

Tortula pallida in England and Wales

Sam Bosanquet adds this Mediterranean species to the British list



Taxonomic background

Pottia littoralis was described by Mitten (1871) from Aldrington and Hastings, E. Sussex. In the 19th century it was usually considered a distinct species, found on the seashores of Britain and France. By the 20th century, it had been reduced to be a variety of *P. intermedia*, for example by Dixon (1924), and it retained that status in the *Census Catalogue* of Warburg (1963). The next *Census Catalogue* (Corley & Hill, 1981) makes no mention at all of the taxon. The occurrence of *Pottia intermedia* in coastal habitats is noted by

△ Figure 1. Estuarine habitat of *Tortula pallida* at Rhymney Great Wharf, vc 35. All photographs Sam Bosanquet

Hill *et al.* (1992), but this species was considered to be found primarily inland, whilst Blockeel *et al.* (2014) mention *P. littoralis* under *Tortula modica* (*Pottia intermedia*) but state that its status requires more investigation.

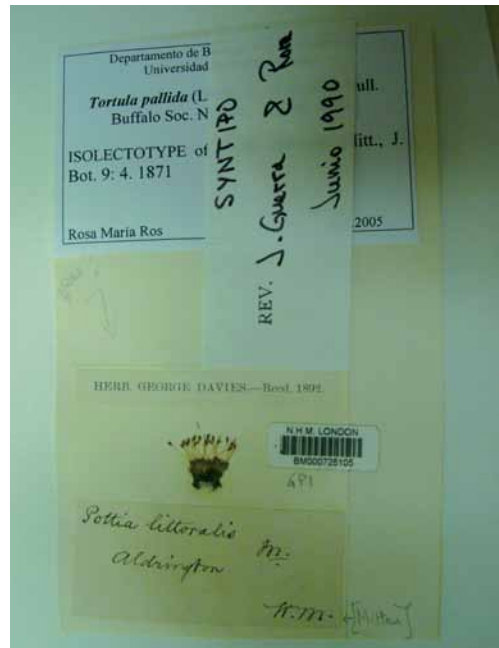
Pottia pallida Lindb. was described by Lindberg (1864) from coastal sands near La Cortadura, Cádiz (*‘in arenosis litoralibus isthmi gaditani prope la Cortadura peninsulae hispanicae’*). It has

a circum-Mediterranean distribution from Spain in the west to Egypt and Cyprus in the east, and extends westwards and southwards to Portugal and the Canaries (Guerra & Ros, 1988; Ros & Werner, 2006). *Pottia pallida* was transferred to *Tortula* by Zander (1993) as *T. pallida* (Lindb.) Zander.

Ros *et al.* (2008) examined Mitten's type material of *Pottia littoralis* and considered that the Aldrington plant was *Tortula pallida*, but the specimens from Hastings were *T. truncata*. They lectotypified the species with a specimen collected 'on the beach between Aldrington and Kingston near Brighton' (NY) and hence reduced the name *P. littoralis* to a synonym of *T. pallida* (Fig. 2).

During bryophyte recording in south Wales, SDSB noted a *Tortula* growing alongside *Henediella heimii* in upper saltmarsh vegetation in Monmouthshire, Glamorgan, Carmarthenshire and Pembrokeshire. This was identified as *T. modica* (*P. intermedia*) until the appearance of Ros & Werner's account of the Iberian *Pottia* species (2006), which included *Pottia pallida*. This species matched the south Wales saltmarsh moss, as did its halophytic ecology in Iberia. Two specimens from south Wales were sent to Tom Blockeel, who agreed that they resembled *P. pallida* and pointed out that *Pottia littoralis* had recently been synonymised with *P. pallida* by Ros *et al.* (2008).

The synonymisation between *T. modica* var. *littoralis* and *T. pallida* was not adopted for the *Census Catalogue* of Hill *et al.* (2008), pending assessment of further British specimens. All of the British specimens of *P. littoralis* that I have checked from loaned material from E and NMW are referable to *T. pallida*, in addition to the type material from Aldrington which was examined by Ros *et al.* (2008). *Tortula pallida* should therefore be regarded as a valid British species.



△ Figure 2. Isolectotype of *Pottia littoralis* Mitt. from Aldrington, Sussex (BM).

