08:00. The song, which lasted 2 sec, I transcribed as *whit-ser see see see see see*; at times the last 4 notes were delivered in a crescendo. Male metaltails were not heard singing this song, but 2 other females were heard to sing it, which suggests that it may be characteristic of females.

Large rocks and rocky outcrops, clothed in moss when in woodland, were a feature of the slopes of Cerro Fonté between 2400–2500 m. Many similar nest-sites were therefore available for metaltails, which were among the most abundant hummingbird species in the area. It seems probable that during the breeding season the availability of such rocky nest-sites affects the local distribution of this species.

Nests situated in caves or rocky overhangs occur in 3 other hummingbird genera, the hillstars *Oreotrochilus* (Dorst, Oiseau R.F.O. 32:95–126, 1962), the comets *Sappho* (Contino, Hornero 11:265–270, 1975) and the lancebills *Doryfera* (Snow and Gochfeld, Bull. Br. Ornithol. Club 97:121–125, 1977). The amelioration of temperature extremes at high altitudes enjoyed by *Oreotrochilus* roosting and nesting at these sites is well documented (Carpenter, Univ. Calif. Publ. Zool. 106:1–74, 1976). In addition, nesting success is unusually high, probably because of the protection provided from predators. Night temperatures at Cerro Fonté fell to 5°C under a veranda, and at times there were chilling misty rains, so safety and protection from the elements have probably influenced the evolution of the metaltail's choice of nest-site.

Female territoriality over nest-site and adjacent feeding area is normal in the Andean Hillstar (*Oreotrochilus estella*), for whom nest-sites are scarce and probably limit local breeding populations (Carpenter 1976). Female Anna Hummingbirds (*Calypte anna*) also defend nest-site and nearby nectar resources, but apparently choose the nest-site after a suitable nectar source has been found (Stiles, Univ. Calif. Publ. Zool. 97:1–109, 1971). Further study will probably prove the relatively scarce nest-site to be the more critical factor in the choice of territory by female metaltails.

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Male escorting and protecting females at the nest cavity in Mountain Bluebirds.—The Mountain Bluebird (*Sialia currucoides*) is a monogamous, hole-nesting species with parental care almost evenly divided between males and females (Power, Condor 68:351–371, 1966; Power, The Mountain Bluebird, Ph.D. thesis, Univ. Michigan, 1974). In 9 breeding seasons of observation in Cascade County, Montana, between 1961 and 1977, I found that males generally were present when their mates entered or left their nests during the period from pair formation through the brooding of young chicks. During 1976 and 1977, I counted the number of times the male was present when the female arrived or departed at 17 nests in the nest-building through brooding stages. Closed circuit television was used to observe the interiors of 6 of these nests.

A total of 342 arrivals (N = 176) and departures (N = 166) were observed. On 329 (96%) occasions (168 arrivals, 161 departures), the location and behavior of the male was determined. The male was in view of the female on 265 (81%) occasions, i.e., on 138 (82%) arrivals and 127 (79%) departures. Because males frequently were not near their nests at other times and females usually did not enter or leave their nests in the absence of males, I find it appropriate to refer to the presence of males at these times as "male escorting."

Males also escorted females in more active ways than by merely being present. From early pair formation through laying, males often encouraged females to enter the nest cavity by giving a display similar to the nest demonstration display of the congeneric Eastern Bluebird (*S. sialis*) described by Krieg (N.Y. State Mus. Sci. Serv. Bull. 415, 1971). This display was sometimes given as late as the incubation stage, albeit rarely. On 69 (50%) occasions when the male was present at the nest, the female entered the nest only after the male first had gone to the nest box (N = 28), or encouraged her by displays (singing, calling and wing-flicking; N = 31), or mate-feeding (N = 10). Similarly, on 81 (64%) occasions when the male was present, the female came off the nest after the male returned from a period of absence (N = 4), or signalled her by displays (N = 46), coming to the nest entrance (N = 13), or offering a mate-feeding (N = 18). On 4 occasions, when a female frightened by a vehicle refused to return to her nest to incubate, her mate unsuccessfully attempted to induce her to return by carrying nesting material to the entrance (N = 3) or to the female herself (N = 1).

The importance of the male in encouraging the female to return to the nest was shown dramatically at a nest box (numbered 41a) in 1976. This nest box was attached to a booth, allowing observation of its interior. Since I did not acquire closed circuit television until the following year, I observed this nest by sitting in the booth and watching it through a single lens reflex camera (55 mm). Although I was as quiet as possible, my occasional movements, the noise of writing notes and my eye showing through the reflex lens all made the female very nervous and she frequently left the nest. On 2 occasions the male seemingly induced the female to re-enter the nest by going there himself and uttering soft, screechy noises not heard at other times. The male appeared to be even more frightened of me than the female when inside the nest box.

