

## Insects (Minor Orders)

Insects constitute by far the largest group of animals on land and in fresh water. The total of 3160 or so species already recorded in Fife is probably far short of the number actually present. The 19 'minor orders' are listed here together. The 'large orders' are treated separately, namely the bugs (Hemiptera), the butterflies and moths (Lepidoptera), the flies (Diptera), the ants, bees etc. (Hymenoptera) and the beetles (Coleoptera). The springtails (Collembola) used to be considered an order of insects, but in current classifications are treated as a separate class outwith the Insecta. They are listed here after the insects.

**Update/Revision History: Revised by Gordon Corbet May 2006 \*Additional contributions indicated under subheadings.**

### **Thysanura - silverfish etc.**

Active, wingless insects; no other species likely to be present.

[*Dilta hibernica*: Charlestown, in limestone quarry, 1896, as *Machilis polypoda*; needs confirmation.]

*Lepisma saccharina*: Silverfish. Widespread indoors.

### **Archaeognatha - bristletails**

*Petrobius brevistylis*: Widespread on sea-cliffs.

*Petrobius maritimus*: I of May.

### **Diplura - two-tailed bristletails**

Small white, wingless insects, common in topsoil; difficult to identify and poorly recorded.

*Campodea fragilis*: Dumbarnie Links, I of May.

*Campodea plusiochaeta*: St Andrews.

*Campodea silvestrii*: St Andrews.

*Campodea staphylinus*: Probably widespread.

*Campodea wallacei*: Newport.

### **[Protura]**

Tiny insects in soil. Apparently not yet recorded in Fife, but likely to occur.]

### **Ephemeroptera - mayflies**

Insects with aquatic, mainly herbivorous nymphs, and very short-lived flying adults. Recording has been biased towards running water; several more probably occur out of the 51 known in Britain. Most records from Scottish Environment Protection Agency (SEPA) with additions from Craig Macadam.

*Baetis muticus*: River Eden.

*Baetis rhodani*: Widespread in rivers and burns.

*Baetis scambus*: Widespread in rivers and burns.

*Brachycerus harrisellus*: River Black Devon.

*Caenis horaria*: River Leven.

*Caenis rivulorum*: River Leven, Kenley Water.

*Cloeon dipterum*: Newburn.

[*Ecdyonurus dispar*: Rivers Leven, Eden, and some burns, but records doubtful since based upon larvae.]

*Ecdyonurus insignis*: Keil, Kennoway and Teil burns.

[*Ecdyonurus torrentis*: Apparently in most rivers and burns, but doubtful because of difficulty of identifying larvae.]

*Serratella ignita*: Widespread in rivers. Previously *Ephemerella ignita*.

*Ephemerella notata*: River Black Devon.

*Habrophlebia fusca*: River Eden; Crail, Keil and Kenly burns.

*Heptagenia sulphurea*: River Leven.

*Leptophlebia marginata*: River Eden and Tiel Burn.

*Paraleptophlebia submarginata*: Rivers Leven, Ore, Eden; and Crail Burn.

[*Rhithrogena semicolorata*: Apparently Rivers Eden and Leven, and some burns, but identification of larvae uncertain.]

### **Odonata - damselflies and dragonflies**

Predators, both as larvae in fresh water and as adults, which often travel far from water. Fife atlas by A-M Smout & P Kinnear (1993): *The dragonflies of Fife/ a provisional atlas* (Fife Council).

### **Zygoptera - damselflies**

*Coenagrion puella*: Azure damselfly. A recent colonist, widespread, locally common. Easily mistaken for *Enallagma*; 'common blues' should be trapped and checked.

*Enallagma cyathigerum*: Common blue damselfly. Common and widespread; usually avoids small water bodies, apparent decline in Tentsmuir area where Azure now common.

*Ischnura elegans*: Blue-tailed damselfly. Common and widespread.

*Lestes sponsa*: Emerald damselfly. Widespread except S coast; may be locally abundant.

*Pyrrosoma nymphula*: Large red damselfly. Widespread but local.

### **Anisoptera - dragonflies**

[*Aeshna grandis*: Brown hawker. Accidental introduction: single specimen accidentally imported from Hampton Court, Middlesex mid-1990's, died within three days.]

*Aeshna juncea*: Common hawker. Local, mostly at ponds.

*Cordulegaster boltonii*: Golden-ringed dragonfly. Vagrant.

