

Calibrated multi-tiered feeding stands for optimal visibility of leg bands

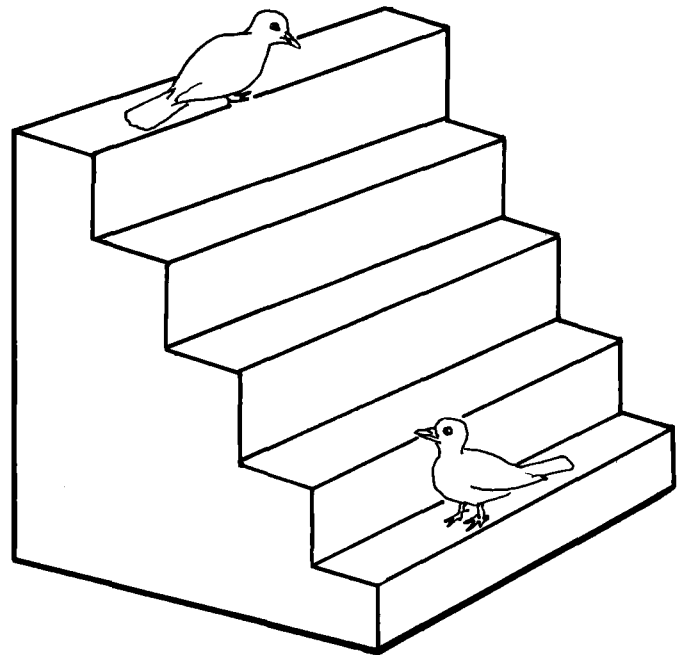
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Recognition of individual birds without recapture is facilitated by the use of colored leg bands. However, in species with very short legs, such as Inca Doves (*Columbina inca*) and Common Ground-Doves (*Columbina passerina*) leg bands are difficult to see in most circumstances. In studies on 260 banded Inca Doves at Galveston, Texas, I have found that during the usual and preferred ground-feeding even the shortest grass and substrate irregularities block views of leg bands. Similarly on the usual feeding stations or platforms, dense crowding of doves or other species blocks sighting the bands on most individuals.

This problem is solved, at least at artificial feeding stations, by the use of calibrated multi-tiered stands on which appropriate feed is distributed. The choice of feed and the calibration of tier (= step) height and width depend upon preferences and characteristics of the species being studied.

The multi-tiered stand can be constructed with natural rocks, or various artificial materials, on the ground for ground-feeding species, or with wood, metal or plastic materials on a pole, or suspended, for other species. Three sides of the feeding stand should be vertical, in order to limit avian feeding and activity to the fourth side insofar as possible. On this side, the side toward the observer, are steps or tiers, calibrated to the size and reach of the species of primary interest. The steps should be no deeper than slightly more than the width of one bird, and high enough to encourage reaching to the upper surface of the step or tier above. For Inca and Common Ground-Doves the steps should be 8 to 10 cm deep and 9 to 11 cm high.

Avian behavior patterns at such tiered feeding stands tend to further enhance efficient recognition and recording of individual birds. With Inca Doves for example, arrivals usually land on the top tier and work progressively downward, possibly in relation to the depletion of the more favored food items on the upper tiers. As new birds arrive and occupy the upper tiers, birds that had arrived earlier tend to move to lower tiers. These tendencies aid the observer in detecting newly arrived birds and in evaluating interactions between particular individuals. This includes evaluation of relative strength of aggressive tendencies and of pair



or familial group relations, for example. In the tightly spaced mix of individuals at a single-level feeder, it is often difficult to clearly define participants in behavioral interactions when groups or flocks are involved.

The behavioral responses to multi-tiered feeders differ in degree, or in kind, from one species to another. But the general tendencies noted above appear to be relatively common. A quantitative departure from the Inca Dove's pattern of response was observed with Brown-headed Cowbirds (*Molothrus ater*). The latter spend little time on upper tiers and concentrate on the lowest ones by preference, especially when in flocks. Another, and unexpected, difference in response to multi-tiered feeders was repeatedly observed with Yellow-rumped (Myrtle) Warblers (*Dendroica coronata*). While these and other species of warblers hardly ever came to flat-topped feeding stations with mixed grains, Myrtle Warblers were common visitors to multi-tiered feeding stands at the same sites and with the same mixed grains. In both situations small insect prey were abundant in and around the grain on the stands. But visitations by warblers were more frequent and of longer duration at the multi-tiered stands.

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