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National Trust

Climate Change Adaptation Guidance – Gardens and Parks

Rose Gardens

Climate change vulnerability: High

Rose gardens – introduction

Roses are probably the most popular garden plants, and they have a long history of cultivation around the world. Such is their popularity that for several centuries there has been a tradition of dedicating part of a garden or park entirely to roses massed together for maximum effect. Today, rose gardens are a feature of many historic parks and gardens in the UK and across continental Europe, and other parts of the world.

Roses need both moisture and high levels of sun to thrive. Temperate climates, such as here in the UK, have been particularly suitable because they provide sunny summers to promote flowering, plenty of rain for growth and cold dry winters to kill off diseases. Climate change is altering this balance as it is causing more prolonged periods of both heat and drought, as well as very wet conditions which can impact on rose health.

The design of many rose gardens makes them especially vulnerable to the effects of climate change. Mass planting of the same species leads to a reduction in soil health and a lack of resilience to disease while bare soil under plants (often a feature of rose gardens) exacerbates issues with soil health and moisture loss.

In places where rose gardens have been kept healthy during dry summers through the use of routine irrigation, climate change is forcing a re-evaluation as available water has to be prioritised for human and animal health. Added to this, in recent decades there has been a growing awareness of the environmental issues associated with pesticide use, which means that rose varieties that can only be kept disease-free through the regular application of fungicides are becoming less practical to grow.

This guidance provides a range of environmentally sustainable options to help those caring for historic rose gardens manage and adapt them, ensuring these treasured features can continue to provide pleasure and engagement for people long into the future.

Image credit:

The rose garden at Polesden Lacy is a classic Edwardian design containing beds edged with box hedging and roses growing over a wooden pergola (© National Trust Images/Gary Cosham).

Rose gardens — why do they matter?

Rose gardens are a big draw for visitors in summer and are synonymous with the idea of 'English' gardens. For some National Trust properties, the flowering peak of the rose garden is marketed and attracts thousands of additional visitors.

The designs of rose gardens range from formal symmetrical beds edged in clipped hedging, to more informal and romantic curving beds bordered with low-flowering plants. Rose bushes usually dominate but there are also often climbing and rambling roses trained over structures, creating a sense of romance. Selection of rose varieties will vary greatly and plants are sometimes arranged in blocks of colour.

There is a wide range of rose varieties available today. These are the result of extensive breeding between naturally occurring species and their hybrids. Those caring for historic rose gardens often seek to preserve roses that have the look of a particular period, even if the roses themselves have had to be replanted many times over the history of the garden. Older rose varieties, from the 18th and early 19th centuries, tend to flower only once in summer and create an intense 'wow' feature for about one month whereas roses bred from the mid-19th century onwards can repeat flower, some throughout the summer months.

Climate change poses a threat to the performance of rose gardens. It creates particular challenges for managers who are trying to maintain a historic aesthetic and grow historic varieties which have strong links to the past but may not be very resilient to today's growing conditions. The key threats are drought and waterlogging. Roses need a deep, moist root run to grow strongly, flower prolifically and repeatedly, and for their blooms to last well, which means that periods of drought with no irrigation can have a serious impact on them. On the other hand, heavy, persistent wet weather can have a detrimental effect, both when roses are growing and when they are dormant in winter. In the growing period, too much moisture will encourage the proliferation of diseases, especially black spot. In the dormant period, waterlogged soils will increase the incidence of root diseases and encourage shallow rooting, which will then exacerbate the issue of water shortage during dry weather.

Traditionally, for perfect displays, rose gardens have required significant inputs of fertilisers, irrigation, pest and disease control, pruning and dead heading. In recent decades, appetite for this approach has changed due to reduced staff resources in some places and a more cautious attitude to water, fertiliser and pesticide use. To adapt to these changes, rose varieties need to be selected wisely and soil health must be maintained. Where this is not done, rose displays can be disappointing and require more frequent replacement.

