Japanese Not Weed

Abstract
Rive studio is currently looking into how the impressive behaviour of Japanese Knotweed (JKW) can be harnessed in such a way that could be beneficial to society. JKW is notorious for being incredibly durable and spreadable, able to break apart buildings and destroy house values. It can grow up to 20cm a day, and its roots can span 7 metres in every direction[1]. It has the ability to spread from tiny cuttings and reports suggest that there is no 10 square km in the UK that is without JKW[2]. For these reasons it has several pieces of legislation written in an attempt to abolish it, and is regularly demonised amongst members of society.

However, Rive Studio is looking at how this plant that we have in great abundance in the UK could be perceived as an asset rather than a pest. Its ability to grow in extreme climates and the fact that it does not need bees to propagate makes it a plant that will survive as the effects of climate change become more severe. Rive Studio are in the process of exploring the potential of JKW as a resource within this context to learn how to live with it as an effective plant rather than a weed.

Portrayal and Perception Within Society
The studio became interested in Japanese Knotweed (JKW) due to how it is commonly portrayed and perceived in the UK. The words used to describe JKW resemble that of a 'baddy' in a comic book; it is referred to as an 'invasive alien species', a 'real thug' who destroys everything it comes into contact with[3] – The Guardian describes it as a 'public enemy'[4] and The Irish Times 'the bully of the natural world'[5]. Its qualities of being fast growing, strong, powerful and resilient are always interpreted negatively, but they could just as plausibly be perceived as positive attributes. We believe there is potential for the characteristics of JKW to be matched with situations that allow these behaviours to flourish, just as the archetypal bad character can use their powers for good instead of evil.

This is not to say that people's cautiousness with the plant are unjustified. The annual cost of Japanese Knotweed to the British Economy is estimated at £166 million due to the cost of treating it, and the negative effect on house

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[1] Mabey, R. (2012) *Weeds: The Story of Outlaw Plants.* London, Profile Books.
[2] Mabey, R. (2012) *Weeds: The Story of Outlaw Plants.* London, Profile Books.
[3] Royal Horticultural Society (2016). 'Japanese Knotweed' [online]. Available at: https://www.rhs.org.uk/advice/profile?pid=218 [Accessed 22 August 2016]
[4] Simons, P., (2005). 'Public enemy no.1' [online]. Available at: https://www.theguardian.com/lifeandstyle/2005/feb/12/shopping.gardens [Accessed 22 August 2016]
[5] Woodworth, P., (2016). 'The 'bully' in your garden' [online]. Available at: http://www.irishtimes.com/news/environment/the-bully-in-your-garden-1.2660592 [Accessed 22nd August 2016]

prices[6]. The site for the 2012 London Olympics alone required £70 million worth of JKW treatment before building could start[7]. Even on a much smaller scale, specialist treatment companies can charge up to £200 for a site visit and survey, £5000 for it to be treated and extra costs for it's disposal[8]. Similarly, mortgage lenders have strict terms for JKW in relation loan approval [9]. The adverse effects that JKW currently has on the UK economy has led to the Environmental agency creating several pieces of legislation to prevent it spreading[10], which contributes to the stigma surrounding the plant. Taking all of this into consideration, it is understandable why people are so willing to accept the plant as an enemy.

As part of the European City of Science Festival in Manchester, we took part in a walk with the LiFE (Living in Future Economies) Research group where we presented our initiative. As part of this presentation we asked participants to draw JKW and answer a few questions about the plant. Whilst nearly all participants spoke negatively of the plant, nearly all also didn't know what it looked like or how it spread. Some thought having traces of the plant on your shoe was enough to cause it to spread, whilst others thought that the plant was poisonous - both of which are not true.

Rive Studio see both the legitimate concerns and the hyperinflated negative perceptions of JKW as a challenge. We aim to explore new ways of thinking about the plant, with the hope of changing people's perceptions of resources such as JKW - to turn the face of a problem into the face of an opportunity.

Settings of Exploration

We consider the exploration of JKW to have potential in two settings: A, the current situation and perceptions of JKW in the UK; and B, what a future with JKW could look like.

Category A:

There is an abundance of JKW here in the UK and whether it is alive and growing in the wild, or it is being gotten rid of, it currently serves no purpose. If this waste could be used as a material resource it may contribute to solutions for escalating current material issues such as resource depletion and waste.

