

# THE AUK

## A QUARTERLY JOURNAL OF ORNITHOLOGY

---

VOL. 57

JULY, 1940

No. 3

---

### SOCIAL AND SLEEPING HABITS OF CENTRAL AMERICAN WRENS

BY ALEXANDER F. SKUTCH

#### *Plate 5*

THE family of wrens (Troglodytidae) is well represented in the intertropical regions of the American continents. A surprisingly large number of kinds is frequently found in a territory of small extent. Thus Costa Rica, one of the smallest of the Central American countries, is the home of twenty-two species of wrens. Like their more familiar relatives of the North, the tropical wrens are birds of modest attire, lacking brilliant spectral colors such as red, yellow and blue. Shades of brown predominate in their plumage, often mingled with grays and buffs. Such boldness of attire as they possess is caused by contrasting areas of black and white, or else by rich shades of rufous and chestnut. In size they range from the House Wren (*Troglodytes musculus*) and some of its still smaller relatives of the forest to the big Cactus Wrens, as large as the common Starling. Among the great variety of species, there are some adapted to life in each of the many diverse types of habitat found in tropical countries: some live in the dimly lighted undergrowth of the heavy lowland forests; others are at home among the densely entangled thickets which take possession of abandoned clearings in the humid areas; still others frequent the shrubbery about the dwellings of men; some prefer the arid, semi-desert regions of cacti and thorny scrub; others thrive in the humid cloud forests at high altitudes, where the trees are heavily burdened with moss and other epiphytic growths, and almost constantly dripping with moisture. Most are good singers; some, musicians of the first order. To know intimately the wrens of tropical America is to dispel for all time the old, persistent falsehood that tropical birds are poorly endowed as songsters.



NEST OF SPOTTED-BREASTED WREN



DORMITORY NEST OF LAWRENCE'S MUSICIAN WREN

So far as I know, none of the Central American wrens is migratory. Of the kinds with which I am most familiar, the individuals are extremely local in their movements, and are found throughout the year in the same restricted area. Many remain mated throughout the year. Whether they are found two by two or in larger groups depends primarily upon how long the full-grown offspring remain in company with their parents. In some species, such as the House Wren, the young birds are usually driven off soon after they become self-supporting. In other species, more sociable, the juvenile birds keep company with the adults after they are fully grown and can shift for themselves; and as a result small family groups are met with throughout much of the year. The most gregarious of the Central American wrens is, in my experience, the Banded Cactus Wren (*Heleodytes zonatus*) of which flocks of a dozen or more are sometimes seen. These large groups appear to result from the circumstance that non-breeding individuals remain with their parents for more than a year, and help them take care of the nestlings raised during the breeding season subsequent to that in which they themselves were hatched. None of the Central American wrens is truly gregarious in the sense that it forms large flocks by the banding together of many separate families. I am not certain that any is quite solitary during the season when it does not breed.

The voices of wrens are worthy of attention from several points of view. In Central America, many kinds of wrens sing at all seasons and in the worst weather, when most birds of other kinds are silent. On gloomy, rain-drenched days in November and December, the wrens, almost alone of birds, raise their sweet voices in song. In their perennial songfulness, they differ from the majority of songbirds, which, even in regions of perpetual warmth and verdure like the Central American lowlands, are by no means songful throughout the year. It does not follow from this that wrens breed continuously. While some, such as the House Wren, have a very long breeding season, others have a nesting period no longer than most of their neighbors of other families; yet they sing freely at all times of year.

Another peculiarity of the tropical wrens is that in a number of species both males and females are good singers. In this they differ from the thrushes, wood warblers, most finches and tanagers, indeed, most songbirds of other families. The singing of wrens throughout the year, in all kinds of weather and by both sexes, seems to me to be closely associated with the fact that they remain in pairs. The male and female, foraging out of sight of each other among the dense

vegetation which most wrens prefer, keep in contact by singing back and forth. Thus with wrens song replaces a simpler call note as a vocal means of keeping the members of a pair together. It is noteworthy that some kinds of wrens, although they utter a variety of harsh scolds or alarm notes when molested or when their nests appear to be in danger, seem to lack true call notes, such as the sharp, simple monosyllables of many finches. In place of the usual call notes, wrens of a number of species communicate with their mates by means of musical phrases; and this to my mind explains why both sexes sing at all seasons.

The vocal performances of some wrens are very highly developed. Especially noteworthy is the antiphonal singing of a number of species. One member of the pair, let us say the male, chants a brief phrase, then stops short; the female then takes up the refrain and adds a few syllables which blend perfectly with those of her mate; when she ceases the male carries on the tune; when he leaves off, the female takes it up once more. The voices of the two birds are often so perfectly harmonized and synchronized that, unless the listener chances to stand between them and hears the music come now from this side and now from that, he may never suspect that he is not listening to the protracted melody of a single gifted songster. The Tawny-bellied Wren (*Pheugopedius hyperythrus*) is especially noteworthy for its performances of this character. *Thryophilus modestus*, a common wren of low thickets throughout much of Central America, is called in Costa Rica 'Chinchirigüi' (pronounced *chean-cheery-gwee*), an excellent paraphrase of its loud, clear song. I had long been familiar with the bird before I became aware that this is a composite song, made by two individuals together. One member of the pair calls *chean-cheery*, while the mate answers *gwee*; they repeat these sharp whistles over and over again with great rapidity, and never a break in continuity, as though the sounds arose from a single throat. So perfectly are the voices synchronized that only when the two are on opposite sides of the hearer do they betray their secret. Dr. Frank M. Chapman, in 'My Tropical Air Castle,' records that the closely related Galbraith's Wren (*T. galbraithi*) of Panamá sings in the same antiphonal fashion. The entire song is composed of four notes, of which each bird utters two. It is only by means of their voices that the bird watcher can assure himself that wrens such as these remain in pairs; they keep themselves so well concealed in their thickets that it is difficult enough to espy one at a time, almost hopeless to try to see the two at once. The same is true of other kinds