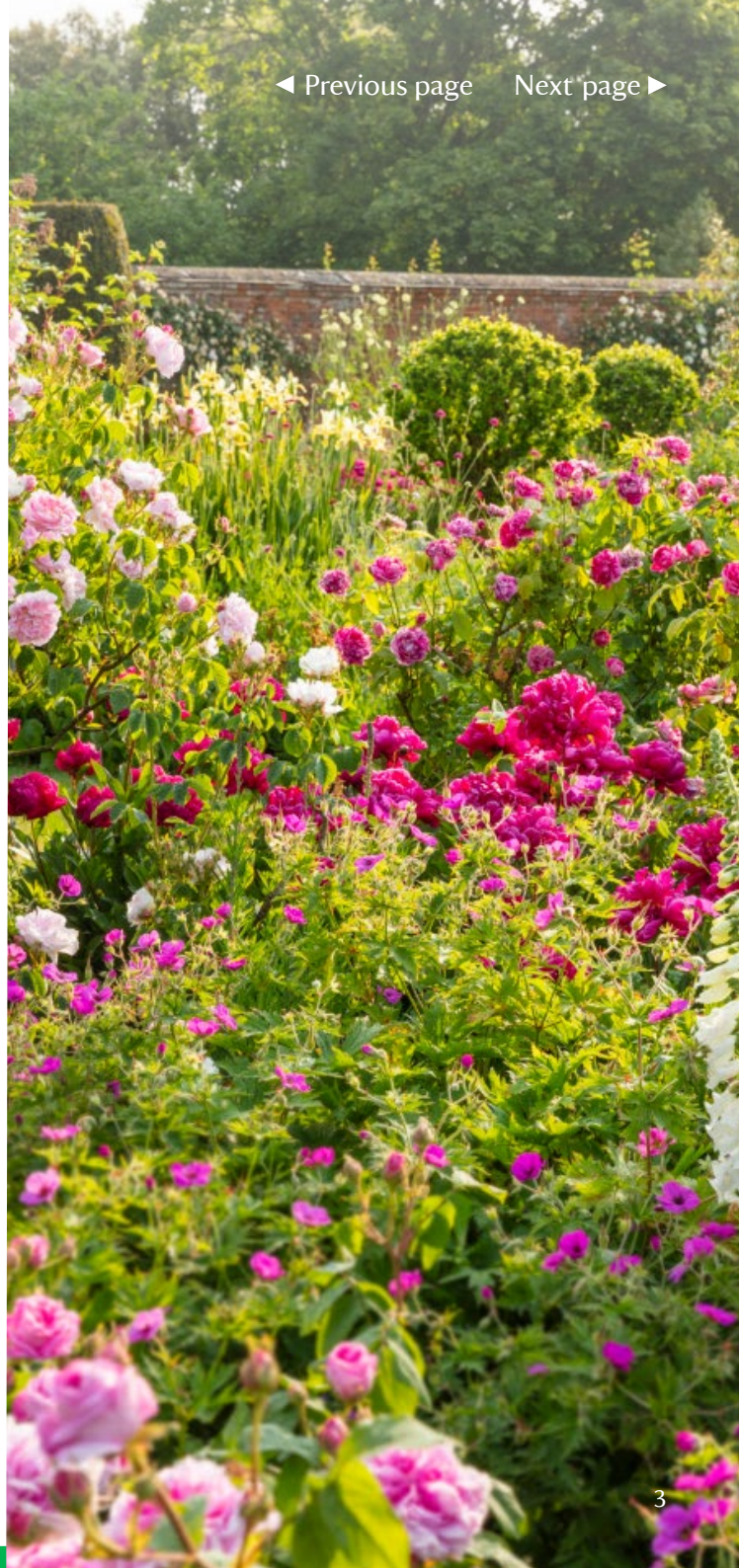

Image credit:

The rose garden at Mottisfont contains many old roses rescued from obscurity by the National Trust's first gardens advisor, Graham Thomas (© National Trust Images/ James Dobson).

