

Making and Breaking the Invasive Cane Toad

Community engagement and interspecies entanglements in the
Kimberley, Australia

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Abstract

This thesis looks at the complexities of attempts at dealing with the invasive *Cane Toad* in the Kimberley region of Western Australia. Based on fieldwork centered on the organization Kimberley Toad Busters (KTB) it explores the relations between different ways of engaging with the toads. I analyze the encounter between the community group Kimberley Toad Busters and representatives from established science and government agencies in terms of a meeting between different logics of engagement and argue that in addition to being different ways of relating to the toad case it is a matter of engaging with qualitatively different things. Furthermore, I describe how the KTB generate engagement and commitment to the toad case through mobilizing images of changing nature and certain toad realities in conversations and ‘toad talks’. Lastly, an immersive description of the concrete and tangible meetings between human and toad bodies leads to questions concerning the limits and horizons of our relations with radical non-human alterity.

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Introduction

On any given night in the Kimberley region of Western Australia there are people out either around their properties or further out bush with torches and attentive eyes. Some in vehicles, others on foot, some alone, others in groups, some young, some old; they are all out “toadbusting” – trying to find and catch the introduced *Cane Toad*.

This thesis is about the complexities of dealing with the invasive Cane Toad in the Kimberley. Based on the practices of the community group Kimberley Toad Busters (KTB) I ask how one can understand conflicts and disagreements around the toad case, how volunteers within the KTB sustain and create engagement with the case, and how people and toads corporeally affect each other in a process of entangled becoming. The story of the Cane Toad issue in the Kimberley is a difficult one for several reasons – my account of it will tell not only of a struggle with the invasive Cane Toad but of conflicts and non-cooperation, a passionate and concerned community and an intriguing and unusual meeting between humans and animals. As different groups and individuals articulate their own stories of the case together they tell of a unique series of events that has shaped and continues to shape the relationships that people in the Kimberley have with their environment and the animals they live with.

Cane Toads (*Rhinella Marina*, formerly *Bufo Marinus*) were introduced to Queensland in Australia in 1935 and have since then spread immensely and are today widely considered to be a prime example of Australians’ folly with regards to introduction of exotic species. The toads are poisonous and can cause death to most of their potential Australian predators. The tale of the introduction of toads into Australia is itself an interesting case (see Turvey 2009), but one that falls outside the scope of this thesis. It is a complex story of sugar cane farmers backed by strong political will and of scientific ‘factishes’ (Latour 1999) that didn’t travel very well from Puerto Rico – where the toads allegedly did good things for the sugar cane industry – to Queensland, where the toads did nothing to control the sugar cane grubs they were intended as a remedy against, and instead started breeding and spreading uncontrollably.

For a long time the toads were known as the Queensland Cane Toad and it took them many decades to reach the bordering states. They spread, at first quite slowly, throughout Queensland, then into northern New South Wales in the south and across the gulf country and into the Northern Territory in the north. After having passed the Gulf of Carpentaria they reached areas with much more permanent waters and the rate of spread virtually exploded. In 2001 they reached the world heritage listed Kakadu National Park and were getting ever closer to Darwin and eventually also Western Australia. The subject of this thesis is the quite extraordinary effort of the inhabitants of the Kimberley region of Western Australia to slow down the spread and mitigate the impact of the toads. The anticipated arrival of Cane Toads to Western Australia sparked engagement from several groups and agencies in 2004 and 2005. Most of which are still active at the time of writing. The toads had been the matter of deep concern both among communities and scientists in Australia also before that, but arguably in nothing of the same magnitude, and from about 2004 interest in Cane Toads ballooned from communities, among scientists, with the media and government agencies. Central to this story is the organization Kimberley Toad Buster (KTB), with whom I spent the largest part of my fieldwork.



The two largest toads caught on a toadbust.

All photos by the author

The places

The events recounted in this thesis took place primarily in the East Kimberley¹ region in Western Australia. The Kimberley is in the dry/wet tropics in the North West of the country and spans from the Timor Sea and the Indian Ocean in the north to the Tanami and the Great Sandy deserts in the south. As such it is a place with great ecological variation. As most of the region is very remote, inhospitable and difficult to reach it wasn't settled by Europeans until the 1880s when a few pioneer pastoralists drove their cattle up that way in search of greener pastures.

There are roughly four types of land ownership in the Kimberley: pastoral leases, native title land, national parks/nature reserves and agricultural land. Pastoral leases are long term leases on large portions of land where cattle companies run their cattle, and muster once a year. Significant parts of the Kimberley is also held by native title – 27 native titles are held in the region. Some are joint titles between two or more groups, and most are represented by the Kimberley Land Council (KLC). The Kimberley has a number of national parks – including the world heritage listed Purnululu and the extremely remote Drysdale River and Mitchell River national parks in the north of the region. These are managed by the WA state Department of Environment and Conservations (DEC). A fourth type – which is more recent and covers much less territory than the others – is the agricultural land in the area around Kununurra and the Ord River irrigation scheme.

The Kimberley has a wet season lasting approximately from November to April and a dry season from May to October. Variation and stochasticity in the weather are the norms in the wet with high humidity, thunderstorms and heavy rain showers. The dry is different, and uncertain in another sense. In the dry season, which is also the tourist season, every day is mostly the same, thirty to thirty five degrees centigrade and sunny, with hardly a drop of rain for several months. Bushfires then present a major matter of concern and uncertainty. Whereas in the wet, sudden and heavy rain can flood the roads and make river crossings dangerous and impassable, in the dry bushfires can also seriously compromise where it is possible and safe to go. Both aspects can, and often do, alter the landscape and how it is possible to be in it.

¹ The Kimberley is divided into four shires: Broome, Derby-West Kimberley, Halls Creek and Wyndham-East Kimberley. With East Kimberley I refer to the latter two.

The end of Easter marks the start of the tourist season when the region gradually starts to fill up. Tourists mostly descend on the handful of towns, at tourist resorts (a few cattle stations have lately been turned into resorts) and at other tourist sites, such as the fabled Gibb River Road, the vast manmade Lake Argyle and Purnululu National Park. The Kimberley is a popular destination both for Australians and for international visitors and people are drawn there to a large degree because of the picturesque scenery and warm weather. In addition to tourists coming and going with the dry season, the Kimberley generally has a highly transient population – largely due to seasonal and itinerant workers in tourism, agriculture and at the cattle stations – and in Kununurra, I was told, the population would be almost twice as large in the dry season as in the wet.²

Kununurra is the largest town in the East Kimberley (Broome in the far west of the region is larger). Kununurra was founded as an administrative centre for the Ord River irrigation scheme in 1961. It has since grown to become much more than that and is today the regional center not only for agriculture, but also for tourism, transportation and welfare as well as the place most people in the East Kimberley live and work.

Apart from Kununurra there are a few other small towns in the East Kimberley, including Wyndham – an old port town in the Cambridge Gulf – Halls Creek – a former gold mining town near the desert – and Warmun/Turkey Creek – a roadhouse and a large aboriginal community. There are also a number of other aboriginal communities of sizes varying from just a few houses and sheds to small towns. Some of these are closed to outside visitors and subjected to alcohol restrictions.³

The North Kimberley is recognized as a biodiversity hotspot⁴ and the Kimberley generally has a number of endemic species. As in many other parts of Australia, wildlife and environmental issues are of great concern. In addition to the extraordinary interest in the toad case there are

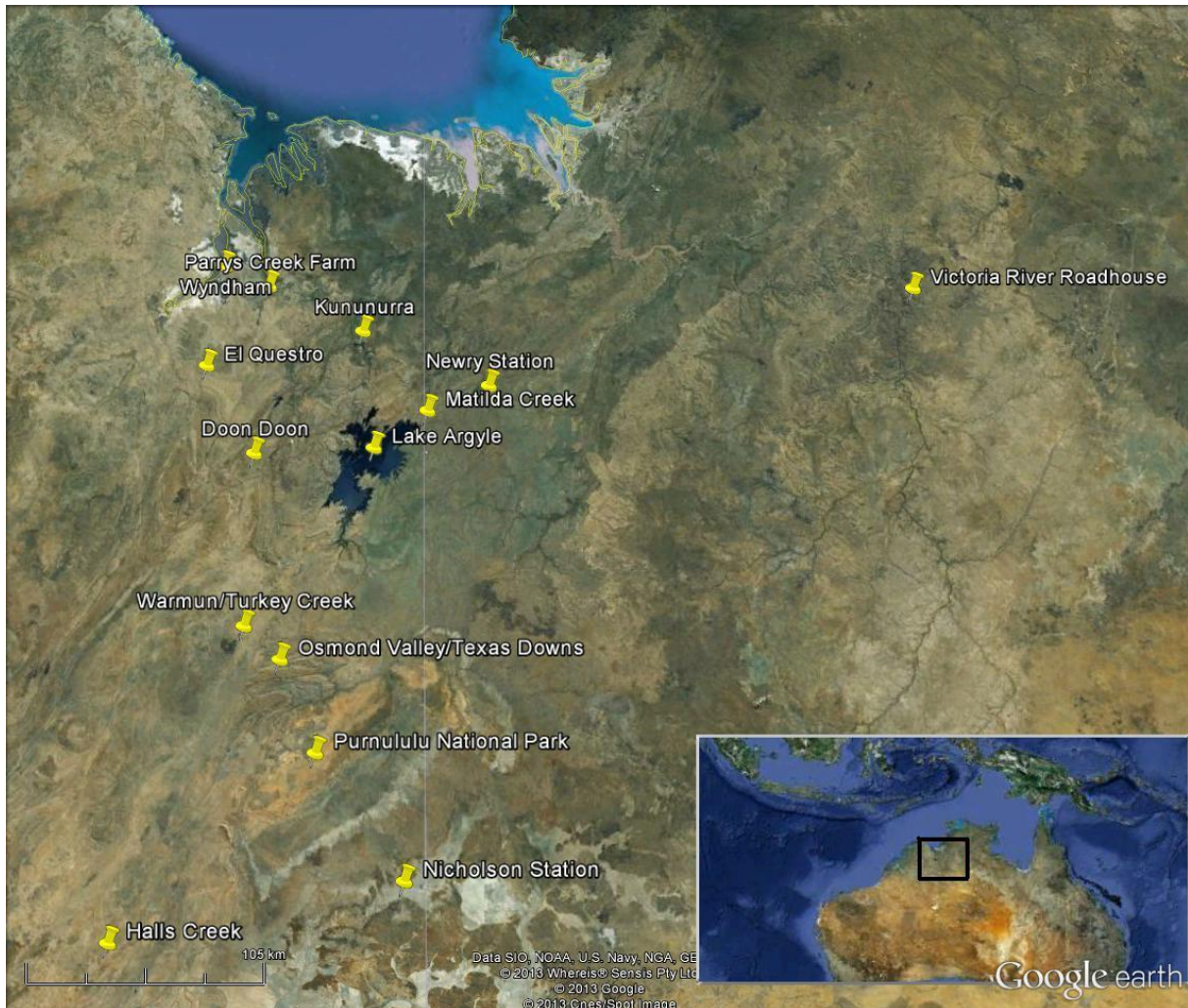
² The Kununurra Historical Society give similar estimates based on a census done in 2006:
<http://www.kununurra.org.au/research/transient-population>

The Shire of Wyndham-East Kimberley, in 2011 had an estimated population of 8164, while the entire Kimberley according to Wikipedia has a population of roughly 41 000.

³ The Northern Territory National Emergency Response is a controversial plan developed in response to the NT government's "Little children are sacred" report which uncovered appalling conditions in remote aboriginal communities involving among other things alcoholism and child sex abuse. The plan instated bans on alcohol and pornography in many communities; its influence also extended into the Kimberley. Some communities, though, instated alcohol restrictions on their own initiative, not imposed by the government. 'The intervention' as it is colloquially called is also very much a matter of controversy in Australian anthropology (see Altman and Hickson 2010; Sutton 2009).

⁴ The government announced 15 national biodiversity hotspots in 2003
(<http://www.environment.gov.au/biodiversity/hotspots/national-hotspots.html>).

also programs in place in the Kimberley for other invasive species such as rubber vine, feral pigs and feral donkeys; programs for conservation of endangered species (such as the Gouldian Finch and the Flat Backed Turtle) and from time to time there are individual conservation issues that engage widely.



The grey line marks the border between the NT on the right and WA on the left

Kimberley Toad Busters have their headquarters about ten kilometers outside of Kununurra on the property of a sandalwood farm. Most of their activities are run from this place, variously called “the depot”, “the office”, “toad camp” and “toad HQ”. This is the place that houses most of the toadbusting equipment, vehicles, and also visiting researchers⁵, the anthropologist included.

⁵ Over the years KTB have supported and executed a number of research projects. They’ve had undergraduate and graduate students doing projects in collaboration with KTB and helped by volunteers, in addition to a project called “What’s in your backyard” that involves a thoroughly community-based long term biodiversity survey.

Methods

Fieldwork was conducted over a period of close to six months, from January through June 2012. During that time, I participated in the KTB's day to day activities, including toadbusting (catching and killing toads), biodiversity surveys, educational and info-meetings, research projects, reconnaissance trips and other things.

In addition to participant observation with the KTB, I took part in a few toad busts led by the Department of Environment and Conservation (DEC) and I did interviews with staff members at DEC, the Department of Agriculture and Food WA (DAFWA), a couple from another volunteer group, Stop the Toad Foundation (STTF), the leader of the Northern Territory-based organization Frogwatch, and a few scientists, some of whom were affiliated with the research group Team Bufo. Interviews were also conducted with former KTB volunteers, and generally those interviewees were selected because they were people that were mentioned and talked about, but whom I didn't have the chance to meet otherwise. More informal everyday conversations on toads and anything toad related also constitute a significant part of my data material. Conversations on toad issues took place nearly every day. The bulk and core of my empirical data is in the form of practice data and descriptions of events and interaction (both intra- and interspecies). This includes more than 50 toad busts and roughly 20 reconnaissance trips ranging in duration from a few hours to nearly a week.

For the most part, my role with the KTB was a mix of volunteer and researcher. But as time went on I became more involved, I was given more responsibility and more things were expected of me. Towards the end, I was even 'team leader' on two separate occasions, which means I led a group of volunteers out catching toads in the field. Most of my key informants had a good understanding of what anthropological fieldwork entailed and they were very supportive, open to discussing anything and ready to include me in most things. Even as I was an outsider in some ways, it was pointed out by informants more than once that my being an anthropologist in no way made me less of a toad buster.

