

TERRITORY, ANNUAL CYCLE,  
AND NUMBERS IN A  
POPULATION OF WREN-TITS  
(CHAMAEA FASCIATA)

BY

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## A WREN-TIT'S LIFE

At hatching, a wren-tit is a blind angular mite which knows only to raise its head and open its bill at a jarring of the nest so that it may be nourished, and to carry out the reflexive act of evacuation, which is sometimes but not always stimulated by the parents. In two weeks the young bird has changed to a streamlined, bobtailed youngster that eagerly awaits and calls to its parents as they approach, that cares for itself to the extent of preening its feathers, that restlessly, in response to no evident external stimulus, stands up in the nest and vibrates its wings, that watches its surrounding world of tangled brush with interest, and that distinguishes and is stimulated by abnormal events therein. A day or two later it hops into its world of interlacing twigs.

The first hours out of the nest are a time of rapidly changing behavior patterns, for within that time the first uncontrolled state of continuous crying is replaced by the power to respond by motionless silence to the parents' alarm notes. The change in physical capacity is less rapid. The fledgling spends most of the time perched in a row with its brothers and sisters, where it clamors for food and greedily swallows what is brought. When in motion, it progresses by a series of short hops accompanied by a probably futile fluttering of the wings, but it is not sure-footed and if hurried often fails to gain its intended objective and scrambles desperately to recover its balance as it falls. Normally it covers only a few yards during the first days, though greater efforts may be made in response to fright.

Within four or five days, however, it hops through the brush with nearly the ease and skill of the adults and has the power of actual flight, though for a few feet only. For the next few weeks it shows two dominant preoccupations—to keep close to its parents, and to persuade them to feed it. It receives food from them at about the same frequency as during the last days in the nest. Needless to say, it has undergone a myriad of experiences with the elements of its environment and developed in many ways imperceptible to us.

By the time it is five or six weeks old the fledgling is fully feathered and flies readily, hunts at least some of its own food, helps its parents to scold an intruder, and is excited by, but probably does not take part in, disputes with neighboring families. Actual separation now begins, though very gradually. During the next four weeks it ceases to follow its parents as closely, perhaps less because of its reduced sense of dependence than because of their reduced interest or even resentment of its clamorous persistence—though on this my information is inadequate. Restriction to the home territory has evidently been through attachment to the parents, for with this bond weakened, the young bird, in seeking food, may go beyond the boundaries, and finally, when nine or ten weeks old, fails to return.

For a time it wanders freely, pausing wherever it finds food. It comes in contact with members of its own kind and may sometimes be weakly gregarious with any of them, but it distinguishes and is attracted by an individual of the opposite sex, and a young male and female wander together until sep-



arated by chance or a new interest. Such companions forage together, keep track of each other by calls, preen each other, and undoubtedly sleep together at night. The male occasionally utters a juvenile song. Such a foot-loose phase may terminate in a month or may last several months. This period may be one of curiosity, which makes for pioneering, or merely a period of complete indifference to locality and consequent drift, or nothing more than submission to rebuff after rebuff from landed birds until a place of temporary peace is found by trial and error. I suspect that the first suggestion contains more of the truth.

The next perceptible step toward maturity is the inclination which arises during the fall to remain in one place where, with its companion of the moment, it can subsist without being harassed by established birds.

Sometime in the course of the winter—certainly by March—the young bird ceases to be satisfied merely with a place to forage and a casual companion. The period of passive settlement gives way to an active phase which marks the arrival of maturity, beyond which change is cyclic and development stops. Here, on the threshold of maturity, sex as a dynamic force begins to operate and male and female behaviors diverge. The psychological effect of the physiological changes which are taking place is to concentrate the forces of the male not on the search for a mate, but on the acquisition of an adequate habitation, from which he excludes all other wren-tits except the female which he accepts. If he does not meet opposition and the area is suitable, he may stay where he has been content to remain passively for weeks or months, but if his rising ambition brings him into conflict with individuals on whose marches he has been tolerated, but in whom the same ambitions are fully developed, he is driven from his place of sojourn and can satisfy his desires only when he finds an area not defended by an established pair, or when his desire reaches the strength of theirs and he can meet their attacks and wrest a foothold from them. His success in obtaining a territory gives him the power to hold a mate, and opens the floodgates of song. The immediate interest of the female, on the other hand, is not primarily in ground, but in a male which possesses it, and as her desire grows she will leave a landless companion to join a male which holds a territory. Perhaps if her casual companion's desires keep pace with or are in advance of hers, she will remain with him and they will become established together.

