Human dimensions of invasive alien species in philosophical perspective: towards an ethic of conceptual responsibility

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Abstract

How can we find an appropriate language in which to formulate our concerns about, and our policy responses to, the problem of invasive alien species? This question arises from the tensions between our conventional vocabulary and the context within which we have to use this vocabulary. Characterized by both globalization and the so-called postmodern condition, this context confronts us on the one hand with the homogenizing effects of the dominant ideology of advanced industrial societies and on the other hand with a loss of faith in the grand narratives of modernity. The contours of these features of our contemporary world show that the grand narrative of universal progress for all, guaranteed by scientific management, can be confronted by numerous localized narratives within which we can articulate alternative notions of self, other, time, history, origin, community, and what it means to be a good member of the community. The conceptual distinctions we make about invasive alien species are closely linked to value choices, and both these conceptual distinctions and value choices are made and legitimized within narrative frameworks. In terms of these observations I plead for an ethic of conceptual responsibility in which we self-consciously and self-critically locate ourselves within the narratives we use in our discourse about invasive alien species, and take responsibility for the distinctions and value choices we legitimize from within the framework of these narratives.

Introduction

Within a philosophical framework, the human dimensions of invasive alien species (IAS) can be explored from different perspectives. One obvious point of departure is to consider the *concept* of IAS and to highlight the difficulties we face when we try to delineate clearly what exactly we mean when we refer to a species as alien and invasive. Another obvious point of entry is to consider the *ethics* of IAS, i.e., the different and often clashing values invoked when we express concern about and formulate policy responses to IAS. Both of these perspectives, however, need to be expressed in an *appropriate language* about IAS that can articulate our concepts and values in ways that can be heard by those we are seeking to influence. This linguistic framework, together with its assumptions, implications and consequences, is usually taken for granted and very seldom critically scrutinized.

This paper focuses on the question of finding an appropriate language with which we can articulate our concerns and formulate our policies about IAS. This level of analysis will reveal several significant human dimensions of the problem of IAS, illuminating usually-ignored

assumptions about ourselves and our relation to non-human animals and plants. This focus on language also makes it possible to clarify the conceptual and value dimensions of IAS in ways that would not be possible otherwise.

The question of an appropriate language to speak about IAS arises at least partly from the apparent tension between our conventional vocabulary about IAS and the context within which this vocabulary is used. On the one hand, our vocabulary about IAS is informed by conceptual oppositions like native-alien, indigenous-exotic, pure-contaminated, pristine-disrupted, stable-unstable, resilient-degenerative, healthy-unhealthy, harmless-harmful, diversity-homogeneity, natural-artificial (introduced by humans), original-degraded, normal-abnormal, etc. Ideals like purity, essential characteristics, ecological integrity and authenticity associated with these oppositions, however, are undermined by the highly ambiguous context within which we currently live, characterized as it is by the forces of globalization on the one hand and the so-called condition of postmodernity on the other.

Following the introduction of alien species throughout the world for centuries, but particularly in colonial times, travel and trade in the virtually borderless world of the global village can be seen as one of the major contributing factors to the problem of IAS today (e.g., Low, this volume). At the same time, the solution to the problem of IAS cannot come from within globalization itself. With its tendency towards homogenization, globalization is unable to provide us with a conceptual framework that is sufficiently strong and can adequately support the concepts – like uniqueness, ecological integrity and biological diversity – that are required to adequately delineate and appropriately respond to the problem of IAS.

For reasons that I will discuss below, we will have to look beyond the assumptions informing globalization for a framework from which the problem of IAS can be articulated and addressed sufficiently. But in this regard we are faced with the challenges of the condition of postmodernity in which the very notions of uniqueness, authenticity, and integrity have been undermined. Instead, ideas like hybridity and openness towards the reality of the other prevail, placing uniqueness, authenticity and integrity if not within the frame of nativism, then at least in that of xenophobia – both of which are the "political" correlates of what can be portrayed as biological essentialism.

