OR/14/043 Definition of petrifying springs with tufa formation (Cratoneurion)

The Interpretation Manual of European Union Habitats (European Commission, 2013[1]) defines the Annex 1 habitat H7220 Petrifying springs with tufa formation (Cratoneurion) as:

- Hard water springs with active formation of tufa. These formations are found in such diverse environments as forests or open countryside. They are generally small (point or linear formations) and dominated by bryophytes (Cratoneurion commutati);

Lists the following associated plant species:

- Flowering plants: Arabis soyeri, Pinguicula vulgaris, Saxifraga aizoides; Cochlearia pyrenaica (in sites with heavy metals); Carex appropinquata, Epilobium davuricum, Juncus triglumis (in the Boreal region). Mosses: Catoscopium nigritum, Palustriella commutata, Palustriella falcata, Cratoneuron filicinum, Eucladium verticillatum, Hymenostylium recurvirostrum and Hamatocaulis vernicosus, Philonotis calcarea, Scopodium revolvens, S. cossonii, Palustriella decipiens, Bryum pseudotriquetum (in the Boreal region); and

- confirms that this vegetation type corresponds (in the UK) to the UK National Vegetation Classification (NVC) types ‘M37 Cratoneuron commutatum-Festuca rubra spring community’ and ‘M38 Cratoneuron commutatum-Carex nigra spring community’ as described by Rodwell (1998)[2].

For the purposes of this report, the pleurocarpous moss Cratoneuron commutatum comprises the two species Palustriella commutata (Hedw.) Ochya, J.Hattori Bot., 1989 and Palustriella falcata (Brid.) Hedenäs, Bryophyte. Biblioth., 1992 (as described by Smith, 2004[3]). Together these two species will often be referred to as Palustriella species or as Palustriella dominated vegetation. The ecology of these two species has been described by Hedenäs and Kooijman (2004)[4].

Both M37 and M38 can also generally be considered analogous with the Cratoneuron commutati community, Koch 1928, a community recorded by a number of ecologists in EU member states and typically described as ‘calcareous spring communities commonly dominated by mosses’.

As the European Commission has defined the Annex I habitat H7220 Petrifying springs with tufa formation (Cratoneurion) as ‘springs with active formation of tufa’, the classification of sites in Wales is more complex than for some other Annex 1 habitats as it requires both an assessment or characterisation of both the vegetation structure (NVC) and hydrogeology (determining active formation of tufa).

JNCC (2001) provide an interpretation and summary of the floristic details of the M37 Cratoneuron commutatum-Festuca rubra and M38 Cratoneuron commutatum-Carex nigra spring communities and these can be summarised as follows:
M37 — Springs overwhelmingly dominated by *Palustriella* species with *Philonotis fontana* rare to occasional. *Sphagnum* species absent or occurring rarely at the margins. Small sedges are scarce and the diversity of vascular plants quite poor, but usually including *Cardamine pratensis*, *Festuca rubra* and *Agrostis stolonifera*.

M38 — Springs dominated by *Palustriella* species that are species rich, have frequent although sparse *Carex* spp. (especially *C. nigra*, *C. panicea* and *C. demissa*). *Sphagnum* species absent or occurring rarely at the margins. Diverse herbs including *Cardamine pratensis*, *Scorzoneroides autumnalis*, *Trifolium repens* and *Polygonum viviparum*. *Philonotis fontana* can be frequent in the moss carpet.

JNCC (2001) highlight that springs dominated by *Palustriella* and *Cratoneuron flicinum* also occur widely, but locally, in the British lowlands, and further sampling of these is needed.

Invertebrate surveys of calcareous (although not all tufa depositing) seepages (e.g. Goodfrey, 2009[5]) show that these sites have a potential to provide habitats for UK BAP species, *Vertigo geyeri* (at Craig y Cilau — Waun Ddu) and *Lipsothrix nervosa*.

**References**


**Category:**

- OR/14/043 Survey, characterisation and condition assessment of *Palustriella* dominated springs ‘H7220 Petrifying springs with tufa formation (Cratoneuron)’ in Wales

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