At any rate, by the first of March the average wren-tit of either sex approaching one year of age is established on an estate of about .8 of an acre of chaparral, which it shares with its mate. Whatever the mental imagery may be, the male has formed from his passion for land and from his conflicts with like-minded neighbors a working concept of his territory as a whole and of its relation to those which surround it. With this has come the recognition of a female as his mate. His mate, though her interest in ground was secondary, has acquired the same working concept, and the energies of the two are harmonized and directed toward the defense of their estate and toward keeping in touch with each other.



Territorial possession and behavior are well established when, about the first of April, a series of new elements rapidly and for the first time burgeon in the minds of the birds and drive them through a maze of novel reactions to a degree of forced activity in strong contrast to the base level of life outside of the breeding period. They resent the presence of jays and mob them. They are excited by frayed bark surfaces or by cobweb, and collect fragments of both. Soon they are combining the two into a nest, and as it takes form, each finds satisfaction in sitting in it. Simultaneously their interest in each other builds up toward its peak, finds expression in the exciting chase of sexual flight, and finally, as the nest nears completion, reaches its climax in coition.

With egg laying begins a period of rigid and exacting routine, the pair being continually separated. Each takes its turn on the eggs, and between shifts finds food for itself, scolds intruders, and defends the territory, though as the season advances this is less frequently necessary, for the pairs have come to recognize their boundaries and are busy with their respective families. With hatching, the function of supplying food for the nestlings is added to the routine of the pair, but insects are abundant and the additional demand on time and strength seems to be met without excessive effort. As the nestlings reach the age at which they can be left most of the day without brooding, the pair, which for a month have been separated by alternating tasks, are again seen moving and working together.

Judged by their resentment of intruders and boldness in defense, the parents' concern increases with the growth of the young and reaches its peak when the latter leave the nest. Thereafter the adults are no longer tied to one spot, and as the young gain in mobility, the family moves as a unit. After a time, however, the interest of the parents in their offspring wanes until the adults no longer understand the importance of the young and perhaps finally resent their importunities or even their presence.

The successful rearing of a family releases the pair from the complex chain of activities it entails, but if the series is interrupted by the destruction of the eggs or young, bark fiber and cobweb again become objects of fascination and the cycle begins anew.

By the end of June at the earliest or the middle of September at the latest, the absorption of the parents in rearing young ends, and until the following spring their life continues on a relatively uniform level. Their activities serve only to maintain their own lives, their companionship, and their territory. They are constant companions, forage together, keep track of each other by calls, preen each other, sleep together, and may rarely show sexual excitement to the degree of attempting copulation. The male sings regularly, and both defend the territory from invasion. In the fall each molts, but this is a gradual process and, so far as I can see, does not change the tone of the bird's behavior, though more time is spent in preening. As the season advances, it is increasingly hard for the members of the pair to satisfy their own needs, but it is usually not beyond their power to do so. In the fall and early winter there occurs a subtle, indefinable, and very limited change, in effect a relaxation, in

the bird's preoccupation with its territory, an increased tolerance, a sense of the temporary harmlessness of invasion, evidenced by toleration of wandering young and even by rare excursions outside the territorial boundaries. Trespass by an immature bird whose territorial ambition is not developed does not bring out the defensive action called forth by one actually seeking establishment. With the approach of spring, as more and more young birds begin determined prospecting, the established pairs devote more energy to defense, but this probably correlates with the increasing danger rather than with any great fluctuation in territorial jealousy.

Finally, the pair become subject to the compulsions of the reproductive period and the annual cycle begins again. It may be repeated as many as ten times, but the survival of five cycles is the average success of the wren-tit.