The question then is whether it is possible to find a language with which to speak about IAS that goes beyond mere subservience to globalization and its homogenizing forces, and at the same time escape the forms of essentialism, purism, xenophobia and nativism that postmodernity warns us about, as well as provide a workable platform on the basis of which effective policy responses to the problem of IAS can be formulated. In order to address this question, we first need a perspective on globalization that can help us to understand "the inner logic" informing its tendency towards homogenization, explore what the implications of this inner logic are for our understanding of the problem of IAS, and suggest how this inner logic might be overcome. This will be done in Section 2, where globalization is discussed from a critical philosophical perspective.

Second, a brief characterization of our postmodern condition is required in order to form a better understanding of the forms of rationality and political action available to us today. This will be done in Section 3 in terms of a breakdown of belief in grand narratives and the de-naturing of our lives that this involves. Emphasis will also be placed on the notion of the narrative justification of our knowledge and actions. Section 4 will briefly discuss several implications of these considerations for the concept and ethics of IAS. For reasons presented in that section, Section 5 will argue that we must explicate and critically assess the narrative frameworks within which we locate our discourse about the problem of IAS if we would like to generate an effective response. The concluding section will highlight several practical implications for policy debate about IAS.

Globalization in critical perspective

Globalization can be seen to represent an integration of the world made possible by the spread of capitalism, Western imperialism and the development of a global media system (Robertson, 1990; Gare, 1995). According to Gare (1995: 6), it is "associated with new forms of media, new forms of technology and new forms of management which have transformed the spatio-temporal relations within capitalism". Within this unity, time and space have acquired new meanings. The ease with which communication can take place over vast distances, and the speed with which people and goods can be moved from one part of the globe to another, has undermined our conceptions of time and space as barriers that are difficult for people to overcome.

In institutional terms globalization entails the rise of transnational corporations, international financing, and multi-media marketing in close interaction with one another as the three main power houses of the new global economic system. In conjunction with one another, these institutions not only outstrip the political power of most of the nations, but also can effectively take control of national economies. This represents a shift in the balance of power, decentering the cultural, economic and political significance of the "core nations" of the recent past (Europe and North America), but at the same time undermining and destabilizing the identities of the so-called growth nations or emerging markets of the world that are newly incorporated within the world's economic system.

This has been made possible by the rise of a new international bourgeoisie (Gare, 1995), a set of managers, bankers and marketing specialists who are professionally trained to sustain the world's economic system. Dependent as the world economy has become on ever faster and more efficient electronic communication, this breed of "symbolic analysts" has to a large extent been transformed into information processing cyborgs with little or no allegiance to any national identities.

The ideology underlying this process of globalization has been characterized by Arran Gare as post-Keynesian neo-classical economics. He succinctly elaborates that this entails:

> ... not only monetarism, rational expectations theory and supply-side economics, the ideological weapons of the new right in their struggle to dismantle social welfare provisions and institutions and to promote the deregulation of markets and reduction of trade barriers, but also by the rapid expansion of econometrics and computer modeling, and the transformation of economics from a science primarily concerned with guiding political policy-making to a science concerned to guide investment decisions by financiers (Gare, 1995: 11).

"Normal" and self-evident as this ideology may sound to many, it can be questioned on a number of important philosophical points. First, the economic rationality of globalization is embedded within a grand narrative of universal progress for mankind through scientific management that in itself is far from self-evident. This grand narrative, with its emphasis on scientific-technological control and mathemetic certainty, emerged from the ideals of the seventeenth century Enlightenment in Europe. It entails a drastic narrowing down of a wide humanistic perspective in which particularity and diversity are important to a perspective that is predominantly mechanistic in nature, and reduces the value of everything to its instrumental value as an available resource that is accessible and manipulable on demand (cf. Toulmin, 1990).

