roosts at 34 separate locations. Thirty roosts lasted no more than 1 day, one lasted up to 2 days, and three lasted up to 3 days, giving a total of 41 site-days of observation.

If an assemblage is to function as an information center, it seems evident (Ward and Zahavi 1973), that it must be located at some distance from current food supplies. In Black-billed Gulls, most roosts were located either on (N = 21 site-days) or immediately adjacent to (N = 13 site-days) the area currently being searched for food. In all of these cases, it appeared to me that the foragers were usually visible to gulls at the roost, and vice versa. Movement between roosts and active foragers was common, often almost incessant, and typically involved direct flights between the two groups. Since the active foragers normally moved about from place to place within sight of the roosts, new recruits from the roost could not have been joining them on the basis of the recruit's memory of prior feeding spots as required for "leaders" at an information center. Foragers leaving the roost to begin foraging appeared clearly to be cueing directly to the birds already feeding, an example of local enhancement.

At seven other locations, the active foragers eventually moved completely out of sight of the roosting birds. Distances between the roosts and new foraging areas were small (<1 km for five roosts, 1.6 and 2.2 km for the other two), and flights between foragers and roosts continued to occur. These detached roosts were soon abandoned, usually within 1–3 h, in favor of the new foraging area. Because of the short distances involved, it is possible that once the birds from the roosts became airborne they would still have been able to see the foragers. If not, they would almost certainly have known, from their own immediate experience, the correct general direction to fly to regain visual contact with the active foragers. According to a recent theoretical model developed by Waltz (Am. Nat. 119:73–90, 1982), short distances and ease of locating a new food patch represent resource characteristics that are not conducive to the development of functional information centers.

In conclusion, the tendency for Black-billed Gull roosts to occur on or close to the feeding grounds effectively precludes them from functioning as information centers, at least under the conditions that prevailed on my study area. It remains possible that roosts might function as information centers at other times, e.g., when food is scarce, but there is no evidence for this view. The results of this study and others (Lowman and Tamm 1980; Andersson et al., Behav. Ecol. Sociobiol. 9:199–202, 1981) suggest that the information center hypothesis is not likely to be as general as originally claimed. Some other advantage(s) may underlie the formation of roosts. Several other possible food-related benefits of grouping have been advanced (e.g., Evans, Auk 99:24–30, 1982; Bayer, Auk 99:31–40, 1982), and merit additional examination.

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The Rufous-rumped Antwren (*Terenura callinota*) in Costa Rica.—The Rufous-rumped Antwren (*Terenura callinota*) has a wide distribution from southern Middle America to Guyana and Perú, but is known chiefly from a handful of specimens from widely scattered localities. The collector Jelski, quoted by Wetmore (Birds of the Republic of Panamá, Pt. 3, Smithsonian Misc. Coll., Vol. 150, 1975), stated that his specimen of the very closely

related Chestnut-shouldered Antwren (*T. humeralis*) was collected from a wandering flock, moving among the terminal leaves of the branches; virtually nothing else seems to have been published on *Terenura* spp. antwrens in life. In this note I present the first records of *T. callinota* from Costa Rica, a northward range extension of ca. 300 km, as well as observations on behavior and annual cycle of this species.

My observations were made at elevations of ca. 1000 m in Parque Nacional Braulio Carrillo, Provincia de San José, on the north slope of the Cordillera Central of Costa Rica. This is an area of heavy subtropical forest on exceedingly precipitous terrain, with excessively high rainfall; the study area falls in the Premontane Rain Forest life zone of Holdridge (Life Zone Ecology, Tropical Science Center, San José, Costa Rica, 1967). The forest has a broken, irregular canopy reaching heights of 25–35 m; the understory is rather dense, composed chiefly of shrubs (Rubiaceae, Acanthaceae, Gesneriaceae, etc.), small palms, tree-ferns, and large herbs (Heliconiaceae, Marantaceae, etc.). Most of the trees bear heavy epiphyte loads (especially mosses and liverworts, ericads, aroids, cyclanths, orchids, and bromeliads).

The Rufous-rumped Antwren is a very small, slender-billed, long-tailed antwren; in shape, activity, and color pattern it suggests a tyrannulet (e.g., *Phylloscartes*) or a warbler (Parulinae). Indeed, upon seeing my first *Terenura* I thought I had discovered a new species of flycatcher! The black cap and dusky eyeline of the males are conspicuous, but the diagnostic rufous rump is often covered by the wings; perhaps the best field mark for both sexes is the bright yellow wing-bars. The bird is an active foliage-gleaner, hopping quickly and incessantly about in the leaves and slender twigs at the tips of branches. Sometimes it runs and flits along the twigs, or hangs acrobatically. It plucks prey from both upper and under surfaces of leaves and twigs, or from little tufts of moss, but I have not seen it sally or hover, or rummage in dead leaves or epiphytes as does the Slaty Antwren (*Myrmotherula schisticolor*) a frequent foraging companion. Often the bird gives nervous double wing-flicks between foraging maneuvers. Regularly accompanying mixed-species flocks of antwrens, antvireos, furnariids, tanagers (Thraupini), and warblers, pairs or small (family?) groups of *T. callinota* forage mostly from the upper understory into the lower canopy. Usually silent, the birds will occasionally give an energetic series of squeaky notes, *schí schí schí* etc., interspersed with softer sputtering or chattering notes. These vocalizations somewhat resemble the more liquid and querulous calls of the furnariid Red-faced Spinetail (*Cranioleuca erythrops*), a frequent attendant species in the same flocks.

