‘Weeds – a botanical category?’

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Many people believe that there exists a body of plants which are weeds. I expect that most if not all of you would readily name plants which you regard as weeds. But a little reflection suggests that *weed* is a perplexing category. I suggest that there would be some plants about which opinions in the room would differ as to whether they were weeds. Some plants have been regarded as weeds in some times and places but not in others. Some plants which used to be weeds hardly count as such any more. New plants are being added to weed lists all the time. As a category, *weed* is inherently uncertain. Is it a feature of the plant or the human response to it that makes a plant a weed?

Despite many attempts over the past 60 years, weed scientists have not been able to agree on a set of necessary and sufficient conditions to establish which plants are weeds. Indeed it has often been said that any plant may be a weed. If this is true, as a matter of logic it must follow that whether a plant is a weed depends on something other than the plant. So in answer to the question posed in my topic, I would begin with the idea that *weed* is not a botanical category. But there is a pronounced tendency, once a plant has been called a weed, treat it as a bad plant regardless of the context.

If any plant can be a weed, perhaps it is our response to a plant that makes it a weed. What drives such responses? My thinking about the psychology of weeds began when I came across a perceptive review by Professor William Stearn (1956) What struck me was Stearn’s suggestion that the appropriate sphere of science for considering weeds was

psychology rather than botany: ‘Taken as a whole, weeds are not so much a botanical as a human psychological category within the plant kingdom, for a weed is simply a plant which in a particular place at a particular time arouses human dislike…’ [1]

I will begin with an exploration of aspects of human psychology that seem to me to be relevant to an understanding of weeds, what I call weed psychology. I will then show how the category *weed* with all its psychological overlay, has been widened to include many popular garden plants, and to make some suggestions about how we should respond.

Weed psychology [2]

What part do emotions play in our dealings with weeds? How did emotions such as fear and loathing become so widespread as the typical response to weeds?

Weeds carry emotional impacts which are sometimes very powerful. Weeds are often considered unsightly, as disfiguring the landscape, as a sign of disorder and neglect. Weeds attract adjectives such as ‘ugly’, ‘pernicious’, ‘hateful’, ‘filthy’ and ‘noxious’; expressions of the emotions aroused by the threat to good order that they represent. Keith Thomas gave many examples in *Man and The Natural World* (1983).[3] Weeds growing on waste land, roadsides, ruins, rubbish heaps, and other uncultivated areas, where they might merely be thought untidy, attract these epithets as readily as weeds of farms and gardens.

Feelings of guilt may also be involved in our response to weeds. We may feel that to permit weeds to take over a garden, or to allow thistles to grow unchecked in a paddock, is to fail to maintain proper standards, to be socially irresponsible, to set a bad example, to permit pollution. Such feelings can operate when we are told that a particular plant is a weed.

We may feel a strong compulsion to remove the plant even if it has not been troublesome in this location, without pausing to ask 'Why do you say it's a weed?'

The depth of the feelings which may be involved is demonstrated by Hamlet's first soliloquy in which he contemplates suicide because of his disgust with the world after his mother's unseemly marriage to his father's brother just two months after his father's death. How did Shakespeare bring home to his audience the reality of Hamlet's suffering? By the lines:

'…O fie! 'tis an unweeded garden,

That grows to seed: things rank and gross in nature

Possess it merely.'

(*Hamlet* Act 1 Scene II)

Shakespeare uses the emotions aroused by a garden possessed by weeds *rank and gross in nature* to help us share in Hamlet's emotions. The *unweeded garden* around him is so unbearable that Hamlet wants to kill himself. Why do weeds give rise to such feelings? A consideration of human psychology helps us to understand what humans think, say and do about weeds.

Fear has been a key emotion in our response to weeds for a long time. The *Book of Isaiah* (c.742 BC) refers to 'the fear of briers and thorns' (Ch VII v.25). Many people are subject to a deep-seated fear that weeds will take over their patch, some even fear for the environment or even the planet as a whole. The science fiction writer John Wyndham memorably exploited such fears in *The Day of The Triffids* (1951), his fable of feral

carnivorous plants. The vital question is whether our fears about weeds are grounded in reality, or whether they should be seen as exaggerated and irrational.

