Plant Crib

LEMNA

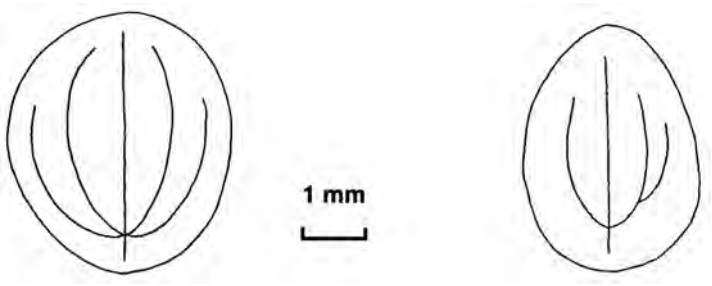
1. *Lemna gibba* / *L. minor*

Under favourable conditions there should be little difficulty distinguishing *L. gibba* fronds with their characteristic swollen bases from the flat fronds of *L. minor*. In fruit the species are easily distinguished: *L. gibba* has 2-6 ovules and a winged fruit with 2 seeds, *L. minor* 1 ovule and an unwinged fruit with 1 seed - but who ever looks for or finds fruit?
In unfavourable conditions (i.e. stagnant, nutrient-poor or cold water), the swollen base of *L. gibba* may not develop and the fronds are flat; these are easily confused with *L. minor*. As the two species usually grow together (conveniently for comparison), *L. gibba* fronds can usually be distinguished using a combination of characters below. Note, there may be different clones of the same species present at any one site which look slightly different. On a world-wide basis there are considerable problems separating the two species (Landolt 1975, Kandeler 1975). It may not be possible to name some plants.

	Lemna gibba L.	*Lemna minor* L.
Size	Generally larger (3-)3.5-6 mm	Generally smaller (2-)3-5 mm
Shape	Rounder; length:width ratio *c.* 1-1.5	More ovate, length:width ratio *c.* 1.2-2.0
Veins (note 1)	(3-)4-5, separate from base (Fig. a)	3(-5), when 4 or 5, the outermost connected to the inner some distance from the base (Fig. b)
Lower surface	Gibbous to flat, often with relatively few distinct large cells in the middle and smaller ones outside	Flat, with many indistinct small cells of similar size over the surface

Note

1. See *L. minuta* / *L. minor* account



Fronds of (a) *L. gibba*, (b) *L. minor*, showing general shape and positioning of veins.

References Kandeler, R. (1975). *Aquatic Botany* **1**: 365-376.
Landolt, E. (1975). *Aquatic Botany* **1**: 345-363.

2. *Lemna minuta (L. minuscula)* / *L. minor*

L. minuta is now widespread in S Britain and is continuing to spread. It has also reached Ireland. Some authors consider it more frost resistant and therefore easier to detect in winter but confirmation of this is required. Plants can be very difficult to identify with confidence in winter

The number of veins is the most reliable character, but is not easy to see in the field (Leslie & Walters 1983). The solitary vein of *L. minuta* is difficult to detect in the field but veins can sometimes be seen in decaying fronds. With practice, it is possible to see the veins in *L. minor* by holding the frond so that the light is transmitted through it but so the face of the frond is not at right angles to the source. In difficult cases, fronds should be boiled in lactophenol for 30 seconds, after which they become colourless and translucent.

The other characters below enable plants to be named reasonably reliably with practice. Though *L. minuta* is usually smaller than *L. minor,* there is overlap in size and occasional populations of *L. minor* with uniformly small fronds may be found.

	Lemna. minuta Kunth	*Lemna minor* L.
Veins	0-1	3(-5)
Frond size	1-3 mm	(2-)3-5 mm
Frond colour	Pale green, dull	Dark green, shining
Frond shape	Usually elliptic, symmetrical	Usually obovate, asymmetrical
Frond apex	Obtuse, usually with slight point	Rounded, usually without a point
Upper surface of frond	Very shallowly ridged, visible to the naked eye	Flat or smoothly rounded

Reference Leslie, A. C. & Walters, S. M. (1983). *Watsonia* **14**: 243-248.

3. *Lemna turionifera*

This species is spreading in central Europe and could appear in Britain. It looks like an olive-green form of *L. minor* or *L. gibba* flushed with red pigmentation (remember *Spirodela polyrhiza* is red underneath but has many roots) and can be separated as follows (Landolt 1980):

L. turionifera Landolt: Fronds with prominent papules (i.e. little 'bumps') of ± equal size above the midline on the upper side (visible to naked eye but clearer with a ×10 lens); very often red-coloured underneath; in unfavourable conditions forming small obovate to circular, rootless, dark green to brown turions.

L. minor L. and ***L. gibba*** L.: Fronds without prominent papules (one or two very small ones sometimes present); rarely reddish coloured underneath; fronds rarely forming turions, and if present, turions have short roots.

Reference Landolt, E. (1980). Biosystematic investigations in the family of duckweeds (Lemnaceae), 1. *Veröffentlichungen des Geobotanischen Instituts der Eidg. Techn. Hochschule, Stiftung Rübel, in Zürich* **70**. 247 pp.