Most of my material revolves around KTB and I should note that it could otherwise have been more strongly focused on the other volunteer organizations as well as scientists and government agencies. However, in view of the questions I pose, I don't regard this as a shortcoming as much as merely an indication of the contingent and situated character of my research. Even so, it is a bias that possibly has hindered me from asking further questions in

certain directions. The reasons I didn't participate more actively in the activities of DEC, Frogwatch, STTF and Team Bufo were both matters of choice and of practicality. In some instances my affiliation with the KTB also made it more difficult to get good access to some of the other groups. As we shall see, the relations between the groups are tense and conflictual, and it is also plausible that if I had participated more for instance in DEC's field activities this might have been detrimental to my relation with the KTB. This thesis does not aspire to give a complete picture of the toad case in the Kimberley. Instead it is a specifically situated account of some of the practices that go on between toads, communities and different groups and agencies.

Nearly all individuals have been anonymized. Names have been changed to ensure the anonymity of all KTB volunteers. But there are some exceptions. Certain more or less public individuals are not anonymized, and these are presented with full names. Real names are also used for all the organizations mentioned. The project and fieldwork has been discussed with my informants whom as far as possible have been made aware of my role as an anthropologist and my intent to write and publish about their activities. A few have also read parts of the thesis in earlier versions.

Invasive species in the literature

Introduced and invasive species have long been matters of concern for Australians. The island continent has a long history of both deliberate and accidental introductions most of which are today regarded by most Australians as great mistakes. Many of these cases have also been tackled by social scientists.⁶ However, most of what has been written in the social sciences and humanities on invasive species has tended to revolve around some version of a paradox – often an irresolvable tension of conserving nature by unnatural means⁷ – and most of it has been grounded in dualisms of nature and culture. Thus, invasive species have often been taken as proxies for something societal and been portrayed as processes entailing a projection of something political upon the environment. Examples of this come from case studies both in and outside of Australia: Tsing (1995) reads race relations into beekeeping practices; Comaroff and Comaroff (2001) analyze disputes of nature as in truth concerning nationhood; Smith (2006) approaches animals as totemic; and Franklin (2006) takes a broadly

⁶ See for example Symanski (1994) on feral horses, Smith (1999) on feral cats and wild dogs, Landström (2001) on rabbits, Peace on ponies (2009) and on dingoes (2002), Head and Muir (2004) on invasive plants, Lien (2005) on salmon and Franklin (2011) on trout.

⁷ Kay Milton's (2000) conservationist's paradox is very similar.

Durkheimian approach to animals in Australia. In the same vein, the terms native and invasive have been scrutinized (Subrammaniam 2001; Warren 2007; Woods and Moriarty 2001) and found to be fraught with paradox and contradiction. This sort of hermeneutics of suspicion fail to take seriously what people say and do – at worst explaining it away – and appear to me often to be analyses that stem from an immersion in textual sources rather than in practices and the interspecies encounters that such cases involve. All in all, until very recently social studies of invasive animals have concerned animals in human relationships and largely shied away from encounters between humans and the animals themselves.

But there are some notable exceptions that indicate the way to my own point of departure. These include a number of cases where the focus is on enactment and performance, to what emerges from practices involving invasive species. Lavau (2011) for instance examines how places are performed in practices involving native and invasive fish, Helmreich (2005) shows how certain species are enacted simultaneously as their categorizations, and Lien and Law (2011) demonstrates how different salmon emerge from different relational assemblages.

Lastly, Landström's account of the Australian rabbit calicivirus disease program (Landström 2001) can act as a clear example that a case involving invasive species need not necessarily or primarily speak to the concept of invasive species, but can rather exemplify an endless number of other things, such as in Landström's case a technoscientific project and its narratives. Similarly, Cane Toads need not necessarily be an example of invasive species generally, but neither should they be seen as a singularity cut off from categories and wholes. Practices involving toads build on invasive species and invasive species build on toads, just as the toad case in my account of it will build on and be constituted by among other things enactments of nature, human animal relations, the relations between community groups and established science and government and images of toads and changing natures.

Hence, I situate myself at a point where the anthropology concerned with animals has turned away from a focus on animals as they figure in relations between humans – which encompasses both what Shanklin (1985) recognized to be a view of animals as sustenance and symbol and what Mullin (1999) saw as mirrors of and windows to culture – towards human-animal relations. Recently, the emergence of multispecies ethnography has been reviewed by Kirksey and Helmreich (2010) who chronicle the plethora of writings that has emerged in this novel mode of ethnographic enquiry. Here it is sufficient to point out a few concepts. The

notion of *becoming with* (Haraway 2008) signals a turn towards event and process, rather than state of being, and to the relational quality of such events. *Entanglements* (e.g. Barad 2007) indicate the completely ontic and material quality of the relations and that it is in any case not a matter of discrete entities relating to each other, but rather of entities that change as they meet and intermesh.⁸ These two concepts – which could be taken as umbrella terms for almost everything that has been done in the name of the multispecies endeavor – are as vague as they have shown themselves to be analytically productive. As with many others’, my contribution will be in the form of giving empirical shape to these all-encompassing terms, with an aim to dispel some of their vagueness, but also to create some new and productive loose end (or beginnings). The thesis, then, also explores the question of what the case of the Cane Toad, with its specificities and peculiarities, can tell us about human-animal entangled becomings. And it all starts with practices and relations.

Underlying dispositions and recurring themes

Non-dualism and ontological turns

I place myself squarely within what has been termed ontological turns in anthropology.⁹ One could distinguish two different, but interrelated, versions of ontological turns. One is the perspectivist multinaturalism of Viveiros de Castro (Viveiros De Castro 2003, 2012) and others. The other is the flat ontology of actor-network theory and its cognates (e.g. Latour 1993, 2005). The former is in a sense a turn towards re-conceptualizing cosmology in ontological terms (see also Evens 2013; Pedersen 2011), the latter is rather a turn towards giving stronger regard to materials and things (see also Bennett 2010; Ingold 2007). What both of them share is a rejection of the dichotomy between nature and culture. As I have argued elsewhere (Nyquist 2012a), non-dualist approaches must be premised on both posthumanism – the rejection of the human as a priori and categorically set apart from other entities – and non-representationalism – the insistence that reality is not divided into two ontological domains; one for nature, the other for culture, one for things, the other for words, one for matter, the other for meaning etc. Both these versions of ontological turns reject the dualist notion that there are different perspectives on a shared reality. This gives a starting

⁸ Several concepts have been used to describe the forms that interspecies entanglements can take. In addition to those for entangled forms more generally, such as actor-network, assemblage and rhizome, one could mention for example Lowes “multispecies clouds” (Lowe 2010) and Tsing and the Matsutake Worlds Research Group’s “mycorrhiza” (Choy et al. 2009; Tsing 2012). It is also often emphasized that entanglements are bodily; a notable example is Hayward’s term “fingeryeyes” (Hayward 2010).

⁹ See Carrithers et al. (2010) and Pedersen (2012) for discussions.

point from which we can take what our informants say and do seriously (Henare et al. 2007; Holbraad 2012) in ontological terms, and where there is no categorical dividing line between their ways of going on in the world and ours. It also grants sensibility to non-coherence (Law 2004; Law et al. 2013) and the unexpected and openness to the radical contingency of the world.

I also take inspiration from a trend towards seeing analysis and conceptualization as a sideways process instead of one moving upwards, downwards or from one domain to another. In this regard, diffraction (Barad 2007; Haraway 1997) and prism (Pedersen 2011) are concepts that will be used in this thesis.¹⁰ An analytical prism as I intend it is a concept that is engaged without unambiguous boundaries – by suspending definition or merely indicating emphasis – and is open to be changed in the process. Rather than a framework or a lens it is something through which something else is changed. But the process of change is also one that changes the concepts themselves, and this is where diffraction becomes an apt term. A diffractive field can be likened, and this is one of the metaphors that Barad uses, to that area where waves meet, flow into each other as they occupy the same area and change each other in the process. The diffractive field is an area of ontological indeterminacy and the basic goal is that these concepts should facilitate our staying longer in a state of indeterminacy where neither concepts nor the empirical data are held still and arrested.

Sideways conceptualization pertains directly to how we should approach contextualization, generalization and comparison. In any case, it is neither arbitrary nor self-evident what wholes to engage in analysis (cf. Tsing 2010). Australia's colonial history and its location and geography (with a high degree of endemism and relatively little exchange of species with other areas), along with some version of Euro-American naturalism, might be said to elicit and support certain forms of looking at and relating to exotic and introduced species. However, as much as these aspects can be useful for understanding, they are not something that can explain anything in the Cane Toad case, nor are they generalities that this thesis simply presents an example of. How then should we approach such wholes or contexts? One solution would be to take the case at hand as irreducibly singular and divorce it from any analytical contexts and wholes (as much of ANT does). Another solution is by way of

¹⁰ Other similar concepts include lateral theorization (Maurer 2005), recursive anthropology (Holbraad 2012) and transduction (Helmreich 2007; Viveiros De Castro 2004). Although not explicitly 'sideways' (though see Holbraad and Pedersen 2009), Strathern's notion of ethnography as a simultaneous immersion in two fields (Strathern 1999) and techniques of seeing aspects of Euro-America and Melanesia through each other (e.g. Strathern 1992) are also similar and precursors to many of the others.

recursivity, diffraction or by shifting perspectives (Strathern 1991), to turn things back on themselves. Where wholes and contexts of this sort figure in this thesis, they do so mainly insofar as they are articulated by informants, in keeping with the former solution (this is not always a satisfactory solution, but in most cases its strengths outweigh its weaknesses). But certain wholes will also be engaged recursively or diffractively, in keeping with the latter. Thus Chapter four turns the case back onto human-animal relations, and the conclusion re-engages invasive species as an emergent whole to ask how it emerges as diffracted through the Cane Toad case.

Engagement and enactment

Modes of engagement are the analytical prism in the first two chapters and engagement is a term that will be central throughout the thesis. At this point I intend engagement merely as a concept that lets us see aspects of connection, commitment and mobilization, allowing us to take all these things into view at the same time. Thus it allows me to see for example that while some of the practices I describe seem to be mostly connective practices of engagement, whereas others more strongly highlight commitment and mobilization, each of them embody all three aspects.

Enactment is also a recurring concept. Enactment (cf. Mol 2002) is a term that retains the materiality and additive aspects implied in “construction” as well as the creative, practical and repetitive aspects of “performance”, all the while avoiding some of the problematic connotations of these two. Enactment is ontological shaping and cutting, and it prompts us to not take entities for granted, but instead look at how they come into being and are sustained and altered in practice.

Thesis outline

Logics of engagement (Chapter 1 and 2)

In Chapter 1 I show how the KTB could be understood as a community group – sharing constituents with and enacting themselves as part of the community – while also being an incorporated group set apart. I then proceed to ask how we should understand the tense and strained meeting between the community group KTB and established science and government. What do the different modes of engagement amount to and how does this

divergence come to be so exacerbated? Why is there such a gulf between science and government and the community group, and why don't they seem to be able to cooperate?

Chapter 2 is an exploration of the KTB's own mode of engagement and finds that an external tension between the community group's logic of care and science and government's logic of choice also figures within KTB's practices. Furthermore, a commitment to intervention and engagement with specificity stems from the kind of group the KTB is and the kind of case they deal with.

Toad talks and engagement in the making (Chapter 3)

How does the KTB come to commit themselves to engagement with the toad case and how is engagement sustained and re-created? Chapter 3 looks at images of change and toad realities and how these are enacted and employed in practice. Toad busters and others articulate different images of how the Kimberley will change with the toads' coming – sometimes in alliance and sometimes in discordance with one another. In this chapter I ask how images and realities are conversed into shape and how they are mobilized to nurture engagement.

Entangled becomings (Chapter 4)

Chapter 4 turns to the tangible and corporeal meetings between humans and toads and asks how they affect and shape each other in concrete, situated encounters. I show how humans and toads are entangled differently in processing events, toadbusts and reconnaissance trips. In processing, toads are enacted as quantifiable entities; toadbusts involve a meeting of more-than-human humans and synanthropic toads in partially shared networks and temporalities; and reconnaissance trips can often involve immersion in and attunement to radically other-than-human worlds. Lastly, I ask how far towards the toads that are out of reach it is possible to get, either as Toad buster or as anthropologist.

Chapter 1

Logics of engagement: Conflicts and community

Different people have approached the toad case from different points of departure and with different concerns, and 2004 saw the beginning of several trajectories that in the years to come would enfold and develop both in alignment and divergence. In this chapter, I look in particular at one set of conflictual relations involving Kimberley Toad Busters and toads: KTB's relation to government and established science. What goes on in this set of relations? And how do they shape the engagement with the toad case in the Kimberley? First I ask what it entails for KTB to be both an organization and a part of the community and I describe processes through which KTB have extended themselves into the community and incorporated themselves as a group. From there, I go on to ask what the tension between government/science and community groups amounts to. What are the grounds of conflict and divergence in the case of Cane Toads in the Kimberley?

KTB – community and organization

The term community group is a common category in Australia. Rather than subsuming KTB under this heading as a particular of something general, the thesis also in a way amounts to a description of what it entails specifically for KTB to be a community group – my provisional and intentionally very open definition of which will be an organization that is simultaneously stems from and works for the community. It is also crucial that people from KTB itself – both in documents and in conversation – call themselves a community group. KTB's articulations of the term, though, are not the analytical focus presently. Rather the focus is on what effects follow, empirically and specifically, from KTB being the sort of group that they are.

The term community itself also begs a preliminary note as it can be a problematic term if left unspecified (see Creed 2006). When my informants talked about 'the community' they most often referred to the Kununurra community. But 'the community' could also signify the East Kimberley community or the Kimberley community more broadly. Or, more narrowly, it could refer to any one of the many aboriginal communities in the Kimberley, for example Warmun community, Emu Creek community or Marralum community. When KTB say they

are a part of the community they often mean both the Kimberley community and the Kununurra community, but also that they have volunteers from a number of aboriginal communities. In the case of Marralum community – an abandoned community – the term referred simply to a location (albeit not necessarily a simple one), but in most other cases community connotes something more: namely, and minimally, the commonality of living in the same place. At other times it appeared that being a part of the community entailed sharing a commitment to betterment (that which is seen to follow normatively from the commonality of living in the same place); a version of community that excludes as its attempts to include and vice versa (betterment would both entail for example the attempt to include as far as possible some of those at the margins, for example aboriginal youth at risk, and also exclude the unwanted, for instance the toads). Hence, also community is enacted and extended in practice, and the KTB's practices are practices that include and exclude and strive towards creating the sort of community they wish to have.