Identification characters

Guerra & Ros (1988) and Ros & Werner (2006) indicate that leaf shape is the principal feature distinguishing *Tortula pallida* from *T. caucasica*, to use the name adopted as the correct one for *T. modica* by Blockeel *et al.* (2021). The leaf of *T. pallida* is usually lingulate or spathulate, more rarely ovate-lanceolate, with an obtuse apex (Fig. 3), whereas the leaf of *T. caucasica* is lanceolate or ovate-lanceolate, rarely lingulate, with an acute apex. The bright green colour of *T. pallida* contrasts with a duller, darker green in *T. caucasica*, and the seta of *T. pallida* is usually brighter yellow than the reddish seta of *T. caucasica*. Ros *et al.* (2008) report that the variation in the leaf shape of *T. pallida* includes all of the characters considered to distinguish *Pottia littoralis* by Warnstorf (1916) and the variation in leaf shape shown by British *P. littoralis* is indeed



△ Figure 3. Leaf from the 19th century isoelectotype of *Pottia littoralis* from Aldrington, Sussex (left) and from a 21st century specimen of *Tortula pallida* from Climping, Sussex (right) showing the lingulate to spatulate leaf shape.

considerable, but all observed plants include spatulate leaves with obtuse apices and have the described yellowish seta.

Dixon (1924) does not mention leaf shape as distinguishing *P. intermedia* var. *littoralis*, separating it from var. *intermedia* by its 'bluish or glaucous green' colour, 'usually longer' leaves, 'smooth, incrassate' leaf cells, and a narrower capsule mouth. This indicates that early 20th century British bryologists had a different concept of the taxon to the current one and that records of var. *littoralis* cannot automatically be assumed to refer to *Tortula pallida*. The glaucous colour described by Dixon (1924) was not apparent in the south Wales populations of *T. pallida*, nor in plants seen by SDSB at Climping, Sussex (very close to the type locality of var. *littoralis*) in 2017, nor in those in the British herbarium specimens examined, and would appear to have been

wrongly highlighted by Dixon as a character.

Distribution and ecology in Britain

I have seen recent specimens of *Tortula pallida* from West Sussex (vc 13), Monmouthshire (vc 35), Glamorgan (vc 41), Carmarthenshire (vc 44) and Pembrokeshire (vc 45) and checked three historic specimens from East Sussex (vc 14). Warburg (1963) lists records of *Pottia intermedia* var. *littoralis* from 15 additional vice-counties, as far north as Angus (vc 90), but uncertainty over which identification characters were used means that that examination of vouchers would be necessary to confirm which of these represent the current concept of *Tortula pallida*.

As its name suggests, *Pottia littoralis* was considered to be a coastal species; similarly, *Tortula pallida* was described from coastal sands in Andalucia. Recent British specimens

of *Tortula pallida* are from a brackish, seasonal pool behind a shingle ridge, low, stony ridges in saltmarsh associated with estuarine shingle ridges and seawalls (Figs 1, 4), estuary banks, and silt on estuarine rocks. The only associated bryophyte has been *Henediella heimii*.

Details of specimens examined

Specimen checking included examination of herbarium collections from E and NMW of *Tortula caucasica* and *Pottia littoralis*, including an islectotype of *P. littoralis* from Sussex (Fig. 2). British specimens are listed in vice-county order below. Specimens are in herb. SDSB unless stated.

***Tortula pallida* 13:** semi-saline pool, Climping Beach, TQ00480073, S.D.S.B., 9 October

2017. **14:** Aldrington, W.E. Mitten, undated, det. R.M. Ros, 2005 (BM, islectotype of *Pottia littoralis*); brickfield near the sea, Seaford, W.E. Nicholson, 17 February 1903 (E); damp ground by the sea, Cliff End, Pett, W.E. Nicholson, 22 March 1903 (E). **35:** stony upper saltmarsh, Rhydney Great Wharf, ST232776, S.D.S.B., 18 January 2018; bare areas in upper saltmarsh, St Bride's Wentloog, ST310826, S.D.S.B., 23 November 2001; turf in upper saltmarsh, Goldcliff, ST362825, S.D.S.B., 23 April 2000. **41:** sandy saltmarsh, Whiteford Point, SS45239609, S.D.S.B., 3 April 2012; saltmarsh on landward side of shingle ridge, Pennard Valley, SS53858823, S.D.S.B., 23 November 2010. **44:** silt on estuarine rocks, Green Castle Woods, SN398165, S.D.S.B., 3 March 2013. **45:**

▽ Figure 4. *Tortula pallida* growing with *Plantago coronopus* in stony upper saltmarsh at Rhydney Great Wharf, vc 35.



steep bank at the back of estuarine saltmarsh, Ford Pill, Milton, SN0303, S.D.S.B., 17 April 2004 (NMW). **Portugal:** on muddy bank with *Salicornia*, coastal salt pans, north of Castro Marim, Algarve, D.G. Long, 30 March 2007 (E).

