the species recovery trust

SPECIES HANDBOOK

Spiked Rampion

(*Phyteuma spicatum*)

Ecology, conservation, survey and management

Conservation Status

ENDANGERED

- **Only naturally occurs in 8 sites, all in West Sussex**
- **Three sites have fewer than ten plants, placing them at high risk of localised extinctions**
- **The largest population with over 250 plants is a road verge site**
- **The plant has complex ecological and environmental requirements, which are still not fully understood**

Spiked Rampion has a firm place in early European mythology - and plays a star role in the original Rapunzel tale.

Its common names include *Raiponce en épi (*French), *Ährige teufelskralle* (German), *Ährige Rapunzel* (Swiss German), and *Raponzolo giallo* (Italian).

In England there have been some questions over its native status - as a 'plague food' (utilised when other food sources had run out) it would have been used in cuisine and transported for this use, and also had many medicinal uses. It is possible it was brought over from the continent to be grown in monastic gardens, which would go some of the way of explaining the tight cluster of sites in West Sussex.

What is certain is that it has grown in SE England for several centuries, and it forms a spectacular element to many ancient woodland sites, as well as now being included in the England Red List of endangered native species.

Recent conservation work has succeeded in gradually increasing overall numbers of plants, but sites have still been lost in the last decade, and several populations remain at critically low levels.

Description

Spiked Rampion is a long-lived herbaceous perennial plant in the family Campanulaceae. Plants develop large tap roots and can exceed 1m in height, although are typically c. 50cm tall. Plants can possess several stems, originating from one root stock, or become branched as they age, although many plants are single stemmed.

In early spring the plants form a basal rosette of rounded cordate toothed leaves. As the plant matures these leaves become more elongated and sessile further up the stem. Both sets of leaves can be extremely variable, depending on situation (see 'Vegetative Identification').

The British form of Spiked Rampion produces consistently white flowers, which contrasts with the continental form (ssp. *coeruleum*) which has deeper blue flowers.

Lifecycle

Plants flower in May through to July and set seed in July through to August, depending on exposure to sunlight. Seeds germinate in the spring, and form a rosette in the first year. The flowers are visited regularly by a range of pollinators, especially bumblebees.

In the third year the rosettes will form flowering stems, which appear from late April onwards, depending on weather.

The plants eventually form large root stocks and it appears that mature plants can occasionally have a 'year off' where they persist as a rootstock but do not produce plants.

Clockwise from top left:

Seeds; Seedlings (2 weeks), Flowerhead going to seed, Developing root tuber, Variation in 1-yr old plants showing range of leaf shapes.

Habitat

Populations occur along shady edges of paths and rides in woodlands, and in the hedge banks of roadside verges. Most of the extant populations are on slow-draining clay (mildly acidic) soils.

It is usually found in good quality habitat, with many species characteristic of ancient woodland, including *Anemone nemorosa, Hyacinthoides non-scripta, Lathyrus montanus, Lysimachia nemorum, Orchis mascula, Oxalis acetosella, Potentilla sterilis, Sanicula europaea,* and in damper spots *Carex laevigata, C. remota* and *Dryopteris carthusiana*.

