

***Rumex* × *xenogenus* Rech. fil. (Polygonaceae), the hybrid between Greek and Patience Docks, found in Britain**

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ABSTRACT

Rumex × *xenogenus* Rech. fil. has been found in Rainham, S. Essex, v.c. 18, new to the British flora. The Rainham plant appears to be a hybrid between *Rumex cristatus* DC. and *R. patientia* L. subsp. *orientalis* Danser, so representing a different nothotaxon from the type, which had *R. patientia* subsp. *patientia* as a parent. The hybrid is illustrated and its distinguishing characteristics are identified.

KEYWORDS: hybridization, Essex.

INTRODUCTION

Greek and Patience docks (*Rumex cristatus* DC and *R. patientia* L.) are both large alien docks, up to 2 m high, frequent on waste ground in the London area. They are occasionally found growing together in Britain, but some records of proximity may be the result of confusion, particularly through recorders mistaking *R. cristatus* for *R. patientia*.

Their natural distribution shows little overlap. *R. cristatus* is native to Greece, extending from the southern part of the Balkan peninsula to western Anatolia, Cyprus, and Sicily. *R. patientia* is more widespread, from the northern limits of Greek Dock's native range and extending through eastern and south-eastern Europe (Jalas & Suominen 1979). Both are naturalised elsewhere in Europe, and this may bring the two species into proximity; but the only previous confirmed record that has been traced of the hybrid between these species is that of K. H. Rechinger fil., from Vienna in 1947 (Hegi 1958), the basis of the taxonomic description by Rechinger (1948).

DISCOVERY IN RAINHAM

Both putative parent species occur in abundance at Rainham, S. Essex (v.c. 18). *R. cristatus* is present in large colonies on Rainham marshes, hybridizing with *R. crispus* L., *R. obtusifolius* L. and *R. palustris* Sm. *R. patientia* is less frequent, but dominates two rat-infested stretches of roadside embankment consisting of tipped material, each about 60 m long, along Coldharbour Lane, a private road to Rainham landfill site off Ferry Lane. It seems to be confined to those embankments, while *R. cristatus* grows intermixed there, but also extends to the rank vegetation of the former grazing marshlands beyond.

Within this jointly occupied habitat, there would appear to be ample opportunity for hybridization between the two species, especially in view of the disturbed nature of the habitat. On 16 August 2000, the author undertook a survey of these embankments for the purpose of establishing whether hybrids were present. Two adjoining plants of *Rumex* × *xenogenus* Rech. fil., 75 cm apart, were found on the embankment opposite the Tilda works entrance (TQ516807). No *Rumex* species were present, apart from *R. cristatus* and *R. patientia*, both of which were present in abundance and within 1 m of the hybrid plants.

At this stage of the season, parents and hybrids were well past flowering and stems were desiccated, with decayed leaves. The hybrids were distinctive from a distance, not through any intermediacy of features, but because of their ragged appearance, exhibiting highly irregular fruiting and with most tepals having dropped early, indicating sterility. This "ragged jizz" is generally a characteristic feature of hybrid docks (Lousley 1939, Lousley & Williams 1975).

TABLE 1. COMPARISON OF SOME CHARACTERS OF *R. CRISTATUS*, *R. PATIENTIA* AND THE RAINHAM HYBRIDS

Character	<i>R. cristatus</i>	<i>R. patientia</i>	Rainham hybrids
height	100–200 cm	80–200 cm	142–187 cm
basal leaf midrib/vein angle	60–90°	45–60°	60–75°
valve dentation	teeth to 1 mm	untoothed	varying from scarcely toothed to 0.5 mm teeth
valve maturation	mature by end of June, dropping in autumn	mature by end of June, dropping in autumn	maturation erratic, beginning to drop by end of June
tubercles on valves	one large (2.7–2.9 × 1.7–2.0 mm*), conspicuous and reddening; with or without others, small and inconspicuous	one small (1.8–2.1 × 1.0–1.3 mm*), inconspicuous and pale; other minute tubercles may be present, but were not recorded at Rainham	one, varying widely in size, but mostly small ((0.7)1.0–2.3 × (0.3)0.5–1.0 mm*), generally pale and rarely reddening, generally not particularly conspicuous; occasionally with other minute tubercles.

* Tubercle measurements are taken from plants at Rainham. Lousley (1939) gives the length of *R. cristatus* tubercles as 2–3 mm, and the length for *R. patientia* as c.1.5 mm (subsp. *patientia*) and 2–3 mm (subsp. *orientalis*).

In contrast, *R. cristatus* and *R. patientia* carried dense panicles with massed mature tepals. Closer examination showed that the remaining mature tepals were highly variable, exhibiting a range of intermediacy between *R. cristatus* and *R. patientia*. They also contained nuts that were small and not fully formed, being largely, if not wholly, sterile.

