

Appendix 3: Insect Orders and Families1
 (Compiled by Lynn Kimsey, UCD Entomology and the Bohart Museum of Entomology)

ORDER/Family	Common Name	Feeding Style		Habitat2
		Larval	Adult	
<i>Incomplete Metamorphosis</i>				
ODONATA	Dragonflies/Damselflies			
Aeshnidae	Damers	P	P	<i>submerged veg.</i> ; midair
Coenagrionidae	Narrow-winged damselflies	P	P	<i>submerged veg.</i> ; midair
Gomphidae	Clubtails	P	P	<i>submerged veg.</i> ; midair
Libellulidae	Skimmers	P	P	<i>submerged veg.</i> ; midair
ORTHOPTERA	Grasshoppers/Crickets			
Acrididae	Grasshoppers	H	H	vegetation
Gryllacrididae	Ground and camel crickets	H	H	vegetation, soil
Gryllidae	Crickets	H	H	soil, vegetation
PHASMIDA	Walking sticks			
Timemidae	Timema walking sticks	H	H	vegetation
HETEROPTERA	True bugs			
Belostomatidae	Giant water bugs	P	P	open water, submerged veg.
Berytidae	Stilt bugs	H	H	vegetation
Corixidae	Water boatmen	O	O	water
Gerridae	Water striders	P	P	still water
Lygaeidae	Seed bugs	H	H	vegetation
Miridae	Leaf bugs, plant bugs	H	P	vegetation
Notonectidae	Backswimmers	P	P	open water
Reduviidae	Assassin bugs	P	P	flowers, vegetation
Scutelleridae	Shield bugs	H	H	vegetation
<i>Intermediate Metamorphosis</i>				
HOMOPTERA	Aphids and others			
Aphididae	Aphids	H	H	vegetation
Cercopidae	Spittle bugs, froghoppers	H	H	vegetation
Cicadellidae	Leafhoppers	H	H	<i>in vegetation</i> ; on vegetation
Cicadidae	Cicadas	H	H	<i>roots</i> ; vegetation
Delphacidae	Delphacid planthoppers	H	H	vegetation
Membracidae	Treehoppers	H	H	vegetation
Psyllidae	Psyllids, jumping plant lice	H	H	vegetation
<i>Complete Metamorphosis</i>				
NEUROPTERA	Lacewings and others			
Chrysopidae	Green lacewings	P	P	vegetation
Coniopterygidae	Dusty lacewings	P	P	loose bark in litter
Corydalidae	Dobsonflies	P	P	<i>water</i> ; riparina veg.
Hemerobiidae	Brown lacewings	P	P	vegetation, midair
MECOPTERA	Scorpionflies			
Bittacidae	Hangingflies	P	P	vegetation
COLEOPTERA	Beetles			
Bruchidae	Seed beetles	H	--	<i>seeds</i> ; vegetation
Buprestidae	Metallic wood-borers	W H	W N	<i>vegetation</i> ; fallen wood
Cantharidae	Soldier beetles	P	H P	on vegetation
Carabidae	Predaceous ground beetles	P	P	<i>decaying matter</i> ; rocks
Cerambycidae	Longhorn beetles	W	H	<i>wood</i> ; vegetation
Chrysomelidae	Leaf beetles	H	H	leaves
Coccinellidae	Ladybugs	P	P	vegetation
Cucujidae	Flat bark beetles	S	S	bark, <i>decaying matter</i>
Cupedidae	Reticulated beetles			under bark
Curculionidae	Weevils	H	H	vegetation

Dermestidae	Hide beetles	S	H	<i>carrion</i> ; flowers
Dytiscidae	Predaceous water beetles	P	P	water; open water, air
Elateridae	Click beetles	O	H	<i>soil, decaying matter</i> ; flowers, fallen wood
Hydrophilidae	Scavenger water beetles	P	SP	still water, decaying matter
Lampyridae	Fireflies	P	--	<i>ground</i> ; vegetation
Lathridiidae	Brown scavenger beetles	S	S	decaying matter. flowers
Melyridae	Soft-winged flower beetles	P	P	flowers
Mordellidae	Tumbling flower beetles	H P	N	<i>vegetation</i> ; flowers
Scarabaeidae	Scarabs	S H	S H	<i>burrows</i> ; vegetation, dung, carrion
Silphidae	Carrion beetles	S H O	S H O	carrion
Staphylinidae	Rove beetles	P Pa S	Pa S	decaying matter
Tenebrionidae	Darkling ground beetles	H	H	decaying matter
Trogositidae	Bark-gnawing beetles	P O	--	decaying matter