Second, the new bourgeoisie of the global economy sincerely believe that they have realized the goals of the Enlightenment, and therefore the West's grand narrative of progress for all. Fukuyama (1992), for instance, has captured this belief with his pronouncement that the history of the world has now come to an end. With such a framework of the end of history, it seems as if all sense of direction is lost. Gare (1995) points out that "[f]or the new bourgeoisie there is

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nothing but power for the sake of power, control for the sake of control, and conspicuous consumption on a massive scale". What is lacking in this picture, however, is a self-critical awareness that the model of progress and development that is envisaged here is that of a particular, historical class of people; it has never represented the universal ideals of humankind. This picture also does not recognize that instead of progress and development for all, globalization has brought instability and uncertainty on many levels, if not starvation and death, to millions of people. The environmental correlate of this is technologically marked, degraded and fragmented landscapes, exploited to serve as the resource bases of ever-increasing demands of global production and consumption.

These observations have numerous and far-reaching implications for our discourse about the problem of IAS. An important one is that from within the dominant ideology of globalization, concern about IAS can only be "registered", that is, taken seriously, if it threatens the resource base of the world's global economic system. Accordingly, the problem of IAS will only be addressed if it makes economic sense to do so. Given the prevalent economic rationality of globalization, this means that threats from alien invasives to resources or the environment that cannot be translated into significant monetary figures will have no hope of ever being addressed. Within the economic rationality of globalization, money, or figures – that which can be quantified – will always win, and aesthetic, recreational, cultural and spiritual values that cannot be translated into monetary terms will always lose out.

On one level, this raises the question whether this kind of economic rationality should be allowed to prevail, or whether we should make peace with the fact that this is the way the world is currently going, and that we have nothing else to bring to the debate than numbers. On another level this quandary confronts us with the question of whether we should try to make adjustments to our practices within the grand narrative of universal progress through scientific management, or whether it is time to reconsider this whole grand narrative. Some pointers to an answer to these questions are highlighted in the discussion of post-modernity in the next section.

Postmodernity and the de-naturing of our lives

In one of the most influential diagnoses of contemporary culture, Jean-Francois Lyotard (1984) characterized the postmodern condition as a breakdown of faith in grand narratives. As he sees it, humankind has legitimized its knowledge as well as its actions since time immemorial in terms of narratives. What counts as (scientific) truth and what counts as ethical or just action are both authorized, Lyotard maintains, in a particular time by certain narrative structures in society. In fact, society itself is constructed through narratives: the social bond, i.e., what counts as society and meaningful interaction, is constructed by narratives which can be conceived of as language games. Given the phenomenon of competition between narratives, and the fact that certain narratives can dominate others, Lyotard (1984) introduces the principle of *agonistics*. Derived from *agon*, the Greek word for contest or battle, but also for pain, the principle of agonistics indicates that the borderlines and acceptance of a particular narrative is defended through the pain of struggle, through strategic moves and countermoves reminiscent of military battle. This does not prevent new narratives from becoming established, but this will only be possible through the painful process of battle, disrupting the dominant narrative from the point of view of an alternative "logic", and then slowly and agonizingly winning support for it through a long process of persuasion. He thus contends that it is much more difficult to establish a new narrative/language game than to merely suggest a new move within an existing one.

Turning to the legitimization of knowledge in advanced industrial societies, Lyotard points out that since the nineteenth century, Western culture has been characterized by two rival narratives of knowledge and society. In one story, society forms an organic whole, like a living

organism. During the 20th century, with the emergence of cybernetics, this image has been expanded so as to portray society as a self-regulating system. Within this narrative, the stability and the optimum functioning of the system is of paramount importance, thereby establishing *performance*, guaranteed by science, as the highest value. Accordingly, knowledge and action are justified in so far as they contribute towards the practical ideal of the optimum functioning, integration or maintenance of society. They are deemed dysfunctional insofar as they distract from these values.

A rival story opposes this technocratic narrative of systemic self-regulation. Stripped to its essence, this alternative narrative maintains that society is divided in two. According to the Marxist version of this story, class struggle and dialectics ensure progress in society. Formulated in general terms, this story line maintains that a duality is operating in society. Resisting incorporation within the unitary and totalizing practices of the system's managers, it draws our attention to critical theory, struggle and the ideal of emancipation. Accordingly, knowledge and action are justified in so far as they contribute towards the formulation and establishment of alternatives to the (capitalist) system. From a historical point of view, however, it is clear that this critical model has not only lost its political credibility during the course of the twentieth century, but also its theoretical standing, thereby marginalizing it to the status of "utopia" or "hope", with symbolic action (tokenism) as perhaps the only form of protest against the system that is still open to it (Lyotard, 1984).