One explanation for the psychological basis of our fear of weeds lies in the association between weeds and contaminants. Weeds have sometimes been likened to dirt. For example, in 1909 Professor Alfred Ewart (1872-1937), Government Botanist and Professor of Botany in The University of Melbourne, applied what he said was Palmerston's definition of dirt (*matter out of its proper place*) to weeds: 'A weed is a plant out of its proper place, and a troublesome weed is one which makes itself objectionable by continually asserting itself in places where it is not desired'.[4]

Humans reject the *dirty* as a contaminant, in contrast to the virtuous *cleanliness*. What is invoked here is a universal feature of human societies, the concept of pollution. Pollution ideas have been shown to be powerful influences on human behaviour. Neil Evernden, following the English social anthropologist Mary Douglas (1921-2007), pointed out that all societies identify contaminants, 'something that is out of place and hostile to the environment, as a danger to the well-being of individuals or society.'[5] It is, I think apparent that conceptions of the environment in terms such as 'virgin' bush, 'pristine' native forest, and 'unspoiled' wilderness (which are matters of romantic imagination rather than something to be encountered in the real world) invite pollution ideas. Sometimes it seems that social groups have a need to specify some aspects of the world around them as polluting, and that the need must be satisfied regardless of whether the specified threat is real. Ideas about pollution have often been used as a means of social control. '…danger-

beliefs are as much threats which one man uses to coerce another as dangers which he himself fears….'[6]

Mary Douglas also demonstrated that the human response to dirt is associated with our deep-seated need for order. Absence of order is something we tolerate with great difficulty. To identify something as a pollutant is to see it as threatening the appropriate order of things for the social group. When plants are treated as weeds, they are seen as presenting a similar threat. What we are dealing with here is a social phenomenon. What makes us call a plant a weed is more about human needs than it is about the plant.

Our need for order is also reflected in the unease, fear even, we feel about the absence of control. Out of control plants often attract the label *weed*. As noted, Professor Ewart objected to weeds continually asserting themselves in places where they are not desired. Even a chosen plant may fall from favour if it becomes too hard to control; 'It is taking over' says the gardener, and so yesterday's cultivated amenity plant has become today's (and perhaps tomorrow's) weed.

Weeds have sometimes been defined as *plants that are not wanted*. This gave rise to a widely quoted suggestion by Elmer Grant Campbell, in *Science* (1923) that it is a matter of human *caprice* whether a plant is a weed[7]. I do not agree with Campbell. Even if weeds are simply *unwanted* plants, human wants and desires are not capricious. Wants are not wanton chance occurrences or arbitrary feelings. They are not able to be taken up or discarded at a whim. As the philosopher Mary Midgley pointed out, 'Wants are not random impulses. They are articulated, recognizable aspects of life; they are the deepest structural constituents of our characters.'[8] This is a long way from *caprice*, which has been defined as:

‘a sudden change of mind without apparent or adequate motive; whim’. But perhaps Campbell’s real point was that calling a plant a weed is often the expression of how we *feel* about this plant in these particular circumstances. Which puts me in mind of the typical question asked by psychologists, ‘How do you feel about that?’ A more pertinent question, in some cases at least might be, ‘Why are you frightened of that plant?’

To understand why weeds arouse anxiety we must think more closely about their impact. There is nothing capricious about treating many plants as weeds. Nor is it simply that they are hard to control. The farmer has his reasons for treating plants as weeds. To begin, plants which volunteer in a crop compete with the crop for nourishment, light and water. Many weeds have had bad effects which are more serious. Examples may readily be found in standard works of reference such as Parsons & Cuthbertson’s *Noxious Weeds of Australia* .[9]

The emotions of fear and dislike that such plants arouse are understandable. Do we reject such plants for the specific troubles they bring? Perhaps we are also governed by ancient responses and attitudes which have become engrained in our culture. Is a rationalization available for every occasion when a plant is called a weed? The critical issue is as to the appropriate response in all the circumstances. The emotions aroused and the actions they give rise to may be out of all proportion to the actual threat.

Whenever a plant is called a weed some of the psychological overlay associated with the class is invoked. We may not always be conscious of the emotional and other forces at play, but we should recognize that they

are likely to be present. For years I was troubled by the fact that so many of the terms used in the vocabulary of weed science (words such as *alien*, *feral*, *invader, infestation*) were emotive and judgmental. The term *invasion* carries associations of attack on our homeland by enemy forces, and suggests that we should automatically take action against the invader. Why do we speak of *aliens*, with overtones of enemy aliens or space invaders, instead of *exotics*, which carry a hint of excitement and romance? Why, when human aliens can become lawful citizens by naturalization, do we fail to accept that *naturalized* plants have become part of the flora and continue to call them *aliens*? Why do we speak of *feral* plants instead of *volunteers*? Why do we speak of plants as *invading* rather than simply *spreading*, or *increasing their range*? Why do we speak of weeds *infesting* rather than simply being present?

