

FIRST REPORT OF RUMEX CRISTATUS (POLYGONACEAE) FOR NEW YORK STATE

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ABSTRACT

Rumex cristatus is documented from New York for the first time. The species is known from Bronx and New York counties in New York and from Union Co., New Jersey.

In recent years, there has been an increase in populations and abundance of a distinctive *Rumex* species in New York City that did not easily fit any species described for the state. The plants were tentatively identified as *R. patientia* L. (Atha et al. 2016). Photographs taken in the Bronx in June 2018 and uploaded to the biodiversity program, iNaturalist were identified by Walter Plieninger (in Germany) as *R. cristatus* DC. Herbarium specimens were prepared and plants photographed in several locations.

Rumex cristatus (Greek dock) is a robust perennial native to southeastern Europe (Balkan Peninsula, the Aegean region, Cyprus, and Sicily) and naturalized in southern Europe and the USA (Mosyakin 2005; Akeroyd & Webb 1991; Akeroyd 2014). It is reported from Illinois, Kansas, and Missouri in the USA (Mosyakin 2005; USDA, NRCS 2018) but not previously reported for New York (Werier 2017).

Voucher specimens. USA. New York. Bronx Co.: New York City, along Mosholu Parkway at Marion Avenue, 13 Jun 2005, *Nee 53311* (NY); 3600 Paul Avenue, along wall between street and railroad yard, ca 38 m elev., 5 Jun 2018, *Atha 16007* (NY); New York Botanical Garden, W of the Bronx River and N of Waring Avenue, ca 15 m elev, 29 May 2009, *Atha 7380* (MU, NY). **New Jersey.** Union Co.: Elizabeth River Parkway, Pruden Section, 14 Jun 2008, *Glenn 11294* (BKL).

Key to weedy, introduced *Rumex* of New York City

1. Plants dioecious; whole plant (including inflorescence) < 40 cm tall; basal leaves 2–6 × 0.5–3 cm, usually 3-lobed (hastate) **Rumex acetosella**
1. Plants monoecious; whole plant (including inflorescence) > 40 cm tall; basal leaves 6–50 × 3–15 cm, oblong, ovate or lanceolate.
 2. Basal leaves oblong or ovate, distinctly rugose, leaves usually with red spots or blotches of red color, especially along the midrib and petiole bases; mature tepal margins with narrow, elongate teeth **Rumex obtusifolius**
 2. Basal leaves oblong to lanceolate, not distinctly rugose, green and only marked with red at senescence; mature tepal margins entire, erose or deltate-toothed.
 3. Basal leaves oblong, the margins strongly crisped; mature tepals 3–4 mm wide, the margins entire; tubercles usually 3 **Rumex crispus**
 3. Basal leaves lanceolate, the margins flat or weakly crisped; mature tepals 4–8 mm wide, the margins entire, erose or toothed; tubercles 1–3.
 4. Mature tepals orbicular, wider than long, the apices rounded to obtuse, the margins entire to erose; tubercles usually 1 **Rumex patientia**
 4. Mature tepals ovate, longer than wide, the apices obtuse to acute, the margins toothed, at least some of the teeth 0.5–1 mm long; tubercles usually 3 (unequal), rarely 1 or 2 **Rumex cristatus**



Figure 1. *Rumex cristatus* on Randall's Island, New York County. A. Habit. B. Lower leaves. C. Ripening fruit, showing enlarged inner tepals with distinct teeth, D. Tubercles on three tepals. Photos from iNaturalist (<https://www.inaturalist.org/observations/13126264>), D. Atha, 8 June 2018.

Rumex cristatus are robust and gregarious plants (Fig. 1) with the largest mature tepals of any *Rumex* species reported for North America (Mosyakin 2005). In contrast to *R. patientia*, which has smaller, roughly orbicular tepals with rounded apices, the tepals of *R. cristatus* are ovate with obtuse to acute apices. The tepal margins are distinctly toothed, particularly at the base, in contrast to the entire to erose margins of *R. patientia*. The teeth are roughly triangular, but variable in length, ranging from about 0.2 mm to almost 1 mm long.

Rumex kernerii Borbâs is very similar to *R. cristatus* but the inner tepals have one tubercule (vs 1–3), marginal teeth on the inner tepals shorter than 0.5 mm and papillose abaxial leaf veins (Mosyakin 2005, Plieninger pers. comm). Papillose abaxial veins have not been observed in New York City plants. Robust plants with large leaves having weakly crisped margins and small inner tepals without teeth are present in the City (Atha 16009, Rubin 161). These plants are probably *R. × confusus* Simonk., the hybrid between *R. patientia* and *R. crispus* (Werier 2017).

The oldest specimen of *Rumex cristatus* from the region found at NY and BKL was collected by Michael Nee in Bronx County in 2005. The species probably is now more widespread than the herbarium specimens cited here indicate.

The discovery of a new xenophyte for the region from a photograph identified on iNaturalist demonstrates the value of the iNaturalist program for the identification and discovery of biological novelties, particularly in large, cosmopolitan genera without active specialists making general identifications on a wide-scale.

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