

Dianthus armeria L.

Deptford Pink

Dianthus armeria is a tall, slender plant with a hairy inflorescence, leaf-like bracts and deep-pink petals with very small white spots. It is associated with basic, unimproved, drought-prone soils that experience occasional disturbance, and is found in short open grassland, the edges of woodland and scrub, tracksides, railway sidings, dune slacks and waste ground. Its native distribution is obscured by casual occurrences, but in general it is thinly scattered across southern England and rare in Wales and Ireland. Substantial declines, particularly in England have led to an assessment of Endangered in Great Britain.



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IDENTIFICATION

The rigid, erect and delicate stems (-60 cm) of *Dianthus armeria* bear terminal and lateral, short-stalked or stalkless clusters of deep pink flowers that are surrounded by erect, hairy, leaf-like bracts. Each flower (8-13 mm in diameter) has 5 lance-shaped petals (Nightingale 2007) with irregular serrated edges and small pale white spots on the upper surface, and the calyx tube has narrow, sharply-pointed and hairy epicalyx scales that are about the same length as the calyx tube (Stace 2010).

Plants have a basal rosette of dark green oblanceolate leaves that begin to die-off by the time of flowering. The opposite stem leaves are linear-lanceolate, pointed and keeled with short adpressed hairs (Poland & Clement 2010).



Dianthus armeria, found here as a casual escape on waste ground at Dymond Court, formerly Saltash Station Yard, Saltash, Cornwall. ©David Fenwick.

SIMILAR SPECIES

Dianthus armeria is a wild relative of garden 'pinks' and carnations, a wide range of which (including *D. armeria*) are available from garden centres, and casual escapes may therefore be encountered in the field. It is difficult to distinguish native and alien populations of *D. armeria*, although attempts have been made and reference to the distribution map (below) is useful as a general guide.

It is distinguished from other pinks encountered in Britain by its compact cymose clusters (usually >3) of flowers that are surrounded by an involucre of hairy leaf-like bracts, a hairy inflorescence and the absence of sterile shoots at flowering time (Stace 2010). The dark green colour of the basal rosette also helps to distinguish it from some other members of the genus, which often have grey-green basal leaves.

HABITATS

Dianthus armeria is associated with nutrient-poor, free-draining, drought-prone basic soils that occasionally experience some type of disturbance (Lusby 2002). It was also formerly known from moderately acid (c. 4.8) peat soils at Woodwalton Fen, Huntingdonshire (Wells 1967).

It is found in short open grassland and dry pasture, walls and cliffs, dunes, hedgerow and field margins, railway sidings, tracksides and roadsides, the edges of woodland and scrub, and waste ground (Lusby 2002). It associated with NVC MG5b *Centaurea nigra*-*Cynosurus cristatus* grassland, *Galium verum* sub-community, and MG1e *Arrhenatherum elatius* grassland, *Centaurea nigra* sub-community, as well as woodland/scrub-edge communities, a range of open vegetation (OV) assemblages in disturbed habitats, and very

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occasionally from CG3 *Bromus erectus* grassland, *Festuca rubra* sub-community and U1f *Festuca ovina*-*Agrostis capillaris*-*Rumex acetosella* grassland, *Hypochaeris radicata* sub-community (Rodwell 1992; Wilson 1999). At coastal locations, Wilson (1999) has recorded the species in dune slacks with associates including *Elytrigia atherica*, *Eryngium maritimum* and *Festuca arenaria*.

BIOGEOGRAPHY

Dianthus armeria occurs widely across western and central Europe, extending eastwards and northwards to 60°N in Sweden, Finland, Armenia and Caucasia (Briggs 1994), and southwards to central Spain and Sicily (Jalas & Suominen 1986). It is classified as Endangered in Great Britain, Germany, Estonia, Latvia and Lithuania, and Vulnerable in Sweden and Turkey. It is widely recorded as an introduction in North America.

In Britain, *D. armeria* is thinly scattered across southern England and the southern coastline of Wales, with northern outliers at Coed-y-Felin, Flintshire, and Woodhall Spa, North Lincolnshire. It was found, new to Ireland, at Horse Island, west Cork in 1992 on a south-facing slope of sub-maritime grassland interspersed with a few outcrops of Old Red Sandstone (Akeroyd & Clarke 1993), and in 2012 a second possibly native location was found at Inis Meáin, County Clare, within species-rich calcareous grassland (Long 2013). It is extinct as a native in Scotland, having previously been recorded from five vice-counties, although historical records may have been casual only. There are believed to be only four

extant sites in Wales, but in 2007 a new site was found along a cycle track in Llanelli. In England, it has historically been recorded from 48 vice-counties, but is now thinly scattered across just 15. Although most of the decline in England took place in the 19th century and the first half of the 20th century, populations continue to be lost. The largest British population is found in north-west Kent at Farningham Woods (Wilson 1999; see also Pitt 2012). Populations near Buckfastleigh, south Devon, have recently been the subject of ecological studies on the species (Nightingale 2007).