The story of the Kimberley Toad Busters dates back at least to 2004. At that time, Lee Scott Virtue of Kimberley Specialists in Research along with her husband started what would become KTB by approaching government agencies in the East Kimberley in order to raise public and political awareness about the toads. Lee is still the president of KTB, although in a slightly less involved role than in the earlier years; she is also one of my key informants, one with whom I had many conversations on toads.

In the beginning, Lee says, “it was all about the community, about making sure people didn't get complacent about toads”. Back then, she envisaged that she herself and the core of the KTB should assist and facilitate in such a way that the communities in the Kimberley could toadbust on their own. Kimberley Toad Busters was meant to be a sort of umbrella term, covering all the agencies and individuals who worked together for the common cause. It was seen as a generic that would unite, and more than designating a group, a Kimberley Toad Buster was something anyone could be. In quite a few of the documents from the time “Kimberley Toad Busters” seems to be used almost synonymously with “the East Kimberley community”. Events in the course of 2005 and 2006 led to the KTB becoming an incorporated group, to the Department of Conservation and Land Management (CALM) being put in charge of the state Cane Toad initiative and to certain practices becoming established and stabilized.

Lee and Kimberley Specialists in Research spent the first part of 2005 planning and raising funds for a Cane Toad forum to be held in March of that year in Kununurra – one of the formative events for KTB. Several local businesses and individuals contributed. The forum had a community day focusing on what the community could do, where presentations were held on the potential spread of toads in WA, what was currently being done by the Department of Agriculture and Food WA, as well as several other presentations of views on what could and what should be done by the community. There was also a scientific day centered on these topics: the current status of toads, the impact and effects of toads, recent developments in toad control and the way to go forward from there. Some of the leading Cane Toad researchers to date gave presentations, as did a few individuals who would be influential in the years to come. After the forum the Cane Toads’ legal status was changed from ‘threatening process’ to ‘key threatening process’ under the Environment Protection and Biodiversity Conservation Act (EPBC Act). The most important outcome for KTB though, was arguably that many connections were made, that awareness was raised and that the view that the engagement with toads needed to be a community effort, or at least that the community should play an important role, was strengthened. For many of the parties involved in the forum, it served to define the situation at hand but also to define who the parties involved were and where they stood.

The first toad busting training exercise, arranged by Kimberley Specialists “on behalf of the Kimberley community”, as it was put in a newsletter, was held in September 2005 and brought together a large group from the local Kununurra community to train for toad busting. For this purpose, Lee had invited Graeme Sawyer, the head of Frogwatch NT, a Darwin based organization built on a general interest in amphibians, whose focus had strongly pivoted towards toads as they had reached the NT.¹¹ Lee and KTB invited Graeme as an expert on toad control to hold an exercise to train “team leaders” who thenceforth could toadbust on their own or lead toad busting teams. The exercise was held at the Victoria River Roadhouse which was near the westernmost “frontline” of the advancing toads – a frontline which at the time was somewhat opaque. Vic River Roadhouse is roughly a 270 kilometer drive from Kununurra and the 40 people attending the training exercise drove out there in a donated buss

¹¹ A central figure in the story of the toads, Graeme Sawyer could easily fill a chapter on his own. When I interviewed him he had just lost the reelection for the mayoral seat in Darwin, a seat he was reputed to have arisen to “on the back of the toad”. As the local newspaper in Darwin seems to have a fondness for having either toads or crocs on their frontpage, Graeme was no doubt helped by the media coverage as he is the founder and most prominent figure of Frogwatch. Stories also abound of his “toad-juice”, a fertilizer made from dead toads, the first batches of which had a tendency to explode.

and in private vehicles. A lot of the volunteers were indigenous, and among them were also journalists and film crews from the Australian Broadcasting Corporation (ABC) and Special Broadcasting Service (SBS), as well as aboriginal Olympian Cathy Freeman.

After this first successful training weekend, the following weekends (and nearly every weekend for several years, and as the toads got closer – especially within the reasonable range of a day trip – weekdays too) also saw volunteers toadbusting and being trained. At first there were mostly large coordinated exercises, but later also smaller autonomous busts by volunteers who were now trained toad busters. Or, equally often, both large ones and smaller ones were run in parallel at different locations. The volunteers were mostly from the local area, Kununurra and other towns. Already after the second weekend, work was started in a number of directions, including mobilizing nearby aboriginal communities, spreading educational material, doing reconnaissance work to find out where the frontline was, recording data on the toads caught and killed, and trying to clarify practicalities such as how fuel and other running costs were to be covered. Discussions were also underway to make toadbusting an activity that could be covered in the Community Development Employment Program (CDEP)¹² and to get the volunteers covered under CALM's insurance.

Lee and a handful others had now assumed the role of coordinators of the activities. Though in the first couple of newsletters published on the community website it is indicated that this would only be a temporary arrangement, until CALM or Stop the Toad Foundation, the other community group, had got a coordinator in place. Even so, by the end of 2005 Lee and the rest of what one could call KTB-proper were in a position in which it would be hard to simply place someone else or even for them to step out of. Having arranged the Cane Toad forum and run several toad busting weekends they had gradually aligned and intertwined their trajectories with those of many others. Local agencies such as the Tourist Agency who donated the use of the buss and a local airline who donated the use of a small plane for aerial reconnaissance, CDEP-coordinators, scientists, aboriginal communities and cattle stations in the areas where toadbusting took place, not to mention all the volunteer toad busters, had all become constitutive of and partially connected to the KTB – barring some of the scientist, they had all become Kimberley Toad Busters.

¹² CDEP is a program aimed at providing indigenous Australians with work and training that also benefit their communities.

But the KTB were also in certain instances a marker that could divide, as the relationship with Stop the Toad Foundation grew ever more conflictual. Through controversies surrounding the use of fences and traps, the allocation and distribution of funds, and more generally what model should form the basis of field operations, the two groups drifted further and further apart. In the end, in what was becoming a highly politicized issue, KTB came to be aligned with the Liberal Party and STTF with the Labor Party; STTF was funded through CALM, while KTB became an incorporated group and attained funding from the federal government, at the time led by The Liberals.

Kimberley Toad Busters should be understood both as a part of the community and as an organization – both extended and incorporated. Through making connections with other groups in the Kimberley, but most of all through organizing so that members of the community could toadbust, they extended themselves so as to become a marker that signified a community commonality and to share many of the parts and constituents of the community. On the other hand, the fact that there are two competing community groups is in itself something that sets them both apart and enacts a separation between the groups and the community.

At the time of my fieldwork KTB had around seven thousand registered volunteers. This means that at least this number of people have toadbusted at least once with the KTB. The vast majority of them are from the Kimberley. This is not to say, however, that the KTB have, or have ever had, a thousand volunteers out every week. The core, so to speak, at any one time is quite small, but it means that truly a lot of the Kimberley community have been out and experienced toads and toadbusting. That KTB was of and for the community was many times emphasized to me by informants. But after the toads reached Kununurra in 2010, toadbusting for most people became something different from the large outings and overnight camping trips of the earliest years. “Everybody toadbusts” – something I was told on several occasions – now often means that people are out catching toads on their own property on a regular basis. Very few toads could be spotted in the town of Kununurra itself, whereas in the periphery, they numbered in the hundreds and thousands. On more than one occasion, Michael – KTB’s field coordinator and one of my informants – drew attention to this in order to emphasize the great effort the community is putting in: “It’s pretty rare in central Kununurra that you’re going to see a toad carcass on the road [...] by the time they actually hit town they’ve been thinned an incredible amount. There are some great families, great

agriculturalist out there, great pastoralists doing the job.” (Excerpt from “Toadall Talk”, a regular feature on the local station Waringarri Radio).

Another dilemma of being a community group then, pertains to the shift in KTB’s role and purpose, as they have gone from being important and indispensable when toads are new to a place to being somewhat more superfluous when toads have been in a place for a longer time. Though, as we shall see in Chapter 3, as the toads spread to new places, KTB come to hold both of these positions at the same time, but in different places. KTB also set themselves apart by a number of practices that are necessary in order to be able to extend and reach out to the community. As I will substantiate in Chapter 3, so called ‘toad talks’ are one set of practices through which KTB must enact a distance in order to speak authoritatively on toads and thus foster engagement in new communities.

One last tension of being a community group involves in KTB’s case occupying a scientific borderland, where as we shall see, they are excluded in important ways from the realm of science at the same time as this is something that is overtly negotiated and the practices of the KTB in certain ways quite strongly resemble established natural science.

KTB, government and science

The toads had been declared a threatening process under the Department of Agriculture and Food, WA’s (DAFWA) legislation and in 2005 DAFWA was allocated funds to launch a Cane Toad program. The initiative was transferred to the department of Conservation and Land Management (CALM, later the Department of Environment and Conservation (DEC)) after less than a year. During the period DAFWA had the Cane Toad initiative, they had to start things very much from scratch since very little was done by the Northern Territory government to tackle the toad issue. The program they initiated involved testing out trapping solutions, doing reconnaissance work to figure out where the toads were and where they could run operations, and also trying to establish working relations between the different groups involved. These groups were both groups that ideally would have been covered under the KTB umbrella and groups and agencies in the NT, where all of the operations were run – after all this was where the toads were at the time.

The Cane Toad Working Group (CTWG) was set up by CALM the same year to facilitate communication between the interested parties and to discuss and plan different

courses of action (what was to be done, but also what the toads were doing). In the first year, this was among other things a forum to discuss how the funds were to be spent and in which ways things needed to be adjusted along the way. In addition to representatives from CALM and DAFWA the group's meetings were attended by people from the shire (Shire of Wyndham-East Kimberley), the Kimberley Land Council (KLC), the Agriculture Protection Board, Ord Land and Water, a couple of tourist agencies and representatives from KTB and STTF.

At a CTWG meeting late in 2005 it was asserted that the role of the group was to disseminate information, contribute to the State Cane Toad Strategy, which was to be developed and be a link between community and government. Both documents and conversations I had with people involved indicate that the focus later turned more strongly towards working on the state strategy and away from other things. The group also stopped meeting after the strategy was completed in 2009, and when a CALM Cane Toad team was in place, they largely took over the two other issues.

The state strategy marks one breaking point in the relation between CALM/DEC and KTB and is telling of the sort of things that disagreements arise over. When a draft version of the state strategy was put forward, KTB (among other groups and individuals) made extensive comments. DEC made little changes, but published online an analysis of the comments they had received, which also included replies to the comments and brief explanations for why most of them did not lead to any amendments. KTB felt that the strategy disavowed themselves and their accomplishments. On the one hand they saw the strategy as inadequate and on the other hand – on the issues it wasn't inadequate – they felt the strategy was copying KTB's own work without acknowledging it.

The state strategy (The Government of Western Australia 2009) largely represents DEC's own approach to the issues as of 2009. As the toad had reached WA (in 2009) they emphasized that focus should be shifted away from manual control in favor of doing research geared at greater understanding of toads and biodiversity, on education and on quarantine issues. All in all, the strategy regards toadbusting as futile in relation to the goal of stopping or slowing down the toads. It had proved ineffectual, or, it had not been proved effectual, depending on the point of view. A background for this was a report by Tony Peacock from the Invasive Species Cooperative Research Centre on community control of toads (Peacock 2007). Peacock focused on the non-cooperative relations between KTB and STTF and didn't

hesitate to assert that “[t]here is no evidence that physical removal of Cane Toads has slowed the invasion of toads towards WA” (2007: 2). In conversations, my informants in KTB would point to the fact that there is no evidence to the other effect either, and that no one knows how fast the spread could have been without their tireless efforts over several years – the case being that there are a plethora of other factors also impacting on the toads’ rate of spread.¹³ While he could not see any environmental benefits, Peacock pointed to certain social benefits resulting from toadbusting and that it could provide for the community a sense of achievement. A meager consolation for KTB; though they could certainly attest to the positive social effects of toadbusting, they would also maintain that it has a positive environmental effect. If the objective initially was to stop the spread of the toads it was complexified in time and with practice. If it is difficult to ascertain whether toadbusting is actually slowing down toads, it is much harder when the objective is more complex. As DEC’s primary concern was with measureable results and objectives, they were leading their trajectory in a direction away from the KTB’s.

The state strategy is significant for a number of reasons. For one thing, many felt the state strategy and DEC’s new focus conveyed a sense of resignation, of saying that there is nothing to be done. Another aspect is that the strategy has important consequences for political initiatives. There is not much in the strategy that demands or even justifies funds to be allocated to the two community groups. It has been harder for both KTB and STTF to get public funding in later years – understandably and justifiably if the state strategy is the basis on which decisions are made. It is the finished strategy that is acted with and not the contested process of its creation, and once cut, the network that is the state strategy is ready to collaborate in action.

¹³ It was the Kimberley’s reputation as a “land of neither flood nor draught” that drew the first settlers to the area (Durack 1967). Incidentally this same quality makes the region especially hospitable to toads. The Kimberley is suffused by permanent waters and River catchments much more than most areas in the NT. Once the toads had made it to the Victoria River catchment in the NT they would have waterways to travel on to the next catchment, the Ord River catchment, and the next after that, the Fitzroy River catchment. Only a few natural barriers separate the different river systems and at the present point (February 2013) only the Durack Range stand between the toads and the Fitzroy catchment. A group of scientists have just recently published a suggestion for how toads can be stopped from spreading from the Kimberley and into the Pilbara region, to the west (Tingley et al. 2013). This is possible, they argue, because of a particularly arid part of the toads predicted invasion corridor in which there are very few natural water bodies, and where removal of artificial water bodies thus might stop the toads.

