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Two new host species for the parasitic blow fly *Protocalliphora braueri*.—Larvae of the parasitic bird blow fly *Protocalliphora braueri* (Diptera: Calliphoridae) are reported from two new host species, Brewer's Sparrows (*Spizella breweri*) and Sage Thrashers (*Oreoscoptes montanus*). Larvae were found on 57 nestlings in south central Idaho, 32 km north of Shoshone in Blaine county. The habitat in this area is dominated by big sagebrush (*Artemisia tridentata*) and a variety of grasses. Both bird species are sagebrush obligates (Braun et al. 1976) and are widely distributed throughout the shrub-steppe region of western North America during the nesting season (Wiens and Rotenberry 1981).

Protocalliphora braueri, a widespread species (synonym is *P. hirundo*), has been recorded attacking several North American bird species (Garrison et al. 1986, Halstead 1988, Eastman et al. 1989, Gold and Dahlsten 1989, Sabrosky et al. 1989). It is believed that the flies overwinter as adults and take advantage of early nesters. It is not known whether female flies oviposit in the nest material or directly on the nestlings (Sabrosky et al. 1989). Unlike most *Protocalliphora* larvae which live in nest material and feed intermittently on their hosts, *P. braueri* larvae produce myiasis by burrowing into the subcutaneous tissue of their host. They are hematophagous and require from one to three blood meals to mature. The myiasis-producing habit of *P. braueri* can lead to substantial host tissue damage. The larvae have been reported to burrow into the brain and pleural cavities of hosts (Sabrosky et al. 1989).

Brewer's Sparrows were infrequently parasitized by *P. braueri*, and I recorded larvae in only 4 of 68 (6%) nests. Sage Thrashers were more frequent blow fly hosts with 15 of 40 (38%) nests parasitized. In parasitized nests, 57% (8 of 14) of Brewer's Sparrow and 77% (49 of 64) of Sage Thrasher nestlings were afflicted. Early Sage Thrasher nests were more often parasitized by blow flies than later nests. The majority (87%) of parasitized Sage Thrasher nests were observed before the mean fledge date (9 June 1989, 10 June 1990). Shields and Crook (1987) reported an increase in parasitism of Barn Swallows (*Hirundo rustica*) through the nesting season, but Eastman et al. (1989) found no seasonal variation in parasitism of House Wrens (*Troglodytes aedon*). No seasonal patterns can be derived from the small sample of parasitized Brewer's Sparrow nests.

In this study, larvae were most often found on the wings (67% of 57 nestlings) and frequently at the base of developing primary feathers. Larvae were also found on the face (28%) and head (23%) as well as the body (19%), legs (12%), back (12%), neck (4%), and feet (4%) of nestlings. Individual nestlings frequently had *P. braueri* larvae at several locations. Larvae appeared to live on their hosts, i.e., they were visible, for at least four days.

The parasite load per individual nestling averaged 2.6 (SE = 1.2, range 1–6) for Sage Thrashers and 2.5 (SE = 1.4, range 1–7) for Brewer's Sparrows. Larvae were collected directly from nestlings of both host species. The larvae were often fully developed by the time young fledged, and larvae would frequently abandon their hosts while the birds were being handled. Collected larvae were preserved in alcohol or reared to adults.

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