Rose gardens – hazards, impacts and options

Hazard	Impacts	Options
Drought and heat	Increased stress, incidence of disease and death of plants. Plants require more frequent irrigation, impacting on staff time and water supplies. Reduced flowering. Failure of new plants to establish. Poor performance impacting on visitor experience and, potentially, garden income.	Increase underplanting or mulch to reduce evaporation and improve water-holding capacity of soil and activity of soil micro-organisms. Consider irrigation for most significant plants. This will require rainwater capture and storage or access to wells/boreholes (less sustainable and only an option in some areas). Avoid overhead irrigation which can encourage disease. Create more shade and/or make more use of existing shade. Plant more species roses and drought-tolerant varieties. Explore growing roses on rootstocks used in hotter regions of the world (in the UK, all roses are currently grafted onto Rosa laxa rootstock). Tough varieties might even grow better on their own roots.
Waterlogging	Increased incidence of root diseases. Shallow rooting.	Reduce compaction from foot traffic to improve drainage. Improve soil health with underplanting and/or mulches. Assess water movement across site and create soakaways, rain gardens and/or flood meadows to hold and absorb water in the landscape.
Milder winters	Soft growth susceptible to spring frosts. Potential for new pests and diseases to establish in the UK. Shorter period of dormancy leading to plant stress.	Minimise autumn pruning to avoid triggering regrowth at wrong time. Buy new plants from trusted suppliers with high plant health standards (bare root and UK grown minimises the spread of pests and disease). Improve garden habitat and avoid pesticides to increase beneficial insect and bird numbers to manage pest problems. Opportunity to explore more cold sensitive plants, such as tea roses.
Prolonged wet weather	Proliferation of diseases, especially black spot.	Choose more disease-resistant varieties. Continue to clear fallen leaves in winter and mulch plants to reduce over-wintering spores of disease.

Image credit:

Poor root system probably caused by flooding (Photograph by Michael Marriott).

Image credit:

Shallow, horizontal rooting caused by poor planting and/or soil structure (Photograph by Michael Marriott).

Rose gardens – options and thresholds

Good practice horticulture can increase the health and longevity of rose gardens.

Good practice includes looking after soil health, increasing ground-cover planting and replacing aged plants on rotation with healthy, drought- and disease-resistant varieties. However, in hot sheltered gardens on light soils, you should consider whether it is suitable to grow roses at all, particularly if water for irrigation is not available or its use cannot be justified.

Understanding the relative significance of the rose garden will inform the level of change you are able to make. It is helpful to remember that while some changes may impact the character of a historic rose garden, visitors are more likely to enjoy a healthy scheme than a traditional one in which plants are not performing well.

Specific options for adaptation measures include:

Introduce ground cover planting – use a mix of species with different rooting depths to increase soil microbiology and therefore soil health (avoid vigorous plants too close to the base of the roses).

Where underplanting is not possible or appropriate, use a deep mulch – test soil for nutrient levels and use bark or woodchip rather than manure or compost where nutrient levels are already high.

Introduce more drought- and disease-resistant varieties – it will take research, consultation with experts and, potentially, trials to find suitable cultivars which have the characteristics sought when recreating a particular aesthetic in a highly significant rose garden.

Use species roses if they fit the aesthetic – for example, *Rosa spinosissima* and *Rosa moyesii* are well suited to the UK climate and more long lived and resilient than many hybrids.

Introduce other flowering shrubs amongst the roses – this can significantly change the look of a rose garden so may not be appropriate everywhere, but the diversity adds resilience and may also improve soil health and attract beneficial insects.

Propagate vulnerable significant plants – new plants can be planted in a more suitable microclimate within the site (for example, lower ground or more shade) or at another relevant site.

Install large tanks to capture rainwater from roofs – rainwater provides a sustainable source of water for irrigation during drought and while plants are becoming established.

Thresholds & tipping points

At what point might you diverge from your current maintenance/management strategy? What are the events/things that may trigger this change of approach (action/philosophy)?