*Libellula quadrimaculata*: Four-spotted chaser. Formerly rare vagrant, but spate of recent records in Tentsmuir area suggests may now be breeding.

*Sympetrum danae*: Black darter. Local at small pools, populations over the Tentsmuir area greatly increased over past ten years.

*Sympetrum fonscolombei*: Red-veined darter. Vagrant from continent; single at I of May 1911 remains sole record.

*Sympetrum striolatum*: Common darter. Recent colonist, widespread in eastern half of Fife, locally abundant Tentsmuir; often recorded far from breeding site

### **Plecoptera - stoneflies**

Insects with aquatic nymphs, mostly herbivorous, some of the larger predatory, mainly in stony rivers and lochs; 20 species recorded - two or three others might occur.

*Amphinemura sulcicollis*: Rivers Leven, Ore, upper Eden.

*Brachyptera risi*: River Eden.

*Capnia bifrons*: Small burns and ponds, Kenly, Ceres.

*Chloroperla torrentium*: Upper Eden.

*Isoperla grammatica*: Rivers Leven, Lothrie, Eden.

*Leuctra fusca*: Widespread and abundant, stony rivers and burns.

*Leuctra geniculata*: Rivers Ore, Eden, Keil Burn.

*Leuctra hippopus*: Widespread in rivers and burns.

*Leuctra inermis*: Widespread in rivers and burns.

*Leuctra moselyi*: Upper Eden.

*Leuctra nigra*: Dumbarnie Links, River Eden.

*Nemoura avicularis*: River Eden, Keil Burn.

*Nemoura cambrica*: Widespread, stony burns and ponds.

*Nemoura cinerea*: Widespread, lochs and slow rivers.

*Nemoura erratica*: River Eden, Fleecefaulds.

*Nemurella picteti*: Widespread in fens and slow or standing water.

*Perlodes microcephala*: River Leven.

*Protonemura meyeri*: Craighall Burn, Rivers Leven, Lothrie.

*Protonemura praecox*: Glenburn, Lomonds.

*Taeniopteryx nebulosa*: River Eden.

### **Orthoptera: grasshoppers etc.**

These five are the only species likely to occur in Fife; all but the last feed on grass. Names follow Marshall & Haes (1988): *Grasshoppers and allied insects of Great Britain and Ireland*. Harley Books, Colchester.

*Chorthippus brunneus*, Field grasshopper. Abundant on coastal grassland, local elsewhere.

*Chorthippus parallelus*, Meadow grasshopper. Normally flightless; recorded only at Tentsmuir.

*Myrmeleotettix maculatus*, Mottled grasshopper. Local; short dry grass.

*Omocestus viridulus*, Common green grasshopper. Widespread; long grass.

*Tetrix undulata*, Common ground-hopper. Tentsmuir, and an old record from Thornton; feed on moss and algae.

#### **Dermaptera: earwigs**

Omnivores; capable of flying but rarely do so. These are the only species likely to be present.

*Forficula auricularia*, Common earwig (clip-shears). Widespread and abundant.

*Labia minor*, Lesser earwig. Recorded at Pettycur 1901; [usually in dung or compost].

#### **Dictyoptera: cockroaches etc.**

Ground-living scavengers; none indigenous in Scotland.

*Blatta orientalis*, Common cockroach. Local indoors, including greenhouses.

#### **Psocoptera: bark-lice**

Small insects, with or without wings, living amongst vegetation, especially on the bark of trees; feed on pollen, fungi, algae etc. Poorly known; the 20 species recorded are probably a small proportion of those present. Other species live in stored foodstuffs, bird nests etc. Thanks to Bob Saville, Edinburgh for records and identifications.

*Amphigerontia contaminata*. Fleecefaulds; on tree trunks.

*Caecilius flavidus*: Widespread.

*Cuneopalpus cyanops*: Tentsmuir.

*Ectopsocus briggsi*: Widespread.

*Ectopsocus petersi*: Widespread; on trees.

*Elipsocus hyalinus*: Tentsmuir.

*Elipsocus pumilis*: Fleecefaulds.

*Elipsocus westwoodi*: On trees.

*Epicaecilius pilipennis*: Dalgety Bay.

*Graphopsocus cruciatus*: Widespread.

*Mesopsocus immunis*: Tentsmuir.

*Mesopsocus unipunctatus*: Widespread on trees.

*Metylopholus nebulosus*: Fleecefaulds.

*Peripsocus phaeopterus*: Fleecefaulds.

*Philotarsus parviceps*: Lielowan Meadow.

