



Maintenance and care

Using pre-printed recording sheets each day (example lab record sheet supplied) helps to prompt the required regular care duties as well as record observations and actions. The duties of primary importance for all mayfly families are:

Nymphs

- Check and maintain constant aeration
- Ensure temperature does not exceed a maximum of 21 °C (ideally temperature would be 15 – 18 °C)
 - Take water temperature with a thermometer each day
 - Temperature may be reduced by adding cold tap water to the tray that the mayfly bottles are standing in and adding one or more frozen “cool packs” to the tray of water
- Replace water lost from the bottles by evaporation (check the starting water level marked on the bottle) with either:
 - Bottled mineral water at the same temperature as the mayfly vessel water
 - Tapwater that has been aerated in a bucket for at least 12 hours (this drives off the toxic dissolved chlorine †) at the same temperature as the mayfly vessel water
- Feeding:

Ephemeraidae	Either: <ul style="list-style-type: none"> • Plant detritus collected from the native river OR <ul style="list-style-type: none"> • experimental feeding with roughly blended fresh spinach (blanched in hot water) at ~ 1 teaspoonful per vessel per week
Ephemereillidae, Baetidae, Heptageniidae	Algae-covered pebbles from native river (replaced with fresh ones once per week if required) N.B. pebbles can be rotated between a bucket containing river water and the mayfly vessels to allow algae to re-grow when not being grazed)

† This can be incorporated into part of a physics lesson examining aqueous solubility of gases and/or geography modules considering the water cycle and addition of chlorine to sanitise drinking water

Sub imagos and imagos



A



B

Figure 1: A twig “perch” for adult mayflies (A) and how to gently transfer an adult mayfly (B) when from one vessel to another (a small aquarium net may be useful for catching “escapees” too)

- Provide a twig or some mesh that protrudes above the water line for emergent mayflies to climb up and settle on (Fig. 1A)
- Check each day for emerged mayflies and remove any sub-imagos from the bottle and place in a small plastic or cardboard box (with air holes) in the fridge until “release day” (Fig. 2). Flies can be kept for up to a week in these conditions, and may moult to become imagos during this time
 - Adult flies can be transferred by gently encouraging the fly to walk onto a soft paintbrush (Fig. 1B)
 - Any mayflies that make a bid for freedom can be recaptured using a soft meshed aquarium net



Figure 2: A clean takeaway food box (with airholes punched in the lid) for adult mayfly storage.

- Try to identify whether each sub imago is male or female and record the date that each emerge
- When a suitable number of adult flies have emerged (and are stored in the fridge) a release day should take place at the native stream
 - Adult mayflies should be placed in bankside vegetation
 - Surviving nymphs that have not hatched by the end of the project should be gently released into their native river (and NOT into a river system different from their place of collection – as diseases such as crayfish plague could be introduced)
 - The river should be observed to see if naturally resident mayflies are hatching during the visit
 - Pupils should try to list as many species as possible that they can see feeding on the mayflies during a hatch and draw these as links in a food chain (divided between aquatic and terrestrial predators)
 - Factual descriptions and poetry activities should be based on observations and inspiration taken from the visit to the waterside
 - The social responsibility for ensuring habitat and water quality continue to support mayflies, fish and healthy flora should be highlighted during waterside visits