enough to necessitate the enforcement of strict boundaries, and that therefore the size of White's territory

was somewhat elastic. A second explanation is that the territory extended beyond the yards, and that the boundaries were outside my range of observation. The paved streets on which the two rows of houses faced might have formed natural boundaries to east and west; to the north, a cross street was three yards from the observation balcony, at yard 210. To the south the houses extended in an unbroken line for about a third of a mile; here was the logical position for opposition and rivalry, and perhaps such rivalry existed south of yard 255.

At any rate, one male thrasher fed, sang and nested in, and often defended against intruders, an area of at least three-quarters of an acre throughout a period of two years.

9. Twenty-two years ago, Joseph Grinnell (*Auk*, vol. 34, 1917, p. 432) wrote: "The California Thrasher is a habitual forager beneath dense and continuous cover. Furthermore, probably two-thirds of its foraging is done on the ground. In seeking food above ground, as when patronizing cascara bushes, the thrasher rarely mounts to an exposed position, but only goes as high as is essential to securing the coveted fruits. The bird may be characterized as semi-terrestrial, but always dependent upon vegetational cover; and this cover must be of the chaparral type, open next to the ground, with strongly interlacing branch-work and evergreen leafy canopy close above . . ."

The California Thrasher is naturally a bird of the chaparral. But this paper serves to illustrate that the species is also satisfactorily adapted to life in residential districts. The color-banded birds which I studied have become accustomed to open yards and tree tops, to new sources of food, and to a new enemy—the house cat. They have met the competition of different species of birds, such as the Mockingbird, and they have successfully reared their young in this new environment. The brown bird with the long curved bill has become a familiar figure to the suburban dweller who has never known the chaparral.

La Jolla, California, September 8, 1939.