of wrens, and some shy birds of other families, who betray their mated state chiefly by their responsive calls or songs. Other wrens with less highly specialized songs perform in unison rather than in the antiphonal fashion. This is true of the Banded Cactus Wren (*H. zonatus*), the Hooded Cactus Wren (*H. capistratus*) and the Chiapas Cactus Wren (*H. chiapensis*). Or, in the case of species with a diffuse, rambling type of song like the Gray-crowned Wood Wren (*Henicorhina leucophrys*), male and female may sing back and forth without devoting much attention to the synchronization of their utterances.

In many species of wrens there is little difference between the voices of the two sexes. In the case of the Tawny-bellied Wren, the phrases of one member of the pair, presumably the male, are slightly longer and uttered in a voice slightly stronger than those of the mate, but the differences are of small degree. Once, when I heard two of these wrens singing on opposite sides of me, the male delivered phrases consisting of five syllables and was answered in phrases of four. In the case of the House Wren (*Troglodytes musculus*), however, the voices of the two sexes contrast strongly. The ebullient songs of the male are full, liquid, and varied in phrasing, in character somewhat similar to those of the North American House Wren (*T. aëdon*). The female sometimes answers her mate's fine songs with a very simple, shrinking, twitting refrain, which in certain individuals is modified into a short, clear, low trill.

While on the subject of the voices of wrens, I should like to allude briefly to the modifications of the voices of some other Central American birds which like them remain in pairs throughout the year. As with the wrens, in certain species belonging to other groups a simple call note is replaced by a much more elaborate vocal performance as a means of keeping the pair together. As they forage out of sight of each other among the shrubbery, the members of a pair of Northern Tody Flycatchers (*Todirostrum cinereum*) call back and forth with a clear little trill very pleasant to hear. The mated Tyrannine Antbirds (*Cercomacra tyrannina*), hunting among the dense thickets at the edge of the forest, call and answer each other with low, comfortable trills, that of one distinctly higher in pitch than the responsive trill of the mate. The male Buff-throated Saltator (*Saltator intermedius*) calls *cheery cheery* in sweet, liquid notes, and is answered by the soft, melting *cheer to you* of his mate. This simple responsive singing of the Saltator may be heard at all times of year, and is very different from the loud, sweet song delivered

by the male alone in the nesting season. Most remarkable of all the responsive utterances of birds which remain mated are those of Prevost's Cacique (*Amblycercus holosericeus*), a black icterid that forages in the densest thickets, where it is extremely difficult to glimpse. The full, liquid double whistles of the male are answered by a long-drawn rattling *churr* on the part of the female. Were it not for the frequent association of these so-different notes, one would never suspect that they are the utterances of the same species; yet I have known observant peasants who rightly attributed both to their source. In the tropics, where so many birds of all kinds remain mated throughout the year, the peculiar utterances by means of which the members of a pair keep together, and with which they greet each other after a temporary separation, form a most fascinating subject for observation.

The Central American wrens, like their relatives in northern regions, build closed nests with an entrance in the side or bottom; or else they place the nest in some nook or cranny, such as a hole in a tree or a niche in a bank, where it is concealed and protected from the elements. None, so far as I know, lays its eggs in an open, cup-shaped structure exposed to the sky. A number of species lay only two eggs in a set; but House Wrens commonly lay four, although less frequently only three. The largest sets are found among the several species of Cactus Wrens (*Heleodytes*), which may lay from four to six eggs in a nest.

For the past six years, I have lost no opportunity to learn all that I could about the sleeping habits of wrens. Since during these years I have resided for considerable periods in a number of distinct regions of Central America, and in addition have made briefer visits to many others, I have succeeded in discovering the sleeping places of a number of species greater than it would be possible to find in any one locality. Of fourteen kinds of wrens which I have traced to their dormitories, eleven sleep in nests constructed by themselves; three (all species of *Troglodytes*) take shelter in nooks and crannies which they find already prepared for them. None, so far as I know, slumbers with no better shelter than is afforded by the foliage, in the manner of so many birds of other kinds. Some wrens, such as 'Chinchirigüís' and adult House Wrens, sleep singly; others, such as Gray-crowned Wood Wrens (*Henicorhina leucophrys*) sleep in pairs; still others, including Cactus Wrens and Lawrence's Musician Wrens (*Leucolepis lawrencii*) pass the night in family groups. The greatest number that I have found sleeping in one nest is eleven, the species being the

Banded Cactus Wren. Some species, among them House Wrens and Banded Cactus Wrens, lead the fledglings back to sleep in the nest in which they were reared or some other convenient shelter; while others, such as the 'Chinchirigüí,' are content to leave their young exposed to the elements, while they themselves retire at nightfall to their snug dormitories. The same variation in the degree of care given to the fledglings is found among woodpeckers, whose sleeping habits in many ways parallel those of wrens.