LEPIDOPTERA

Butterflies and moths

Adelidae	Fairy moths	H	N	<i>vegetation</i> ; flowers
Arctiidae	Tiger moths	H	N	<i>vegetation</i>
Blastobasidae	Scavenger moths	--	--	--
Carposinidae	Fruitworm moths	--	--	--
Cosmopterigidae	Cosmet moths	--	--	--
Cossidae	Carpenterworm moths	--	--	--
Danaidae	Milkweed butterflies	H	N	<i>vegetation</i> ; flowers
Diptidae	American False Tiger moths	--	--	--
Elachistidae	Miner (Grass) moths	--	--	--
Eriocraniidae	Sparkling Archaic Sun moths	--	--	--
Gelechiidae	Gelechiid moths	H	--	<i>vegetation</i>
Geometridae	Geometrid moths	H	N	<i>vegetation</i> ; flowers
Hesperiidae	Skippers	H	N	<i>vegetation</i> ; flowers
Incurvariidae	Incurvariid moths	H	N	<i>vegetation</i> ; flowers
Lasiocampidae	Lappet moths			
Lycaenidae	Blues, coppers, and hairstreaks	H	N	<i>vegetation</i> ; flowers, mud
Lymantriidae	Tussock moths	--	--	--
Lyonetidae	Lyonetiid moths	H	--	<i>leaves</i>
Noctuidae	Millers and cutworms	H	N	<i>vegetation</i> ; flowers
Notontidae	Notodontid moths	H	N	<i>vegetation</i> ; flowers
Nymphalidae	Brush-footed butterflies	H	N	<i>vegetation</i> ; flowers, mud, dung, fruit
Oecophoridae	Oecophorid moths	H S	--	<i>vegetation</i> ; decaying material
Papilionidae	Swallowtails	H	N	<i>vegetation</i> ; flowers
Pieridae	Whites and sulfurs	H	N	<i>vegetation</i> ; flowers, mud
Plutellidae	Diamondback moths	H	N	<i>vegetation</i>
Pterophoridae	Plume Moths			
Pyalidae	Snout and grass moths	H S P	--	<i>vegetation</i> , decaying material; <i>vegetation</i>
Saturniidae	Silk moths	H	--	<i>vegetation</i>
Satyridae	Satyrs	H	N	<i>vegetation</i> ; flowers
Sesiidae	Clearwing moths			
Sphingidae	Hawk and sphinx moths	H	N	<i>vegetation</i> ; flowers
Tineidae	Fungus Moths			
Tortricidae	Leafroller Moths			

DIPTERA

True flies

Acroceridae	Small-headed flies	Pa	N	<i>spiders</i> ; flowers
Asilidae	Robber flies	S H P	P	<i>soil or decaying wood</i> ; midair, ground, flowers
Bibionidae	March flies	S	S	<i>grass roots, decaying material</i> ; meadows
Bombyliidae	Bee flies	Pa P	H	flowers, streamsides
Calliphoridae	Blow flies	S	S	<i>decaying material</i> ; dung, carrion
Culicidae	Mosquitoes	H P	Pa H	<i>water</i> ; flowers (males), victims (females)
Dolichopodidae	Long-legged flies	P	P	<i>water</i> , decaying material, bark; riparian vegetation
Empididae	Dance flies	P	P H	<i>soil, decaying material</i> , <i>water</i> ; midair, flowers
Hippoboscidae	Louse flies	Pa	Pa	<i>birds, mammals, decaying material</i> ; moist places
Lauxaniidae	Lauxaniid flies	S	S	<i>decaying material</i> ; moist places
Muscidae	House flies	S	S H	<i>decaying material</i> ; animals, decaying material

Mycetophilidae	Fungus gnats	S P	H	<i>decaying material</i> ; damp areas
Pipunculidae	Big-headed flies	Pa	S	<i>leafhoppers</i> ; midair
Rhagionidae	Snipe flies	P	H	<i>soil, decaying material</i> , water; vegetation
Sarcophagidae	Flesh flies	S Pa	S	<i>decaying material, insect nests</i> ; decaying material
Stratiomyidae	Soldier flies	H S P	H	<i>water</i> ; flowers, midair
Syrphidae	Syrphid flies	P	Pa H	<i>nests, decaying material, vegetation</i> ; flowers
Tabanidae	Deer and horse flies	P	N	<i>water</i> ; midair, animals
Tachinidae	Tachinid flies	Pa	H	<i>insect larvae</i> ; flowers
Tephritidae	Fruit flies	H	--	<i>fruit</i> ; vegetation
Tipulidae	Crane-flies	H	--	<i>grass roots, decaying material</i> , moist places