Lyotard sees both of these stories as grand narratives. The first one constitutes the grand narrative of systematicity that dominates our world to a very large extent today, while the second one constitutes the grand narrative of emancipation. These could be seen as two versions of the meta-narrative of universal human progress through science and rationality. By a grand narrative Lyotard means a story in which an all-encompassing vision of history and society is articulated under the pretension that it portrays the whole and the only truth about it. As such, grand narratives are metaphysical in nature, assuming the existence of an original or foundational truth behind empirical reality from which everything is derived, or towards which everything is developing.

A grand narrative, therefore, is exclusivist, totalizing and authoritarian in its functioning, exerting a kind of violence in so far as it establishes itself as the only possible framework from which to operate.

However, Lyotard characterizes the postmodern condition by a loss of faith in all of these grand narratives. The grand narratives of systematic control, emancipation and universal progress are in crisis. They have lost credibility for postmodern society; they are no longer able to provide us with credible justifications for our knowledge and action. We are instead confronted with a situation in which these grand narratives function at best to provide us with illusions of systematic control, security, efficiency, freedom and progress. What we find in their place are scores of fragmented or localized narratives (micro-narratives if you will) vying against one another for our attention. Bauman (1992) has pointed out that the political correlate of this phenomenon can be found in small groupings of people that are not necessarily united by a shared physical locale, but rather by a shared cause, or concern about a particular issue. Accordingly, contemporary politics has tended to become increasingly oriented towards symbolic action by a small number of highly organized "activists" in order to gain public support for particular responses to specific issues.

This tendency is borne out by various developments in contemporary linguistic and cultural theory in which it is pointed out that all of our fixed points of reference have become fluid, and that our lives have become "de-natured" (cf. Gare, 1995; Hayles, 1990; Jameson, 1991). Language, for instance, no longer functions as a transparent mirror of a reality perceived as objectively there, but rather serves as an opaque medium through which we construct that which counts for us as reality (Baudrillard, 1992). Similarly, the notion of context that has been used in the past to establish a sphere of shared experiences and thereby narrow down

interpretations has been shattered. Instead we are faced with decontextualized information, in particular through the electronic media, leaving us with the disorienting experience that there is no single or universal context with clearly defined borderlines within which we can appeal to reason to settle our differences, but rather a multiplicity of mini-contexts that are not universally shared within which numerous incommensurable interpretations co-exist alongside one another (Benjamin, 1969).

The same applies to our notions of space and time (Harvey, 1989). The notions of natural space and time as the horizons within which we exist have lost their meaning. As functionaries within the economic system of today, we increasingly have to be on the move from place to place, living at a speed that seriously compromises our ability to retain history let alone develop a memory or a clear vision of the future. Similarly, our notions of origin and originality have become fluid. We know for instance that everything around us must have had a historical beginning, but as soon as we try to locate that within a particular place and time, these beginnings shift back indefinitely in time, leaving us at best in a state of spacio-temporal disorientation with no background against which things can be interpreted. We are also left with the experience that nothing is original any more but rather the copies of copies of things that have already been copied before (Derrida, 1988a).

These trends also have far-reaching implications for our notions of self-identity and a stable subjectivity. As Gare (1995: 30) has summarized it: "There is an absence in people of a sense of personal history, of a sense of their lives as unfinished stories worth struggling to complete, integrated into the stories of their families, their communities, the organizations within which they work and their society. Such an absence goes to the heart of modern culture, since it involves the dissolution of what since the seventeenth century it meant to be a person".

Under one interpretation of the postmodern condition, the implications of this characterization for the debate about IAS lie in the fact that many of the notions central to the debate – like sense of place, sense of history, naturalness, authenticity, essence, health and truth – seem to be luxuries of a bygone era. This includes the conceptual opposition between native versus alien species. For some commentators working under this interpretation, the latter opposition reflects an essentialism, the defense of some kind of final (biological) truth residing in native species, and this, they would argue, clearly cannot be justified anymore – unless a nativist or an eco-facist stance is adopted (cf. Hudson, 1997).