*Philotarsus picicornis*: Dalgety Bay.

*Pteroxanium kelloggi*: Kinraig cliffs.

*Reuterella helvimacula*: On tree trunks, in web.

*Stenopsocus immaculatus*: Dumbarnie Links, N Queensferry; on shrubs.

*Trichadenotecnum fasciatum*: Newburn, Tentsmuir.

#### **Mallophaga: biting lice**

External parasites of birds and mammals, feeding on feathers, fur and skin; 33 species recorded on birds but many more are likely to occur. Most records from Evans (1912): *Proceedings of the Royal Physical Society of Edinburgh* 18: 265-276, with names updated from Kloet & Hinks (1964): *A checklist of British insects*, part 1, Royal Entomological Society of London.

#### **Menopodidae**

*Actornithophilus bicolor*. On turnstone.

*Amyrsidea latifasciata*. On black grouse.

*Austromenopon lutescens*. On dunlin.

*Austromenopon transversum*. On kittiwake.

*Colpocephalum fregili*. On crow.  
*Holomenopon albofasciatum*. On shelduck.  
*Trinoton luridum*. On teal.

### **Laemobothriidae**

*Laemobothrion tinnunculi*. On kestrel.

### **Phloptoridae**

*Anaticola anseris*. On greylag goose.  
*Anaticola crassicornis*. On various duck, as *Lipeurus squalidus*.  
*Anaticola mergiserrati*. On merganser, as *Lipeurus temporalis*.  
*Anaticola tadornae*. On shelduck, as *Lipeurus lacteus*.  
*Anatoecus icterodes*. On duck, as *Docophorus icterodes*.  
*Brueelia nebulosa*. On starling, as *Nirmus nebulosus*.  
*Brueelia varia*. On crow, as *Nirmus varius*.  
*Campanulotes compar*. On wood pigeon.  
*Carduiceps cingulatus*. On waders, as *Nirmus cingulatus*.  
*Coloceras damicorne*. On wood pigeon, as *Goniodes damicornis*.  
*Craspedonirmus colymbinus*. On divers, as *Docophorus colymbinus*.  
*Degeeriella fusca*. On honey buzzard, as *Nirmus fuscus*.  
*Goniodes dissimilis*. On domestic fowl.  
*Phlopterus fuscicollis*. On migrant woodchat shrike at Is. of May, 1911, as *Docophorus communis* var. *fuscicollis*.  
*Phlopterus ocellatus*. On crows, as *Docophorus ocellatus*.  
*Quadriceps alcae*. On razorbill, as *Nirmus alcae*.  
*Quadriceps eugrammicus*. On little gull, as *Nirmus eugrammicus*.  
*Quadriceps lineolatus*. On gulls, as *Nirmus lineolatus*.  
*Rallicola ortygometae*. On corncrake, as *Oncophorus attenuatus*.  
*Saemundssonina celidoxa*. On auks, as *Docophorus celidoxa*.  
*Saemundssonina humeralis*. On curlew, as *Docophorus humeralis*.  
*Saemundssonina lari*. On gulls, as *Docophorus lari*.  
*Saemundssonina merguli*. On little auk, as *Docophorus meruli*.  
*Saemundssonina temporalis*. On lapwing, as *Docophorus temporalis*.  
*Sturnidoecus sturni*. On starling, as *Docophorus leontodon*.

### **Trichodectidae**

*Trichodectes melis*. Charleton, on badger.  
*Trichodectes retusus*. On weasel.

### **Anoplura: sucking lice**

Blood-sucking external parasites of mammals; several additional species probably occur.

*Echinophthirus horridus*. On common seals.  
*Haemodipsus lyriocephalus*. On brown hares.  
*Haemodipsus ventricosus*. On rabbits.  
*Hoplopleura acanthopus*. On field voles.  
*Pediculus humanus*, Human head and body lice. Widespread.  
*Polyplax serrata*. On wood mice.  
*Polyplax spinulosa*. On rats.  
*Pthirus pubis*, Human pubic louse. Probably now rare.

### **Thysanoptera - thrips (thunder-flies)**

Tiny insects feeding on plant sap and on fungal hyphae and spores. They can form troublesome swarms in hot weather. 14 species recorded in Fife; many more are likely to occur. Names follow Mound et al. (1976): *Thysanoptera*. Handbooks for the Identification of British Insects, 1 (11). Royal Entomological Society.