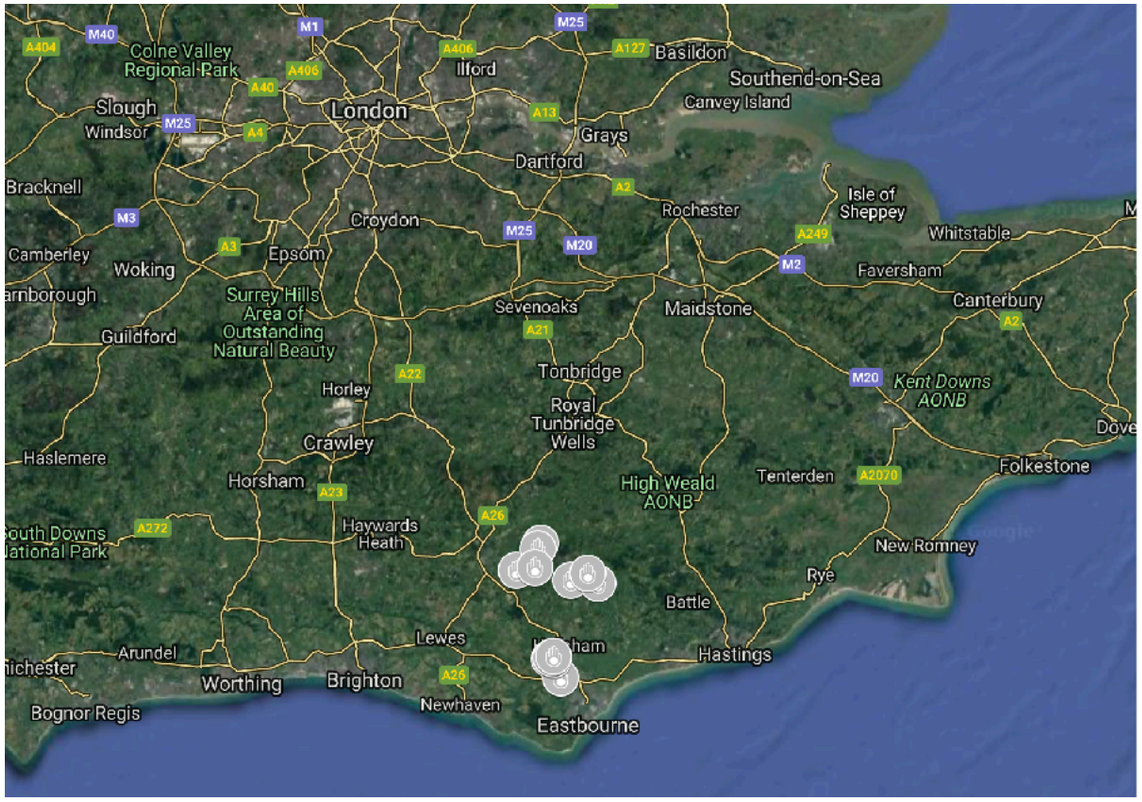
Many of the sites also play host to denser ruderal plants, and in particular Bracken (*Pteridium aquilinum*) and Bramble (*Rubus fruticosus*). While these larger plants will eventually tend to outcompete Rampion, in early stages they appear to co-exist successfully, often acting to protect the plants from deer grazing. Flower formation can often be more successful on these protected plants.

Of particular interest is the role of Bracken at the Riverside site, which although undoubtedly has a shading effect on the Rampion, also acts to suppress much other potentially competing vegetation. Trials are underway to research the role of this bracken.

Folklore and plant uses

The name Rampions its derived from the specific name *Rapunculus*, which is a diminutive of *rapa* (turnip). It was once wildly cultivated in continental Europe, where it roots were boiled up and reported to have slightly sweet and nutty flavour. Fresh shoots were blanched as a substitute for asparagus and younger roots could be eaten raw in salads, and the leaves and flower buds lightly boiled. Over time its use declined as more palatable and larger roots were favoured for cultivation, but it is still used by foragers.

The brothers Grimm featured Rampion in the story of Rapunzel, with one version of the tale involving a man and wife who tried unsuccessfully for several years to have a baby. The couples' house looked over the walled garden of an enchantress, and the wife could see the Rampion growing within it, which she soon developed insatiable cravings for. Eventually she sent the husband to steal the plants. His first visit went successfully and they made a fine salad made from Rampion, but this only intensified her cravings. On his second visit he was duly caught scaling the wall. In return for sparing his life he promised to give the enchantress their baby when it was born, and the young girl was subsequently locked in the tower to await her eventual rescue.