This interpretation of postmodernity, however, leaves us with no justification to oppose environmental destruction or degradation. In fact, it paralyzes us to a point where we have little or no grounds to even make a distinction between native and alien species, let alone distinguish between harmless and harmful species. This clearly takes the debate about IAS to untenable extremes, leaving us with nothing but a sense of resignation about the landscapes and ecological systems we live in, no matter how degraded or "invaded" they are by alien species.

Under a more moderate interpretation of the postmodern condition, however, a different picture emerges. Taking into account that we indeed no longer have any grand narratives to legitimize our knowledge and our actions, and taking seriously the point that we do not have fixed points of reference to fall back upon in our debates, the resultant fluidity and uncertainty can be interpreted positively as an ethical challenge to make certain decisions, to put certain conceptual distinctions and certain policy decisions about IAS into practice, and to take the full responsibility for the foreseen and unforeseen consequences that this may entail in real-life terms (Culler, 1983; see also Derrida, 1988b). Acknowledging that the conceptual distinctions we use in our policy debates about IAS entail a measure of violence in so far as they are imposed on "reality" and insofar as they exclude or marginalize rival conceptual schemes, this responsibility also requires that we at least try to minimize the violence of our conceptual distinctions. This can be done by becoming self-conscious about them.

From this perspective, then, we need not discard all our conceptual oppositions – we instead must recognize their historical emergence within our vocabulary, and clarify the assumptions

on the basis of which we use and continue to use them, making sure that we can live with their implications and consequences. Instead of taking our conceptual distinctions for granted, we must acknowledge that they have a long history, that they are embedded within larger narrative structures, and through that, are strongly linked to other conceptual pairs, to such an extent that together they form a web of mutually supportive distinctions. Furthermore, we must acknowledge that this kind of conceptual web is never totally neutral; based on fundamental political and ethical choices, our conceptual distinctions have very concrete real life consequences. In terms of the IAS debate, these conceptual distinctions can lead us to choose and implement any of the classical policy options available to us, namely prevention of invasion, eradication when invasion has occurred, or containment and management when eradication is found to be impossible. Since it can be argued that these responses are violent in themselves, the ethic of conceptual responsibility delineated above places a duty on us to always explicate and critically assess the narrative frameworks within which we endeavour to justify this violence.

To formulate it differently: the conceptual web we use in our policy debates about IAS tells its own story. The conceptual distinctions we make in order to identify a "problem" of IAS are part of a narrative that we use to justify our knowledge about IAS as well as our actions (policy choices) with regards to them. From a critical philosophical perspective, we must acknowledge the narrative structure within which our arguments about IAS are embedded, and to ask whether everything is consistent with it. Formulated positively, the argument developed above confronts us with the question of whether we know within which narrative we operate when we debate the problem of IAS, and whether we can live with its assumptions, implications and consequences.

Conceptual and ethical implications

A narrative approach to the problem of IAS can help reveal aspects of the concept of IAS and the values invoked in policy debates about the problem that one would not have access to otherwise. As a point of departure for this illustration we can examine statements about the problem (or non-problem) of "invasive alien species" like the following:

1. Non-native plants constitute a significant threat to the integrity of Pennsylvania's native plant communities. The 1993 book, *The Vascular Flora of Pennsylvania: Annotated Checklist and Atlas*, lists 3,318 species of plants that grow in the state, of which 37% or 1,242 were not present before European settlement (Rhoads, 1997).
2. In certain parts of Australia, introduced plants or native plants spreading well beyond their natural range have destroyed whole ecosystems, with disastrous consequences for the indigenous inhabitants, as well as for the human population (Rawling, 1994).
3. Alien species may do well because they are freed from natural enemies, competitors, and parasites (cf. Lugo, 1994).
4. With reference to the human introduction of mountain goats in the Olympic Mountains in 1920, a certain Lyman " ... challenged the idea that the National Park Service should view the goats as alien species. Lyman's arguments were based upon a speculative dispersal model for *Oreamnos* during the late Quaternary. Based on the model, mountain goats might have occupied the Olympic Mountains earlier in the Quaternary. He also speculated that mountain goats may have been present historically in unexplored areas of the mountains" (cf. Houston and Schreiner, 1995).