It is a common observation that wrens frequently construct nests in which they never place eggs. In many books of ornithology, one finds the term 'dummy nests' applied to structures which are not actually employed in the raising of offspring. An opinion generally held is that these extra nests are built for the purpose of misleading the predators which might destroy the eggs and young. This theory is in my view based upon a misapprehension not only of the purpose for which the extra nests are made, but also of the psychology of the birds and the behavior of the creatures which prey upon them. If snakes and other animals which eat eggs and nestlings go nest-hunting after the fashion of some ornithologists, searching for the homes of birds without depending upon the actions of the owners to reveal their positions, then it is conceivable that the finding of a number of empty 'dummy' nests might discourage them to the point of abandoning the quest for edible contents in that particular locality. If, on the other hand, these predators discover the nests by watching the comings and goings of the birds as they incubate their eggs or bring food to their young, or if they depend to any important degree upon the sense of smell, then they are not likely to be misled by unoccupied nests in the vicinity. Snakes are one of the principal destroyers of birds' nests; and all that I know of their habits leads me to suspect that they find these nests chiefly by watching with their lidless eyes the movements of the owners. I have more than once marvelled at the long time that eggs may continue to lie in an abandoned nest, in a locality where most of the occupied nests are being pillaged.

Observations on the sleeping habits of fourteen species of wrens, added to the meager notices on this subject which I have seen in print, lead me to the conclusion that the so-called 'dummy' nests are in fact dormitories. These dormitories are sometimes not to be distinguished in structure from the nests used for breeding, but at times they differ by being more loosely built, or of a distinct shape, or both. At times they are situated in positions more exposed than those chosen for the

nests that contain eggs; but with other species of wrens, as the Banded Cactus Wren, there is no important difference in the sites of the two types of structure. Indeed, in many species there is no hard and fast distinction between dormitory nests and breeding nests; and according to the exigencies of the moment the same structure may be employed for either purpose.

It is probable that the restless energy of these dynamic little birds frequently impels them to build more nests than they actually need. Years ago, I was shown two hats which a Carolina Wren (*Thryothorus ludovicianus*) had filled with dead leaves as they hung in an inverted position from one of the posts of a tent, during the early hours of a midsummer morning before the campers awoke. When, annoyed by the *churrs* of the bustling little bird, the owners of the hats threw out the leaves, the energetic wren returned to fill them once more before *reveillé*. Once I watched a male Panamá House Wren accumulate a small pile of twiglets and similar material on top of a little can that stood on the projecting edge of a beam beneath a cabin, while his mate built her nest in a corner under the floor. From time to time he would bring a small contribution to her structure. His own accumulation of material was in such a position that it could not possibly serve as a breeding nest; and House Wrens do not build dormitories. The little bird seemed to be merely playing.

The generalizations reached in the foregoing paragraphs are based upon observations which are briefly summarized in the section which follows. Since in a number of cases I have studied two races of the same species, I shall treat the material according to species rather than geographical races, which are frequently poorly defined and confusing in the field.

#### LAWRENCE'S MUSICIAN WREN, *Leucolepis lawrencii*

These brown wrens are denizens of the undergrowth of humid lowland forest on the Caribbean side of Central America, where they are sometimes met with in small family groups consisting of four or five individuals. They often forage on the ground, where they lift up the dead leaves by pushing their bills under the edge, seeking the small creatures that lurk beneath. Their utterances are quite distinct from those of most wrens, and consist of low, throaty, frog-like notes which they repeat incessantly as they wander through the woodland. The song is made up of notes of the same guttural character, very rapidly delivered, followed by one or two which are clear and whistled, in sharp contrast to the others; or else it may be composed entirely of low,



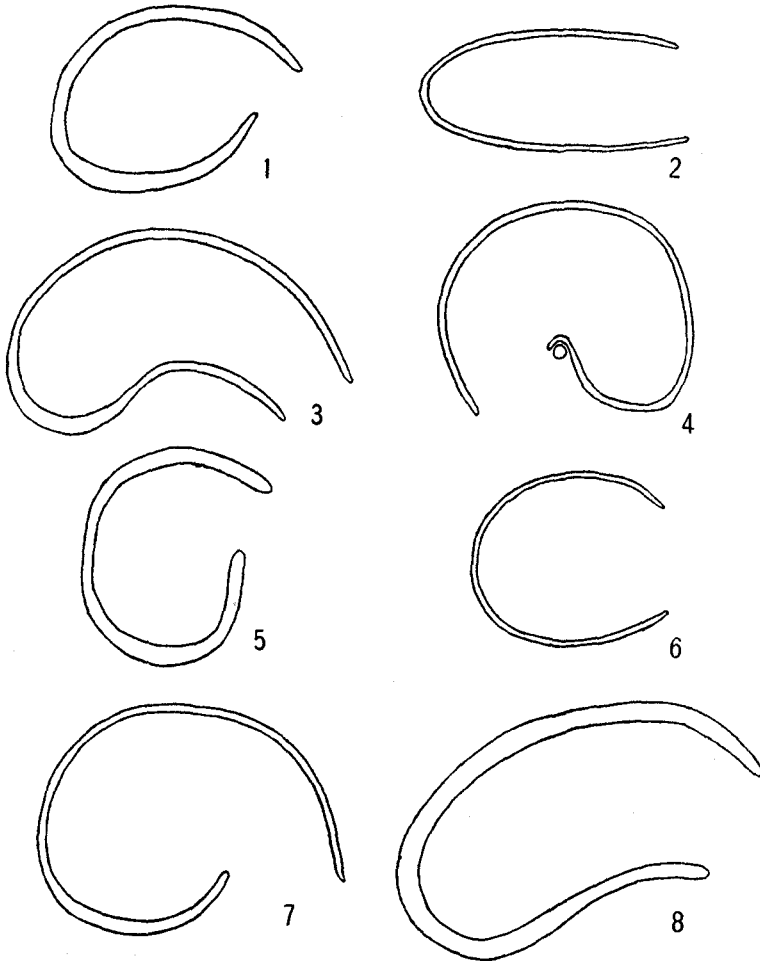
clear, distinct whistles, conjoined into a beautiful and moving melody. The only breeding nests of this species which I have seen were found near Turrialba, Costa Rica, at an altitude of about 2500 feet, in February 1934. They were bulky, elbow-shaped structures, supported in an upright crotch of a small sapling amid the dense understory of second-growth woodland, at heights of three and eight feet, respectively, above the ground. The rounded chamber hung down on one side of the support, balanced by the rather wide, tubular entrance-way on the opposite side. The entire structure measured ten inches in length, six in height, and five in width; it was composed chiefly of rather coarse fibrous roots, pieces of vine reduced by decay to their fibrous constituents, and skeletonized leaves. The bottom of the chamber was lined with a very thick layer of lacy skeletonized leaves. One contained two newly hatched nestlings, the second two white eggs speckled with brown, the markings concentrated into a wreath about the large end.

