



Simuliidae; black flies

(includes *Simulium vittatum*, buffalo gnat and *S.meridionale*, turkey gnat)

Description: small, gray or black flies, various species ranging from 1/16 to slightly over 1/8 inch long; strong fliers.

Domestic animals affected: cattle, swine, horses, sheep, goats, fowl (depending on black fly species); less effect on dogs and cats.

Damage caused: Very pestiferous, often attacking around eyes or in ears of hosts; pain from biting. When fowl are under heavy attack, trauma-induced shock often results in death. During outbreaks, death by suffocation has occurred in cattle and other large animals resulting from inhalation of black flies. Various species may transmit vesicular stomatitis virus to cattle and horses and *Leucocytozoon* to poultry.

Development: complete metamorphosis: egg, four to nine larval instars, pupa, adult.

Generational time: for most species, one year; some species, e.g., *S. vittatum*, may have three generations per year in Kansas.

Oviposition site: on moss-covered stones or other substrate kept wet by splashing water or riffles; usually in swift, shallow streams but some are deep-river species and a few can utilize still water of ponds.

Larval and pupal habitat, feeding: Larvae spin patches of web on substrate at the stream bottom, attach their "tail hooks" to it, and feed on fine particulate matter carried to them on the water currents. Pupation occurs on the same site; pupae do not feed.

Adult habitat, feeding: Adults emerge from puparia and from beneath the water, and mate; females fly to seek hosts (mostly mammals and birds) from which to suck blood. Numbers are higher near developmental sites, but many may fly 10 miles or more.

Method of dispersal or infestation: by flight of the adults.

Seasonality: from March through mid-September in Kansas, e.g., *S. vittatum* may be bothersome in March, June, and August- September whereas *S. meridionale* is active in June.

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