A further visit on 30 June 2001 confirmed other intermediate characters. The plants are likely to have been present for some time, the rootstocks being at least 22 cm across, and the larger plant carrying 9 flowering stems.

Details of relevant characters of parents and hybrids are set out in Table 1, and the hybrid is illustrated in Fig. 1.

DISCUSSION

While the two Rainham plants were convincingly hybrid, and their intermediate characters as well as their proximity to *R. cristatus* and *R. patientia* (and no other docks) point to their identification as *Rumex* × *xenogenus*, it is also possible to rule out other hybrid combinations. Several other *Rumex* species and hybrids are present on Rainham marshes, and the site is a little over 1 km from the unique location for another interesting dock hybrid, *Rumex* × *akeroydii* (Rumsey 1999).

The small teeth on the valves of the Rainham plants indicate valve toothiness in at least one parent. *R. obtusifolius* is ruled out by the absence of any scabridity on the midrib of the underside of the leaf. The relative shortness of the teeth also rules out *R. palustris* as a parent (and *R. maritimus*, for which there are records at Rainham marshes, although the author has not seen that species there). This leaves *R. cristatus*. In order to produce progeny with smaller teeth than *R. cristatus*, it is probable that this last species shall have hybridized with a species bearing entire valves. Potential local candidates are *R. crispus*, *R. conglomeratus* and *R. patientia*. *R. cristatus* × *crispus* bears longer, more crisped leaves than were exhibited by the Rainham plants. A hybrid between *R. cristatus* and *R. conglomeratus* would be expected to show some influence from the lingulate shape of the latter's valves; but this was not evident. So, elimination of the possible alternatives provides further evidence of the Rainham plants as being hybrids between *R. cristatus* and *R. patientia*. The hybrid's leathery leaves are common to both species.