On Barro Colorado Island, Canal Zone, I found in March of the following year nests used as dormitories which closely resembled in form, materials and position those already described (Plate 5). One was occupied nightly by five individuals, the other by four. These were apparently family groups composed of the parents with their grown-up young, well able to take care of themselves. In the vicinity of each occupied dormitory were several other nests of the same type, some in good repair, others old and falling into ruin.

#### CHINCHIRIGÜÍ, *Thryophilus modestus*

Since the English names which have been invented for the several races of *Thryophilus modestus* are mere geographical designations which fail to indicate their close relationship, I think it preferable to use for this species the excellent imitative name by which it is known in Costa Rica. This is a wren of second-growth thickets of the more humid portions of the Pacific lowlands of Central America, the upper levels of the Caribbean slope, and the central highlands up to an altitude (in Costa Rica) of about 6500 feet. As already recorded, the birds remain in pairs throughout the year; and the phrase *chean-cheery-gwee* is a composite utterance of both members of the pair singing in antiphonal fashion. At times, however, it may be delivered by one bird alone. The breeding nest is a compact ellipsoidal or nearly globular structure with a circular entrance at one end, facing obliquely downward (Text-fig. 1: 1). It is composed of fine grasses and fibrous materials of a light color, well lined with soft down, and

placed from two to eight feet above the ground in dense thickets or low, weedy growth, rarely in a somewhat exposed position. The eggs are pure white and apparently always two in number.



TEXT-FIG. 1. Nests of Central American wrens. Imaginary sections through nests of: 1, 'Chinchirigüí,' breeding nest; 2, 'Chinchirigüí,' sleeping nest of male; 3, Banded Wren, breeding nest; 4, River Wren, breeding and sleeping nests; 5, Wood Wren, breeding nest; 6, Wood Wren, sleeping nest; 7, Gray-crowned Wood Wren, breeding and sleeping nests; 8, Hooded Cactus Wren, breeding nest.

The dormitory nest built by the male is a very flimsy construction, a roughly cylindrical pocket placed horizontally with the round entrance at one end, composed of grasses, tendrils, straws and the like, with no lining (Text-fig. 1: 2). An egg laid in it would be in great

danger of rolling out, for there is little or no hollow below the level of the doorway. I found a number of these nests at Rivas in southern Costa Rica, and near Colomba on the Pacific slope of Guatemala. The wren always sleeps alone in this frail shelter. At Rivas I invariably found him slumbering with his tail inward and his light-gray breast filling the entrance; but at Colomba I saw a bird that slept with his tail outward, in a very shallow pocket. The construction of the dormitory is so weak that on one occasion the wren, alarmed by my early-morning visit, easily pushed through the rear wall and made good his escape. About ten feet distant from this particular sleeping-nest, the mate of this Chinchirigüi had a well-made nest of the type used for breeding; but when I first found it she was occupying it merely as a dormitory. Later she laid her two eggs in it; but when something befell one of these, she continued to sleep in the nest along with the remaining egg, which she had ceased to incubate by day.

The eggs of the Chinchirigüi hatch in eighteen days. After the nestlings leave the nest at the age of thirteen days they are not led back to sleep in it; but the female may continue to employ it as a dormitory. Once I found a Chinchirigüi sleeping in a small globular nest which had been built for a dormitory by a male Mexican Honey-creeper (*Coereba mexicana*).

