

The (not so) elusive butterfly bush

In this latest series of BASIS articles written in association with Sherriff Amenity, Graham Paul looks at the butterfly bush

The Butterfly Bush, *Buddleia davidii*, was introduced to the UK from China in 1896. It is loved by many gardeners throughout the world for the abundance of beautiful, scented and nectar-rich flowers that attract butterflies, bees and other insects.

It is easy to propagate and has few natural enemies, so once it is established in a garden it will probably remain there in perpetuity. I have chosen to feature this plant because it is a non-native invasive species that can be difficult to control; and also to highlight the controversy that arises from the impact it has on local ecosystems.

The genus *Buddleia* comprises over 100 species that originate in Asia, Africa and the Americas. The genus was named by the Swedish botanist Carl Linnaeus as a posthumous honour to the Reverend Adam Buddle (1662–1715), a rector and botanist from North Farnham in Essex, who was the foremost authority on British bryophytes of his era - just imagine what his Sunday sermons were like!

The most common of the *buddleias* is *B. davidii*, which gets its species name from a French missionary and naturalist Père Armand David. *Buddleias* are now classified in the Scrophulariaceae family, a large group of plants that includes; figworts, mullein, toadflax and speedwells. Prior to this they were classified in their own family, the *Buddlejaceae*.

The Butterfly Bush grows to a height of up to five metres. Flowers are borne in dense, spiked panicles that are mauve-purple with an orange centre. A white flowering variety can also be seen growing in the wild but is less common than the purple flowered species. Originally introduced as a garden bush it has escaped and can be extremely invasive given the right conditions.

The potential for spread of this species is due to the large number of seeds produced by each of the tightly packed flower spikes. It is estimated that a single flower spike can produce as many as 40,000 seeds so a full sized bush could generate as many as 3 million in

a year. These lightweight, winged seeds are easily dispersed by the wind and are often caught in the slipstream of lorries and railway trains that can carry them onwards for a considerable distance.

The seeds can remain viable in the soil for three to five years, requiring very little in the way of soil or moisture to germinate and hence they can easily establish in barren ground.

The butterfly bush occurs in a variety of habitats, growing well on poor soils with a preference for disturbed ground and areas recently damaged by fire. It seems to like chalky and lime soils, waste ground and will also proliferate on riverbanks.

Another favourite habitat is railway property; where it easily establishes in the ballast of the track and cess and any mortar filled brickwork is a definite invitation to put down *Buddleia* roots! It is believed that the lime in the mortar provides the right conditions for the plant to establish, so the seeds just need to find a tiny opening in the brickwork to take hold.





Chemical Control Measures

'Pistol', a formulation of 250g/L glyphosate and 40g/L diflufenican, gives excellent control of buddleia seedlings. The diflufenican in this product helps to prevent germination of seeds long after the spray has been applied.

For young plants, where the stems remain green, glyphosate formulations such as Roundup Pro Biactive' will provide good control. Mature plants need a brushwood killer such as 'Timbrel', which contains 480g/L triclopyr.

However, 'Timbrel' and five other approved products containing 480g/L triclopyr are scheduled for withdrawal by 30 November 2014, so manufacturers are providing alternatives with lower concentrations of triclopyr but mixed with suitable co-formulants; e.g. aminopyralid, clopyralid, fluroxypyr, dicamba and 2,4-D, to bridge the gap and provide a similar level of weed control.

High on the list of new products specifically suitable for controlling the butterfly bush in amenity situations are mixtures of aminopyralid and triclopyr, developed by Dow AgroSciences and launched under the brand names 'Icade' and 'Speedline'.

Cultural control measures

The initial approach to curb the spread of this plant using non-chemical means is to control the spread of seeds. Dead-heading plants as soon as the flowers have died back is recommended for garden specimens but on larger bushes this may not be practical.

