

WHAT TO LOOK FOR?

Small white fragile fruitbodies comprising a stipe and small puffball head (capitulum), up to 25 mm tall, the “head” 4.5-9.5 mm diam., and white to yellowish stalk 0.5-2 mm diam. On moss cushions on limestone boulders. Spores globose, pale yellowish and verrucose, released through an apical pore (peristome) at the apex of the capitulum.

WHEN TO LOOK?

New fruitbodies typically appear in July and October at the currently known sites in GB&I, although fruitbodies have been recorded almost throughout the year.

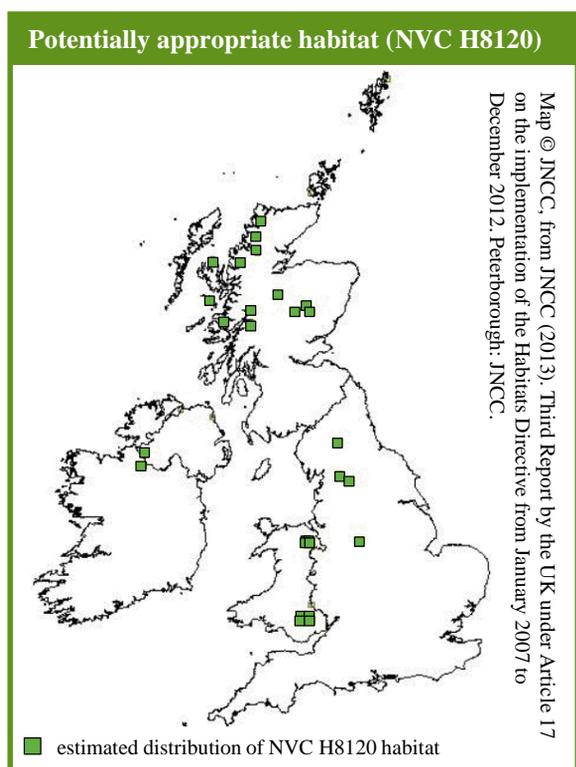
WHERE TO LOOK?

In localities with calcareous geology, on moss cushions on limestone boulders or walls, in open, unshaded areas, not under trees. Currently known only from two sites in Scotland. Similar sites near these should be investigated to increase knowledge of the extent of spread of this fungus.

Possible sites could include other outcrops of the Durness limestone in north-west Scotland, limestones of the north Pennines, and perhaps also the Burren in Ireland. The NVC habitat H8120 may also broadly correspond with the distribution and known ecology of this fungus, and current estimated habitat maps (below) could suggest new sites or localities to investigate.



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Tulostoma niveum

General description

Basidiomata 4.5-12 mm diam., stipitate at maturity, subglobose or ovoid, strongly papillate with a single ostiole (peristome), the base flattened, with a slight collar around the stipe apex. Stipe to 25 mm in length and 1-2.5 mm diam., white or yellowish, smooth or striate, deeply immersed in moss, arising from copious white mycelium. Peridium composed of a membranous white outer layer, and a white to yellowish inner layer that is initially slightly velvety but becoming smooth. Ostiole obtusely conical, white, the aperture circular. Gleba pale brown or fawn.

Capillitial hyphae 2-6 µm diam., hyaline, branched, usually thick-walled with often narrow and sometimes discontinuous lumina, septate, the septa not or slightly enlarged, often yellowish, slightly constricted, 5-7 µm diam., the surface smooth or slightly and irregularly encrusted. Basidia not seen. Basidiospores 5-6 (-6.5) µm diam. excluding ornament, 5.5-7.5 µm diam. including ornament, globose or subglobose, pale yellowish, verruculose, the ornamentation somewhat irregular in size and form, often coarse, mostly isolated, 0.2-0.6 µm high and 0.2-1.6 µm diam.

Notes: Description adapted from Pegler *et al.* (1995).

Habitat:

Tulostoma niveum occurs amongst bryophytes on limestone boulders (or limestone walls) in open areas, not under trees, with no mineral soil beneath the associated moss, occurring in localities with calcareous geology. Populations appear quite widely distributed where present, although individual clumps seems to be inconsistent between years.

Potential sites elsewhere could include limestones of the north Pennines, other outcrops of the Durness limestone in north-west Scotland, and perhaps the Burren in Ireland. The NVC habitat classifications H8120/H8220 may help indicate potential new sites to investigate, especially in areas near limestone cliffs or screes.

Conservation status

In GB&I, *T. niveum* is known only from two areas in N Scotland. It has a patchy distribution, a very

specific habitat and a northern distribution, which suggests that the species is likely to be threatened by climate change. It was a BAP species prior to devolution, and was designated as Vulnerable (D2) in the current but unofficial Red Data List (Evans *et al.* 2006). Currently treated as vulnerable and requiring conservation action in the Scottish Biodiversity List.

Populations at Inchnadamph have been monitored on an annual basis since its discovery in 1989. The 2014 survey, carried out by the Loch Broom & Assynt Field Clubs in collaboration with the British Mycological Society, found that population size at the original site was healthy and within the range noted in previous years, and a further site was discovered close to the first locality, east of Inchnadamph.

Associations

Probably saprophytic on dead bryophyte tissue, although the possibility of it being parasitic, endophytic or mycorrhizal cannot be discounted. Associated with a number of common bryophytes listed in Coppins (1997).

Look-alikes

None are likely in this habitat.

Known sites in GB&I

In GB&I, *Tulostoma niveum* was unknown in the UK until 1989. At present, it has only been recorded from Scotland, from the area surrounding Inchnadamph (VC:108, West Sunderland), and Craig Leek SSSI (VC:92), South Aberdeenshire.

Literature

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