#### RIVER WREN, *Thryophilus semibadius*

Easily recognized by the rich brown of its upper plumage and the fine, transverse black-and-white barring of its under parts, this wren is confined to the Pacific side of southern Costa Rica and Veragua, where I have seen it only along or near the courses of the rushing streams which traverse that wild region. It avoids both the interior of the heavy forest and the dense thickets at a distance from water. Its loud, clear, ringing *mil veces, mil veces* sounds above the perpetual roar of the impetuous streams along the vine-draped marginal thickets of which it forages. The nest is a roughly globular structure about six inches in diameter, balanced across a horizontal twig. On one side of the support is the nesting chamber, wider from side to side than from front to back; on the opposite side is the vestibule, sometimes quite as spacious as the chamber, entered by a very wide doorway that faces downward or even obliquely inward (Text-fig. 1: 4). Such a nest may be considered as an extreme development of the elbow-shaped structures built by Lawrence's Musician Wren and the Banded Wren, with the ends drawn together until a nearly globular figure results. The walls are constructed of fine fibrous material,

with a few tufts of green moss attached to the roof, which is very thin, permitting much light to pass through. The nests which I have seen, whether used for dormitories or for breeding, were placed in the vegetation along streams at heights ranging from six to eighteen feet above the ground. The single breeding nest, found at Rivas, Costa Rica, on January 28, 1937, contained one nestling and one egg, which was white finely and faintly sprinkled with pale brown, especially on the larger end.

In a nest of the same type, which contained no eggs, I found two adult River Wrens, evidently a pair, sleeping side by side; and another nest was occupied nightly by a single bird. Only one parent, doubtless the female, slept in the breeding nest with the nestling, after the departure of which the structure was abandoned.

#### BANDED WREN, *Thryophilus pleurostictus*

The Banded Wren, so-called from the heavy transverse black bars on the sides of its whitish under parts, lives in the drier portions of the Central American lowlands from the Gulf of Nicoya northward, on the Pacific side. It is a glorious songster with a varied repertory; one that I heard near the village of Nicoya reminded me much of the Cardinal. Since I have been only a transient in its range, I have learned but little of its social habits. The elbow-shaped nest is hung in a crotch of a small tree, with the chamber descending on one side of the support and the portion which serves as vestibule on the other (Text-fig. 1: 3). It is very compactly built of fibrous rootlets, weed-stems and the like, and lined with fine grasses. The favorite site seems to be a cornizuelo or bull's-horn acacia, the paired thorns of which are inhabited by fiery ants; and in this the nest is placed at a height of from three to six feet above the ground. So I have found them in both southern Mexico and Costa Rica. One which I examined at Matias Romero on the Isthmus of Tehuantepec, on July 8, 1934, contained four pale-blue eggs. Dickey and Van Rossem ('Birds of El Salvador,' 1938) record that in El Salvador the Banded Wren may breed in old nests of the Gray-headed Flycatcher (*Rhynchocyclus cinereiceps*); yet in Mexico and apparently also in Costa Rica they build their own nests.

At Barra Honda, Province of Guanacaste, Costa Rica, I found a dormitory nest of this species on December 4, 1937. It was situated five feet above the ground in a crotch of a small bull's-horn acacia growing beside a stream in open woodland. In form it closely re-

sembled the breeding nests that I had seen in southern Mexico some years earlier. A single adult entered this nest at nightfall.

WOOD WREN, *Henicorhina prosthaleuca*

This, in its several races, is the Wood Wren of the heavy lowland forests of Central America, extending upward from sea-level and sometimes slightly overlapping the range of its highland congener. It is a shy bird, skulking through the undergrowth and creeping through the piles of brush formed by the crowns of fallen trees, and is very difficult to observe. Like so many other wrens, it scolds sharply when it discovers that it is being watched. The song is of exquisite purity of tone, the more effective because it rings out in the stillness of the high forest at seasons when most other birds are silent. Although even more beautiful than the song of the Wood Wren of the highlands, it is far more brief and, in my experience, far more sparingly delivered.

The single breeding nest which I have seen was shown to me by some boys at Rivas, Costa Rica, at an altitude of 3500 feet, on March 16, 1937. It was a roughly globular structure with a round entrance facing sideways and well protected by a forward extension of the roof (Text-fig. 1: 5). The walls were composed of fibrous rootlets, leaves partially or completely skeletonized, vegetable fibers and much green moss, forming a thick and firm fabric. Its position was only five inches above the ground, among the dead branches, prostrate trunks and sprouting weeds of a new clearing, fifty feet from the border of standing forest. It contained one nestling and one pure-white infertile egg.

While the breeding nests of the Wood Wren are so cunningly concealed that they are very rarely found by man, the dormitory nests are placed in higher and more exposed positions among the undergrowth of the forest. While wandering through lowland forest, I have encountered scores of these nests; but only one was in a location which it was practicable to visit after nightfall. This was situated six feet above the ground in a tangle of climbing fern beside the trunk of a lofty tree. It was nearly globular, about five inches in diameter, with walls much more frail than those of the breeding nest I afterward found (Text-fig. 1: 6). Because of its flimsiness and the lack of a hollow below the level of the wide doorway that occupied most of one side, it was little fitted to hold eggs. A single Wood Wren of unknown sex slept in this nest, its head turned back beneath

a wing and its white breast occupying a prominent position in the doorway.

GRAY-CROWNED WOOD WREN, *Henicorhina leucophrys*

This is the common Wood Wren of the humid cloud forests of the highlands, and rarely descends below an altitude of 4000 feet. It lives in the dense undergrowth of bamboos, shrubs and tall ferns, beneath lofty trees burdened with great masses of moss, orchids and epiphytic ferns and bushes. Its loud, clear, sweet-toned song is one of the sounds most frequently heard in the wilder parts of the Costa Rican highlands. The song is of the diffuse, juvenile type, long-continued and with no set phrasing, which contrasts sharply with the brief, stereotyped verse of the 'Chinchirigüí.' Male and female both sing, the latter sometimes chanting responsively to her mate while she sits in the nest. These wrens remain in pairs after the separation of the young of the year from their parents.