Not quite a 'hybrid forum'

In 2010, KTB held their second major Cane Toad forum in Kununurra. Sponsored by a Caring for our Country grant the forum was called “Caring for the Kimberley Environmental Forum” and featured as its predecessor both scientific and community days. In addition to conversations and written material, I base this account on a set of DVDs that KTB made from the forum that include all the presentations and the more formal parts of the discussion. Evident in all of the sources is not so much the relations between KTB and STTF, Frogwatch or DEC – all of whom presented. What dominated the proceedings was rather the strained relation between KTB and established science, and KTB and the governments newly released draft for the Threat Abatement Plan (TAP). When an issue is declared a Key Threatening Process (KTP) a decision has to be made whether or not a Threat Abatement Plan (TAP) is to be made. It was WWF Australia who nominated *Predation, competition and lethal toxic ingestion caused by Cane Toads* to be considered as a KTP in 2004. Revised as *The biological effects, including lethal toxic ingestion caused by Cane Toads (Bufo Marinus)*, it was declared as a KTP by the federal government shortly after the forum in Kununurra in 2005. A TAP was made by a committee under the Federal Department of Sustainability, Environment, Water, Pollution and Communities, and a draft was published for comments just before the 2010 forum where it was hotly debated. A TAP is an official document that guides action concerning research, management and other measures to protect native species and ecological communities.¹⁴ Currently, twelve other threatening processes have resulted in TAPs, including those involving foxes, feral cats, feral goats, rabbits and exotic rodents.

Many of the leading Cane Toad scientists in Australia spoke at the 2010 forum. Some expressed positivity towards the volunteer efforts, others less so. Some presented arguments to the effect that the impacts of toads on native fauna and ecosystems have not been proven to be as great as feared. All in all, the disagreements seem to have pivoted on what to do with an uncertain situation: were they to give the toads the benefit of the doubt until it is ascertained what sort of threat they constitute – there is after all very little published research that unambiguously shows the toads to have a very high impact on native wildlife – or were they to act when they could, before it could turn out to be worse than expected? KTB certainly held the latter opinion having acted for several years already, while scientists and policy makers tended towards the former (perhaps even more so now than they did in 2005), feeling

¹⁴ See <http://www.environment.gov.au/biodiversity/threatened/tap.html>

that clear and quantitative scientific knowledge should be a prerequisite before allocation of large funds was warranted. One would have to know what to choose from before choices could be made. When Tony Peacock presented the TAP to both scientists and people from KTB the discrepancies in the realities of the different parties became painfully clear.

The TAP asserts, similarly to both the WA state strategy and the Peacock-report, that “community action, while satisfying to local communities, does not have the capacity to make any significant changes to the rate of spread of Cane Toads or to the densities of Cane Toads beyond specific local areas” (Australian Government 2011: 6). Thus, whereas the state strategy only recognizes that the effectiveness of community action is not proven, the TAP goes further in making it the fact of the matter that community action is futile. While KTB firmly believe they are making a difference they are also aware that this is very uncertain. This is also acknowledged by some scientists. Rick Shine, the most prolific toad researcher in Australia, in his own presentation at the forum, for example, did not rule out the possibility that toadbusting may have slowed down the toads enough for lungworm parasites – a parasite that was introduced along with the toads and that has until recently been thought to lag many years behind the Cane Toad frontline – to catch up.

The TAP, more so than any other Cane Toad document, is an entity that acts. Enacting the situation in a certain way as well as guiding political action is what the TAP is meant to do.¹⁵ It is not hard to understand that it sparked off a heated discussion at the Kununurra forum, since the TAP cuts away all the uncertainty of the matter to define community action as ineffectual, and to decide for political decisions to be made on those grounds. The TAP was heavily based on two documents. One was an article by Rick Shine on the status quo of the knowledge of the toads’ impact (Shine 2009); the other an interview study of communities in Queensland and the NT (Clarke et al. 2009). Shine’s article is an overview of what is published on the direct and indirect impact of toads. It finds that some species decline (some of these significantly, others only marginally) while others increase, and others again show neither a marked reduction nor an increase. Furthermore, he remarks that “...no native species have gone extinct as a result of toad invasion, and many native taxa widely imagined to be at

¹⁵ A complicating factor is that the TAP does not necessarily lead to more or less funds being allocated. There is no stipulation saying that a TAP must lead to any action at all from the treasury. Simply put, there is no TAP-money, and a TAP does not prevent either community groups or scientists from receiving money from many of the institution they are already being funded by (e.g. a Caring for our Country grant or private benefactors). Still the concern is that the TAP will indeed guide many decisions, as it is meant to do.

risk are not affected.” (Shine 2009: 2). The interview study, Tony summarized as saying that “...as you go eastwards from here [Kununurra], people care less about Cane Toads”.¹⁶

One of the key issues of Tony’s presentation of the TAP was the process leading to plans and to policy. Around slides titled “What is threatened?” and “How do we quantify?” he pointed out that threats could be on either the level of ecosystems or on the species level, and that there would have to be clearly established threats to warrant action and allocation of funds. He emphasized that for something to have an influence on policy it would have to concern entries on the endangered species list and it would have to be published. Regarding a particular population of freshwater crocodiles, while acknowledging that it is a frustrating situation, he asserted that “...the way it works is that if there are no data on these animals, the way it works under the [EPBC] act is that they are virtually non-existent.”

Tony’s talk on the TAP was followed by a flurry of questions, comments and a roundtable discussion in which a strong sense of frustration was voiced at what the TAP communicates and what it might lead to. One concern shared by scientists and community groups was that the TAP would lead to less funding on the issues that are uncertain and that it ruled out precautionary measures. Lee voiced the concern in a frustrated comment that KTB were told that they make no difference and were forced to align themselves with scientists. Because as Tony explicitly pointed out in his talk: “...as far as the scientific committee goes [...] all the stuff that’s not published, doesn’t exist”. A comment that serves to link the issues between KTB and the TAP and KTB and scientists is the following one, which is a part of a letter from KTB sent shortly after the forum and published by Tony on a website called Feral Thoughts:

“Perhaps the greatest disappointment in the current draft of the TAP is the dismissal of qualitative information from community. Visiting locations throughout the NT people are willing to share the loss of wildlife they have experienced, they are not

¹⁶ This was indeed a recognizable trajectory among my informants. There was talk about the “Queensland syndrome”, referring to the fact that people in Qld have become complacent about toads. One informant summarized the toads’ range in three models: The Queensland model, where the toads are a non-issue, the Darwin model where the toads are an urban issue (i.e. people looking after their backyard) and the WA model where (so far at least) the toads have been an environmental issue. Another informant connected the trajectory also with what happens before the toads arrive, explaining that it has often been seen that the concern is great before arrival, that it builds up until arrival, and then goes down quite rapidly. These sorts of explanations have the tendency to strip the Kimberley-case (or any case for that matter) of its specificity, a specificity which is also very strongly articulated by informants. Thus, for some, the significance of this recognizable trajectory was to assert that the Kimberley-case might, and should, be different.

losses of a single species, but losses of communities including small skinks, dragons, blue-tongue and frilled-neck lizards, goannas, to a point where they are no longer seen. To people that live in those locations it is equivalent to the species becoming extinct, it is not an academic argument for them.”

It is not easy for community groups simply to align themselves with scientists and then get their qualitative knowledge translated into quantitative published ‘facts’. There is a strained relation going both ways as well. One might have expected the relation between community groups and scientists to be somewhat one-sided – that scientific results have an impact on what community groups can do, as we have seen in the case of the TAP, but not that the practices of community groups would have much importance for scientists. Not so, as one of the scientists at Team Bufo pointed out to me in an interview: the political interest in toads is something that also affects how much there will be to spend on research, and is contingent upon pressure from community groups, among other things. Some scientists are frustrated that funds are allocated to community groups when, as they see it, they would be much better spent on scientific research projects.

An interesting aspect, then, is that they both seem to ask the same question of one another: “Why don’t they accept our science?” KTB ask the scientific community to make room for their qualitative and unpublished knowledge of toads and their impact, while scientists ask the community groups to have more faith in their quantitative hard science (often at the expense of the qualitative knowledge). This is partly because both groups recognize in the other a path or link to policy, and thus a way to allow the continuation of their respective activities.

So what is KTB- and community expertise? What characterizes KTB’s practices will be more deeply delved into in the following chapters, but presently it might be noted how ‘community expertise’ seems to differ from scientific knowledge – or rather to be enacted as different. In this case, there are the two official documents that enact a sharp division, even to the length of excluding from consideration everything that is not peer reviewed and published. They cement a strong link between science, the grounds for action and the ones to find out what there is to choose from, and government, the decision makers; and create a framework into which it is difficult to fit KTB’s community expertise. KTB and community expertise, everything un-published, qualitative, experiential, anecdotal information were all excluded by the TAP and the state strategy.

At first glance, both the CTWG and the forums would seem to resemble what Callon et al. (2009) call Hybrid forums. “[F]orums because they are open spaces where groups can come together to discuss technical options involving the collective, hybrid because the groups involved and the spokespersons claiming to represent them are heterogeneous, including experts, politicians, technicians, and laypersons who consider themselves involved.”(Callon et al. 2009: 18) . But it is a somewhat awkward fit – or rather hybrid forums seem to be the ideal that KTB strive for. KTB’s comments on the TAP as recounted above seem almost to echo Callon and Rabearisoa’s argument for “research in the wild”: “...our objective is to suggest that it might be fruitful to consider concerned groups as (potentially) genuine researchers capable of working cooperatively with professional scientists. In so doing they invent a new form of research, which we propose to call research ‘in the wild’” (Callon and Rabearisoa 2003: 195). And whereas both CTWG and the forums were indeed forums were heterogeneous groups came together to discuss matter of concern to themselves (one such matter was even that of considering whether the activities of KTB’s volunteers could be considered genuine research), they didn’t quite work as such. Hardly anything was changed in either of the official documents and KTB came out of both processes with a sense of disempowerment and resentment.

To explore how this comes to be the case, I suggest it is fruitful to recognize in the meetings between KTB and science/government a tension between two different logics. Annemarie Mol (2008) synthesizes from research in clinics a logic of choice and a logic of care. The logic of choice is analogous to the sort of risk mentality that Callon et al. (2009) line out. A logic of risk or choice avoids ambiguities (Callon et al. 2009: 20) and presents issues as matters of choice between different anticipated outcomes. Contrarily, a logic of care (Mol 2008) or uncertainty (Callon et al. 2009) works from the assumption of not knowing what outcomes are possible, or exactly how they might be made or become possible. The consequence of this is that in a logic of choice the practices of knowing the world are sharply divided from the practices of intervening in the world. Possible outcomes must be identified; it must be made known what toads do to the environment and what certain control strategies will do to the toads in the environment before action can be implemented. Thus the Threat Abatement Plan prescribes action only on the grounds of scientific papers and reports and the state strategy explicitly prioritizes measureable objectives, the consequence sometimes being that if it is not measureable, it shouldn’t be an objective. Conversely, in the logic of care, outcomes are seen to emerge in the same process as one comes to gain knowledge about them

– means and ends develop together. Furthermore, the logic of care is wed to particulars and their specificities as opposed to the general and universal. Techniques and solutions must stem from or be adapted to the specific place and the specific situation. In the meeting with government and established science, the community group Kimberley Toad Busters comes across almost purely through a logic of care, as purely community knowledge, anecdotal, experiential, qualitative, imprecise and un-scientific; and science is presented as a detached and objective provider of facts.

But the case is of course a lot messier than this. Though it brings forth certain things from the empirical data, equating KTB with a logic of care/uncertainty and government and scientists with a logic of choice/risk is far too neat and tidy. Not only will opening the black box that the TAP has made of Rick Shine's review article lead to a proliferation of uncertainties and unknown outcomes and reveal all the work that has been put into establishing and stabilizing connections, but also exploration in the other direction will show that within care/uncertainty-practices there can be recognized both logics of care and of choice. Perhaps any example of either a logic of care or a logic of choice would always contain its opposite. The next chapter will show how the two logics intermix in KTB's practices. If conflicts around toads evoke a tension between two logics of engagement, so does also any one of KTB's own activities. Different agglomerations of logics amount to different ways of engaging with the toad case.

Chapter 2

Logics of engagement: Toadbusting as tinkering

The conflicts and politics of toadbusting can sometimes seem far removed from the action on the ground. This chapter seeks in a way to reconcile these as well as to explore further the logics of engagement introduced in the previous chapter. From a look at some of the practices of the Kimberley Toad Busters, and their peculiarities and complexities, this chapter asks what characterizes toadbusting as a naturecultural practice and form of engagement.

The concept of care can present an interesting tension if applied to practices of killing (Law 2010). On the face of it, it might seem unfitting to say that toad busters care about toads since the objectives of their engagement is as far as possible to get rid of them. However, there can be many constitutive others to the concept of care. Mol et al. (2010) mention technology, control, economics and killing. Another one that readily springs to mind is indifference. If the opposite of care is indifference (or even neutrality or disengagement)¹⁷ then care is a very apt description of KTB's practices involving toads. As Law (2010) points out, care could be seen as a term more akin to situated engagement than to love. Care, in this sense, is about attentiveness to difference and specificities. The care concept I want to let interfere with my data is one thusly swayed. Another useful concept is tinkering, which I take to entail an ongoing adaptation of practices that are explicitly perceived to be fluid, where things are altered gradually in response to or dialogue with the naturecultural environment. Mol et al. liken tinkering to "attentive experimentations" or "attuned attentiveness" and recognize "good care" as "...persistent tinkering in a world full of complex ambivalence and shifting tensions" (Mol et al. 2010: 14). But this is not a definition as much as an indication of emphasis. Neither do I wish to present the situation as being one where toad busters perform practices of care onto passive objects. Instead, as we shall see, care practices are distributed, and reside not only in toad busters, but in things, in places and even in the toads. It will also be evident that toad busters' practices are so to speak more than care practices. They also have features that concord more strongly with a logic of choice.

¹⁷ Just as there is not necessarily any contradiction between killing and care, there need not be a contradiction between detachment and care either (Candea 2010).

My version of a logic of choice is also somewhat different from Mol's (Mol 2008). The emphasis is not so much on the individual's choice relating to his or her own life. In health care, patients mostly make decisions about their own life and body; this is far less the case in science, in politics or in nature conservation. But we coalesce on central features: while my logic of choice is not focused on individual choice over one's own life and situation, product, control and calculation – as opposed to process, attentiveness and attuning – are central concerns and aspirations.

This chapter consists of three parts. The first serves to complexify the goals of engagement of the toadbusting endeavor, showing how it involves something that is difficult to quantify and closely bound to the specificity of the case. The second describes a toad bust involving a complex encounter with a specific toadbusting place and the third, a conversation around a map of the frontline, exemplifies how Toad busters' practices point both forwards and backwards in a continual process of change. Together they amount to a view of that specific agglomeration of logics in practice that characterizes KTB's form of engagement.

