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Bilateral wing display in the Sage Thrasher.—A particular bilateral wing display termed wing-flashing has been the subject of many notes in this journal particularly involving the Mockingbird (*Mimus polyglottus*) (see Horwich, *Wilson Bull.* 77:264–281, 1965). However, other Mimidae have also been observed exhibiting similar behavior (Hailman, *Wilson Bull.* 72:346–357, 1960) wherein both wings are simultaneously lifted high above the back for a short period. Some confusion probably exists between wing-flashing and other bilateral wing movements. True wing-flashing is described as wing extension interrupted by 1–5 “hitches” or pauses and followed by rapid wing closure (Whitaker, *Wilson Bull.* 69:361–363, 1957; Hailman 1960). Perhaps due to the problem of definition the origin and function of wing-flashing have been disputed. The display has been associated with foraging (Hailman 1960), “uneasiness” and landing after flight (Horwich 1965) and agonistic displays (Selander and Hunter, *Wilson Bull.* 72:341–345, 1960).

Sage Thrashers (*Oreoscoptes montanus*) use a bilateral wing display throughout the early and middle stages of the breeding season in south-central Idaho. The wings are not raised in “hitches” but the display may be homologous with wing-flashing. Although I have never worked with marked birds, I believe it was only the male that displayed. A typical display sequence was as follows. The male performed an undulating circular flight over a part of his territory while continuously vocalizing, landed on a perch with wings extended high over his back and repeatedly raised and lowered his wings while singing from the perch. In some cases, the display was of low intensity with only partial raising and lowering of the wings. Thus, the display seemed to vary with motivation. In most cases, a displaying bird was some distance from other displaying birds. However, I have seen up to 4 birds perched within 3 m of each other, all displaying. It seems clear that the bilateral wing display in the Sage Thrasher is primarily a territorial display.

Horwich (1965), Hailman (1960) and Selander and Hunter (1960) have evidence of wing-flashing in young mimids that suggests the basic movement is innate. This behavior was observed early in development and decreased with experience so that the display was given more “appropriately” in adults. Horwich (1965) found that 69% of wing-flashes in young Mockingbirds were associated with escape tendencies, ambivalence and “uneasiness” towards strange objects. Selander and Hunter (1960) found that adult Mockingbirds wing-flashed at owls and in territorial encounters with conspecifics. Several authors report mimids wing-flashing at snakes (see Horwich 1965).

In all of these instances and in some of my observations there are elements of approach-avoidance. Selander and Hunter felt that wing-flashing was a ritualized flight intention display. However, Horwich (1965), myself and others have observed an association between bilateral wing displays and landing after flight. Horwich believed that balancing was the primary basis for the movement in fledglings. So there may be 2 separate primitive functions, flight and balancing, with similar motor patterns leading to the original display. In Sage Thrashers, the display may thus be most precisely considered as a ritualized balancing movement.

In Mockingbirds, the wing-flash has apparently undergone strong secondary evolution to accompany foraging, as Hailman (1960) believed that to be the primary function of the movement in adults of that species. In Sage Thrashers, the bilateral wing display has evolved to serve primarily as a visual display; I have never seen it used by foraging thrashers. The selective pressure for such a display is understandable given the thrasher’s uniform low habitat where the display can be seen for more than 200 m. The bilateral wing display also complements the striking flight display of the species. Observations of bilateral wing displays and their functions in other mimids should provide further insight into understanding these

displays and, more generally, into why the Mimidae apparently have a propensity for this use of the wings.

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A comparison of avian foraging at flowering trees in Panama and New Guinea.—Mixed-species foraging aggregations at fruiting and flowering trees are striking features of the humid tropics, where in some instances, 10–15 species of birds, from 5 or more families, may share the same, temporarily super-abundant resource (Moynihan, *Smithson. Misc. Coll.* 143:1–140, 1962; Land, *Wilson Bull.* 75:199–200, 1963; Diamond and Terborgh, *Wilson Bull.* 79:273–282, 1967; Terborgh and Diamond, *Wilson Bull.* 82:29–52, 1970). Birds visiting flowering trees consume nectar, pollen and insects. Though it is often difficult for the field observer to discern which item is being taken by which species (Snow and Snow, *Auk* 88:291–322, 1971), the tree represents a locus of high abundance for all 3 resources, and the result is aggregations of invertebrate and vertebrate foragers.

In this note I discuss observations made at a single flowering tree in Panama in January 1978, and compare these with data of a similar nature that I gathered in Papua New Guinea in 1975–1976. My short-term observations in Panama cannot be generalized for the Neotropics or even for Panama in all seasons; but the data, limited as they are, indicate potentially significant differences among foraging by Neotropical honeycreepers and New Guinea honeyeaters and lories. In treating these data, I ask 2 questions: (1) to what extent is there some sort of flocking organization, as opposed to unstructured aggregation, at flowering trees; and (2) does the pattern of resource-use in Panama differ from that in New Guinea?

Methods.—I watched a single flowering tree in relatively undisturbed mature second-growth forest along the Pipeline Road, Canal Zone, Panama. The tree was a 27-m high *Luehea seemanii* (Tiliaceae), surrounded by an uneven canopy varying in height from 22–33 m. During the period of observation, 12–15 January 1978, the *Luehea* was festooned with small, whitish, pedicellate blossoms. There were no other flowering trees in the immediate vicinity. Observations were made from a 28-m aluminum tower that stood about 30 m from the tree and afforded an unimpeded view of the entire crown of the *Luehea*. I censused all birds visiting the tree every 15 min, for a period of 5 min. Each 5-min census is considered an “instantaneous snapshot” of avian use of the tree. I also noted all instances of intra- and interspecific aggression. At no point were more than 16 birds in the tree at once; I had no difficulty watching and taking notes simultaneously. All identifications were made using 8.5 × 44 Swift binoculars, with the aid of Ridgely’s *Guide to Panamanian Birds* (Princeton Univ. Press, Princeton, New Jersey, 1976).

My observations in New Guinea were made sporadically from April 1975 through June 1976. I observed at several localities on New Guinea proper (Wau, 1100 m, June–July 1975; Goroka, 1500 m, September 1975; Mt. Missim, 1050, 1400 and 1750 m, December, January and March 1975–1976; and Bulldog Road, 2600 m, on 10 occasions during 1975–76). I also watched on New Ireland in February 1976 and on Goodenough Island in April 1976. Nearly 100 different flowering trees were watched during the period, from sea level to 3000 m. Because the observations were incidental and not the focus of my main research, I did not