We can also take straightforward definitions like the following:

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5. Alien species are those that occur in a given place as a result of direct or indirect, deliberate or accidental action by humans (not including deliberate reintroductions) (Houston and Schreiner, 1995).
6. Alien species (synonyms: non-native, non-indigenous, foreign, exotic): a species, subspecies, or lower taxon introduced outside its normal past or present distribution; includes any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce (McNeely, 2000).

From citations like these it is evident that at least five conceptual criteria are commonly used in order to identify an IAS:

■ The human introduction criterion
■ The degradation criterion
■ The historical or natural range criterion
■ The evolutionary origin criterion
■ The non-integration criterion

According to these criteria, an IAS would be one that:

■ has not been introduced naturally, but by humans – albeit directly or indirectly, intentionally or unintentionally;
■ has not evolved naturally in the area in which it has been introduced;
■ lives outside its native range;
■ has a degrading effect on native species in so far as it displaces them or "changes the nature, character, form and conditions" (Richardson *et al.*, 2000) of native species; and
■ exists outside an ecological community insofar as it has no natural dependence on members of the ecological community with which it co-exists, or is subject to no natural controls characteristic of that ecological community.

It should be borne in mind that the application of these criteria is far from simple and straightforward. For the purposes of this paper, however, it suffices to point out that any application of these conceptual criteria already presupposes a number of important value choices – and that we often do not acknowledge the fact that we do so, or confront ourselves with the question whether everything is consistent with the manner or the frameworks within which we make these value choices. The general point is that the difficulties we have in applying the concept of IAS can arguably be related to the uncertainties we experience when we are confronted with the value choices we have to make in our utilization of the concept. After all, each of the conceptual criteria listed above requires us to draw some kind of line, and it is not always clear where we should draw that line, why we should do so, and how we should go about justifying that "why".

These points can be conveniently illustrated with the hypothetical example of the human introduction of a plant species into a region sufficiently long ago for it to have significantly speciated – to such an extent that it no longer is identical to the species that was originally introduced. Having had no natural enemies in its new environment, it has started to displace native plant species, but although it is degrading the ecosystem into which it has been introduced, an endangered bird has become dependent on it for its survival. In this example the human introduction criterion is invoked, but it also draws our attention to problems that we may experience in applying other criteria, like that of evolutionary origin and historical cum natural range. Besides the preference given with the human introduction criterion to non-human or less-humanized ecosystems and the question of how this could be justified, we are also faced here with the problem of where to draw the line in time when distant ancestors of a species were introduced to an area, but since its introduction it has significantly speciated so as to become

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something other than what was originally introduced. This example also questions our notions of area of origin, or historical range: how do we determine that?

From these initial questions it is already evident that we face not only conceptual problems when we have to identify alien species, but also value choices, the basis of which are not always clear. For example: the human introduction criterion requires us to make distinctions between non-humanized and less-humanized ecosystems existing independently of humans on the one hand, and humanized ecosystems on the other, dependent upon or the result of human action. The value of naturalness is introduced here, but this raises the question of the basis for the preference indicated in this value. The conceptual criterion of evolutionary origin also requires us to draw a line in the history of an evolving ecosystem and to identify the state in which that ecosystem was before that timeline as original, while its state after that time represents a deviation from that original state. At the same time it requires us to determine areas of origin inside of which species are native, and outside of which species are not. This introduces the values of originality and authenticity, again showing that the concept of alien species is not purely dependent upon objective ecological criteria, but on the kind of time-space demarcations we use to identify origin or authenticity. For a clear understanding of the problem of IAS and the arguments informing our policy responses to it, we are then obliged to also explore the "subjective" side of the equation – to explicate the basis for the conceptual as well as value distinctions we make in this regard.

