Identifying living organisms

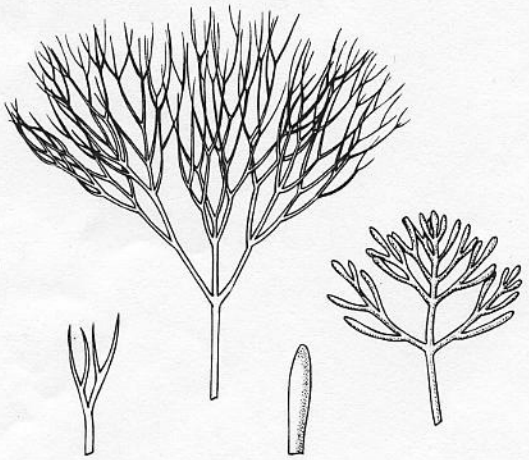
USING KEYS TO IDENTIFY ORGANISMS

The first stage in many ecological investigations is to find out what species of organism there are in the area being studied. This is called **species identification**. This can be done using **keys**.

Keys for species identification are usually constructed in this way:

- the key consists of a series of numbered stages
- each stage consists of a pair of alternative characteristics
- some alternatives give the next stage of the key to go to
- some alternatives give the identification.

Leaves of aquarium plants



Identifying aquarium plants using a key

Many aquatic plants in aquariums in biology laboratories belong to one of these four genera:

- *Cabomba*
- *Ceratophyllum*
- *Elodea*
- *Myriophyllum*

All of these plants have cylindrical stems with whorls of leaves. The shape of four leaves is shown in the figure (left). A key can be used to identify which of the four genera a plant belongs to, if it is known to be in one of them.

1. Simple undivided leaves . . . . . *Elodea*

   Leaves forked or divided into segments 2

2. Leaves forked once or twice to form two or four segments . . . . . *Ceratophyllum*

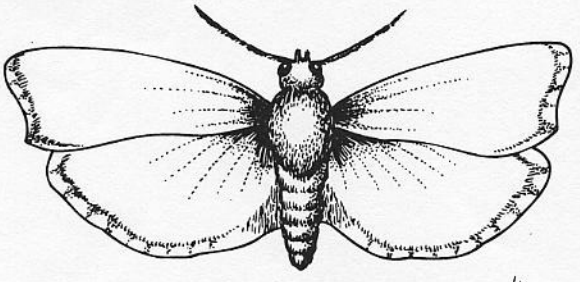
   Leaves divided into more than four segments 3

3. Leaves divided into many flattened segments . . . . *Cabomba*

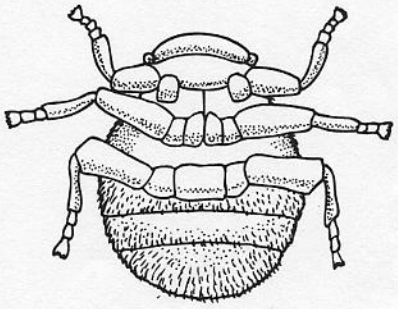
   Leaves divided into many filamentous segments . . . . . *Myriophyllum*

Some species of Elodea have recently been moved by taxonomists to other genera:
Elodea densa is now *Egeria densa.*
Elodea crispa is now *Lagarosiphon major.*

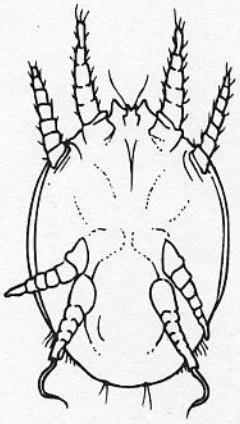
Constructing a key



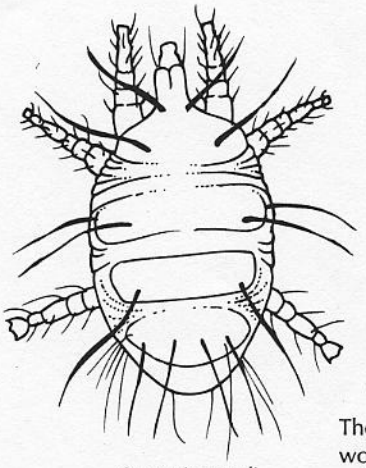
Galleria mellonella



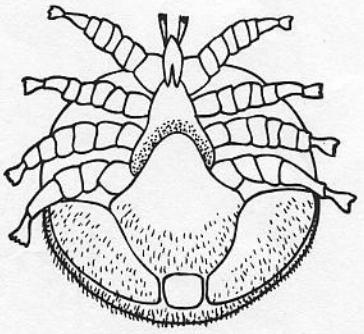
Braula coeca



Acarus siro



Acarapis woodi



Varroa jacobsonii

The five animals shown above are found in beehives. It would be useful to construct a key to allow a beekeeper to identify them, as some of them are very harmful and others are harmless to honey bees.