
New Mills Community Orchard

Invertebrate Audit

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1. Introduction

I was contacted by those in charge of New Mills Community Orchard and asked to conduct an Invertebrate Audit to see what life the area contains. Invertebrate life is important in an area because it forms the lower ranks of most food chains. Invertebrate Audits are usually carried out once a month over the summer months of May, June, July and August. This is so that all the life of an area can be recorded as it progresses through its different stages (from larvae to adult form) over the summer period; this ensures that the Audit is comprehensive.

2. Methodology

There are various methods to sample invertebrates; I used the 3 that were best suited to Acid grassland and fruit trees. They each concentrate on invertebrates from a different vegetation level.

2.1 Pit fall traps

These traps are relatively simple to use and friendly to the animals caught in them. They consist of a yoghurt pot dug, some bait, shelter and a tile propped up on 4 small stones.

Figure 1, The method of setting a Pitfall Trap. (Source: Author 2010)



The yoghurt pot is dug into the ground so its rim is flush with the ground, it is baited (in this case with fruit from the orchard) and some grass is ripped up and placed in to give whatever insects are trapped some cover. This must be packed down so the insects cannot use it to escape. The slate is used both to keep weather out of the pot and to notify passersby of what it is and prevent them from disturbing the trap.

These traps are set 24 hours before they are to be examined to allow enough time for insects to be collected but not too long that they would suffer or die without food.

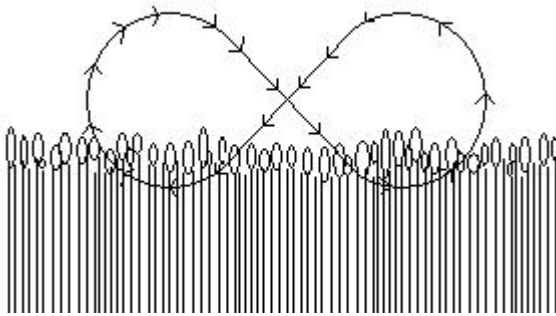
2.2 Sweep nets

Figure 2, Sweep net (Source: Google images 2010)



Sweep nets are used for sampling life that lives in long grass above ground level. The technique is to swing the net in large figure of 8 motions (see figure 3) through the grass heads to capture invertebrates living at this level.

Figure 3, How sweep nets are used. (Source: Author 2010)



Moving in this motion ensures that the net is not stationary so the invertebrates cannot escape before they can be identified. It also means that a large area can be covered relatively quickly.

2.3 Branch shaking

This method covers the highest level of vegetation in the area surveyed. A sheet is spread under the branches of a tree which is then shaken. As insects are dislodged from the branches and leaves they fall onto the sheet and can be easily spotted and collected for identification.

3.0 The Study.

I concentrated on the Acid Grassland and the trees of the orchard as these were the biggest habitats in the sampling area. The management plan also specifies that other areas on the site such as dry stone walls, bramble bushes, hawthorn hedges and the pond should be sampled for invertebrates. This year, due to the extraordinarily dry summer the levels in the pond were too low to carry out a decent audit and unfortunately my expertise does not stretch to methods of auditing stone wall, Bramble and Hawthorn. However the acid grassland and the fruit trees provided a wide range of species to be studied and hopefully by the time I conduct the Audits for a second time next year I will be able to sample the other forms of habitat.

Figure 4, Arial photograph of the area with the sites of pitfall traps marked on. (Source: Google maps 2010, Details added by Author 2010)