The first KTB toad bust and training session at the Victoria River Roadhouse in 2005 was in conversations, interviews and KTB documents presented as a great success, and the start of a remarkable community phenomenon. But still it was often recounted how much KTB started from scratch in 2005, and it was emphasized either that what Graeme Sawyer taught them was not the best ways to toad bust in general or that toadbusting in and around Darwin couldn't be transferred to the bush and the conditions KTB work in without significant alterations. That something needed to be done was what drew people to engagement back then; the 'hows' were (and still are) in development.

Means and ends

It is hard to say to what degree stopping toads from reaching the Kimberley ever was perceived as a realistic goal. Concluding that to have been the goal would only exclude that multitude of opinions and voices that has always characterized KTB as a community group and organization. What is certain is that within a few years after KTB started, very few, if any, would have proclaimed stopping toads altogether as the prime objective. So, instead of pinpointing instances where the goals were overtly negotiated (apart from the forums, my data

are ill fitted for this purpose) I will present a few interrelated articulations of objectives of engagement that have been prevalent during my time of fieldwork and that would have intersected with that (perhaps original one) of stopping toads from reaching the Kimberley.

One set of objectives of engagement was articulated – both in conversations and in written material – as “buying more time”, another as “mitigating the impact” and a third as “thinning out the frontline”. The objective of stopping the toad is one that is very easily measureable. This is the objective that is most often implied when people ask KTB questions like whether they are winning the fight or not. I accompanied KTB several times at their market stand at the Kununurra Saturday market. The market attracts a lot of tourists, and Australian interstate tourists showing an interest in the Cane Toad, but also a sense of skepticism, often queried whether it was any point in toadbusting as the toads clearly haven’t been stopped. To these sorts of questions, KTB countered with the more complex objectives of mitigating impact, buying time and thinning out the frontline. As already noted, it is much more difficult to measure the effects of toadbusting if the realistic objective is to slow toads down. Slowing toads down was sometimes emphasized as one way of “mitigating impact” and “buying more time” – that is to say slowing down the spread and inflow of toads was seen as means to the ends of mitigating impact and buying more time.

There are two senses in which KTB hope to buy more time – one is buying more time for scientists, the other is to buy more time for the native animals. They want to slow down the spread of toads so that scientists might come up with better solutions before the toads reach areas even further west, but they also want to mitigate the impact that toads have in order to buy time for native animals to adapt and learn. The rationale behind this is that if you take out a lot of the toads in an ecosystem the animals already there will have fewer lethal toads to eat and be less impacted, and the toads will have a smaller impact on the ecosystem as a whole.¹⁸ Thus if left to themselves, KTB reason, the toads might cause localized extinctions (as is widely reported, but not quantified and documented) or similar effects that are hard to bounce back from, but if toads are taken out of the environment a greater portion of the natives will survive to reproduce and gradually adapt to the toads.

¹⁸ The flipside is that in many cases if you remove some of the toads in an area you will only make it better for the ones you don’t remove. Thus removing only a few might defeat it’s own purpose. It is nearly impossible to know where the limit goes though, at how many toads removed, removing goes from being good for the toads to being good for the other animals – any one location is much too complex and irreducibly singular.

Thinning the frontline is a specific way of mitigating the impact. Based on the experience (on this point KTB's experience is congruent with the scientific community's) that it is the first toads to hit an area that cause the most damage, KTB specifically target frontline toads, not only in order to slow the spread, but also in order to ease the transition for the native animals. It is clear then, that these three objectives are closely tied together as one thins the frontline in order to mitigate and one mitigates in order to buy time for scientists and ultimately for native animals. Intertwined with these objectives is also KTB's lungworm project. A project centered on Robert, who as a part of his undergraduate studies found the lungworm parasite to be much closer to the frontline than previously assumed. Slowing down toads might well be a way of helping lungworm advance and catch up with frontline toads (conversely, the fact that lungworm have nearly caught up with the frontline is by KTB taken as an indication that they have indeed managed to slow the toads down), and having lungworm in the frontline has a debilitating effect on these first toads, thus also in a sense thinning them out. Adult toads infected with lungworm are less viable, meaning they eat less, travel shorter distances and don't grow as large as they otherwise would. Robert often put it this way: if the first toad that a Freshwater Crocodile encounters is a small one, it is more likely only to get sick from it, and then stay away from the next toad, whereas if it encounters a larger one it would probably die. Furthermore by mapping the varying densities of lungworm across the frontline KTB can find out where the healthiest toads are, and focus toadbusting efforts on these areas.

A toad-place in the (re)making

Let's see how this plays out in practice and why it is such a complex matter to ascertain what actually happens between toads, native animals and toad busters. As the toadbust activity is tinkered together in a coordinated practice, it is intertwined through and through with the toads' trajectory. As the toads move to new locations they are relationally composed anew. A toad at the Victoria River Roadhouse in 2005 is almost in every significant (to toad busters) sense different to a toad in Kununurra in 2012. For one thing a toad picked up near the frontline in 2005 might be a part of the simple objective of stopping the spread of the toads, whereas a toad picked up in 2012, I found, would frequently be enmeshed in uncertainty. Consider for instance this encounter from a toadbust I took part in in may 2012:

I am out at one of Robert's old lungworm locations with Robert, Alan and Caroline to toadbust and to get lungworm samples. The place is called Matilda Creek, it is by the Eastern

shore of Lake Argyle a couple of hours drive east from Kununurra. It is on the property of Newry Station where we checked in with the station manager on the way to make sure it was alright that we bust on their property. Matilda Creek was a part of the frontline a few years ago (2009) and this is the fourth year Robert is here to get lungworm data. He does these old locations over again in order to see temporal variation in densities, how fast and how much it goes up.

We set up camp on a large flat area, covered in grass and the odd dead tree. The creek runs out from Lake Argyle in many branches and every twenty meters or so the grassy plain dips down into shallow water and up again. Later in the evening we take the eight wheel amphibian 'Argo' out to do a bit of a bust. The Argo is a quite recent acquisition of KTB's and toad busters are in process of figuring out in what sorts of places it works well – in this case Matilda Creek and the Argo seem to be made for each other. As it gets darker the toads come out and it is quickly evident that it needn't take long for us to get enough toads for Robert's dissections. He usually does a random selection of ten percent of the toads they catch, but with the amount of toads here tonight it would take hours to dissect that many. There are thousands of toads here, and thousands more than we could ever catch. We drive only short distances in the Argo, to cross arms of the creek, and have longer stops where we go around and pick up toads and put them in the bags in the back of the Argo. Each of us frequently come back with large clusters of toads carried in one hand by their back legs. We discuss as we go that many of them seem to look very thin. We also come across a number of dead ones that almost seem to have starved to death. The lack of insects is also remarked upon.

Our attention is somewhat divided between toads and crocodiles this evening. Robert did his masters in animal science on a conservation project for crocodiles in the Philippines and has an avid interest in crocs – also in catching them. There's an intense rush of catching and holding these incredible animals with your bare hands that also I get to experience this evening. When stomping through water with a handful of toads, Robert suddenly calls me and the others over to have a look. He has found a croc with a toad in its mouth. It is a small freshwater croc and the toad is quite a mouthful. The croc has ceased the toad from behind and has a grip over its back as the toad's back legs stick out one on each side of the croc's mouth. Robert is trying to sneak closer to it to get a good picture. He takes a couple of pictures before the croc is startled, lets go of the toad and swims off, surging rapidly through

the shallow water. The others tell me joyfully that we've saved a croc. But they also note that it's disconcerting to see so many toads here and to see that the crocs are eating them. We come across one more croc eating a toad – this one is also provoked to let go of its prey – before we head back to the campfire with two large bags filled to the brim with toads. Back by the campfire, we relax with a few beers as the discussion revolves around what have actually seen.

An experience of a lack of insects could be because of the large number of toads, but it doesn't have to be. We talk about how this seems to be a perfect habitat for the toads – plenty of water, open areas and not much vegetation. Still it seems they are under some pressure. They look thin, many of them are dead; in some shelters (under branches and the like) we found ten-twenty toads huddled together. Could the population be in the process of regulating itself? Although the concept of population for the most part is misleading in the case of the ever spreading toads – a conveyor belt was sometimes used as a metaphor – it might be more fitting here. Are they piling up at Matilda Creek because Lake Argyle is a natural barrier for going further west? Were we helping the ones we didn't bust by removing a few hundred toads this evening? Could it be that high numbers of lungworm are making them thinner?

We also talk about the croc situation. There is no doubt that crocodiles around Lake Argyle eat toads, even though some people hypothesize that they learn to avoid them very quickly. But was it just those two crocs or were we seeing an imperiled population? This is further complicated by a scientific study done quite recently by Ruchira Somaweera, a researcher from Team Bufo, who found that there wasn't really any population decline in freshwater crocs at Lake Argyle. Of course, Lake Argyle is huge, and sitting here, Robert is not sure exactly where Ruchira took his samples from, but he doesn't think it was here. It might have been somewhere with significantly fewer toads. Another study, done on freshwater crocodiles at Victoria River showed in excess of 70 percent decline. Both of these are brought forth in the conversation. Robert, Caroline and myself are all familiar with these studies, Robert a fair bit more intimately than the rest of us though. Alan doesn't have the same academic background – he came to Kimberley as a backpacker and toadbusted nearly 80 days in a row for a period – but he is very interested and has plenty of toadbusting experience. It is also mentioned that we did after all see a lot of crocs during the evening. And what about food supply? It is mentioned that it would only be in situations where crocs lack food that

they would go after a toad. The crocs would have to be really picky, though, to avoid the thousands of toads standing on the banks.

This is truly a complex encounter and the conversation following it actualizes many connections. Among them are the complex goals of toadbusting whereby knowledge of the spread of lungworm is envisioned as a means to the end of thinning out frontlines and buying more time. There are also the many sources of uncertainty, past experiences with other places, with this place in the past and with other toads. The scientific reports on toads and crocs raise as many questions as they provide answers. Especially as the one done at Lake Argyle doesn't necessarily accord with what we had just experienced. We are also all aware that differences in toad numbers and in the experience of how many insects there are very well could be on account of the season and weather, however striking it is. Even the fact that the toads are recognized to be skinny is only done on the back of thousands of previous encounters with other toads, from which these ones stand out (Bear and Eden (2011) make a similar point in relation to anglers and fish).

More than displaying the ongoing tinkering with places and toads – that which is relationally composed, enmeshed in uncertainty and explicitly perceived to be so is truly the stuff one tinkers with – such encounters as this one show the temporary outcomes of enactment, in this case toads that are relationally composed in particular places. The toads in question are very much situated toads. Matilda Creek with its habitable landscape, its location about four years behind the frontline in the habitat of freshwater crocodiles on the edge of Lake Argyle is a place that toad busters know quite well. And a place they know now to be different from other times (some differences are experiential and felt, such as the lack of insects, whereas others have to be uncovered with scissors and a trained eye, as the densities of lungworm in the toads at this location). Matilda Creek is an intrinsic part of what these particular toads are. These are not significant as frontline toads, but they are toads that are individually significant because they are part of a large assemblage of toads at this place, and the Matilda Creek toads as a group are known in their relation to toads in other places. They are also significant in being connected as parts to the emergent and uncertain whole that is the Cane Toad invasion and its ecological processes, a part of which is what happens between crocs and toads. Toad busters are not simply seeing toads and crocs, but an encounter between toads and crocs that is made significant because of how it can be connected to the toad invasion in which this place and time has a specific situation, to what is known (and what is

not known) concerning the effect of toads on crocs, to the specificities of the location and the time of the year and to the thousands of toads that these ones differ from. But in this situation, Matilda Creek is also re-enacted as a toadbusting place. Such places are known and enacted in and through their relation with toads. This is not a new place, but it is a different place still. Different from other places and different from what it was. It is not just that the places aren't the exactly the same, but that the toads are different in each place and that the same places differ with more or less, and also qualitatively different, toads. In short, they are different toad-places. The care practices in this instance enact a Kimberley with toads as uncertain, unpredictable and ever-changing. These are active toads and active places that resist being easily generalized over time and space.

“When it’s toads you’re talking about, nothing’s ever stable”

On the morning after a reconnaissance trip along the King River Road near Wyndham, Keith is sitting by the computer in the office looking at the Google Earth map on which the locations where we found the toads the night before are plotted in. The maps are often used to see where toads were the last time so as to decide where to start a recon from or where to focus a toadbust. “Everybody uses them”, Jim told me when I asked him one time we had just met a road train driver who told Jim about how far he had seen toads along the Great Northern Highway going southwest. Jim has made the map of the frontline and of recent recons and explains to Keith what the different lines mean. One for example is the current ‘frontline’; another is a prediction for the end of this wet season – a prediction that has just changed on account of the last week’s recon trips. “I’d say it’s accurate to within 5 kilometers, they have moved since we were there,” Jim says, regarding the place marks that signify the toads we picked up at Osmond Valley about a week ago (a trip I will describe at length in Chapter 4). “It’s a bit of a stab in the dark [making predictions]. Like throwing a dart at it [the map] and see what happens,” Jim continues half in jest as he and Keith talk about the prediction and last night’s recon where we were surprised to find toads where we did. Michael comments from behind his own laptop that the predictions they have made in the north have often been quite accurate as they have done more recon work in this area, while the predictions in the southern part of the frontline have been more hit and miss. I join in too and say it must be hard to predict future toad movements, as we seem to be quite frequently surprised at what we find on recons, even in the northern part of the front. Jim replies with a truism that rings with years of toadbusting experience: “When it’s toads you’re talking about, nothing’s ever stable”.