I now understand that the use of emotive language is closely related to the fact that emotions are involved, even if unconsciously. The words used both reflect and compound emotions such as fear and anxiety, which distort our thinking about weeds. As James Brown of the University of New Mexico pointed out, 'There is a kind of irrational xenophobia about invading animals and plants that resembles the inherent fear and intolerance of foreign races, cultures, and religions… This xenophobia needs to be replaced by a rational, scientifically justifiable view of the ecological roles of exotic species.'[10] A civilized society should avoid xenophobia whether against people or plants.

The American plant ecologist Mark Davis has written of 'a sort of simple minded 'nativism' paradigm, in which native species are embraced and non-native species are vilified.'[11] Many people in Australia have such nativist attitudes towards plants. Conceptually, such attitudes have links

to the nativist political movements that flourished in the USA, Canada, and Australia in the 19th and early 20th centuries (18). The Australian Natives Association was the local manifestation, and the White Australia Policy a longstanding outcome. Nativist movements were not made up from indigenous peoples, rather they were established by native born persons, usually of British origin, who sought to keep out later arrivals on the basis that immigrants would distort or spoil cultural values. It is interesting that, as Zachary Falck has pointed out, nativists often referred to people they disapproved of as 'human weeds'.[12]

I contend that *nativism* should be as unacceptable for plants as for people. Sometimes xenophobia is expressed by statements such as 'introduced plants do not belong here', or 'are not at home here.' But belonging should not be determined by the geographic origin of species. Exotic plants are part of our civilization and belong here as much as we do. The fact that plants are exotics is never a sufficient reason to regard them as weeds or to seek to compel others to do so.

Garden Plants or 'Invasive Alien Species'?

What do the following plants have in common: Elms, Daffodils, Catmint and Rosemary? The answer is that some now call them 'invasive alien species'.

In recent years the category *weed* has been expanded. Hundreds of plants, which have been cultivated in gardens for many years, are said to have become *environmental weeds* or *invasive alien species*. As examples I will consider a number of plants included in *Weeds of the South-East* (2011).[13] They are all introduced exotics, or 'aliens' if you do not like them. Most were introduced to Australia more than 150 years ago. Some

have naturalized, that is they have established themselves as part of the flora.

I should say at once that some plants introduced to cultivation in Australia have been very troublesome. We are all familiar with the Prickly Pear saga, with the curse of the Blackberry and with Gorse, to take but three examples. But the trouble is that the category *invasive* tars with the same brush many plants that hardly seem troublesome at all. Some garden escapes have been much more serious than others.

This indispensible reference work lists some 2500 plant species. What is interesting for present purposes is the inclusion of many popular garden plants, often on the ground that they have become garden escapes, or have the potential to do so. Most of the exotic trees commonly to be found in gardens and cultural landscapes are included: Elms, Oaks, Poplar, Maple, Ash, Pepper Tree etc. Even Australian native trees such as Cootamundra Wattle, many other Wattles, and Sweet Pittosporum are included if they are outside their 'natural range' (a most problematic category which I have considered in detail elsewhere.[14]) Today I will concentrate on smaller garden plants, shrubs, herbs etc, to be found in many historic gardens.

Put to one side if you like the half-welcome wildlings that occur in many of our gardens such as English Ivy, Forget-me-not, Sweet Violet and Vinca. Let us look rather at a number of garden plants of long-standing use, to be found in many historic as well as contemporary gardens. I grow them all, as many of you may. Many have been cultivated by humans for hundreds if not thousands of years, and are rich in cultural associations; they are truly part of our civilization. But some now call them weeds.

We could also put to one side plants commonly grown in gardens, but which are often seen as ‘weedy’, such as Agapanthus, Cotoneaster, and Montbretia. The debate about them is for another day. Even here, note that what has aroused concern is often a tendency to persist around old gardens and settlements. The plants are thus already recognised as historic markers of old habitation, and as such of cultural heritage significance. This tendency has resulted in some to me surprising inclusions such as Daffodil, Jonquil, Belladonna Lily, and Acanthus.