*Aptinothrips rufus*: [On grasses.]  
*Haplothrips leucanthemii*: Carlingnose, in flower-heads of *Leucanthemum*.  
*Haplothrips senecionis*: [On ragwort.]  
*Hoplothrips pedicularius*: On dead beech.  
*Limothrips cerealium*: Abundant in cereal crops.  
*Limothrips denticornis*: Dumbarrie Links; [on cereals].  
*Liothrips setinodis*: [On ash and elm.]  
*Mycterothrips latus*: [On birch.]  
*Odontothrips loti*: St Andrews, 1924; as *O.uzeli*.  
*Thrips atratus*: [On flowers.]  
*Thrips fuscipennis*: [On flowers.]  
*Thrips simplex*: [On gladioli.]  
*Thrips tabaci*: Dumbarrie Links, on ragwort.  
*Thrips vulgatissimus*: [On flowers.]

### Neuroptera - lacewings

Larvae and most adults predatory, feeding mainly on aphids. A further 5 or 6 species are likely to be present. Names follow Plant (1997): *A Key to the adults of British lacewings and their allies*. Field Studies Council.

### Coniopterygidae

Tiny insects easily mistaken for white-flies.

*Conwentzia pineticola*: One old record at St Andrews, [pine].

### Hemerobiidae - brown lacewings

*Hemerobius humulinus*: Keils Den, St Andrews Botanical Garden, Torry Bay.  
*Hemerobius lutescens*: Newburn, Tentsmuir.  
*Hemerobius marginatus*: Bankhead Moss, on rowan.  
*Hemerobius micans*: Torry Bay.  
*Hemerobius nitidulus*: Tentsmuir.  
*Hemerobius pini*: Morton Lochs.  
*Hemerobius simulans*: Tentsmuir.  
*Hemerobius stigma*: Newburn, Tentsmuir; on pine.  
*Micromus variegatus*: Dumbarrie Links, Newburn, Torry Bay.  
*Micromus paganus*: Widespread.  
*Psectra diptera*: Kinraig cliffs.  
*Wesmaelius nervosus*: Newburn (as *W.betulinus*).  
*Wesmaelius subnebulosus*: Widespread.

### Chrysopidae - green lacewings

*Chrysopa perla*: Tentsmuir, Torry Bay.  
*Chrysoperla carnea*: Common, often hibernating indoors.  
*Chrysopidia ciliata*: Newburn, Torry Bay.  
*Cunctochrysa albolineata*: Newburn.  
*Mallada ventralis*: Tentsmuir.  
*Nineta flava*: Widespread.  
*Nineta vittata*: Bankhead Moss, Devilla, Torry Bay; on rowan and oak.  
*Nothochrysa capitata*: Tentsmuir.

### Megaloptera - alderflies

Large flies with predatory, aquatic larvae.

*Sialis fuliginosa*: River Eden.  
*Sialis lutaria*: River Eden, Birnie Loch, Calais Muir Ponds.

### **Mecoptera - scorpion flies and snow fleas**

Scavengers, adult scorpion flies visiting flowers. Only four species in Britain.

*Boreus hyemalis*: Snow flea. Lomonds, Tentsmuir dunes.

*Panorpa communis*: Fleecefaulds.

*Panorpa germanica*: Widespread.

### **Trichoptera: caddis flies**

Insects with aquatic larvae that mostly make portable cases of stones or plant debris. Most recording has been from rivers; many others probably occur in standing water. Acknowledgement to Brian Little for additional records.

### **Goeridae**

*Goera pilosa*. River Leven.

*Silo pallipes*. Rivers Eden and Lothrie.

### **Hydropsychidae**

*Diplectrona felix*. River Eden.

*Hydropsyche angustipennis*. Most rivers.

*Hydropsyche instabilis*. Dumbarnie Links, upper River Eden.

*Hydropsyche pellicidula*. Most rivers.

*Hydropsyche siltalai*. Most rivers.

### **Leptoceridae**

*Oecetis ochracea*. Dumbarnie Links, Loch Gelly.

### **Limnephilidae**

*Allogamus auricollis*. River Eden at Kemback.

*Drusus annulatus*. Dumbarnie Links, River Eden, West Lomond.

*Glyptotaelius pelucidus*. Loch Gelly, Moss Morran.

*Grammotaulius nigropunctatus*. I of May, Morton Lochs, Moss Morran.

*Halesus digitatus*. Bankhead Moss, River Eden.

*Halesus radiatus*. Widespread.