That it is impossible ever to get a complete and correct frontline map is one of the notions indicated in this conversation. We all know very well that it is nowhere near as simple and arbitrary as throwing a dart at the map and hope for the best, and yet this resonates very well with the lived reality of toadbusting in the Kimberley. In this event, toad busters' collective experience is drawn together with a partial representation and toads translated into dots and lines in enacting the Kimberley with toads as in a process of continual change. The frontline map is explicitly a ground for action, not a true reflection of where toads are. It is never meant to be divorced from its process of being created, and thus it could be seen to embody the process of tinkering in which neither toadbusting, toads nor Kimberley nature are held still more than to the effect of letting them be kept in motion. The process of constructing maps tie together the practice of reconnaissance – of finding toads – toadbusting – catching and killing toads, in one sense, that is, thinning out frontlines and mitigating impact so as to buy time – and of the map making itself. The maps very seldom leave this loop. As a point on the map embody the practice of reconnaissance and the practice of toadbusting embody both, the lines on the map are drawn from numerous recon trips and toadbusts, and are intended to inform further action. Indeed as “the toads have moved since we were there,” and the lines on the map are collated from points made from encounters with toads (which are contingent upon many things, as we shall see in Chapter 4) on recon trips over an extended period, the imperfect reflectivity and extended temporality of the map is conspicuously clear. This might be a shortcoming in the logic of choice, but in the logic of care – or rather in that tension between logics that KTB occupy – the point is not that the dart hits dead on its target, rather the point is to be able to continue to see what happens. The frontline map would be pointless if it didn't facilitate further action – it is its very partiality and that it is fundamentally unfinished that necessitates action. The notion of frontline, then, evokes at the same time a representation of where the westernmost and southernmost toads are and, in conjunction with toad busters collective experience (of toad busters in their map making and the toads in their resistance to be clearly mapped), a thoroughly elusive and ever-changing fluidity with which to interact.

The maps, then, point forward to further action and further productivity as much as they recount some previous action. The maps are aimed towards action and transformation, both of themselves and of the reality they imperfectly reflect. If documents are seen as entities that elicit certain kinds of responses (cf. Riles 2006), then maps elicit such responses as

further toadbusting, further reconnaissance work and further learning about the toads and the Kimberley.

On account of these examples, what can we say about the practice of toadbusting in terms of logics of engagement? Where the previous chapter's meeting between KTB and science and government displayed a tension between a logic of care and a logic of choice, so do also the practices of the KTB. The practices described in the present chapter show how toadbusting works within a logic of care or uncertainty, but it also shows both logics of care/uncertainty and choice/risk at work within the toadbusting endeavor. Whereas toad busters tinker with changing means and ends, they also strive for knowledge based on established scientific criteria. Complex toads are often cut (both literally and in Strathern's sense of cutting networks (1996)) to display some limited aspect and both toads and lungworm are counted and translated onto data sheets and maps. Robert, for example, who is schooled in scientific methods, counts, measures, quantifies, simplifies and maps. But he is also a toad buster with a commitment to toadbusting as intervention, and he is in an environment and situation that in combination with this commitment to intervene resists and almost defies being treated as countable and measurable. As the last example shows, toad busters map the seemingly unmappable, and the toads are poor collaborators in map-making. Toads and Kimberley nature resist certain things if taken in their specificity, and KTB, I claim, are committed to taking toads and places in their specificity.

In the beginning of the chapter, I noted that it was the opinion that something needed to be done that drew KTB together and mobilized the community in the first place. A crucial aspect of what makes KTB different to science and government then is that KTB are committed to intervention – intervention is the basis upon which KTB were formed. This means that KTB force themselves to engage with places in their irreducible specificity. Interventions in practice are something inherently urgent and present; they are happening here and now. KTB, as a priori interveners, can only to a certain degree depend on generalizations or models, but instead they have to deal with very specific here-and-now's, because it is the specificities of these here-and-now's that literally force themselves upon toad busters as they intervene. Because intervention is the bottom line, everything else is up for negotiation and tinkering – crucially the how's of how best to tackle the situation, but also the what's of what is actually going on. The difference is not simply a matter of a difference between qualitative and quantitative, scientific and community knowledge, and disagreements around what should

be valued, rather it is a difference in the *practices* that enact what nature is and what engagement should be – what to engage with and how. It is my claim that with different logics of engagement one comes not only to engage in different ways, but also actually to engage with different things. In each agglomeration of logics in practice certain things are left out, not to be engaged with, connected to and mobilized. As toad busters are committed to a range of things quite close to their own specific and experiential reality (which we shall see more clearly in the next chapter), the toad case is a case that for scientists and many of the people involved from the governing bodies is severed from the personal and the everyday. Instead they are more committed to such things as general criteria of good science and standards of procedures and form. Whereas toad busters connect to toad places and situated toads and attune in many different ways and with a specific meditative network, scientist and governing bodies to a larger degree connect to other publications and other things at a level that is detached and removed. While KTB's practices point both backwards and forwards and are geared at the continuation of intervention, practices more strongly centered on a logic of choice often seek closure, conclusion and to neatly delimit single processes from one another.

The two chapters together have formed a story about discordance, but also about how things are made to cohere. Indeed, as Law et al. (2013) point out, care and tinkering may be seen as one way of holding incommensurate logics – in this case logics of care and of choice – together, conflict is another way.

Chapter 3

Toad talks, images of change and community engagement in the making

The maps of the previous chapter are an example of what I call non-representationalist representations. They are documentary practices that one can fruitfully diffract through a non-representationalist prism. This chapter turns to two other such representational practices, namely ‘toad talks’ and images of changing natures. As pointed out in the previous chapter, Kimberley Toad Busters are based on a commitment to intervene. This chapter starts from this point and asks what makes them adamantly commit to this – what images of changing natures underlie, elicit and necessitate their specific course of action and form of engagement, and how is it sustained and nurtured?

But first: what is an image through a non-representationalist prism? It is worth at this point to reiterate some points from the introduction. As mentioned, the ontological turn has both been a turn emphasized on giving greater regard to materials and things, but also, and perhaps more often this has been the case in anthropology, a turn towards re-conceptualizing cosmology in ontological terms. In naming images the object of analysis this chapter aligns with the latter with regards to the aim of re-thinking the approach to what has formerly been regarded as primarily symbolic phenomena, but it also draws inspirations from the former as it regards images as materially heterogeneous and practical through and through. Diffracting images through a non-representationalist prism entails approaching images through questions such as: How images are composed, enacted and articulated; and what images do – what they enact and what actions they are mobilized in. Just as animals, images could be seen as ‘actor-enacted’ (Law and Mol 2008), entities that both act and are enacted – that fluctuate between being held temporarily still in enactment and being “moment[s] of indeterminacy” (Law and Mol 2008: 74) as actors.

An image of a changing Kimberley

The toad busters' image of change is one that I have synthesized from numerous conversations and situations. I will begin with a conversation that exemplifies many things:

As I drive up towards Cecilia's house I am greeted by two small dogs, two ponies and a horse. Cecilia is the local veterinary and was for some years KTB's vice president. I have arranged an interview with her since she doesn't go out toadbusting with KTB anymore. We sit down together on the porch sheltered by a row of coconut trees and she tells me about her animals. One of the dogs is named after a cartoon character, a reference I fail to take, and one of the ponies, she says, is a real gentleman, even though he often "fertilizes" the lawn right in front of the porch.

We talk a little bit about conflicts, about DEC, about euthanasia and about her own role in KTB. It was always first and foremost a matter of educating people, as far as she was concerned, which she still does from the vet centre. The toads can be a good means to get people's attention also to other issues of nature and wildlife – an interest in toads could lead people to take greater interest in nature generally. I notice that the political issues seem to be a bit touchy and after a little while the conversation veers from politics to the Kimberley nature with and without toads. She tells me she toadbusts around her own place from time to time, but not nearly enough, "it's never enough". You can hear the toads around here at night, she says. I attest to it as well, having heard them over at toad HQ which is only about five kilometers from Cecilia's place. Sometimes she finds dead turtles or snakes. "It breaks my heart", she says, and it is especially bad if they have died from ingesting toads. She goes on to tell me about the great changes happening in the Kimberley. She has lived in the region for more than twenty years, and seen the change happening – especially in the last decade. When she first moved here, in the wet seasons, she recalls how the bush would be teeming with wildlife – everywhere and all the time there would be lots of snakes, reptiles, frogs and marsupials.¹⁹ Now there are just less of all the animals, she tells me. Except for the toads. Many of the species that were a regular sight back then are seldom or never seen now. There hasn't strictly speaking been any extinctions, though, and she says it is a terrible paradox that it might have to take extinctions before people, especially the politicians, realize we have to

¹⁹ Similarly in a report on the decline of mammals in Northern parts of Australia Fitzsimons et al. (2010) write that: "Twenty or so years ago, people camping in northern Australia were likely to witness bandicoots and quolls scampering around their campsites during the night [...] Much has changed since then, and the extremely diverse mammal fauna of northern Australia is now fading away." (2010: 2).

do something about it. Kimberley is undergoing a dramatic change for the worse, and the most critical aspect isn't the toads, she explains, it is the changing fire regimes. Lee has also many times told me about how devastating the current fire regimes are for the Kimberley. Cecilia emphasizes that they, meaning DEC, burn too much, and burn too intense fires. The rationale is to prevent uncontrolled wildfires, but according to both Lee and Cecilia it has the collateral effect of decimating wildlife. Feral cats are also a major problem and a part of the change, she says, as they eat small birds and small mammals and are very difficult to control. But just as Cane Toads, cats don't have much of an impact on agriculture or pastoralists, and if no one loses money on it, it's not regarded as important. Between fire regimes and feral cats, it seems to Cecilia, the toads are just the icing on the cake.

Cecilia articulates in this conversation many of the key features of a toad busters' image of changing nature. This image evokes other images of dead animals and localized extinctions. It is an image of an environment with far less wildlife, where people are no longer able to encounter the animals they love. Not only is it "heartbreaking" to find individual dead animals out bush, the toad busters' image also shows the bleak prospect of having a bush no longer teeming with wildlife. In place of a diversity of different species, there are millions of toads, and very little of anything else.

What is perhaps most clear from my conversation with Cecilia is that the toad busters' image of a changing Kimberley is not only to do with the toads' impact, but with a change that is the combined effect of a number of interrelated processes. Fire regimes and feral cats were emphasized by Cecilia; other processes include mining, exotic weeds and tourism.

The change is also multisensory and experiential. Cecilia remarks that one can hear the toads at night. Instead of a chorus of many different native frogs, the soundscape of Kimberley nights are perceived at worst to become one where what was sometimes described as the "machine gun-like" calling signal (or likened to the sound of a tractor from a distance) of the male toads absolutely dominates, overpowers and alters the familiar ambience of Kimberley nights. The next example vividly shows an olfactory experience of toads and of an environment with toads. On most Thursdays Michael is on the local radio station, Waringarri Radio, for about fifteen minutes of "Toadall Talk" where he gives an update on what KTB are up to at the moment. This is an excerpt from February 2012:

Michael: So, we've been seeing lots and lots of metamorphs around there [Black Rock Falls – a popular swimming location near Kununurra], and as I said we've been out there doing our level best to take those out of the equation. We have noticed though, that the smell of Black Rock has changed.

Jack: So, you can smell the toads, can you?

Michael: Oooh. What a terrible smell too. Turns my stomach. I don't have much of a stomach as it is, but when it's turned inside out with a smell, Jenny Craig eat your heart out, I've got the best weightwatchers way. [...] Having that odor, the more you toadbust, I think the more it affects me. If I turn around and look at a bag of toads first thing in the morning, as I'm emptying those out, I can't help but dry reach you know....

The toad busters' image also conveys a close and emotional connection to animals. Our neighbor at toad HQ had his favorite bandicoot, Billy, whom he feared had died by toads as he hadn't seen him in a while. There was the large Olive Python living near KTB's property that Michael and Keith had de-ticked a couple of times and that we kept meeting on toadbusts. Jack at Waringarri spoke fondly about the resident frill-necked lizard out in the yard, and at Nicholson Station, KTB's other base; there were three frill-necked lizards and some goannas living near the homestead – one of whom figures in the next section of this chapter. These are just some examples indicating that it wouldn't be stretching it too far to say that animals are widely experienced to be cohabitants of the community.

KTB's image is an image of a radically altered environment. Far from the pristine, untouched Kimberley that the tourist industry often portrays, it is a Kimberley where you hear mostly toads, you see mostly toads, and when you can neither hear them nor see them, they still make your favorite swimming holes stink.²⁰

²⁰ Many times did I see the Kimberley being marketed as 'pristine', 'wild' and 'untouched'. Examples of this include El Questro Wilderness Parks' slogan "The Call of the Wilderness" and pieces in the local papers titled "The final frontier" and "A landscape so vast the horizon is curved". Lesley Head notes similarly in a study of conflicting images of nature surrounding the development of the Ord River Irrigation Scheme in the East Kimberley that: "Tourism throughout Australia depends on images of isolation and adventure; it markets itself as 'Australia's last frontier'" (Head 1999: 152). She goes on to see a potential conflict in the relation between the tourist industries images and those of agriculturalists. Now, almost a decade and a half after Heads study I could also note as a ground for conflict the difference between toad busters' images of change and the tourist industries image of the Kimberley (Nyquist 2012b) but I could just as well point to the remarkable resilience and ingenuity

Pointing back to the previous chapters, these are not scientific arguments, but rather experiential, multisensory and emotional images that enact a nature that doesn't elicit quantification and objective knowledge, and a toad that is active and makes a difference. But there *are* also scientific components of the toad busters' image, and it is emphasized for example that toads have an impact not only on the most visible and iconic animals, like the goannas, the blue tongue lizards and the bandicoots, but also on all the animals no one knows very much about. The toads might cause extinctions in species that there are no baseline data on whatsoever. The toads might decimate the invertebrate base with dramatic flow on effects. These are changes that one would need the sensory prosthetics (cf. Latour 2004) of science to unravel and articulate. The KTB's image of change is more than a scientific argument. While it contains both scientific and experiential components the image is also internally differentiated. There are tensions and even discordance – the next sections turns to one point of divergence.

Indigenous images

Alliance

“...we grew up hunting, you know, goannas and...old people used to teach us, but there's nothing, if the toad is gonna go throughout the Kimberley, there's nothing left for our young ones and their young ones to hunt, and there's nothing to teach them cause there's nothing there [...] our kids would forget our culture and how to hunt and everything....”

This is a quote from a video in a series of interviews that KTB made for educational purposes. The situation went like this: For the last few years KTB have held an annual toadbusting camp with aboriginal KLC ranger groups.²¹ This year's camp was held at Doon Doon very close to the frontline and there was at most more than 50 rangers out toadbusting. Some of them came from as far as Derby, more than 800 km away. This year the goal was also to get some short interview segments made with some of the rangers. On the second day of the camp Michael, Paul and Keith prepare for the interviews. Paul has already picked a nice spot with a

on the part of the tourist industry who, in still marketing the Kimberley as wild and untouched very effectively manages to sideline all these processes of change.

