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Annotated List of the Caddisflies (Trichoptera) of the West Branch of the DuPage River and Kline Creek, Illinois

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ABSTRACT

Annotated lists of the caddisflies, or Trichoptera, were developed from the West Branch of the DuPage River (W. Branch) and Kline Creek, IL. The W. Branch and Kline Creek are moderately and severely organically polluted streams, respectively. Thirteen species were collected from the W. Branch and seven from Kline Creek. Seasonal information of flight periods were recorded.

INTRODUCTION

There are a number of techniques available that evaluate the water quality of streams using arthropod indicators (e.g., Hilsenhoff, 1987; Ohio Environmental Protection Agency, 1987; Plafkin et al., 1989). The successful use of any one of these techniques requires knowledge of arthropod identification, distribution and tolerance to pollution. By developing an annotated list of caddisflies (Order Trichoptera) from two organically polluted streams in Northeastern Illinois, i.e., the West Branch of the DuPage River (W. Branch) and Kline Creek, the current study was intended to contribute to this knowledge.

METHODS AND MATERIALS

Study Areas

As part of the 3553 km^2 Des Plaines River drainage basin, the 40 km long W. Branch begins just north of rapidly developing DuPage County and then flows southerly transecting the county. The average gradient of the stream is approximately 1.1 m/km. The beginning 2 km of the stream has undergone

extensive channelization and modification over the past 30 years. Despite this upstream disturbance, over 70% of thestream remains bordered by nine DuPage County forest preserves which occupy 2370 hectares of mostly mesophytic forests. The water quality of the W. Branch is fair with major sources of pollution being effluents from waste water treatment plants which service many of the 215,000 people living in nearby residential areas (Illinois Environmental Protection Agency, 1988; Petersen, 1991).

The 5 km long Kline Creek is a tributary of the W. Branch and begins in Carol Stream just above the Carol Stream Waste Water Treatment Plant. The plant is suspected of being the primary cause of severe organic pollution in the stream (Petersen, 1991). Its' average gradient is 3.1 m/km. The stream intersects the W. Branch within the Timber Ridge Forest Preserve some 13.6 km down from the W. Branch's headwater.

Methods

Four sampling stations were established in riffles along the W. Branch and two along Kline Creek (Table 1). Larval caddisflies were sampled every two weeks at each station from July, 1989, through September, 1990, except at stations 4 and 5 where sampling began during April, 1990. Larvae were collected by rock picking and using an aquatic dip net.

Adult caddisflies were also sampled every two weeks at each station using an ultraviolet light trap from April, 1990, through September, 1990. This time span covered the period when adults first appeared and up until the time when adults disappeared from samples. The ultraviolet light trap was set along the stream bank at dusk for 30 minutes.

Ethyl alcohol (70%) was used to kill and preserve all specimens. The taxonomic keys of Blickle (1979), MacKay (1978), Ross (1944), Schmude and Hilsenhoff (1986), and Schuster and Etnier (1978) were especially useful in keying caddisflies to species. Voucher specimens are on deposit at the College of DuPage.

ANNOTATED LIST

Below is the list of caddisflies collected from the W. Branch and Kline Creek according to sampling station. The flight period of each species is given as is the number of each sex light trapped.

Family HYDROPTILIDAE

Agraylea multipunctata Curtis. September; station 3(1 female).

Hydroptila ajax Ross. June-September; station 1(1 male), station 2(2 females), station 4(12 males, 4 females).

H. perdita Morton. July-September; station 1(3 males, 1 female), station 4(20 males, 12 females).

Ochrotrichia tarsalis (Hagen). September; station 4(3 males,1 female).

Oxyethira pallida (Banks). August, September; station 1(3 females), station 4(1 female).

Family HYDROPSYCHIDAE

Ceratopsyche bifida Banks. July, August; station 1(1 male), station 4(1 male).

C. bronta Ross. June-September; station 3(11 females), station 4(2 males, 15 females).

Cheumatopsyche campyla Ross. April-September; station 1(2 females), station 2(1 male, 2 females), station 3(4 males, 455 females), station 4(71 males, 78 females), station 5(2 females), station 6(4 males, 18 females).

C. pettiti (Banks). April-September; station 1(2 males, 25 females), station 2(75 males, 73 females), station 3(2 females), station 4(28 males, 18 females), station 5(5 males, 9 females), station 6(18 males, 30 females).

Hydropsyche betteni Ross. April-September; station 1(15 females), station 2(12 males, 44 females), station 3(1 male, 9 females), station 4(5 males, 36 females), station 5(2 males, 3 females), station 6(26 males, 20 females).

H. bidens Ross. September; station 6(1 male).

Family LEPTOCERIDAE

Athripsodes transversus (Hagen). July; station 3 (1 male, 6 females).

Oecetis inconspicua (Walker). July-September; station 1(1 male), station 2(2 males), station 3(3 females), station 4(5 males, 1 female), station 5(1 female), station 6(1 male).

Family PSYCHOMYIIDAE

Cyrenellus marginalis (Banks). September; station 4(1 female).

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Table 1. Sampling stations and their locations along the West Branch of the DuPage River (W. Branch) and Kline Creek, Illinois. Distance of a station from the headwater is listed beside the stream's name in parentheses.

Station	Location
1 (W. Branch - 2 km)	50 m upstream from the Hanover Park WasteWater Treatment Plant, Hanover Park
2 (W. Branch - 14 km)	Timber Ridge Forest Preserve, West Chicago
3 (W. Branch - 30 km)	McDowell Grove Forest Preserve, Naperville
4 (W. Branch - 34 km)	Pioneer Park, Naperville
5 (Kline Creek - 1 km)	100 m downstream from the Carol Stream Waste Water Treatment Plant, Carol Stream
6 (Kline Creek - 4 km)	Timber Ridge Forest Preserve, West Chicago