HYMENOPTERA

Ants, bees, and wasps

Agaonidae	Pollinating wasps	--	--	--
Andrenidae	Andrenid bees	H	N	<i>burrows</i> ; flowers
Anthophoridae	Carpenter bees and others	H	N	<i>burrows</i> ; flowers
Apidae	Bumble- and honeybees	H	N	burrows, nests; flowers
Bethylidae	--	Pa	N	<i>insect larvae</i> ; ground, vegetation
Braconidae	Braconid wasps	Pa	N H	<i>caterpillars</i> ; flowers, vegetation
Bradynobaenidae	--	Pa	Pa	ground
Cephalidae	Stem saw flies	H	H	<i>vegetation</i> ; flowers
Ceraphronidae	--	Pa	N	<i>insect nests</i> ; ground, vegetation
Chalcididae	--	Pa	N	<i>caterpillars</i> ; flowers
Chrysididae	Cuckoo wasps	Pa	N	<i>wasp burrows</i> ; flowers
Colletidae	Plasterer bees and others	H	H	<i>burrows, vegetation</i> ; flowers
Cynipidae	Gall wasps	H	Pa	<i>galls</i> ; vegetation, ground
Diapriidae	Diapriids	H	N	<i>larval flies</i> ; moist places
Dryinidae	--	Pa	N	<i>insects</i> ; flowers, ground
Encyrtidae	--	Pa	N	<i>insects</i> ; flowers, ground
Eulophidae	--	Pa	N	<i>insects</i> ; flowers, ground
Eupelmidae	--	Pa	N	<i>insects</i> ; flowers, ground
Eurytomidae	Seed chalcidoids	Pa H	N	<i>vegetation</i> ; flowers, ground
Formicidae	Ants	H C O	H P O	<i>nests</i> ; ground, vegetation
Gasteruptiidae	--	Pa	H	<i>wasp & bee nests</i> ; flowers
Halictidae	Sweat bees	H	H	<i>nests</i> ; flowers
Ichneumonidae	Ichneumonids	Pa	N	<i>insect larvae, spiders</i> ; flowers
Leucospidae	--	Pa	N	<i>insects</i> ; flowers
Megachilidae	Leafcutting bees	H	H	<i>nests</i> ; flowers
Mutillidae	Velvet ants	Pa	--	<i>bee nests</i> ; open ground
Mymaridae	Fairyflies	Pa		<i>insect eggs</i> ; midair
Ormyridae	--	Pa		<i>gall insects</i> ; midair
Platygastridae	--	Pa	N	<i>gall gnats</i> ; flowers
Pompilidae	Spider wasps	C	H	<i>burrow</i> ; flowers
Proctotrupidae	--	Pa	N	<i>beetles, flies</i> ; flowers
Pteromalidae	--	Pa	N	<i>insects</i> ; vegetation, ground
Sapygidae	--	Pa	N	<i>bee & wasp nests</i> ; vegetation
Scelionidae	--	Pa	N	<i>arthropod eggs</i>
Sphecidae	Digger wasps and others	C	P N	<i>burrows</i> ; ground, flowers
Tenthredinidae	Common sawflies	H	H P	vegetation
Thysanidae	--	Pa		<i>insect eggs, larvae</i>
Tiphiidae	Tiphiids	Pa	H	<i>insect larvae</i> ; midair
Torymidae	--	Pa H	N	<i>insect larvae</i> ; midair
Vespidae	Paper nest wasps and hornet	C	O	<i>nests</i> ; vegetation, flowers

Key to Feeding Styles:

C - carnivore (larva that eats animals captured by adult)		
H - herbivore	P - predator	Se - seed eater
N - nectar feeder	Pa - parasite	W - wood eater
O - omnivore	S - scavenger	-- - non-feeding life stage

(1) The orders and families in this checklist have been compiled by Lynn Kimsey, UCD Entomology, and the Bohart Museum of Entomology at UC Davis. The information on feeding style, metamorphosis, and habitat (based on Powell and Hogue 1979, Borror et al. 1989) is generalized and does not include all exceptions. The list should therefore be considered a work in progress.

(2) Larval habitats are in italics, except when they are the same as for adult stages.