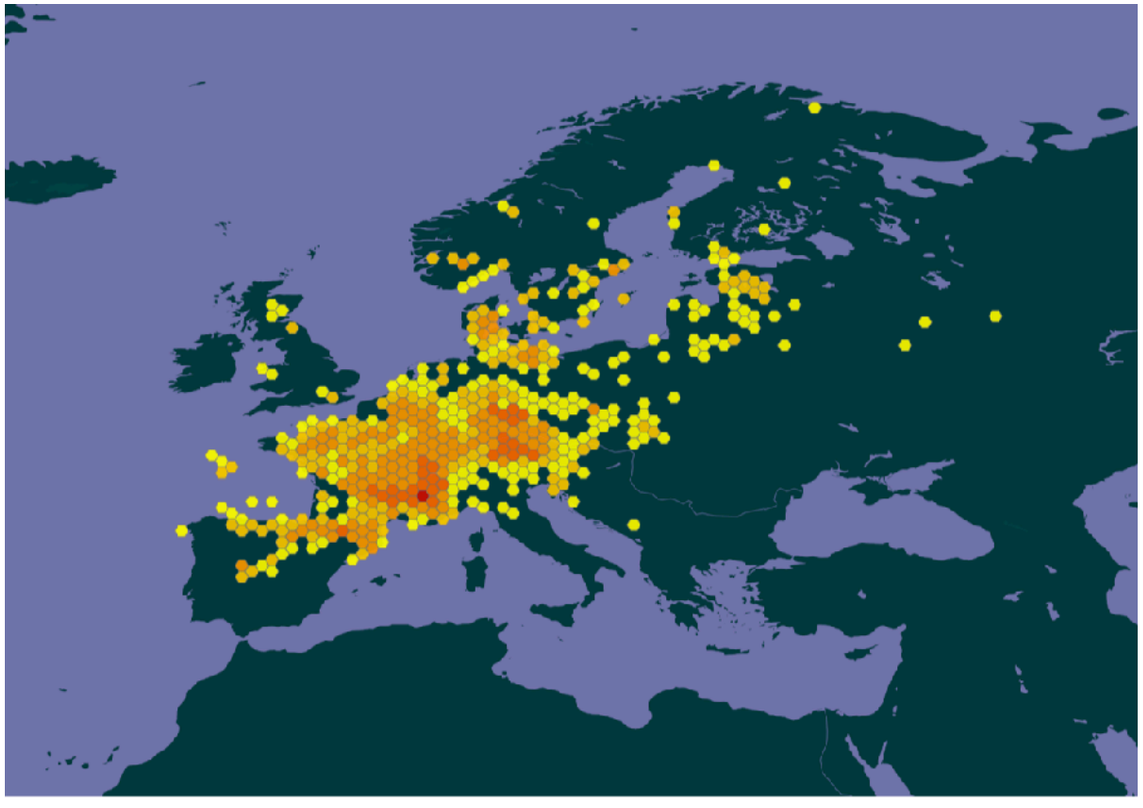
Distribution

UK

Only found in East Sussex where it is currently known from c. 8 sites.

GLOBAL

Spiked Rampion is endemic in Europe, extending from Britain, southern Norway and the Baltic states southwards to northern Spain, Italy and Romania and thence sparsely eastwards into Russia. It occurs in forest-edge habitats, meadows and mountain pastures up to 2,000 metres in altitude.



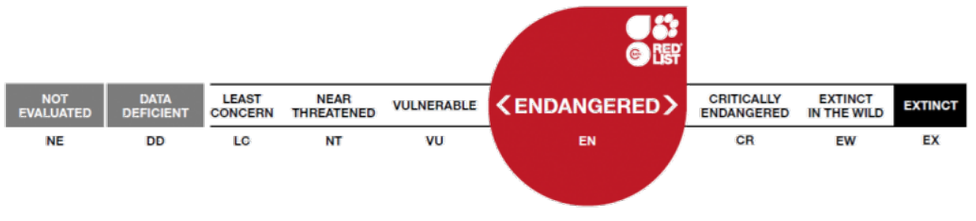
Status

Endangered, meaning it is facing a high risk of extinction in the wild.

Protection under the law

Protected under Schedule 8 of the Wildlife and Countryside Act 1981 which makes it an offence to intentionally pick, uproot or destroy any plants.

Listed as a species of Principal Importance in England and Wales under the NERC Act 2006.



Reasons for decline

The main threat to this species is lack of woodland management, leading to over-shading of sites. In recent decades increased levels of nitrates (both in the air and soil) appear to be exacerbating the competitive pressures from scrub and tall ruderal plants, which grow faster and denser. Rampion plants that grow in shaded conditions typically fail to produce flowering spikes.

Nearly all the sites suffer from grazing pressure from deer, who have a habit of eating off the highly visible flowers heads. Several younger plants have also been lost to slug predation - which while not an issue on sites with over 100 plants, becomes a much more acute problem in sites where the plants are in single figures. The plants are only weakly self-compatible, so when populations drop to low numbers the plants ability to successfully reproduce becomes much lower.

Other threats include trampling by humans and dogs, and threats to the main road verge site from vehicles.

Several sites suffer from competitive scrub cover

SURVEY

Habitat

Plants typically favour glades and ride edges, but will persist in denser woodland as well as fairly dense patches of Bramble. They often grow on banks, where lightly eroding soil gives a better substrate for seed germination. Most of the sites are of drier soils, although sometimes near water bodies.