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[6] Williams, F., Eschen, R., Harris, A., Djeddour, D., Pratt, C.,Shaw, R.S., Varia, S., Lamontagne-Godwin, J., Thomas, S.E., Murphy, S.T. (2010) 'The Economic Cost of Invasive Non-Native Species on Great Britain'. *Knowledge For Life [online].* Avaialable at: www.nonnativespecies.org/downloadDocument.cfm?id=487 [Accessed 22 August 2016]

[7] Shaw, R. (2014) 'Japanese Knotweed, Journalism and the General Public'. *Eppo Bulletin44 [online].* Available at: onlinelibrary.wiley.com/doi/10.1111/epp.12114/epdf [Accessed 14 August 2016]

[8] Japanese Knotweed, Management and Consulting (2016) [online]. Available at: http://www.knotweedmanagement.co.uk/fact-file/ [Accessed 22nd August 2016]

[9] Council of Mortgage Lenders (2015), 'Japanese Knotweed' [online]. Available at: https://www.cml.org.uk/policy/policy-updates/all/japanese-knotweed/ [Accessed 22nd August 2016]

[10] Environment Agency (2013), 'The Knotweed code of Practice' [online] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/536762/LIT_2695.pdf [Accessed 22nd August 2016]

Additionally, if an application could be found for JKW that was commercially viable, there would be potential to offset some of the negative financial effects the plant currently has on the UK economy. Furthermore, due to the way the plant distributes its nutrients, if JKW is cut when it's alive the rhizomes weaken and it becomes easier to kill in the future[11]. Consequently, If we were to harvest JKW it would be easier to fulfil the government's aim to eliminate it from the UK if that continued to be the desirable outcome.

If, therefore, JKW were to be used as a resource today it could in fact fulfil economic, political and environmental goals and therefore could play a part in altering the negative perceptions society has of JKW.

Category B:
The increasingly bleak landscapes of the future require a high level of resilience from plants that wish to survive. JKW possesses this resilience: it can survive both at temperatures as low as -17°C but can also grow in the extremely hot conditions[12]; it doesn't need bees to propagate[13] meaning that the declining bee population won't pose a threat to the growth of JKW and; it flowers later than other plants, providing much needed nectar for bees, therefore encouraging the expansion of the bee population[14] and subsequent propagation of other crops in the area. It could be that the very characteristics that currently make JKW so unpopular could be the same reasons it becomes valuable in the future.

In category A, we are looking as JKW as a temporary by-product of the removal process in the form of waste. In category B we are situating JKW in the future therefore planning that the plant will still be alive in UK and perhaps even actively grown as a resource. This would require a huge change in society's perception of the plant.

Rive Studio's Investigation So Far
We see the potential for JKW as manifold. This can roughly be broken into two categories; its use as an edible resource and its use as a non edible resource.

In parts of Japan JKW is foraged as a wild vegetable, with the stems supposedly having a similar flavour to rhubarb. The plant is a valuable supplement source of resveratrol, replacing grape byproducts[15]. Whilst we

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[11] Mabey, R. (2012) *Weeds: The Story of Outlaw Plants.* London, Profile Books.
[12] CABI (2016) 'Fallopia Japonica' [online] Available at: http://www.cabi.org/isc/datasheet/23875 [Accessed on 22nd August 2016]
[13] CABI (2016) 'Fallopia Japonica' [online] Available at: http://www.cabi.org/isc/datasheet/23875 [Accessed on 22nd August 2016]
[14] CABI (2016) 'Fallopia Japonica' [online] Available at: http://www.cabi.org/isc/datasheet/23875 [Accessed on 22nd August 2016]
[15] Wang, H.; Liu, L.; Guo, Y. -X.; Dong, Y. -S.; Zhang, D. -J.; Xiu, Z. -L. (2007). 'Biotransformation of piceid in Polygonum cuspidatum to resveratrol by Aspergillus oryzae'. Applied Microbiology and Biotechnology. **75** (4): 763–768. *doi*:*10.1007/s00253-007-0874-3*

support and encourage JKW being used as an edible resource, we are focusing on the less explored potential of JKW as a non edible resource, looking at it both as a material resource for goods (building materials, packaging, craft objects, functional products); and a tool for services (building demolition, bee conservation).

The studio are researching JKW through playful experimentation, establishing different situations that will allow us to document its behaviour and speculate over the realistic or imagined possibilities this suggests. We have been dissecting, boiling, burning, heating, soaking, blending, stripping, drying, dipping, unpicking and crushing the plant, using these material interactions to form a relationship with JKW - employing the method of thinking through making; giving our ideas a foundation in experience[16].

This initiative proposes that this 'alien' species whose original name in Japan translates to 'remove pain'[17], could indeed serve to remove the pain of our depleting resources, more severe climates and landfill extremities. As a society we have a lot to gain from evolving our idea of the plant and developing our relationship with it.

[16] Ingold, T. (2013) *Making: Anthropology, Archaeology, Art and Architecture*. Oxford, Routeledge

[17] Shaw, R. (2014) 'Japanese Knotweed, Journalism and the General Public'. *Eppo Bulletin44 [online].* Available at: onlinelibrary.wiley.com/doi/10.1111/epp.12114/epdf [Accessed 14 August 2016]