The nest, which is built by both sexes together, is a globular structure, somewhat like that of the River Wren in form (Text-fig. 1: 7). On one side is a spacious antechamber entered through a wide, downwardly directed doorway, on the other side the rounded nesting chamber. The walls are composed chiefly of black fibrous rootlets, lightly covered on the top and sides with green moss. Although much light passes through the meshes of the sides and top, the interior, as I have assured myself, remains dry after hours of rain. The nest is situated in the undergrowth of the forest, in a bushy clearing near the forest, or over the edge of a bank beside a woodland road or path, at heights varying from three to eight feet above the ground. The pure-white eggs, apparently always two in number, are incubated by the female alone, and hatch in nineteen or twenty days. The nestlings depart at the age of fourteen to eighteen days. At the close of the breeding season I found four individuals sleeping together, which suggests that the fledglings are led by their parents to a dormitory into which the whole family retires, but this is not necessarily the breeding nest.

After the separation of the parents from their young, the former continue to sleep side by side in a dormitory nest, which closely resembles the breeding nest in form and position. At one nest, which I suspect was not typical, the male slept with his mate while she incubated her eggs and brooded the nestlings; but in two other nests the females slept alone with their eggs and nestlings. The males probably passed the night in dormitories of their own.

HOUSE WREN, *Troglodytes musculus*

The House Wren of Central America so greatly resembles its relatives of the North that it scarcely needs an introduction. A bird of the clearings, orchards, plantations, pastures and dooryards, it avoids the forest and even the heavier second-growth, and ranges over most of the country from sea-level upward to an altitude of 9000 feet. Its adaptability and the diversity of its habits are such that to do it justice would require a small book. Adults sleep singly in the most diverse situations: an old woodpecker's hole, a natural cavity in a tree or post, a niche in a steep bank, beneath the eaves of a house, among the leaves of a thatched roof, in the end of the hollow bamboo cross-piece of a garden trellis, in the center of a bunch of green bananas hanging from the plant. The nests, built by both sexes together, the female working more intelligently if not harder than her mate, I have found in each of the situations just enumerated as sleeping places, and in a few sites of somewhat different character. On a foundation of fine sticks and straws, very bulky if there is a large hollow to be filled, is fashioned a shallow cup composed of fine rootlets and fibers, lined with downy feathers and sometimes fragments of the cast skins of reptiles. The eggs, three or more usually four, are white, heavily speckled all over with brown. They are incubated by the female alone and hatch in fifteen days.

The young are fed by both parents, who perform equal shares in the labor, and emerge from the nest at the age of eighteen or more rarely nineteen days. They are then led by the parents to sleep either in the nest from which they have just departed or in some other convenient nook or cranny. The parents show the fledglings how to enter by going in and out, in and out, many times over, until the youngsters succeed in following them into the shelter. This is just the fashion in which the Banded Cactus Wrens lead their newly emerged fledglings to rest. The female parent usually sleeps with the fledglings, the male alone in his own dormitory near by.

I have known the young birds to sleep in a gourd, on the rim of the nest in which the female was incubating a second set of eggs. Soon after the eggs hatched, the older young were forcibly evicted from the gourd; and then the male parent slept in it with his mate and the nestlings of the second brood. In the following year, the same parents permitted their young of the first brood to continue to sleep in the gourd while the nestlings of the second brood were growing up; and the juvenile birds helped to feed their younger brothers and sisters. Likewise, a young male of the second brood

attended the nestlings of the third brood. Four or possibly five broods are raised in a year, at lower altitudes. After the fledglings of the last brood have become self-supporting they separate from their parents, who remain mated until the following nesting season.

IRAZÚ WREN, *Troglodytes ochraceus*

This little wren with ochre-tinged plumage is endemic in the mountain complex of Costa Rica and Chiriquí, where it lives in just such dripping, epiphyte-laden forests as are the home of the Gray-crowned Wood Wren. It is, however, more arboreal in its habits, creeping over the mossy trunks and branches, and frequently disappearing into the midst of the great masses of air-plants which burden them. Its little song is weak and rather melancholy. In the heavy cloud-forests, rotten branches which break from the trees are not infrequently prevented from falling by the roots of epiphytes which creep over them and extend to the trunk or to a thicker, sound limb. Or else dense, matted masses of the roots of air-plants break away from the tree but hang suspended by some stronger root. In crannies in the decaying segments of branches or among the matted wefts of roots, hanging from the tree by a single stout root and swaying with every passing gust of wind, the Irazú Wrens build their nests, forty or fifty feet above the ground. At one nest the construction of which I watched, the female did most of the work, but the male occasionally brought a small contribution. These nests dangling free in the air so high above the ground are inaccessible; at least this was so of all three that I found at Vara Blanca, Costa Rica, in May, 1938.

I saw a single fledgling led back to sleep in one of these nests; but after putting it to bed the parents retired elsewhere. Another nest, which bad weather prevented my watching in the evening until several weeks after the departure of the nestlings, was entered at the close of the day by three wrens, which I took to be the adult female and two young. They were indeed rocked to sleep that night, for their dangling dormitory swayed like a pendulum in the wind.