Similarly, the conceptual criterion of historical or natural range requires us to demarcate in space and time a certain area of origin and what it means to be "inside" and "outside" of that area. And like the conceptual criterion of human introduction, this context requires us to determine the borderlines of natural and unnatural. The conceptual criterion of ecological degradation and membership of an ecological community raises similar problems. Even if we grant the fact that much highly valuable work has been done in invasion ecology to develop objective criteria to determine the kind and extent of ecological degradation brought about by alien species, it is still humans who introduce the value distinctions between healthy and unhealthy, between harmed and unharmed ecosystems, or between "good" and "bad" non-native species. In so far as harm and health and good and bad are anthropogenic concepts (after all, nature cannot articulate that it has been harmed, is healthy, is good or bad), our criteria to determine this beg the question as to the basis on which we make these value distinctions.

To apply the conceptual criterion of membership of an ecological community, we make value judgements regarding the extent to which a species has been *integrated* into an ecosystem. Applying this criterion therefore assumes that we have answered a number of other value questions. For example: what is an ecological community? What does it mean to be a member of an ecological community? What does it mean to be a good member of an ecological community? What does integration mean? Balance? Mutual dependence on other members of the ecological community? Subject to mutual controls exerted by the respective members of the ecological community?

Given the framework of the postmodern condition within which we live, and the substantive loss that we experience within this condition of fixed points of reference, it is clear that the seemingly simple task of applying a concept such as "IAS" becomes highly problematical. As we have argued, it is not only a matter of conceptual determinations that have to be clarified, but also a number of interrelated value choices. And on both levels, we do not have clear guidelines as to what we should choose. Yet, we cannot avoid making these choices. So where do we turn to for help in this regard?

An ethic of conceptual responsibility

From a moderate interpretation of our postmodern condition, "help" – if we want to call it that – is available from an ethic of conceptual responsibility in which narrative is taken seriously.

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Within this ethic, it is acknowledged that we do not have absolute or objective points of reference in terms of which we can make our value choices about the recognition and our responses to IAS. We do, however, make and justify these choices within the framework of often unacknowledged localized narratives that we share with others about matters such as *ourselves* in contradistinction from *other humans* and other *non-human living entities, history, time, space, origin, health, community* and what it means to be a *good member* of a community. To the extent that we explicate and examine the narrative frameworks that we share with others, we are able to ask questions about the manner in which we make and justify our value choices. In terms of this approach, not to do so would be irresponsible.

An important feature of this ethic of conceptual responsibility is that it cannot step outside of narrative frameworks itself. It finds itself in the paradoxical position that every explication and examination of a narrative framework takes place within a narrative framework. As such this does not constitute a problem of vicious circularity. On the contrary, it is exactly what is emphasized within an ethic of conceptual responsibility: that we should acknowledge that numerous narrative frameworks are interacting with one another in policy debates about IAS, and that we should ask questions about and take responsibility for the assumptions, implications and consequences of the ones from which we choose to work.

In practical terms, this ethic of conceptual responsibility requires us to look out for, to explicate and to examine the dominant narratives currently in use in our debates about IAS. It requires us to delineate the contours of these narratives, the manner in which they function, their history, the mechanisms through which they have been established as authoritative and through which they are institutionalized and therefore perpetuated, as well as the practical policy and political consequences they lead to – and to ask ourselves whether we can live with that. At the same time it requires us to explore the possibilities of other or alternative narratives which might be able to better articulate our concerns about IAS and better justify our policy responses to this problem than can be done from the dominant current narratives.

Restrictions on the length of this paper prevent further development of this point, except to mention in passing that the economic rationality of our era of globalization provides the dominant narrative currently available to us to articulate our concerns about the problem of IAS and our policy responses to it. Given the kind of financial calculus characteristic of this rationality, as well as the concomitant forms of scientific management and marketing that it implies, the story told from within this framework about IAS is one of the costs of resource degradation or destruction, the appropriate policy response to which is then the most cost effective and efficient one to reduce these costs (see, for example, Perrings, Williamson and Dalmazzone, 2000). And given the predominance of marketing as a tool of legitimizing narration in our era of globalization, one would also expect marketing strategies specifically designed to raise public awareness of the problem and to engineer a positive attitude towards the measures taken.

