Carnus hemapterus
A parasite of nestling birds

Figure 91. Family CARNIDAE

https://en.wikipedia.org/wiki/Carnus_hemapterus

http://diptera.myspecies.info/carnidae/content/introduction-carnidae

http://www.nhm.ac.uk/nature-online/species-of-the-day/scientific-advances/disease/carnus-hemapterus/index.html

James R. Phillips
Math/Science Division, Babson College,
Babson Park MA 02457-0310 U.S.A.


Carnid Flies (Carnidae) – p. 313
Carnid flies can be identified using the fly family key of
Arnett (2000). Grimaldi (1997) discusses the species, of which the most well known is *Carnus hemapterus*, and lists all avian hosts. *Carnus* larvae scavenge in nests. Wingless adults either suck the blood of nestlings or feed on their skin secretions. Infestations are characterized by scabby axillae. Heavy infestations cause reduced pack-cell volumes in Barn Owls (*Tyto alba*) (Schulz 1986), reduced body mass in Common Kestrels (*F. tinnunculus*) (Heddergott 2003), and nestling mortality in Northern Saw-whet Owls (*Aegolius acadicus*) (Cannings 1986). The fly seems harmless to American Kestrels (*F. sparverius*) (Dawson and Bortolotti 1997). *Carnus* occurs in North America, Europe, Africa, and Malaysia. Specimens can be collected from hosts by hand or from nests by Tullgren funnel extraction of nest material (Mullen and O’Connor 2002), and then preserved in ethanol. Insecticide dusts can be used to treat hosts and control infestations in nests.


The wingless ectoparasitic fly (Carnus hemapterus Nitzsch) was first reported on North American birds by Bequaert (1942) although in Europe, C. hemapterus seems to be fairly generally distributed. Bequaert (1942) identified the fly from 2 birds, a nestling flicker (Colaptes cafer) collected at Penn Yann, New York and a Screech Owl (Asio otus) taken in Florida. Capelie and Whiteworth (1973) have since reviewed the distribution of C. hemapterus in North America, siting records for 9 host species including 3 woodpeckers, starling (Sturnus vulgaris), Black-billed Magpie (Pica pica) and American Kestrel (Falco sparverius). Main and Walli (1974) found C. hemapterus on nestling Osprey (Pandioan haliaetus) in Massachusetts and Wilson (1977) found Pileated Woodpecker (Dryocopus pileatus) nesting material to contain the parasites. These records seem to indicate that Carnus is widespread in the United States. Its distribution, however, will be unclear until there is a systematic study of bird ectoparasites in this country.

Bequaert (1942) reports the C. hemapterus has been observed on 12 families and 26 species of birds in Europe. Seven raptor species, White-tailed Eagle (Haliaeetus albicilla), Imperial Eagle (Aquila heliaca), Peregrine Falcon (Falco peregrinus), Kestrel (F. tennunculus), Saker (F. cherrug), Barn Owl (Tyto alba), and Tengmalm's Owl (Aegolius funereus) have been noted as host.

In July of 1980, while examining nestling Swainson's Hawks (Buteo swainsoni), we found that 12 of the 15 nestlings we studied were parasitized by C. hemapterus. The flies occurred in groups of 3 to 5 and were found only in the axillary region of the hawks. No flies were attached and on being disturbed they moved from the bare axillary region to nearby feathered areas. The exact nature of the diet of C. hemapterus is unknown. Noller (1920) reports that the fly sucks blood from its host, while Hendel (1928) felt that Carnus feeds most probably on skin secretions. We observed dried blood spots on the hawks axillary region which is supportive of Noller's (1920) claim. The true diet of the fly is presently in question, but the fly could act as a vector of certain avian blood parasites.

Our findings are of interest, since few records have been reported for C. hemapterus in non-cavity nesting birds or from long-distance migrants like the
Swainsoh's Hawk. Our report is also the first record of this dipteran parasite on the Swainson’s Hawk.

Raptor Research 17(1):28-29 28

Literature Cited