RUFIOUS-BROWED WREN, *Troglodytes rufociliatus*

In the cloud-forests of the Guatemalan highlands, this little wren with a rust-colored breast represents the Irazú Wren of Costa Rica. It is found chiefly at altitudes between 7000 and 11,000 feet, and is restricted to the denser and more humid woodlands. The heavier the coating of moss on the trees, the more at home it seems to be. Shy and secretive in its habits, it creeps beneath fallen logs and dis-



appears amid piles of brush as it seeks its insect food. Its song is slow and deliberate, with low, clear notes strung out at intervals, and seems to be touched with melancholy; but at times it utters a cheerier and more light-hearted trill. The nest is an open cup composed of pine-needles, grass and the like, well lined with downy feathers, and is placed in a narrow cranny in a trunk, near the ground, or else in a niche beneath an overhanging bank. The eggs, usually three in number, are white, finely speckled all over with pale cinnamon, most heavily in a wreath around the large end. The male brings food to his mate while she incubates.

Three fledglings, raised in a nest beneath an overhanging roadside bank, in the mountains above Tecpán, Guatemala, were led by their parents to sleep in a shallow niche in the bank near the site of their nest. Here they slumbered with one of the adults, without much doubt the female parent. All slept with their heads inward and their tails toward the entrance. At another time I found a single adult Rufous-browed Wren sleeping in a shallow pocket in a steep cut bank. High up on the mountain another wren disappeared each evening among the moss-burdened branches of a tall cypress tree, where evidently it took shelter in some cozy nook among the thick cushions of moss.

#### TAWNY-BELLIED WREN, *Pheugopedius hyperythrus*

This attractive wren with a bright orange-tawny breast is confined to Panamá and the Pacific side of Costa Rica, where it frequents the second-growth thickets and lighter woodlands, avoiding both the clearings and the heavy forest. I found it very abundant at Rivas, in the Valley of El General in southern Costa Rica, at an altitude of 3000 feet. Both male and female utter a clear, sweet song; and the two, singing back and forth alternately and in perfect harmony, produce a long-continued strain which can be recognized as the production of two individuals only when the listener stands between them. To judge from their responsive singing, they remain mated throughout the year. The nests which I have seen were built in vine tangles amid the thickets, more rarely in a more exposed situation in a small opening amidst the second-growth, at heights of from six to nine feet. They are compact, globular structures, about five inches in diameter, with the round entrance facing sideways. They are composed of broad grass-blades, weed-stems and the like, sometimes softly lined with the pappus of Compositae. Two nests that I examined contained each three eggs, white with a heavy wreath of brown spots

about the large end, and a sprinkling of the same over the remainder of the surface. The nestlings of one of these nests departed at the age of sixteen days, and did not return to sleep in it.

On February 28, 1937, I found a nest which was occupied as a dormitory, but which possibly had earlier served as a breeding nest, for it was not to be distinguished from the latter in construction. A single adult Tawny-bellied Wren slept in it. These wrens do not seem to build so many nests as some other members of the family, and they begin to sing earlier in the morning than most of their kind; I am not sure that they always sleep in dormitories.

#### SPOTTED-BREADED WREN, *Pheugopedius maculipectus*

These wrens, distinguished by their white breasts heavily spotted with black, live in dense thickets and light woodlands with heavy undergrowth, in southern Mexico and northern Central America, on both the Caribbean side and the moister parts of the Pacific side, from sea-level up to about 3000 feet. Their habits and song are similar to those of their congener, the Tawny-bellied Wren. In the Lance-tilla Valley on the northern coast of Honduras I found them exceedingly numerous in the tangled thickets. But despite their great abundance, the only occupied breeding nest which I found was one that the wrens practically forced upon our attention by building it on a basket of plants hanging from the lattice roof of a shed used for the propagation of plants (Plate 5). In this position the structure was domed, with the round opening on one side, like the nest of an Oven-bird; but when the Spotted-breasted Wren builds among the thickets and vine tangles its nest is globular like that of the Tawny-bellied Wren. The two eggs were white heavily spotted with light brown, the marks aggregated into a wreath around the large end.

Five years later, I found a dormitory of the Spotted-breasted Wren near Colomba on the Pacific slope of Guatemala, at an altitude of about 2500 feet. The globular structure composed of fine grasses and similar material was situated at a height of twenty feet in a bull's-horn acacia tree in a tangled thicket at the edge of a coffee plantation. A single wren slept in it.

#### HOODED CACTUS WREN, *Heleodytes capistratus*

These big, black-capped wrens with pure-white under-plumage are confined to the drier portions of the lowlands, where they are found along the Pacific coast from the Gulf of Nicoya northward, but on the Caribbean side live only in restricted areas in arid valleys in the

rain-shadow of the mountains of northern Central America. They roam in pairs or small family groups through the thorny scrub and among the cacti. Their calls are loud and harsh; but their song at best is very fine, for the tone is full and mellow, the phrasing intricate and varied. Both sexes are equally gifted with music, and frequently raise their voices together, keeping perfect time in their most difficult figures. One must be between the singers to appreciate this fact; at a little distance the two voices fuse and the ear cannot separate them. Thus while the songs of the Tawny-bellied Wren and the 'Chin-chirigüi' are antiphonal, those of the Hooded Cactus Wren and its close relatives are delivered simultaneously by the two members of the pair.