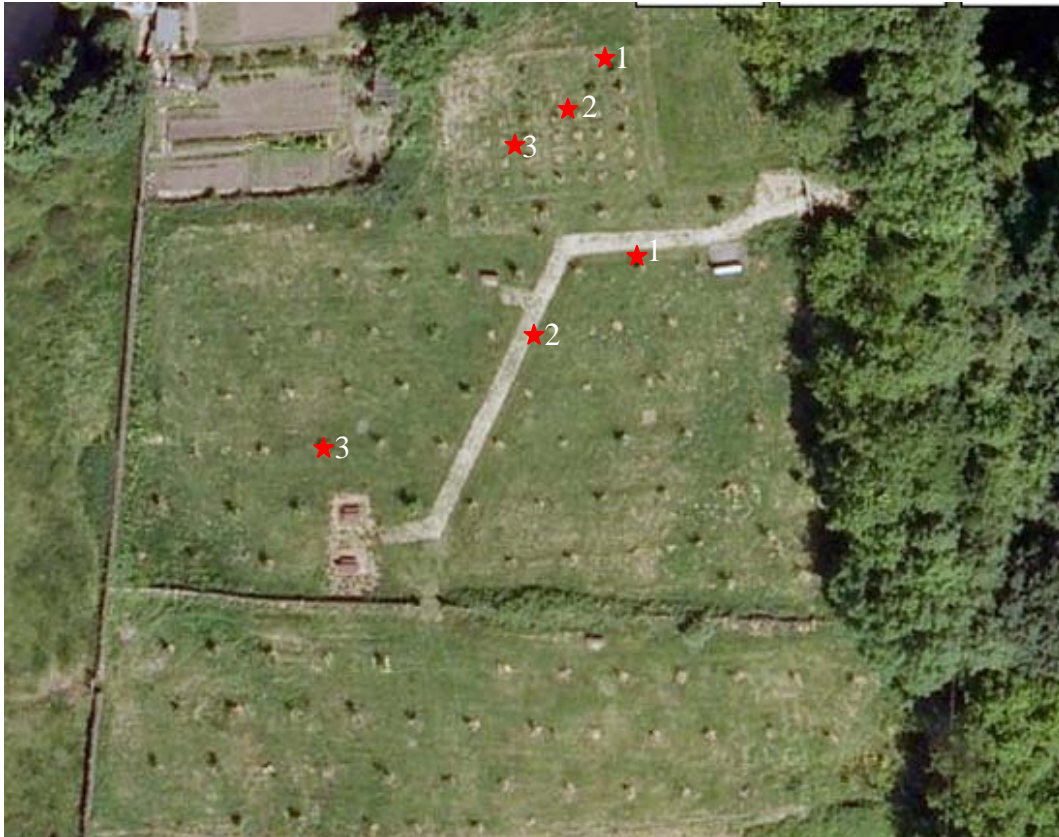


Figure 4 shows the locations of the 6 pitfall traps that were set each time an audit was carried out. The top most three are in short grass between rows of red, white and black currant bushes. The other 3 were in long grass areas across the rest of the orchard. As the site is on a slope the traps were spread across the gradient as well as the surface area to maximise the variety of habitats covered.

The results of the pitfall traps are as follows.

4.0 Results

July 28th 2010

Short grass

Trap 1

1 x Mesh Web Spider - *Dictyna arundinacea*

1x Netted Slug - *Deroceras reticulatum*

1x Keel Slug - *Tandonia budapestensis*

Trap 2

1 x Common Ground Beetle - *Pterostichus madidus*

1 x Springtail - *Tomocerus longicornis*

Trap 3

1x Keel Slug – *Tandonia budapestensis*

Long Grass

Trap 1

1x Ground Beetle - *Abax parallelepipedus*

Trap 2

1x Netted Slug – *Deroceras reticulatum*

1x Spider mite – *Tetranychidae spp*

Trap 3

1x Beetle - *Tachinus rufipes*

1 x Springtail – *Tomocerus longicornis*

1x Crab Spider - *Misumena vatia*

Other Invertebrates observed

1 x Hover fly

1 x Woodlouse *Porcellio scaber*

Sweep nets

Aphid - *Rhopalosiphum maidis*

Common flower bug – *Anthocoris confusus*

Common green capsid bug – *Lygocoris pabulinus*

Grass bug – *Notostricia elongata*

Male Meadow Plant bug – *Leptopterna dolabrata*

Mirid bug – *Stenotus binotatus*

Sawfly larvae – *Argidae spp*

Snipe fly – *Rhagio scolopacea*

Soldier beetle - *Rhsgonycha fulva*

Common black fly – *Diptera spp*

Tree shake

2 x Apple sucker – *Rhopalosiphum maidis*

August 28th 2010

Short grass

Trap 1

2x Common Ground Beetle - *Pterostichus madidus*

1x Unidentified Spider species 1

Trap 2

1x Common Ground Beetle – *Pterostichus madidus*

2x Springtail - *Tomocerus longicornis*

Trap 3

1x Common Ground Beetle – *Pterostichus madidus*

1x Unidentified Spider species 2

3x Springtail – *Tomocerus longicornis*

Long grass

Trap 1

2x Common Ground Beetle – *Pterostichus madidus*

Trap 2

2x Common Ground Beetle – *Pterostichus madidus* (one with red legs)

Trap 3

VOID- when the trap was recovered it was found out of the ground, upended and empty.

Sweep net

Marsh Damsel Bug - *Nabis limbatus*

St Mark's Fly - *Bibio marci*

Unidentified insect larvae / caterpillar

Bumble bee – *Bombus spp*

Common black fly – *Diptera spp*

Common ant - female – *Formicidae spp*

Apple sucker - *Rhopalosiphum maidis*

5.0 Conclusion

In total, 28 different species were found on the site over the 2 audits. The July Audit produced 21 species where as the August audit produced only 7 new species with 3 repeats.

6.0 References

Google, (2010) **Google maps** [Online] website last accessed 5th September 2010 at:

<http://maps.google.co.uk/maps?client=firefox-a&rls=org.mozilla:en-GB:official&hl=en&tab=wl>