²¹ Kimberley Land Council is a body representing and assisting the indigenous traditional owners in the Kimberley. They run a ranger program where aboriginals are employed to “look after country” as they put it on their web site (<http://klc.org.au/rangers/>) . In the case of the ranger groups I spoke to, this would for instance involve control of the invasive rubber vine and doing biodiversity surveys.

bit of scenery and some trees in the shot and the first one to be interviewed is Mandu from Nyikina Mangala Rangers. Michael is sitting down on the grass with Mandu, Paul is filming, Keith is holding the microphone boom and I have been given the ungrateful task of trying to keep Michael's puppy dog from barking or running into the shot. Michael asks Mandu questions such as where he has come from, what he thinks about toads, what he reckons the toads will do to the environment and to their culture and why they toad bust. They do a few more interviews with some of the others from Mandu's ranger group. Later in the afternoon, after William, a nutritionist, has held a talk about how to eat more healthy (the traditional aboriginal bushtucker is a very good diet, he points out, but all too many aboriginals nowadays eat too much junk food and drink too much grog), they also do some interviews with a couple of the guys from one of the other ranger groups, Wungurr Rangers. Relieved of my task as dog watcher I have a chat with Mandu while Michael and the others do the rest of the interviews. After the last one, he comes over to me with a big grin and tells me about the last interview and what Trevor, one of the rangers, had said – the quote with which I started this section. He says this is just the sort of stuff he wants in these films and he is very happy that Trevor said it without him having to put words in his mouth. All the rangers have emphasized traditional hunting and that their bushtucker and traditional practices will be imperiled, which Michael thinks is excellent.

Whether mediated by Michael's questions and wants and needs or my own, aboriginal toad busters almost always emphasized the loss of bushtucker and traditional practices.²² The indigenous image of change, just as the toad busters' image, portrays local extinctions and a radically altered Kimberley. However, the focus is markedly on losing traditional bushtucker, spirit animals and as some put it, the basis of their culture. The indigenous image shows a Kimberley without many of the animals that are significant for traditional practices. The toads are simply seen to imperil different practices and different relations for indigenous and non-indigenous toad busters. Because of the toads it will no longer be possible to connect to nature or maintain relations and practices in the same way – be it through hunting or

²² This is also a different emphasis than the Yanyuwa people in the NT give to the toad and their status. According to Seton and Bradley (2004), among the Yanyuwa, the toads are regarded as a pest mainly because they have no traditional law, and hence "...no place to fit within existing structures" (213). Whereas the Yanyuwa try to get rid of toads because they have no law, the indigenous people I spoke with were rather concerned that when Cane Toads hit their country the culture, of which traditional law is a part would be imperiled. However, the similarities are also evident as Seton and Bradley write: "...one of the most far-reaching consequences was the stress and depression among Yanyuwa women when their daily movement across country in search of normal target prey (such as goanna and blue-tongue) led only to 'finding Cane Toads in their holes'..." (214-215).

through appreciation of wildlife. In the situation just recounted the indigenous image is made to work to KTB's advantage in presenting a different emphasis from the toad busters image of change. But it is not always like that.

Complications

I experienced discordance between the images very clearly a couple of times. Goanna – an umbrella term for several species of varanid lizards – is arguable one of the highest valued bush foods for most indigenous people in the Kimberley, but also one of the species the toads have the highest and most uncontested impact upon²³. Only a handful of times did I see a goanna around the Kununurra area, and each time the toad busters I was with would express a great delight that even with toads in the area one can still from time to time see a goanna. A seemingly simple event like seeing a Yellow-spotted Monitor in the garden can be mobilized in different ways. One way is to defer to scientific reports that say that nearly a hundred percent of the lizards go when toads arrive and then to ask why, in spite of this, can one still find them two years after the toads' arrival. From this, one can go on to assert that it must be because of toadbusting, or one can question the scientific results and their applicability. There can for example be significant differences between here and where the surveys were done, it can mean that there are some reasons why not quite a hundred percent of the lizards go or there could be something not quite as it should have been with the research. It could also of course be that the toads do not have as great an impact as is believed, either from anecdotes or from surveys. Seeing a goanna then, can be made into a marker of the efficacy of toadbusting, the shortcomings of science and its lack of transferability or the toads overestimated impact. Through different connections the goannas are differentiated and multiplied. Two of the goannas I saw provoked moments of tension between indigenous and non-indigenous toad busters. The first incident happened barely two weeks into my fieldwork:

Out at KTB's southern base, Nicholson Station, where some of KTB's volunteers are doing a biodiversity survey, we are expecting Jackie and a few others to arrive shortly. Jackie is KTB's mechanic and the others – some young adults and a few kids – are mostly aboriginals and they are avid toad busters. Most of them live in the same community outside of Kununurra, and I had been out toadbusting with them a couple of times prior to this. The toads are not at Nicholson yet, so for them this trip is more like a weekend away. I know a

²³ Doody et al. (2009) report between 71 and 96 percent decline in three species of varanid lizards after the toads' arrival at two sites in the Northern Territory.

couple of the kids a little bit already and the first thing they say to me when they get there is that I have to come see the goanna. It is a large Yellow-spotted Monitor with its tongue hanging out of its mouth that the kids are proudly showing me, holding it up by its neck. At first I thought they must have run over it by accident, but I quickly understand by the others' reaction – as they exchange irritated looks – that this is not the case.

After everybody has said hello, Lee brings the subject to the table and a tense conversation follows where Lee and Michael assert that it is not alright to kill the goannas around here. Lee says sternly, but jokingly that “if you kill them I’ll kill you” and she gives three reasons why they shouldn’t kill them. The goannas are one of the species most severely impacted by the toads, she says and appeals to their shared purpose of toadbusting evoking a common adversary. Another reason is that the goannas around Nicholson are a part of Keith’s biodiversity survey and it is important that he is able to get a notion of how many there are here so as to be able to see how much of an impact the toads are having when they arrive. The third reason is that they are the resident goannas, “my goannas”, as she said with a smile. According to Lee, the last time she had “blackfellas”²⁴ staying at Nicholson they had killed three of the goannas that used to live around the homestead.

While Jackie and the others do listen to what Lee says, I get a sense that they do so quite ambivalently. Especially as Gavin tells me as we chat later in the evening while he prepares the goanna, that he was hoping the entire trip to find a goanna when they suddenly saw one just a couple of hundred meters from the homestead. It was just crossing the road, so Gavin made a sharp turn and only just managed to run over its head. He is really happy about that. The girls love goanna; he can’t eat it himself though, because of his aboriginal law.

Most aboriginals regard it as their prerogative to kill goannas and other bushtucker. I was made explicitly aware of this on one of KTB’s camps for aboriginal kids at risk where I participated. KTB discovered very quickly after having started up that kids enjoy toadbusting and that it could potentially be a way of getting aboriginal kids away from bad influences in town and do something positive for the environment. Thus toadbusting became a practice around which KTB could work together with such agencies as Save the Children and the Juvenile Justice system. This particular camp was an overnight camp where selected kids (age 9-12) from town (the local Save the Children chose kids that were in the ‘at risk’ category

²⁴ A colloquial but not derogatory term for indigenous Australians.

while also showing some promise) were taken out toadbusting, canoeing, abseiling and to learn about nature and wildlife. On the second day, after the ab-sailing was done and the kids were swimming and playing by the water's edge we suddenly hear several of them shouting "Look there, goanna! Goanna!" and a couple of the torches are hurled towards the water monitor from the hands of the kids. We manage to intervene and calm them down as the goanna escapes in the tall grass. Afterwards I joined some of my KTB informants in reflecting on how deeply ingrained it is, from even an early age in indigenous children, that goanna is for hunting and eating – to the extent of almost having become a reflex.

As we have seen, it is even a motivation for toadbusting for indigenous people to be able to still go out and hunt. Thus it presents an awkward discordance. Put bluntly it could be the case that if ninety percent of goannas die because of the toads, aboriginals hunting just might take out the remaining ten percent. One of the things the toads are a threat to in the indigenous image – hunting practices – is itself a threat in the toad busters' image, though only partially so. Unsustainable hunting was indeed a worry for my informants in KTB, at the same time as they actively appealed to hunting as a means to engage aboriginals in toadbusting, and used loss of bushtucker for purposes of education and for raising awareness.

Toad busters then, shape and assemble their image of change differently in different situations, sometimes incorporating the aboriginal image with its emphasis on loss of bushtucker and other traditionally significant animals, other times othering these aspects. In some situations the discordance between the toad busters image and the indigenous image is actively "un-known" (cf. Geissler 2013), or at least unarticulated, and they go on together in being acutely aware of each other's differences and because there is much at stake for both parts.

Protecting an actual Kimberley

Let us pause for a moment and look at the matter from a different angle. Clearly, neither KTB nor their indigenous volunteers are, like William Cronons (1995) American environmentalists motivated by a vision of a pristine wilderness that needs protection. As we have seen, they want to intervene with changes happening in the Kimberley – not some abstract and distant pristine and untouched wilderness. Cronon, too, points towards something similar towards the end of his widely read essay on the trouble with wilderness, when he asserts that "Idealizing a distant wilderness too often means not idealizing the environment in which we actually live"

(Cronon 1995). Toad busters do not idealize a distant wilderness (some tourist agencies and tourist possibly do), but rather the practices and experiences of living in the Kimberley.

Most actual environments to be protected, I presume, will resist the notion of a pure and pristine wilderness. What follows from this for Cronon is the absurd paradox – quite akin to Milton's conservationist paradox (Milton 2000) – that "...if nature dies because we enter it, the only way to save nature is to kill ourselves" (Cronon 1995: 83). One would have to assume from such an argument that every environmentalist or conservationist experience some deeply felt cognitive dissonance or internal crisis that they have some sort of strategy to cope with or repress. Escaping the paradox would mean starting from the supposition that environmentalists and conservationists always protect or intervene with singular and particular places and issues, and not with a myth of "wilderness" crafted by some sort of analytical taxidermy. These singularities would include for example such things as the complex and ever-changing Matilda Creek, the swimming spots one has fond memories of and the animals with whom people share the environment – both Billy the bandicoot and the goannas as prey and tradition. If one finds, as I do, that one's informants do not experience any internal crisis because of a contradiction of protecting nature by unnatural means, then what the analyst must do is to rethink nature from what is actually being done.

An image of the Kimberley being radically and detrimentally altered by Cane Toads elicits intervention. Such an image is one of the things that drive indigenous and non-indigenous toad busters' engagement. As change is the one thing held still and certain, it is the bottom ground against which everything else is in motion, for the very purpose of intervening with and altering the process of change. The images of change also enable certain forms of engagement as they lay the ground for intervention, and let toad busters be toad busters and actively shape their multispecies collective.

Talking about toads

Images are assembled among other things in conversations and talks. This section deals with situations where people talk about toads and matters related to toads, and looks more closely at situations where images and realities are shaped and acted with. Firstly it is useful to make a distinction between conversations and 'toad talks'. By conversations I refer to everyday situations within KTB proper, where toad busters converse with other toad busters roughly on an equal footing. The conversation on the map from the previous chapter is a good example.

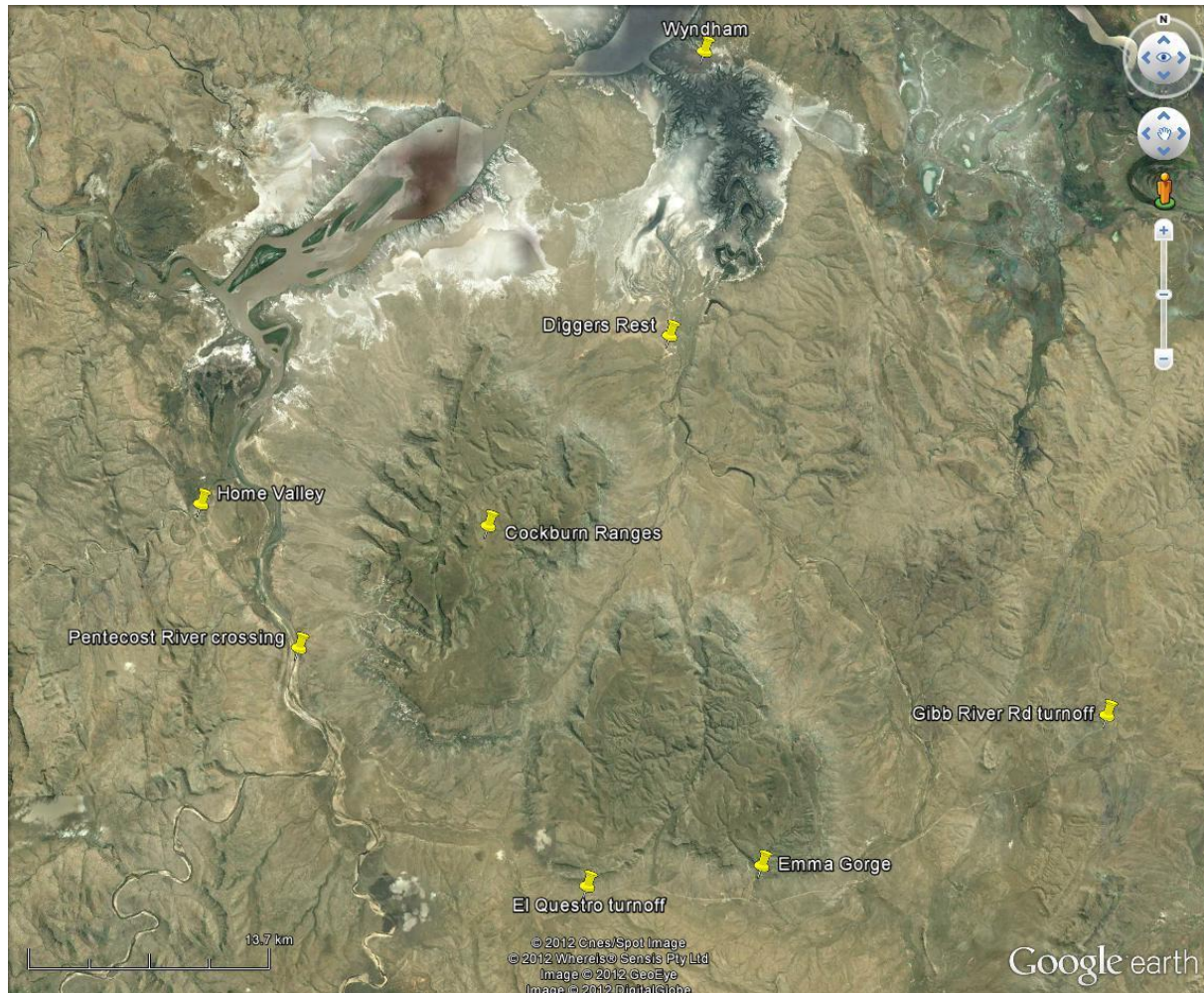
Toad talks, on the other hand, point to situations that are more event-like and where KTB actively extend, for example educational or info meetings. Thus the division is one between more or less symmetrical communication events.