The nest, built by male and female together, is a deep pocket with a round entrance on one side facing obliquely downward, composed of lengths of dry vine, fibers, straws, rootlets and the like, softly lined with downy material (Text-fig. 1: 8). In the middle Motagua Valley of Guatemala I found them in thorny bushes and between the flat joints of the opuntia or prickly-pear, at heights of from six to fifteen feet above the ground. The four eggs were white, very heavily spotted with brown, olive-brown, rufous and gray. Dickey and Van Rossem record that in El Salvador the sets of the Hooded Cactus Wren range from three to six eggs, with four or five most common.

In November 1937, in the Province of Guanacaste, northwestern Costa Rica, I found the dormitories of three family groups of Hooded Cactus Wrens. The first group consisted of three full-grown birds who slept in a bulky nest situated nine feet above the ground in a bull's-horn acacia by the roadside near Las Cañas. The second consisted of two birds, doubtless a pair, who slept in a nest in a similar position in the same locality, but twelve feet above the ground. The third group of four full-grown wrens lived about the big house on the Hacienda Tenorio, where they hopped over the porches and through the outbuildings as they searched for insects and spiders. All four slept together, and were well provided with dormitories. They had built nests in two of the four compartments of a dove-cote standing on a tall post in the yard. Here they usually retired; but when I disturbed them one evening as they were settling down, they moved to a nest in an orangetree not far distant. In addition to these three nests, they were constructing a fourth in the top of another orangetree growing close beside the house.

At Zacapa, Guatemala, in August 1935, I watched a pair of Hooded Cactus Wrens carry material into the long, pouch-shaped nest of an

oriole, probably *Icterus gularis*, that had been abandoned by its builder. I looked in vain for the wrens to enter this nest at nightfall.

#### CHIAPAS CACTUS WREN, *Heleodytes chiapensis*

My acquaintance with these giant wrens of distinguished appearance is limited to a few days passed at Tonalá, Chiapas, Mexico, in July 1934. Here I found them fairly numerous in the hedgerows and the bushy pastures. Their song was deep and full, but consisted of the repetition of only a single note. Male and female sang together in unison, in the manner of other Cactus Wrens. Their nests were very bulky, far larger than those of the Hooded Cactus Wren, but somewhat resembling those of the Banded Cactus Wren. They were placed by preference in the 'cornizuelos' or bull's-horn acacias, where it was impossible to look into them without taking punishment from the peppery ants that inhabit the hollow thorns.

One nest which I examined was composed of straws, weed-stems, lengths of vine and the like, and measured fourteen inches in height by eleven in diameter. It was provided with two entrances, one facing north and the other east. I did not see sufficient nests of this species to learn whether the possession of two doorways is a normal condition, but I suspect that it is not. There were two fat nestlings in the nest, and one infertile egg of a light buffy ground-color very heavily mottled with brown. A hundred feet distant, also in a bull's-horn acacia in the same lush pasture, was another somewhat smaller nest with a single entrance and neither eggs nor nestlings within. This was the male's dormitory; he slept here alone while his mate brooded the nestlings in the larger structure.

#### BANDED CACTUS WREN, *Heleodytes zonatus*

This big, slender wren deserves the name 'Cactus Wren' only by virtue of its affinity to other species which do live in arid country. It avoids the districts where cacti grow but thrives in humid regions; I have, indeed, found it in some of the very wettest parts of Central America. Its altitudinal range is great, for, in its various races, it occurs from sea-level up to nearly 10,000 feet. Since in an article which appeared some years ago in 'The Auk' (52: 257-273, 1935) I described the social habits of this interesting bird, it will be necessary here only to recapitulate some of the points which bear especially upon its social life and sleeping habits.

The Banded Cactus Wrens are, in my experience, the most social members of the family, and live in groups which sometimes contain

a dozen or more individuals. Their bulky, globular nests, about a foot in diameter with a wide doorway on one side, are placed high in trees usually in a conspicuous position, with little attempt at concealment. In such nests I have found as many as eleven individuals sleeping together. The five white eggs, which are either immaculate or faintly speckled with brown, are laid in a nest which may previously have been used as a dormitory; but so long as it contains eggs or nestlings the female is the only adult who sleeps in it. Her mate, and the unmated birds who assist in the care of the young, retire at night to a dormitory in the vicinity. In only one case have I known the male to sleep in the nest in which his mate incubated. He had apparently lost his own shelter, for he was at the time engaged in the construction of a new nest in the same hawthorn tree; and as soon as it was sufficiently advanced he slept in it alone, leaving his mate to sleep alone with the eggs. This observation is of interest when considered in connection with that on the male Gray-crowned Wood Wren who slept with his mate in the breeding nest.

Studies of the sleeping habits of the Banded Cactus Wrens were particularly informative because it was possible to find the big, conspicuous nests, and to follow the movements of the noisy flocks of large birds—thus keeping record of all their changes of sleeping place—in a manner which is scarcely practicable in the case of small, retiring wrens that hide away their little nests among the dense undergrowth. In the article to which reference has already been made, details are given of the movements of a family which between May and December occupied five different dormitories and made frequent shifts from one to another. Some of these nests were built months away from the breeding season, so it is not at all likely that they were constructed as 'dummies' to mislead their enemies as to the true position of their eggs.

#### EXPLANATION OF PLATE 5

Above: Nest of Spotted-breasted Wren in an unusual position. Lancetilla Valley, Honduras, August 26, 1930.

Below: Dormitory of Lawrence's Musician Wren, entrance on right. Barro Colorado Island, Canal Zone, March 1935.

*Care United States Consulate  
San José, Costa Rica*