***Tortula caucasica* 35:** dry south-facing edge of terrace, Dingestow Court, SO4509, S.D.S.B., 7 December 2001; edge of stubble field, Wyesham, SO518117, S.D.S.B., 11 April 2004. **44:** rare among natural limestone outcrops on side of mound, Dryslwyn Castle, SN554203, S.D.S.B., 13 March 2004.

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Tom Blockeel kindly gave his thoughts on my initial feelings about the identification of Welsh *Tortula pallida* and provided helpful comments as I proceeded with examination of herbarium specimens. Chris Preston helped me revise my initial paper to make it suitable for *Field Bryology*. David Long organised a loan of specimens from E to NMW, and Katherine Slade organised for me to visit NMW to examine some of this material from E as well as NMW material.

References

- Blockeel, T.L., Bell, N.E., Hill, M.O., Hodgetts, N.G., Long, D.G., Pilkington, S.L. & Rothero, G.P. (2021). A new checklist of the bryophytes of Britain and Ireland, 2020. *Journal of Bryology* 43: 1–51.
- Blockeel, T.L., Bosanquet, S.D.S., Hill, M.O. & Preston, C.D., eds (2014). *Atlas of British and Irish bryophytes*. Pisces Publications, Newbury.
- Corley, M.F.V. & Hill, M.O. (1981). *Distribution of bryophytes in the British Isles: a census catalogue of their occurrence in vice-counties*. British Bryological Society, Cardiff.
- Dixon, H.N. (1924). *The student's handbook of British mosses*, ed. 3. V.V. Sumfield, Eastbourne.
- Guerra, J. & Ros, R.M. (1988). Caracterización taxonómica, corología y ecología de *Pottia pallida* Lindb. Relaciones con otras especies. *Cryptogamie, Bryologie et Lichénologie* 9: 343–352.
- Hill, M.O., Blackstock, T.H., Long, D.G. & Rothero, G.P. (2008). *A checklist and census catalogue of British and Irish bryophytes*. British Bryological Society, Middlewich.
- Hill, M.O., Preston, C.D. & Smith, A.J.E. (1992). *Atlas of the bryophytes of Britain and Ireland. Volume 2 Mosses (except Diplolepidaceae)*. Harley Books, Colchester.
- Lindberg, S.O. (1864). De *Tortulis* et ceteris Trichostomeis europaeis. *Öfversigt af Kongl. Vetenskaps-akadamiens Förhandlingar* 21: 213–254.
- Mitten, W. (1871). Observations on the species of *Pottia* allied to *P. truncata*, with descriptions of three new species. *Journal of Botany, British and Foreign* 9: 2–5.
- Ros, R.M. & Werner, O. (2006). *Pottia*, in J. Guerra, M.J. Cano & R.M. Ros (eds), *Flora Briofítica Ibérica. Volumen III*, pp. 183–194. Universidad de Murcia & Sociedad Española de Briología, Murcia.
- Ros, R.M., Muñoz, J., Werner, O. & Rams, S. (2008). New typifications and synonyms in *Tortula* sect. *Pottia* (Pottiaceae, Musci). *Taxon* 57: 279–288.
- Smith, A.J.E. (2004). *The moss flora of Britain and Ireland*. Cambridge University Press, Cambridge.
- Warburg, E.F. (1963). *Census catalogue of British mosses*, ed. 3. British Bryological Society, Oxford.
- Warnstorf, C. (1916). *Pottia*-Studien. *Hedwigia* 58: 35–152.
- Zander, R.H. (1993). Genera of the Pottiaceae: mosses of harsh environments. *Bulletin of the Buffalo Society of Natural Sciences* 32: 1–378.

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