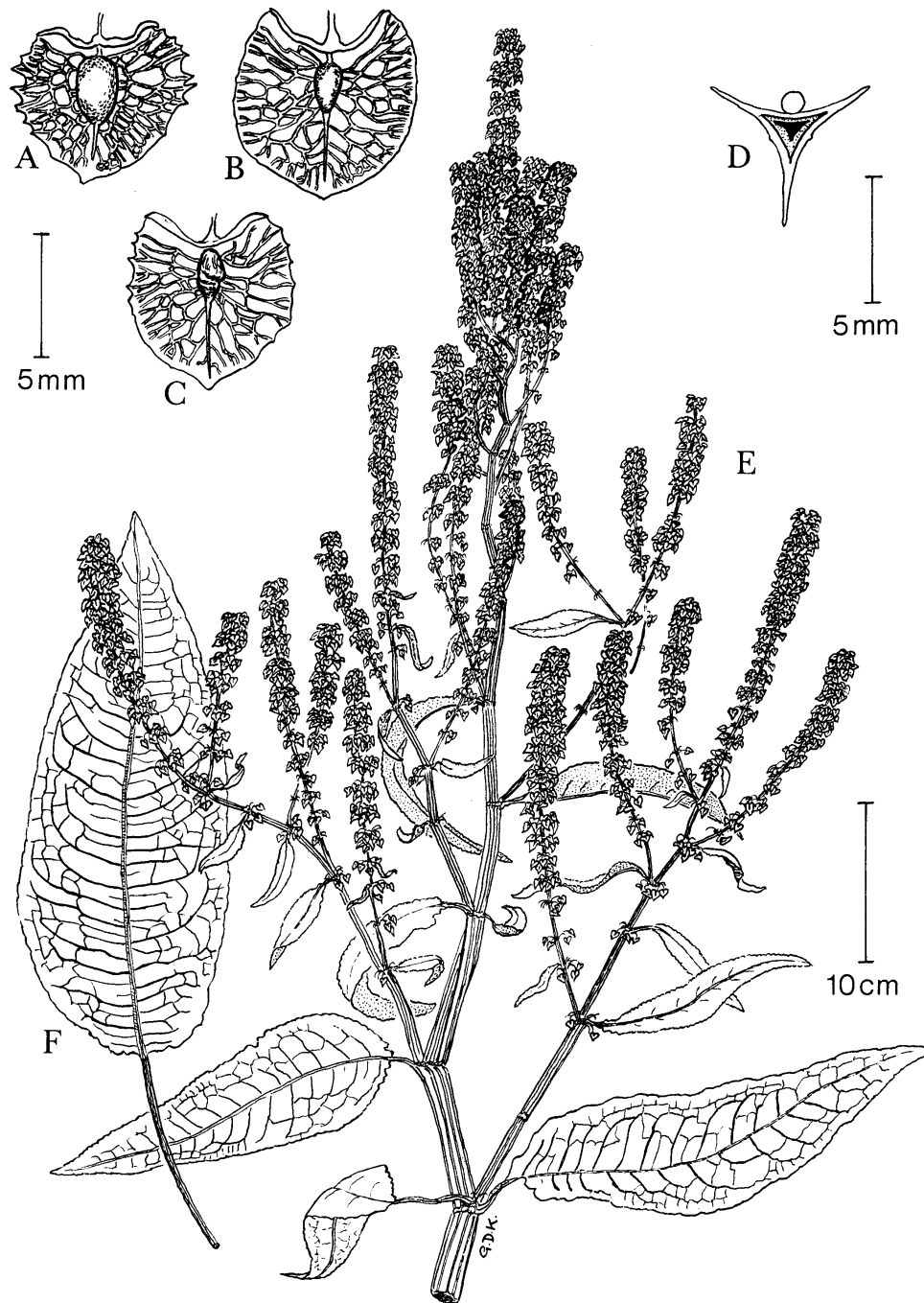


FIGURE 1. *Rumex × xenogenus* C–F. A. *Rumex cristatus* fruit. B. *Rumex patientia* fruit. C. *R. × xenogenus* fruit. D. Diagrammatic section of fruit. E. Inflorescence. F. Basal leaf.

It is sometimes supposed that the distinction between *R. cristatus* and *R. patientia* is not always as clear as in typical plants. There may be scope for debate as to whether the taxonomic relationship between the two should be subspecies, rather than species (Stace 1997). Burton (1983) comments on observations of plants with leaves characteristic of *R. patientia* having toothed valves approaching those of *R. cristatus*; and on the determination by Rechinger of a specimen found by the Thames at Kew, that wavered between the two species. However, any potential for such intermediacy is not relevant to the determination of plants such as those at Rainham, whose hybridity is indicated by sterility as well as intermediacy.

Rumex × *xenogenus* was described by Rechinger from material found on a railway bank at the Ostbahn, Vienna (Rechinger 1948). Until the present record, it had not been reported since. There is some confusion in British botanical literature, where the cross has been wrongly cited as *Rumex* × *xenogenus* Reichenb. (Lousley & Williams 1975, Lousley & Kent 1981). Rechinger's description can, except in one particular, readily be related to the Rainham plants. He remarks on the hybrid "jizz"; the intermediate leaf nervation with veins diverging from the midrib at a less acute angle than is found in *R. patientia*; and the uneven development of the valves, with uneven toothing smaller than that of *R. cristatus*.

The description differs, however, in that the valves are said to have been somewhat larger than those of *R. patientia*. The valves of the Rainham plants were highly variable, and the inclusion of any less developed valves in measurements would lower their average dimensions. Nevertheless, it is not possible to say that even the most developed valves of the Rainham hybrids were materially larger than those of *R. patientia* in the vicinity.

The explanation for this appears to be that the variant of *R. patientia* at Rainham is subsp. *orientalis* Danser. This is the usual taxon naturalised in Britain, in so far as the subspecies may readily be distinguished. A caveat seems appropriate, in that the separation of material by valve width, namely 5–6(–7) mm in subsp. *patientia* and 8–10 mm in subsp. *orientalis* according to Lousley (1939) and Lousley & Kent (1981), suggests a distinctness that is not always apparent, even in determinations by Lousley or Rechinger. Specimens at **K** determined by these authorities exhibit valves for subsp. *orientalis* that are frequently narrower than 8 mm, although those for subsp. *patientia* invariably fall below that width. The Rainham *R. patientia* matches the determinations of subsp. *orientalis* and its valve width reaches (but does not exceed) 8 mm. *Flora Europaea*, which recognizes the two subspecies, and keeps *R. cristatus* distinct from *R. patientia*, frequently accepted such overlap in subspecies' measurements (J. R. Akeroyd, pers. comm.).

R. patientia subsp. *patientia*, of which the valves occupy the lower range of width measurements, is the subspecies present in Vienna (as mapped in Hegi 1958) and so is to be expected to be a parent to Rechinger's record of *R. × xenogenus*. Intermediacy between wide-valved *R. cristatus* and narrower-valved *R. patientia* subsp. *patientia* should accordingly feature valves slightly wider than the *R. patientia* parent, as in the Viennese hybrid. If subsp. *orientalis* is substituted, then the valves of the cross should not be wider than those of the *R. patientia* parent. This is borne out by the Rainham plants. These therefore appear to represent a nothotaxon different from the one previously recorded.

The extreme rarity of *Rumex* × *xenogenus* is clearly related to the limited coincidence of the adventive distribution of the parents. It may also be due to a lack of recognition, which this paper hopes to remedy.

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