When to survey

Basal leaves can be found from April and the stem starts to elongate and form flower buds in late April.

What to record

- Numbers of plants, and how many are flowering
- Area occupied
- Availability of suitable habitat
- Presence of threats, such as overshading, trampling, deer pressure or other

Basal leaves. Dog Violet (l) & Spiked Rampion (r)

Stem leaf

SURVEY

Vegetative ID

Young Spiked Rampion plants can be difficult to identify, with a fairly wide range of leaf shapes.

They commonly occur alongside species of Violet, which can be problematic for separation.

There are three key differences:

1. Rampion leaves have a slightly more dentate leaf margin
2. The venation on Rampion leaves is much more netted, especially towards the leaf margin
3. Rampion leaves are typically paler, although in shaded environments colour differentiation is unreliable

Once the Rampion leaves become more developed and start to elongate, then ID is much more straightforward.

MANAGEMENT

Spiked Rampion is a species of glades and woodland edges, and has relatively straightforward needs in terms of dappled sunlight. Rotational coppice work and occasional canopy thinning (if necessary) will create these conditions.

One of the problems associated with elevated sunlight levels is the subsequent growth of Bramble and other ruderal plants, and at sites where this vegetation becomes dominant, followup clearance will be necessary.

Many plants do survive well within and at the edge of Bramble clumps, and this can offer some protection against deer browsing - so consideration should be given to preserving some of this vegetation.

Many of the large populations occur on banks. It is suspected here that the gradient prevents the accumulation of leaf litter, improving the substate for seed germination, and perhaps reducing levels of grazing molluscs.

At sites where deer browsing is a persistent problem then exclosures have had to be erected around the plants. These have certainly improved flowering in existing plants, but have not led to increase in plant numbers, perhaps due to build up of material in the cages, so they may need to be regularly cleared out of leaf litter and competing vegetation.

If persistent slug browsing is clearly harming populations, then all attempts should be made to reduce leaf litter, and the deployment of organic pellets may have to be considered.

Bulking up

Spiked Rampion has a low level of self-compatibility, meaning individual plants will struggle to produce much viable seed.

In cases where a population has dropped to just one plant, or a handful of plants which are spaced out, then it is likely new plants will have to be introduced to the site to optimise the chances of pollination taking place.

Pollination

Insect pollination plays a key part in reproduction in Rampion, so consideration must be given to optimising the chances of insects finding the plants. For plants in rides, hedge banks and woodland edges this will happen naturally, but for populations in glades within woodland it will be beneficial to optimise connectivity to allow insects routes into these locations by the creation of interlinking rides and well-lit passages.

Introduction

To date no successful re-introduction or introduction has been carried out for Spiked Rampion, but attempts are still being made to do this, and establish what the limitations are.

OUR WORK

- Coordinating a monitoring network across all sites
- Chairing the Rampion Steering Group which leads on the conservation of the species
- Re-establishing coppicing and glade creation at all sites
- Carrying out trial re-introductions to the wild
- Carrying out habitat restoration work across the network of sites to enlarge the areas where plant numbers are in single numbers

SUCCESS

- **2019 saw the highest national count of plants so far recorded, with 386 individuals**
- **We now have 10 years of continuous monitoring data across all the sites**

We are still yet to successfully create any additional populations, giving greater impetus to preventing any further loss of sites

The Spiked Rampion steering group; clockwise from left - Ralph Hobbs, Kate Cole, Dom Price, Bob Foreman, Mike Mullis, Stephanie Miles, Kate Ryland, Jenny Huggett, Stuart Sutton & James Newmarch

The Species Recovery Trust is a charity set up to tackle the loss of some of the rarest species in the UK.

There are over nine hundred native species in the UK that are classed as under threat, with several hundreds more currently widespread but known to be in significant decline. The countryside is now bereft of many species that were a familiar sight a mere generation ago.

A small number of these species are on the absolute brink of existence, poised to become extinct in our lifetimes; our goal is to stop them vanishing.

Our aim is to remove 50 species from the edge of extinction in the UK by the year 2050. In addition we are reconnecting people with wildlife and the natural world through training programmes and awareness raising.

the species recovery trust

www.speciesrecoverytrust.org.uk

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