- Poor flowering.
- Plants requiring routine watering and/or fungicide treatment.
- Plants visibly declining year on year.
- Plants requiring frequent replacement.
- No source of non-potable water available.

Understanding the relative significance of cultivated varieties of roses

Assessing the significance of rose varieties will inform your decision about whether to propagate and conserve them in a new location. This decision will also be informed by whether they are being preserved safely elsewhere.

Within the National Trust, the Curator of Living Collections can support this work. Elsewhere, botanic gardens, Plant Heritage, The Rose Society or professional rose experts may be able to provide support.

https://www.plantheritage.org.uk
https://www.therosesociety.org.uk

Keeping good plant records will facilitate this process. Even records of lost plants will be useful for caretakers of the future.

Case studies, signposting and references

Many National Trust rose gardens are showing signs of decline caused in part by climate change. A number of adaptations are being made and these vary greatly on the significance of the rose garden. Changes usually require consultation with a range of stakeholders including volunteers, visitors and heritage experts.

The rose garden at **Nymans in West Sussex, UK**, is very popular with visitors. It is relatively modern, having been created in 1988 and replanted in early 2005 with mainly repeat-flowering roses. By 2024, many of these fairly short-lived roses had reached the end of their lives and the decision was made that the next replanting would use more long-lived, drought-tolerant plants that would retain the spirit of the rose garden, but not try to replicate the original.

Rather than replant bit by bit, all the plants were removed so that the soil health could be improved before replanting. In spring 2025, a pictorial meadow mix of annual seed was sown to keep the soil covered and to feed the soil biology through their roots. This has been a huge hit with visitors in the summer and avoided complaints about the absence of roses. The annuals will be chopped back in winter and left as mulch in the ground. In winter 2026–27, a 50:50 mix of tougher roses (including species ones) and other summer-flowering shrubs will be planted with an underplanting of herbaceous plants to keep the soil covered. When it is time for replanting, holes will be well prepared, but there will be no disruptive, deep digging (the conventional method) in order to preserve the soil structure. Plants will be watered during establishment only.

The rose garden at **Mottisfont in Hampshire, UK**, is highly significant because it houses the only National Collection of pre-1900 roses in the UK. These were collected and planted by the National Trust's first gardens advisor, Graham Thomas. They are a huge draw for visitors and a feature for which Mottisfont has become well known. Recently, it has become clear that climate change is making this walled garden unmanageably hot at times, which impacts adversely on the health of the plants. Changes in management, such as deeper mulches and more relaxed pruning, are showing some benefits. Plans are also afoot to adapt the least historic areas to support tougher varieties and to invest in rainwater capture for the sustainable irrigation of the most precious and least drought-tolerant parts of the collection during dry spells. Old varieties that are at risk are also being propagated by the National Trust Plant Conservation Centre so that they can be grown in other sites where conditions may be more suitable.

At **Tsegereda Gardens in Addis Ababa, Ethiopia**, the rose garden needs to withstand both heavy rain in the rainy season and prolonged dry weather. Key to coping with wet weather is the design of good drainage of paved areas so that excess water drains away from where it is not wanted (such as the rose beds) and into an area planted with moisture-loving plants. Adaptations for drought include the provision of water in nearby pools ready to be used for irrigation, the selection of varieties found in other Ethiopian gardens and therefore thought to be suited to the conditions, and the propagation of the roses on their own rootstocks. Roses in equatorial regions where day length is not a factor often flower best in cooler months and go dormant in prolonged dry weather, which is quite different to rose behaviour in northern Europe.

Signposting & additional guidance

In the UK, changes to registered gardens and parks may require consultation with the local Gardens Trust as well as Historic England/Cadw/ Heritage Gardens Archive (NI).

RHS 'Gardening in a Changing Climate' report (2017) https://www.rhs.org.uk/science/gardening-in-a-changing-world/climate-change

Image credit:

Tsegereda Gardens, in Addis Ababa, Ethiopia, are part of the university campus, but it once belonged to Crown Prince Asfa Wossen. The rose garden is in the circle in the centre (Photograph by Michael Harvey).