*Limnephilus affinis*. I of May, Tentsmuir, Torry Bay.

*Limnephilus auricula*. Bankhead Moss, Dumbarnie Links, Moss Morran, Torry Bay.

*Limnephilus extricatus*. Inverkeithing, 1966.

*Limnephilus flavicornis*. Aberdour, Calais Muir Ponds, Loch Gelly, Torry Bay.

*Limnephilus hirsutus*. Dumbarnie Links, Inverkeithing, Loch Gelly, Torry Bay.

*Limnephilus lunatus*. Widespread.

*Limnephilus marmoratus*. I of May, Tentsmuir.

*Limnephilus politus*. Earlshall Muir.

*Limnephilus rhombicus*. River Eden.

*Limnephilus sparsus*. I of May, Tentsmuir.

*Limnephilus vittatus*. Moss Wood, Wemyss.

*Potamophylax cingulatus*. Rivers Eden, Ore.

*Potamophylax latipennis*. Widespread.

*Stenophylax permistus*. River Eden.

### **Philopotamidae**

*Philopotamus montanus*. Upper River Eden.

### **Phryganeidae**

*Phryganea bipunctata*. Calais Muir Ponds, and vagrant at N Carr lightship.

*Phryganea grandis*. River Leven.  
*Phryganea varia*. Tentsmuir.

### **Polycentropodidae**

*Plectrocnemia conspersa*. Culross Muir, Moss Morran, River Eden.  
*Plectrocnemia geniculata*. River Eden.  
*Polycentropus flavomaculatus*. Most rivers.

### **Psychomyiidae**

*Lype reducta*. River Eden.  
*Tinodes waenerii*. River Eden, Dreel Burn.

### **Rhyacophilidae**

*Agapetus delicatulus*. River Eden.  
*Agapetus fuscipes*. River Eden.  
*Glossosoma boltoni*. River Eden.  
*Glossosoma conformis*. River Eden.  
*Rhyacophila dorsalis*. Rivers Eden, Leven, Ore.

### **Sericostomatidae**

*Sericostoma personatum*. Most rivers.

### **Siphonaptera - fleas**

Adults are blood-sucking parasites of mammals and birds. Little studied in Fife but 27 out of 53 British species recorded, 19 on mammals, 8 on birds. Names follow George (1974): *Provisional atlas of the insects of the British Isles, part 4, Siphonaptera, fleas*. Biological Records Centre.

### **Pulicidae**

*Archaeopsylla erinacei*: On hedgehogs.  
*Ctenocephalides felis*: Cat flea. Also on dogs.  
*Pulex irritans*: Human flea. Apparently scarce.  
*Spilopsyllus cuniculi*: Widespread on rabbits.

### **Hystrichopsyllidae**

*Ctenophthalmus bisoctodentatus*: Commonest mole flea.  
*Ctenophthalmus nobilis*: Common on small mammals.  
*Doratopsylla dasycneme*: 2 sites [on shrews].  
*Hystrichopsylla talpae*: Widespread in nests of small mammals; the largest local flea.  
*Palaeopsylla kohauti*: In mole nests.  
*Palaeopsylla minor*: In mole nests.  
*Palaeopsylla soricis*: On shrews.  
*Rhadinopsylla pentacantha*: Nests of voles and mice.

### **Ischnopsyllidae**

*Ischnopsyllus simplex*: In bat roost, Ladybank [usually on Natterer's bat, *Myotis nattereri* or Whiskered bat, *M. mystacinus*.]

### **Leptopsyllidae**

*Peromyscopsylla spectabilis*: 2 sites [mainly on voles].

## **Ceratophyllidae**

- Amalareus penicilliger*: Nests of small mammals.  
*Ceratophyllus farreni*: Nests of house martin.  
*Ceratophyllus gallinae*: Common on small birds.  
*Ceratophyllus garei*: Nests of eiders etc on ground.  
*Ceratophyllus hirundinis*: Nests of house martin.  
*Ceratophyllus rusticus*: Nests of house martin.  
*Ceratophyllus styx*: Nests of sand martin.  
*Ceratophyllus vagabundis*: Seabirds on I of May.  
*Dasypsyllus gallinulae*: Common [nests of small birds].  
*Megabothris rectangulatus*: 1 record, on voles.  
*Megabothris turbidus*: 3 sites, nests of small mammals.  
*Monopsyllus sciurorum*: On red squirrel at Ladybank and Devilla.  
*Nosopsyllus fasciatus*: Common on rats.