If this is the way to go, an ethic of conceptual responsibility would require us to become aware of the assumptions, implications and consequences of this narrative framework, and then to ask ourselves whether the story it enables us to tell is the only one to tell, and whether it enables us to give an adequately complete picture of the problem of IAS as we experience it in real life terms. On a more radical level, however, an ethic of conceptual responsibility would also explore the possibilities not of merely making a new move within this already dominant narrative framework, but of asking whether the dominant framework of economic rationality is the only framework available to us, or whether other legitimate possibilities could serve as alternative narrative frameworks for us to use.

Conclusions

In the light of these considerations, I would like to argue with Gare (1995) that we need new narratives. In the wake of our loss of grand narratives we would know what to do only when we know in which stories we find ourselves a role. Given that it would be impossible, and arguably not even necessary, to restore faith in one, single, universal truth that is absolute and all-encompassing, it follows that these new narratives would have to be non-metaphysical in character. At the same time they would have to be non-teleological – in the sense that a view of history as the gradual unfolding of some essence through time is traded in for a view of history as a creative process of becoming in which there is no ultimate end or goal (Whitehead, 1969/1929; Cilliers, 1998). Accordingly, every step in this process, as well as every participant in it, becomes important. Indeed, we as humans choose what this process should look like and how to participate in it. The narratives we develop about this process and how to participate in it can therefore also not be a monologue – informed by one single "truth" – but should assume the character of a dialogue in which many factors and many considerations are allowed to speak on an equal basis. Since the different voices of these dialogical narratives are in real life situations to a very large extent in a constant battle with one another for supremacy, we should also include in our narratives story lines about power and how to recognize and resist efforts to turn dialogue into monologue, open debate into imposition.

As abstract as this may sound at first sight, these observations have far-reaching implications for our policy debates about IAS. In the first place, this narrative perspective makes it possible for us to acknowledge that things like a "sense of community", and in particular a "sense of an ecological community" are delineated *by us*. The border lines we draw around ourselves or around ecological communities in order to distinguish between that which is "native" and that which is "alien" are therefore in a sense "imaginary" (Gare, 1995) – they are constructed *by us*, by the stories we tell, and they only exist in so far as we choose to continue to tell these stories.

In the second place, this narrative perspective enables us to see that the well-known three-tiered policy response to the problem of IAS (namely prevention, eradication, and containment under heavy management if the first two did not succeed completely), hinges on the narratives we develop and share with one another about our selves and what is other, what is native and what is alien – to mention but two value-laden conceptual distinctions we make within this context.

This then calls for an ethic of conceptual responsibility – that is, an ethic in which we take responsibility for the conceptual distinctions we choose to make and the values we allow to inform these choices. This ethic of conceptual responsibility requires us to articulate as far as possible the reasons for our conceptual distinctions and the narrative frameworks, and the codes and the rules in terms of which we utilize them. It requires us to acknowledge that these narrative frameworks in terms of which we think and act have histories, are imbued with ideological bias, and have significant real life consequences. It also requires us to avoid final answers in our thinking as well as in our actions, to acknowledge that we cannot realize absolute truths or final certainties. Instead it cautions us, among many other things, to always act in such a manner that we can be corrected by the consequences of our actions (Schroten, 1990; Achterhuis, 1992).

I again concede that this may sound far removed from those clear-cut cases where it is blatantly obvious that significant damage has been caused to ecological communities by IAS. On face value it seems as if the above should only be applied to those borderline cases where it is not clear whether we are dealing with ecological or environmental harm, or where it is not evident that we are dealing with an IAS or not. On the other hand, though, to apply the perspectives developed above to central cases as well will enable us to look beyond our well-known problem formulations and policy responses. It may help us to consider more than the conventional criteria to differentiate IAS from natives; to consider more than the conventional

values to explain why IAS are bad. It may help us to become aware of the fact that we can develop new story lines and new chapters to the narratives we share with one another about the problem of IAS and our policy responses to it.

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