Other occasional garden escapes listed as weeds include Ajuga, Catmint, Foxglove, Erigeron, French Lavender, Gazania, Lamb’s Ear,Nasturtium, Shasta Daisy, Rock Rose, Rosemary,and Russel Lupin.

It should also be noted that garden escapes have often been included because they are growing on roadsides and in wasteland. As something will always grow on wasteland, I would have thought it was preferable to have a plant selected for its garden amenity growing there rather than less attractive possibilities; ‘real’ weeds such as Shakespeare’s ‘hateful docks, rough thistles, kecksies, burrs’ (*Henry V* Act V Sc II)[15].

As for roadsides, it should be kept in mind that roads are manifestations of the culture that builds them, and that any landscape divided by a road becomes a cultural landscape. Roads and the land reserved next to them may have cultural significance in themselves, and may contribute to the heritage significance of landscapes. By making a road we alter the ecology. The disturbance involved in building and maintaining a road often results in the growth of pioneer species in the road reserve, although native vegetation has sometimes been preserved, whether by accident or design. Some may prefer to plant indigenous species in road reserves, but I cannot see that any harm is done if garden escapes establish themselves.

The presence of attractive flowering plants seems to me to be a positive addition to roadsides rather than a reason to designate them as weeds.

It is disturbing that there have been few measured scientific studies of the behaviour of these plants. They have been included in weed lists based on anecdotes of field observation, and even the anecdotes have usually not been published in the weed science literature. If there is a concern that an exotic plant is becoming established in bushland we need studies that measure how far and over what time, in what type(s) of bush, under what climatic conditions, this has occurred, what is their ecological effect and so on; and to record the data, if we are to form a proper understanding of what nature is doing, and whether it is appropriate to intervene.

Instead of careful and exact observation of plants with attention to different circumstances and situations in which it might be necessary to describe them as weeds, we have the application of what Roland Barthes, writing about judging human actions, described as 'an adjectival psychology' which describes and condemns at one stroke, a psychology which 'is ignorant of everything about the actions themselves, save the guilty category into which they are forcibly made to fit'[16] Another name for this behaviour is *stereotyping*, where an individual is summed up and disposed of by a group description (often racial or gender based) without regard to their actual qualities. Many are too ready to assign plants to the guilty categories *invasive alien species* or *weed*, without giving proper consideration to the plant in the particular circumstances: its aesthetic or amenity value, its ecological function, its capacity to withstand drought, its medicinal or culinary uses, its cultural associations.

What after all, is the point of listing these plants as weeds? Are we meant to reach for the 'Round-up' and spray these plants when they appear on

roadsides and waste- land? How should we respond in our gardens? The listings do not seem to me to provide sufficient reason not to grow these plants. They do not seem to be ‘things rank and gross in nature’. Because they have been popular garden plants for so long, many, if not all, are key components of historic gardens. It would, I think, be quite wrong to remove them. Some have even been suggested as ‘Groundcovers with weed suppressing potential’.[17] The reasons advanced for describing them as ‘weeds’ may be more a matter of ideology than science, and nativist ideas may well have been involved. Is it possible that basic feelings about pollution have been invoked to protect the purity of the bush from contamination (by invasive alien species)?

The listings suggest that there is something odd about the category *environmental weed*. The category is, in my opinion, deeply problematic. But the arguments against it must wait another occasion.

Conclusion

If we are to achieve a proper understanding of weeds we should avoid the use of emotive and prejudicial language. To understand and describe the place of weeds in nature and in human society we should aim to use expressions that are value neutral and dispassionate. The emotions aroused by weeds mean that we should guard against the risk that our actions may be governed by our emotions; that we may treat plants as weeds in circumstances where to do so is not appropriate or justifiable. We should seek to overcome emotions of fear and guilt in our responses to weeds in general and so called ‘environmental weeds’ in particular. We should also recognize that we have choices about which plants are to be treated as weeds. Understanding that value judgments are involved, and that inappropriate social coercion may be present, we should look for

the reasons why plants are called weeds and decide for ourselves whether the designation is compatible with our values.

