

## **Dormancy with particular reference to Japanese knotweed, *Reynoutria japonica* var *japonica***



Dormancy is a period in an organism's life cycle when growth and development is temporarily stopped, which minimizes metabolic activity.

In plant physiology, dormancy is a period of arrested growth.

Dormancy is closely associated with environmental conditions.

Jim Glaister, in his book 'Japanese Knotweed A UK guide for the non-specialist' (Packard Publishing), has the following summary -

*Dormancy: A period of inactive growth. Dormancy in Knotweed can be partial or total, and can be long-lasting. Dormancy can be induced (for instance by treatment) or naturally occurring (triggered by unfavourable growing conditions, typically occurring every winter).*

There are two types of dormancy: 'Predictive' and 'Consequential' dormancy.

'Predictive' dormancy is the dormancy response to the natural cycle of the seasons, or 'naturally occurring' as referred to in the above description of dormancy. 'Predictive' dormancy could be viewed as an organism preparing for the predictable adverse conditions within the normal cycle of seasons.

'Consequential' dormancy occurs when an organism enters a period of dormancy after adverse conditions have arisen, that are not within the usual or normal cycle of events. A response to an unusual event that presents adverse conditions for that organism.

For example, within the PCA Invasive Weed Group, we often mention how Japanese Knotweed is able to manage volcanic eruptions, which is an example of 'Consequential' dormancy.

Both 'Predictive' and 'Consequential' dormancy is a survival strategy employed by many plant species enabling them to survive in climates where there are periods of extreme adverse conditions.

Japanese Knotweed uses this technique of 'Consequential' dormancy to not only survive volcanic eruptions but is also one of the physiological factors enabling the plant to be one of the first species to recolonise areas following such an event.

With Japanese Knotweed rhizome 'Consequential' dormancy may also be triggered by inappropriate use of herbicides. This includes the wrong type of herbicide, the wrong type of application, the wrong time of year and the wrong dosage, specifically too concentrated a dose.

The period of dormancy can be broken by environmental factors and so is unpredictable and this can last decades. However, the period of dormancy is known to be broken when more appropriate environmental conditions for healthy growth to take place are prevalent. A period of dormancy can also be broken by mechanically disturbing the rhizome material.

Regrowth following a period of 'Consequential' dormancy, triggered by inappropriate use of herbicide, can result in stunted growth referred to as 'bonsai' growth. This makes subsequent control of the Japanese knotweed material, using an herbicide approach, considerably more difficult.

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