The common name attributed to *D. armeria* by John Gerrard in the 16th century almost certainly refers to *D. deltoides*, and moreover it is likely that the Deptford pink has never actually occurred in Deptford (Mabey 2010).

ECOLOGY

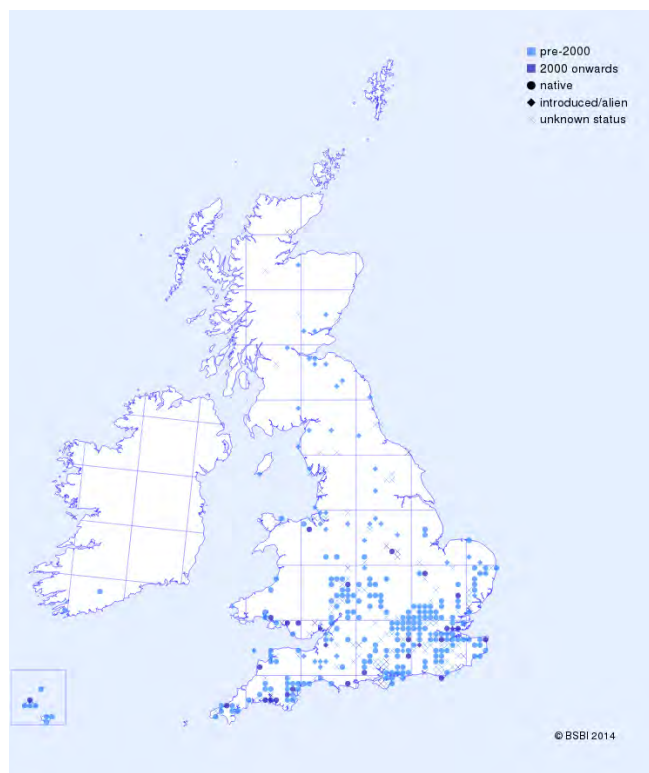
Dianthus armeria is recorded as an annual, biennial or short-lived perennial of open and periodically disturbed sites. Wells (1967) found that new leaf rosettes were produced at the base of old plants from buds on the underground rootstock, “thus proving the truly perennial nature of *D. armeria*”, and in a recent study Nightingale (2007) identified *D. armeria* plants as being short-lived perennials, with a life-span of less than 2.5 years.

The main flowering season lasts from July to September. The inflorescence is hairy, and each flower has two hairy stigmas which project out a considerable distance. The flowers lack scent, are seldom visited by insects, and are generally self-pollinated (Briggs 1994). Roots are fibrous in nature with a short slender taproot (Nightingale 2007). Typically, rosettes develop in the first summer following germination, and then over-winter before flowering in the second year.

Each plant may produce up to c. 400 small seeds (Wells 1967) that are released gradually from their pods, although some plants may retain a small proportion of seeds throughout the winter months. Seeds become dormant when shed from the parent plant, with dormancy broken by low temperatures in the winter months and germination requiring some disturbance of the soil surface, increased temperatures and high light levels (Baskin & Baskin 2001).

Although there are reports of high seed viability (c. 70%) in *ex-situ* conditions and seeds are capable of remaining in a dormant state for at least 40 years (Wells 1967; Wilson 1999), in a three year study Nightingale (2007) found that only a small percentage of dispersed *D. armeria* seed successfully germinate *in situ*. Establishment was greatest in open sites with a high percentage cover of bare soil and lowest in sites with a high cover of leaf litter and/or at sites with a tall grass sward. This confirms previous assumptions of habitat requirements for germination and establishment based on an empirical approach and field observation (e.g. Wells 1967).

Nightingale (2007) also found that, under controlled conditions, *D. armeria* plants produced fewer seed capsules per plant and a lower estimated mass of seed per plant in



Distribution of *Dianthus armeria* in Great Britain and Ireland.

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shaded conditions, with the response generally more severe when shade was imposed from the seedling stage onwards.

THREATS

Aside from direct habitat loss, the cessation of regular disturbance activities and the subsequent growth of rank vegetation results in the shading out of established populations and greatly limits the potential for natural regeneration from the seed bank.

MANAGEMENT

Management should not, if at all possible, be homogenous but instead promote a heterogeneous environment by way of rotational management that allows different levels of establishment within a location. For example, Wilson (1999) recommends that no more than a third of the site should be disturbed in any one year. Ground disturbance should be undertaken before the end of March when germination normally begins, and grazing avoided during the flowering season. Cutting and the removal of cut material can take place between mid-September and mid-April, but should avoid a fixed annual date to allow for seasonal differences in the timing of plants flowering and setting seed. Grazing by sheep, unless on a very extensive basis, should be avoided if possible.

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AUTHOR VERSION

Peter Stroh. Version 1: 1 December 2014.

SUGGESTED CITATION

Stroh, P.A. 2014. *Dianthus armeria* L.. Deptford Pink. Species Account. Botanical Society of Britain and Ireland.