Royal Botanic Garden Edinburgh

PHENOLOGY – WEEKLY PROJECT

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PERSONNEL

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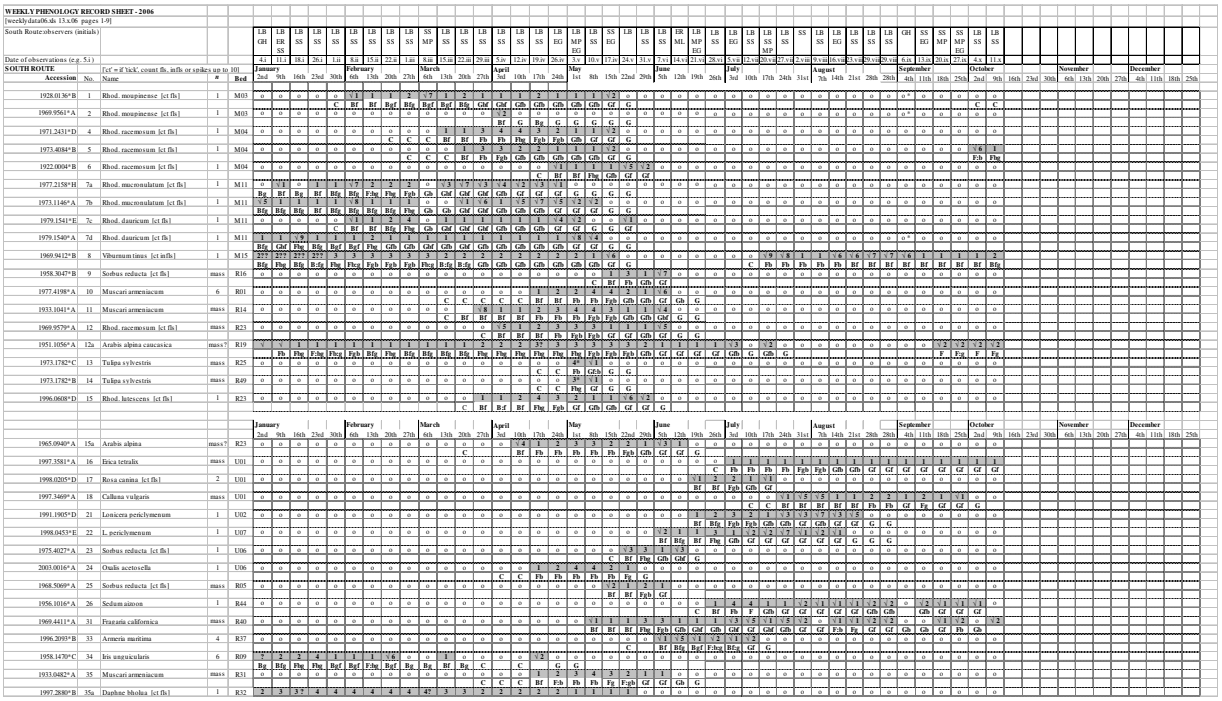


The diagram (right) shows the first few rows of the monitoring in 2006.

For each taxon and week, the upper cell gives the **'tick1-4'** status, and the lower cell gives the **'BFG'** status.

The 'tick,1-4' method

'tick1-4' develops a method used by Liz Rogers in the tropical rain forest of West Africa.

It is assumed that the observer has a reasonably clear idea of what 'fully in flower' looks like, which would correspond to 100% flowering.

Scores **'1', '2', '3' and '4'** correspond to 'up to 25%', '26-50%', '51-75%' and '76-100%' flowering.

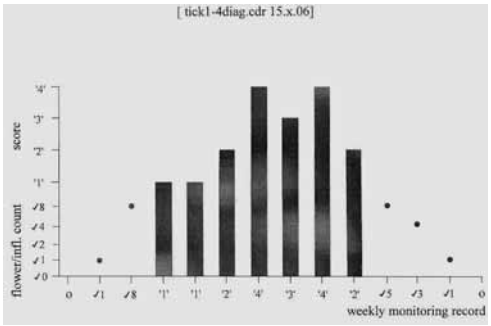
At the same time, it is useful to know if there is a small number of open flowers at the start or end of the flowering season. The **tick** symbol denotes up to 10 flowers open, and where possible the actual count of flowers (or inflorescences in some taxa) is given beside the tick. (Where the tick is being used, '1' denotes '>10 flowers/inflorescences and up to 25% flower cover'.)

To the right is shown one possible form of diagram to display the 'tick1-4' observations, using a hypothetical example.

The flower/inflorescence counts use a logarithmic scale in the lower part of the diagram.

Columns are used for the '1-4' scores, using a linear scale, but extending below the zero level on the scale; thus the columns are not proportional to the scores (which in any case denote intervals, not point values).

The intention is merely to give an instant impression of the course of flowering using the rapid-survey data.



The 'BFG' method

The **'BFG'** method develops an idea due to Roy Thompson, based on the 'Jeffree diagrams' developed by E.P.Jeffree (1957).

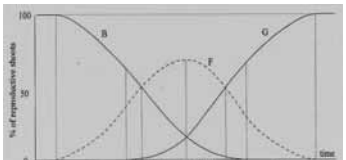
The total number of reproductive shoots during a flowering season is represented as 100%, and at any instant each reproductive shoot is in the **'B'** state (flower bud), **'F'** state (open flower), or **'G'** state (gone-over flower).

A count of two of these states, enables the third to be calculated. The relative numbers of the three states can be represented in graphs (see right).

Different taxa have different flowering behaviours, and important features of the flowering strategy can be seen in the shapes of the 'B', 'F' and 'G' curves.

Two extreme types are illustrated here. There are presumably many intermediate types, and probably others that do not fit easily into this spectrum.

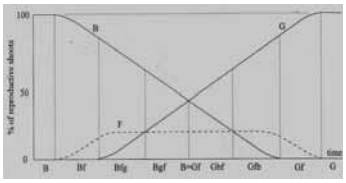
Recording the relative numbers of 'B', 'F' and 'G' reproductive shoots each week (as shown along the horizontal axis of each diagram) should give an idea of when mass/peak flowering occurs.



Simultaneously flowering plants

Flowering in this group builds up rapidly to peak flowering, and then declines at about the same rate. The 'B' and 'G' curves are more or less symmetrical, and the height achieved by the 'F' curve is a function of how much the 'B' and 'G' curves overlap.

Simultaneously flowering plants tend to have umbels or other compact forms of inflorescence (eg *Rhododendron ponticum*), and can be morphologically regarded as derivative from the sequentially flowering type.



Sequentially flowering plants

The flowers are distributed along an axis, with flowering progressing distally (eg *Digitalis purpurea*).

In the extreme case, only one or a very few flowers may be open at any one time.