John Dwyer , October 2011

Endnotes

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[1] Stearn, W. 'Review of Weeds by W.C.Muenscher' *Journal of the Royal Horticultural Society* (1956) p285

[2] Dwyer, J. 'Weed Psychology and the War on Weeds' *Plant Protection Quarterly* Vol 26 (2011) p82

[3] Thomas, K. *Man and the Natural World* (Allen Lane, London 1983) p270

[4] Ewart, A . and Tovey, J. *The Weeds, Poison Plants and Naturalized Aliens of Victoria* (Government Printer, Melbourne 1909) p1

[5] Evenden, N. *The Social Creation of Nature* (Johns Hopkins U. Press Baltimore 1992) p5

[6] Douglas, M. *Purity and Danger: An analysis of the Concepts of Pollution and Taboo* (Routledge, London 1966) p3

[7] Campbell, E. 'What is a weed?' *Science* **58** (1923) 5

[8] Midgley, M. *Beast and Man: The roots of human nature* (Routledge, London 2002) p175

[9] Parsons, W. and Cuthbertson, E. *Noxious weeds of Australia* 2nd ed. (CSIRO Publishing, Collingwood 2001)

[10] Brown, J. 'Patterns, Modes and Extents of Invasions by Vertebrates' in *Biological Invasions: A Global Perspective* ed Drake, J., Mooney, H., di Castri, F., Groves, R., Kruger,F., Rejmanek,M. and Williamson, M. (John Wiley, Chichester 1998)

[11] Davis, M. *Invasion Biology* (OUP Oxford 2009) p156

[12] Falck, Z *Weeds: An Environmental History of Metropolitan America* U. Pittsburgh Press, Pittsburgh (2010)

[13] Richardson, F., Richardson, R. and Shepherd, R. *Weeds of the South-East* 2nd ed (Richardson, Meredith 2011)

[14] Dwyer, J. 'Natural range, nature and weeds' *Proceedings of the 14th Australian Weeds Conference* eds B. Sindel and S. Johnson (Weed Society of New South Wales, Sydney 2004)pp458-463

[15] 'Kecksies' are probably Umbelliferae such as Wild Carrot, Hogweed, Hemloch, and Fools Parsley. Savage, F. *The Flora and Folk Lore of Shakespeare* (Burrow, Cheltenham 1923) pp39-41

[16] Barthes, R. *Mythologies* (Hill and Wang, New York 1980) p45

[17] Marshall, T. *Weed* (ABC Books, Harper Collins, Sydney 2010) p68

Appendix A Plant list

[Page references to *Weeds of The South East* are given in brackets]

Acanthus (*Acanthus mollis* L.) [107]

Agapanthus (*Agapanthus praecox* subsp. *orientalis* F.M.Leight) [10]

Ajuga or Blue Bugle (*Ajuga reptans* L.) [352]

Ash (*Fraxinus* spp) [386]

Belladonna Lily (*Amaryllis belladonna* L.) [15]

Blackberry (*Rubus fruticosus* agg.)[461]

Cootamundra Wattle (*Acacia baileyana* F. Muell.) [332]

Daffodil (*Narcissus pseudonarcissus* L.)

Elm (*Ulmus* spp) [499]

English Ivy (*Hedera helix* L.) [136]

Foxglove (*Digitalis purpurea* L.) [415]

Forget –me- not (*Myosotis sylvatica* Hoffm.) [214]

French Lavender (*Lavendula dentata* L.) [354]

Gazania (*Gazania* spp)[169]

Gorse (*Ulex europaeus* L.) [329]

Japanese Maple (*Acer palmatum* Thunb.) [476]

Jonquil (*Narcissus tazetta* L.) [16]

Lambs Ear (*Stachys byzantinus* K. Koch) [362]

Montbretia (*Crocosmia* x *crocosmiflora* N E Br.) [42]

Nasturtium (*Tropaeolum majus* L.) [499]

Nepeta or Catmint (*Nepeta cataria* L.) [357]

Oak (*Quercus* spp) [340]

Poplar (*Poplus* spp) [470]

Pepper Tree (*Schinus molle* L.) [121]

Prickly Pear (*Opuntia* spp) [240]

Prostrate Cotoneaster (*Cotoneaster horizontalis* Decne) [450]

Rock Rose (*Cistus* spp) [272]

Rosemary (*Rosmarinus officinalis* L.) [360]

Russel Lupin (*Lupinus polyphyllus* Lindl.) [312]

Seaside Daisy or Baby's Tears (*Erigeron karvinskianus* DC) [166]

Shasta Daisy (*Leucanthemum x superbum* (J.W.Ingram) Berg.ex Kent syn *L. maximum* DC.) [178]

Sweet Pittosporum (*Pittosporum undulatum* Vent.) [412]

Sweet Violet (*Viola odorata* L.) [507]

Vinca (*Vinca major* L.) [134]