Male escorting probably evolved partly to reduce males' risk of cuckoldry because escorting informs males of females' whereabouts during and beyond the time when surreptitious insemination of their mates could occur (Power and Doner, Am. Nat., in press). However, Pinkowski (Auk 95:606–607, 1978) found in Eastern Bluebirds that male escorting reduces female hesitancy in entering the nest. Females could be expected to be less hesitant if escorting reduced the probability of their own predation.

Predation at or near the nest is a real threat for female Mountain Bluebirds. At least 4 of about 91 females nesting in 1975 and 1976 were killed. Due to frequent nest censuses and color wing-tagging it was possible to estimate mortality and population size through identification of distant and flocked individuals, as well as those on or near their nests. At least 3 of these 4 females were apparently killed by hawks, judging from feathers strewn around the nest-sites. The contents of these 4 females' nests were not disturbed, but those of another 3 females were eaten or removed by a red squirrel (*Tamiasciurus hudsonicus*), by a deer mouse (*Peromyscus maniculatus*) and by an unknown agent, respectively. The female survived in the deer mouse case and perhaps in all 3, although 2 females whose nests were destroyed were never seen again. Parallel to these observations, I have twice seen male Mountain Bluebirds chasing least chipmunks (*Eutamias minimus*) away from the vicinity of their nests, and frequently have seen Cooper's Hawks (*Accipiter cooperii*), American Kestrels (*Falco sparverius*) and Merlins (*Falco columbarius*) hunting over the study area.

Male escorting should reduce the threat of predation on females. Furthermore, inspection of cavities by males before females enter should reduce the threat of ambush to females by predators (mammals?) hiding in nests. Finally, signalling females to emerge and giving alarm notes when predators are near should reduce the threat of ambush to females from hawks waiting outside nest cavities.

Despite the apparent value of these services, females still incurred most of the predation risks of nesting, as shown by the absence of known male deaths during the time when at

least 4 females were killed. It is noteworthy that males performed the risky task of inspecting nest cavities significantly less often than the non-risky task of indicating that it is safe for females to emerge from their nests ($\chi^2 = 49.9$, df = 1, $P < 0.001$). By reducing the risk of predation on their mates, males probably increase their own chances of reproductive success by protecting the lives of their future or actual offspring.

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Solitary Vireo nest used by a Western Flycatcher.—In northern Napa County (2.7 km SSW Aetna Springs), California, we discovered a Western Flycatcher (*Empidonax difficilis*) using the nest of a Solitary Vireo (*Vireo solitarius*). The nest was first observed 8 May 1977, when it contained 4 vireo eggs and 1 Brown-headed Cowbird (*Molothrus ater*) egg. When we approached, a vireo flew from the nest, and, with another vireo, presumably its mate, scolded us as we examined the contents. On 14 May, a vireo was brooding 4 nestlings and 1 unhatched cowbird egg. We did not observe the nest again until 4 June when 2 Western Flycatcher eggs were found in it. The identity of the eggs was confirmed on 5 June when we found a Western Flycatcher on the nest, which contained 3 flycatcher eggs, of which one had probably been laid that morning. The nest had not been modified from its condition at the time of the vireo nesting. We watched the bird for several minutes from within 6 m after it had flown from the nest. Because we had been observing several flycatcher nests in the area, our identification of the bird as a Western Flycatcher was immediate. In addition, the eggs had the brownish spotting typical of a Western Flycatcher rather than the blackish or dark gray spotting of a Solitary Vireo. We returned to the nest 18 June hoping to photograph nestlings and the brooding adult flycatcher; however, we found the nest deserted.

The nest was located at the end of a branch of a toyon (*Heteromeles arbutifolia*) shrub within a dense stand of Douglas-fir (*Pseudotsuga menziesii*). The nest was a well-formed cup suspended 1.5 m above ground. The few surrounding toyon leaves did not conceal the nest. The nest-site was typical of local Solitary Vireos, but atypical of the Western Flycatcher. Local flycatcher nests were invariably placed on solid structures (often man-made), usually resting against a solid vertical wall, with some kind of "roofing" directly above them.

The poorly concealed, abandoned nest of a Solitary Vireo would probably be an easily found egg receptacle of appropriate size (both species weigh 12–14 g) for a flycatcher whose nest had been destroyed. In our study area, young vireos fledged by 4 June at all 8 of the nests that we observed in 1977. Flycatchers were incubating eggs until at least mid-June. Thus, late-nesting or re-nesting flycatchers could use vireo nests without confronting the vireos. Once the first egg was laid psychological attachment to that nest-site would probably develop and the remainder of the nesting cycle would therefore be completed in the "adopted" nest. To our knowledge, this is the first report of a Western Flycatcher laying its eggs in the nest of another species.

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