Landscapers and gardeners should be encouraged to choose new dwarf varieties of *Buddleia* that do not produce fertile seeds; such as 'Blue Chip', which is equally attractive to butterflies but does not present any risk of spread by wind dispersal.

Seedlings and young plants can be pulled up relatively easily and established mature plants can be felled and disposed of by burning on site if this is permitted. It is inadvisable to leave any branches on the ground after they have been cut as they can take root and create a new plant.

Biological Control measures

Authorities in New Zealand have carried out quarantined studies on the leaf eating weevil *Cleopus japonicus* to ensure it did not harm endogenous plants and crops. This insect originates in China where it





feeds on the leaves of the butterfly bush. In 2006, following the success of these studies, the weevil was released on several sites on the North Island and so far results have been encouraging. These quarantined studies would need to be repeated in the UK before we could consider adopting this approach to control. Scientists in New Zealand are also looking at a stem boring weevil *Mecysolobus erro*. For *Buddleia* control, the adults of this insect feed on the tender terminal shoots causing the tips to wither and die.

The controversy

There is no doubting the attractive power of the *Buddleia davidii* for butterflies, bees and other insects.

The development of our urban environment has depleted the numbers of many butterflies, insects and wild animal species, so it is no surprise that organisations involved in conservation of wildlife are sympathetic to planting the butterfly bush as a means of encouraging some to re-establish.

However, we should remember that this is an aggressive invasive plant species which, despite the abundance of pretty, fragrant flowers, contributes very little to the support of the larval stages of these insects. Back in its original native environment, the butterfly bush evolved alongside a host of predatory wildlife that help keep the species in check. It is amazing that despite being resident in the UK for over 100 years it has encountered very few natural enemies – hardly

any insects have adapted to feed on the leaves and stems.

In 2008, DEFRA and the country agencies for Wales and Scotland published a new strategy to control invasive species and listed *Buddleia* on their non-native species website www.nonnative-species.org.

Butterfly Conservation have stated their position with regard to the planting and maintenance of the butterfly bush as follows: “*Buddleia* provides an important nectar source for adult butterflies, moths and other insects in townscapes and the countryside.

This has become increasingly relevant because wildflowers have become so depleted following habitat loss and the general lack of nectar sources in the countryside. It also brings enjoyment to many people, both because of its heavy scented and beautiful blooms but also because of the butterflies and other insects it attracts. It therefore plays a role, alongside other non-native garden plants, in helping to maintain or restore the link between people and native UK wildlife such as butterflies.”

They acknowledge that the butterfly bush can be a problem in brownfield sites and suggest that gardeners should prune the plant in the autumn to remove seed heads and reduce the potential for spread in the wild.

However, *Buddleia* is not included with the wild invasive non-native plants listed on Schedule 9 of the Wildlife and Countryside Act and is not scheduled for future inclusion.

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SELF ASSESSMENT

Use the questions below to check your understanding of this topic. Readers can claim BASIS points by visiting the ‘BASIS Points Article’ section on the Sherriff Amenity website – www.sherriff-amenity.com and answer the questions correctly.

1) Who was responsible for naming the genus *Buddleia*?
 a) The Reverend Adam Buddle
 b) Carl Linnaeus
 c) Dr William Houstoun
 d) Père Armand David

2) When did the butterfly bush arrive in the UK from china?
 a) 1896
 b) 1715
 c) 1662
 d) 1789

3) What is the estimated annual seed yield for a full sized butterfly bush?
 a) 40,000
 b) 300,000
 c) 700,000
 d) 3,000,000

4) Which species of insect has been introduced in New Zealand as a potential biological control agent?
 a) *Malacosoma Neustria*
 b) *Cryptolaemus montrouzieri*
 c) *Cleopus japonicas*
 d) *Euproctis chrysorrhoea*

5) What date has been set for the withdrawal of products containing high concentrations of triclopyr such as ‘Timbrel’?
 a) 30th November 2014
 b) 1st November 2013
 c) 30th November 2013
 d) 1st August 2014

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