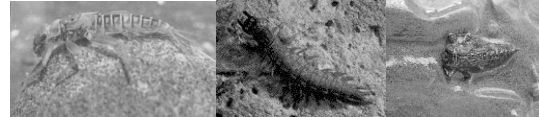


- Shredders
- Collectors
- Scrapers
- Predators



CPOM – coarse particulate organic matter > 1 mm
FPOM – fine particulate organic matter < 1 mm

Piercers - pierce and suck fluids

Note - developed with insects, but generally applied to all stream macroinvertebrates - less application to fish

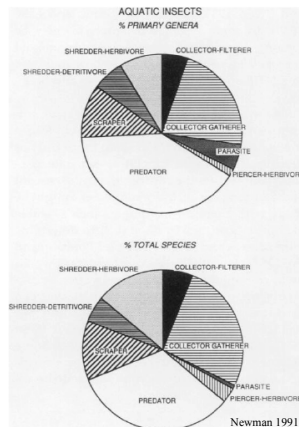
Note - Merritt and Cummins 1996 Table 6c particle size arrows wrong for Collectors and Scrapers

Functional Group (General category based on feeding mechanism)	Subdivision of Functional Group Dominant Food	Feeding Mechanism	General Feeding Site (Relative to substrate and sediments)	Oribate Neuston Benthos						
				Oribates	Neustons	Benthos	Epibenthos	Periphyton	Phytobenthos	Sediment
Shredders	Living vascular hydrophyte plant tissue	Herbivores—chewers and miners and gnawers; Macrophytophagous								
	Decomposing vascular plant tissue—coarse particulate organic matter (CPOM) wood	Detritivores—chewers of CPOM Gnaguers—detritists and gnawer food	>10'				++	+	+	+
Collectors	Decomposing fine particulate organic matter (FPOM)	Detritivores—gardeners or deposit feeders) filterers (includes bottom on loose surface films)	<10'					+	+	+
	Periphyton attached algae and associated sediment	Herbivores—grazers scrapers of mineral and organic surface	<10'				++	+++	++	++
Macrophyte Feeders	Living vascular hydrophytes with soft tissues	Herbivores—gnawers chewers and suck fluids or elutriates (macrozoophagous) siphon feeders	>10'-100'							
	Dead or elutriates (macrozoophagous) siphon feeders									
Predators	Living animal tissue	Eggs/larvae—carnivores, attack prey and ingest whole animals or parts Percyphes—carnivores, attack prey, pierce tissues and suck fluids and suck blood	>10'				++ (+)	+	+	+
Parasites	Living animal tissue	Internal parasites of eggs, larvae and pupae External parasites of larvae, prepupae and pupae in coxal, rostral cavity or swim. Appendages external portion of anal siphon	>10'							

Functional Feeding Groups

Most aquatic insect genera and species are predators, followed by collector-gatherers and scrapers

Shredder herbivores and shredder detritivores are less common followed by collector filterers



Functional Feeding Groups

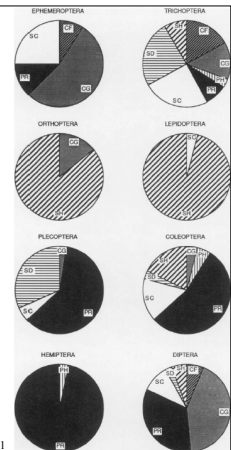
Mayflies - Collector-gatherers, followed by scrapers and predators

Stoneflies - Predators, followed by shredder-detritivores and scrapers

Trichoptera - diverse strategies - Scrapers and shredder-detritivores, collector filterers and gatherers, some predators and shredder-herbivores

Shredder herbivores dominate in the 1st terrestrial Orders Orthoptera and Lepidoptera and are common in Coleoptera

Hemiptera - Predators (piercing)

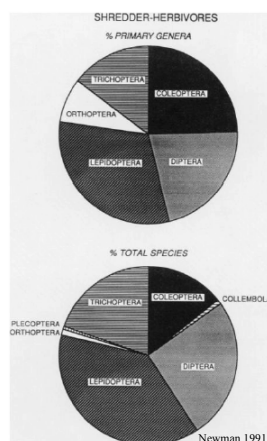


Functional Feeding Groups

Most shredder-herbivores are in primarily terrestrial taxa - Lepidoptera, Coleoptera and Diptera

Did you even know there were aquatic Orthoptera? Grasshoppers

Trichoptera (related to Lepidoptera) are the only primarily aquatic group with shredder-herbivores



Functional Feeding Groups

Cummins and Wizbach 1985 made simple key (class handout)

Updated in several places - Hauer and Lamberti 1996

Cummins et al. 2003 - [as pdf](#)

Stream Biota Fish:

Chordata (chordates)

Class - Cephalaspidomorhi - (agnathans)

Order - Petromyzontiformes

Family - Petromyzontidae - lampreys

Most lampreys are stream dwellers as

juveniles (larvae), some as adults

American Brook Lamprey - cold streams, filter feeder

Chestnut and silver lampreys - cool water streams - adults parasitic

Stream Biota Fish:

Chordata (chordates)

Class - Actinopterygii - ray finned fish

Order - Cypriniformes

Family - Cyprinidae - minnows

Very diverse group

Generally cool water to warm water

Dace (long and shortnose) - *Rhinichthys*

Chubs - *Semotilus*

Shiners - *Notropis*

Suckers *Catostomus*

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