I collected two specimens of *T. callinota*, which are now in the Museo de Zoología, Universidad de Costa Rica. UCR 2364 is an adult female in molt with the ovary not enlarged, taken on 28 September 1980; UCR 2429 is an adult male in fairly fresh plumage with testes moderately enlarged, taken on 14 March 1981. Both birds had the iris dark brown, maxilla black, mandible silver-grey, and tarsi blue-gray; stomach contents of both were small insects (especially beetles and homopterans) and spiders. The weights (7.0 and 7.3 g, respectively) make this the smallest antbird in Costa Rica.

T. callinota is most vocal from about February through May or June, probably the breeding season, as I saw a female gathering nesting material (moss) on 13 March 1981, and a female feeding a full-grown juvenile on 1 July 1981. The annual molt probably occurs mainly in September and October, judging from the female specimen and other molting birds I have seen. The annual cycle of this species thus coincides with those of most other canopy birds of the area for which I have data (Stiles, unpubl.).

That this striking little bird has escaped notice in Costa Rica until now probably reflects several factors. Its habitat is very difficult to work, and the bird seems to occur only in a relatively narrow elevation band (ca. 800–1200 m) that has received little attention from ornithologists because of its inaccessibility. Collectors like C. F. Underwood worked intensively both above and below these elevations in the Cordillera Central, but evidently did not

penetrate the extremely wet and dense forests at about 1000 m on either the Cordillera Central or the Cordillera de Talamanca, along which the distribution of *Terenura* is probably continuous into western Panama.

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Radiotelemetry location of nesting Band-tailed Pigeons in Colorado.—Band-tailed Pigeons (*Columba fasciata*) occur throughout many of the forested mountain ranges of western North America (Goodwin, Pigeons and Doves of the World, British Museum [Nat. Hist.], London, England, No. 663, 1967). Most detailed nest information is available for the Coastal race (*C. f. monilis*) in California (Glover, Calif. Fish and Game 39:397–407, 1953; MacGregor and Smith, Calif. Fish and Game 41:315–326, 1955; Peeters, Condor 64:445–470, 1962). Although nests have been reported for the Interior race (*C. f. fasciata*) of Band-tailed Pigeons (Fitzhugh, Literature Review and Bibliography of the Band-tailed Pigeons of Arizona, Colorado, New Mexico, and Utah, Ariz. Game and Fish Dept. Spec. Rept., 1970), no quantitative study of nest-site preference has been attempted due to the difficulty of finding nests. The first two reported nests of *C. fasciata* from Colorado were in the Rampart Range, Pike National Forest (Neff and Niedrach, Condor 48:72–74, 1946; Neff, Habits, Food and Economic Status of the Band-tailed Pigeon, U.S. Dept. Inter., Fish and Wildl. Serv. N. Am. Fauna 58, 1947) and few nests have since been reported for the Interior population. The objective of our study was to determine if radiotelemetry equipment could be used to locate nests of Band-tailed Pigeons.

Study area.—The study was conducted from mid-May through early July 1981 near Evergreen, Jefferson Co., Colorado. Bandtails were trapped at the Forest Heights site (39°38′N, 105°18′W) at 2146 m elev. (Curtis, M.S. thesis, Colorado State Univ., Fort Collins, Colorado, 1981), where an extensive road network provides reasonable access. Few berry-producing trees or shrubs are found in the area (Braun, Proc. West. Assoc. State Game and Fish Comm. 53:336–344, 1973) and bandtails rely heavily upon grain supplied by local residents. Ponderosa pine (*Pinus ponderosa*) and, at higher elevations, lodgepole pine (*P. contorta*) are the most common overstory trees.

Methods.—Cannon nets were used to trap bandtails at Forest Heights (Braun, Methods for Locating, Trapping and Banding Band-tailed Pigeons in Colorado, Colorado Div. Wildl. Spec. Rept. 39, 1976). Captured pigeons were classified as to age and sex on the basis of plumage characteristics (White and Braun, J. Wildl. Manage. 42:564–569, 1978), weighed with a Hanson dietetic platform scale (Drewien et al., J. Wildl. Manage. 30:190–192, 1966), and leg banded.

Radio transmitters were fabricated by the Denver Wildlife Research Center, U.S. Fish and Wildlife Service. Transmitters were powered by an RM 675 mercury battery and had an estimated life of 45 days. An oval-shaped piece of latex rubber was glued to the base of the radio package to provide a bonding surface. Total transmitter weight was 6.3 ± 0.1 g, N = 10 (ca. 2% of pigeon body weight). Feathers on the lower middle back of selected birds were trimmed to about 0.5 cm in length, and the transmitter package was glued to the trimmed area with a cyanocrylate-base glue.

The receiving system consisted of a portable 12-channel receiver (AVM Instrument Co.,