The distinction can be seen as a continuum of inclusivity and engagement. I don't wish to present conversations as a perfectly symmetrical dialogue and toad talks as exclusively a one-way affair. However, there are varying degrees of engagement on the part of those at the receiving end of toad talks – they have to actively make it a dialogue and very often do – and there are varying degrees of inclusion on the part of the toad busters. The separation between conversations and talks indicates how much one part engages actively with the case – by connecting the toads to their own situation – and how much the other part – KTB – includes them and manages to enact the situation as one that facilitates others connecting their own situation and trajectory to it. Conversely, no intra-KTB conversation on toads is completely symmetrical; there are always differences in engagement and inclusion.

Conversations

We sit down with Jason at one of the tables in the restaurant at Home Valley Station. He works in the bar at the station (which is now predominantly a tourist resort) and has been doing reconnaissance trips in the area to see how far the toads are from Home Valley. He tells us he has been taking some trips along the Gibb River road spotlighting for toads several times this wet season and at the latest one he found them at the turn off to El Questro Wilderness Park and a little bit down that road. Robert, Caroline and I have just come from a recon along the King River road and we show Jason on the map where we found the westernmost toads. They were well past Diggers Rest, and possibly even further than where we checked. We couldn't go as far along the track as we wanted, because they were mustering cattle in the area and the gate was locked. They seemed to be further along the way around the Cockburns than he thought and Jason is surprised to see that they are so close. They might be at Home Valley within the next couple of months, he concludes. We discuss where it would be good to do tonight's recon. He shows us roughly where he has been and when, and suggests that we do the road that goes down towards El Questro. He also says we might have a look in at Emma Gorge, at the Cane Toad fence that Stop the Toad Foundation put up last year. We discuss whether this is a good idea and eventually decide against it on account of the strained relation between KTB and STTF. Jason says he'll be doing some recons closer to the station in the coming period and also check the Karunjie track which goes around the

Cockburns, and all the creeks along there. Before we go, he tells us about the snakes around the place. He has been keeping track of the different species he has seen and caught and he is worried about what will happen when the toads arrive. Robert mentions that some stations in the NT are reporting that after the toads, they see mostly Keel backs – a snake that can eat toads without ill effects – and Black headed Pythons – a snake eating snake.



Everyday conversations between toad busters very frequently concerned informal reporting and planning. Upon returning from recon trips or toadbusts, conversations could be started with a “How did you go?” or “How many toads?” These would often go on to involve toad trends, such as gender ratio or how many juveniles, and hypotheses on what such trends might entail. Individual occurrences would also be discussed, and such things as abnormalities²⁵, encounters between toads and reptiles (such as the Matilda Creek encounter) and dead

²⁵ Toads with too many or too few limbs were of special interest. The reason was that Sandra Hernandez – a PhD student who had previously done some research assisted by KTB – was investigating why there seems to be so many abnormal toads in the Kununurra area. KTB were to toads with abnormalities frozen to Hernandez in Queensland where she was testing the hypotheses that there might be a theratogenic agent in the area, because of pollutants from agriculture.

animals found out bush generated great interest. They also frequently revolved around the frontline, as the example above. It would be such things as which corridors the toads are spreading by, whether toads are “colonizing front” toads or just “hitchhikers” and off course how far south and west the toads have come. Conversations concerned movements of toads, but also movements of toad busters. Where toad busting and recons are needed, but also where people are at different times, who are needed where and when and what vehicles are available.

Conversations that at the same time report and plan – both point backwards and forwards – do much of the same sort of things as I have recognized the maps to be doing. Both in effect and intention they facilitate further action and becoming toad busters. But such conversations also enact the situation in certain ways and by doing so repeatedly, they stabilize it.

Back at the depot after a toad bust, Jim and Michael catch up on how it all went. Jim and I had been out at Point Springs – a nature reserve north of Kununurra where there’s a remnant rainforest as well as a toad fence that DEC and STTF put up a couple of years ago. Jim tells Michael that we went all the way up to Lookout Springs since the track out there was much less boggy than he had expected. There were lots and lots of toads on the way back. But the most exciting thing was one particular toad we found sitting on a cattle grid. “And they say they can’t pass cattle grids,” Jim says, “it was no problem at all, was it, aye, Jon? That Perth mob should get out of the city more”. I go on to retell the situation where we came across the toad on the grid. After it had been willingly posing for Jim’s camera a few moments, I had tried to grab it, only to see it jumping from one beam to the next and even under some of them and up again all the way to the other side. Michael says jokingly that if they publish the photos they will probably be accused of having staged the situation.

What we see in this conversation is how a single toad is being connected to other domains and themes. As the conversation implicitly regards not only (or even primarily) the toad on the grid, but rather the relation between KTB and STTF (“that Perth mob”) and the history of the engagement with toads in WA, certain connections are reiterated and stabilized. Often connections need only be indicated or hinted at as they were in this situation. When Jim says “they say they can’t pass cattle grids” he evokes the trajectory of KTB and STTF’s problematic relation. I later learned about the controversies surrounding toad fences. One of the points of uncertainty had been the cattle grids. Could the toads pass them? As the fences

that STTF made were often constructed around existing cattle fences (by applying shade cloth and other features) the question of what to do with the grids remained. STTF were unsure; KTB were adamant that toads would pass the grids without any problems. But the issues span even wider than this. Played out in the local papers, the conflict over fencing at times turned into hostile polemics. At one stage, one of the core people of KTB regularly wrote pieces in the papers criticizing STTF's fences for doing a poor job of stopping Cane Toads, but what's worse of also having the effect of stopping native fauna. The particular series of articles in the local paper was also a plea from KTB to the community of Kununurra not to put fences around their property, as this would keep out many native species, especially if not diligently looked after. In a media release, one of KTB's volunteers stated that: "it would be a very sad day for the Kimberley to see people in their backyards sitting safely behind a Cane Toad fence, while our wildlife is being obliterated around them". STTF responded by saying that KTB's arguments were groundless. That local fauna wouldn't be stopped by the toad fences was illustrated with a photo of a wallaby in mid air over a fence coupled with a dry remark towards KTB. Furthermore, they replied that the fences were not meant to be a substitute for doing other things; indeed it is as an amplifier of manually picking up toads that fences are most effective. Not limited to fences, when mentioning cattle grids Jim also evokes the problematic process where KTB and STTF split apart and were established as two separate groups. In short, this conversation enacts "continuity with the past"²⁶ and enacts the toad case as something particularly historically situated. A specific continuity is generated through discussing toads in this manner, whereby this one single toad is allowed to extend and build on the trajectory of fencing, inter-group conflicts and KTB's history and position. In other situations other connections are made:

The first trial run for KTB's kids at risk program had to be cancelled at the last minute because of the weather, and this evening nearly all of us who were to be involved in running it were over at Michael's for a barbeque. Lee had just come back from Perth where she had given a talk for the Kimberley Society²⁷ and had a meeting with the environment minister Bill Marmion, and she is telling us about her experience. She says she admitted to Marmion that it is no longer a matter of stopping the toads, but that they instead are trying to mitigate the impact and buy time for animals and scientists – and this is no less of an important reason for funding to be granted them. Both Robert and Sandra Hernandez are mentioned as very worthy

²⁶ I borrow this phrase from Singleton (2012) who describe certain farming practices as "...responsibilities to continuity with the past" (421).

²⁷ An organization that promotes research on topics related to the region.

of being granted funding. Lee puts a lot of blame on the TAP – she says that because it discredits research that is pragmatic and explorative the effect is less funding both for community groups and for scientist. She also tells us she spoke to Marmion about some of the indigenous issues in the Kimberley, and soon the conversation veers towards horrific stories of neglect of children and third world conditions in aboriginal communities – atrocities that go on right here in town. I had gotten a glimpse of it myself when dropping off kids after a toad bust, kids who weren't sure which house they should go to that night. Most of the places are littered with empty beer cans and emanate loud music and shouting. But the stories Maggie tells – she worked for some years in a local aboriginal cooperation – are far worse than what drinking and shouting could ever hint at. Phil – a professional outback survival expert from Perth – emphasizes that we are all together in this; it is the community's problem, not just the aboriginals'. Toadbusting could be a glue to hold the community together and act as an equalizer – “we are all the same when it comes to toadbusting”.

In this conversation several themes and domains are connected and interwoven to articulate what the toad case is all about. The talk almost seamlessly transits from political processes to the objective of the toadbusting endeavor and on to research and funding issues, indigenous problems and visions of betterment for the community. It is the situation – where people whose commonality is the toad case are gathered – but also a commitment to continuity with the past that lets such domains be connected and articulated together.

The toads themselves are enacted through conversations in their connection to other things. These other things are assembled together with the toads. Through this one specific toad practice – namely conversations on toads – the toads are enacted as tied to funding processes, community matters, indigenous issues, the media, research, the history of the toad case and many other things. The toads act as the nexus where all these domains can be made to intersect. As we have seen, certain toads evoke trajectories and contexts and elicit certain connections. Are toads political? Are they a community issue? An indigenous issue? Are they historically situated? Are they natural? Un-natural? Yes, they are all these things, but none of them in and of themselves, none of them without the repeated work of enacting such realities into existence. A conversation is a contextualizing event and a practice of enactment. Following Brenna, “...contextualizing could be seen as a way of deciding upon one single reality” (2012: 358). What emerges from conversations are realities stable enough for people to be able to act with them and act on the basis of them (there are certainly also many that fail

to emerge as such). Realities are, among other things, conversed into shape.²⁸ But there are also leakages and no realities are so stable and unchanging that they don't need choreographies (cf. Cussins 1996) of entities and practices to sustain them.

Let us turn to toad talks and to the specific situations, effects and purposes in and through which KTB mobilize images and toad realities in practice.

Toad talks – nurturing engagement

Jim and I checked for breeding on the way out to Parry's Creek Farm. We stopped by some of Jim's usual places, but we also checked some new ones for signs of eggs, tadpoles or metamorph toads. Emily at Parry's had spoken to Michael and wanted someone to come out and help with the tadpoles in the lagoon and to get some photos of the dead turtles that they found a couple of days ago. Parry's is a resort and popular site for birders, but during the wet, Emily and Patrick, the caretakers, are the only ones there. Jim does most of the talking. Emily says they've been going out nearly every night around the place to catch toads and that they think there are toad tadpoles in one of the lagoons. We bring a couple of hand nets and follow Patrick and Emily down to the lagoon. One end of it is thick with tadpoles. Jim confirms to them that they are toad tadpoles and explains how one can tell the difference – none of the tadpoles of native frogs are as jet black as the toad ones, the native ones usually have a longer tail whereas the toad ones are quite stumpy. As I start scooping up tadpoles, Jim tells Patrick and Emily about how best to do tadpole control. A trick is to net the tadpoles and crush them up with your hands and then chuck them back in. Then an alarm pheromone is released from the crushed up tadpoles that the other tadpoles react to. Apparently, says Jim, it makes them stressed causing them to grow smaller and have a lower survival rate. Jim also points out up on the side of the lagoon such places where the toads might be found during the day. They burrow, under roots or other places that are damp and shady. "They're truly an amazing animal", Jim says, "you gotta admire it for what it can do". Jim talks about how hardy they are – how they can go on hopping even with a missing limb and how they don't seem to be bothered the least bit having swallowed centipedes and scorpions – and how adaptive they are – it continually surprises how they are able to do things no one thought they could. They can climb, they can burrow, and they can swim – Jim tells them about the time Michael was out in the middle of Lake Argyle with a film crew from "60 minutes" when they suddenly saw a

²⁸ Myhre (2012) argues in a similar way that language is formative, rather than informative.

toad swimming beside the boat. It had been swimming all the way out there, many kilometers from shore. It is also quite amazing how they all seem to be heading the same direction and spread so fast, “they’re certainly good at what they do,” Patrick remarks.

As we go to check out another lagoon, the conversation turns to whether it really makes a difference. Jim says the only thing that helps until scientists come up with a solution is manual toadbusting. Around Kununurra, he explains, they are still seeing Yellow-spotted Monitors and Blue Tongue Lizards and there aren’t as many toads as you would find if you went even just to Keep River National Park over the border to the NT. The difference is striking between Kununurra and a place like Keep River or Kakadu, he says. There are toads everywhere; even the ambience is different because there are less insects and native frogs. We leave the nets with Patrick and Emily who say they will start doing the lagoon frequently too and after getting the photos of the dead turtles we head back to Kununurra.

Calling this a toad talk draws attention to that original aspiration of KTB – to be a group that assists and makes it possible for people in the Kimberley to toadbust on their own. As we see, KTB still play such a role, albeit in new locations. The talk differs from the conversations in that it is a more asymmetrical relation between the parties – it is a clear divide between Jim who is speaking authoritatively about toads and Patrick and Emily who are on the receiving end. This divide is embodied in such things as the fact that Jim drives a KTB car, wears a KTB shirt and occasionally answers the phone at toad HQ, but it also lies in the difference between what Jim knows and what Patrick and Emily know, and in each of their assumptions about what the other part knows. Through talks such as this one, KTB extend and nurture involvement, and Emily and Patrick respond by actively engaging themselves with the toad case. To the effect of generating engagement and action, Jim deploys certain of the realities that KTB have shaped among other things in the conversations described above. For one thing, he evokes an image of change. This doesn’t fail to find resonance with Patrick and Emily who respond with their own story of the turtles they suspect having been killed by toads. The toad as amazing animal is one of the realities Jim articulates. This involves a toad that defies established expectations and continually surprises, and it is a toad assigned certain positive features. Other toad realities are only hinted at, while others again are actively or passively excluded. Jim hints at a scientific toad when he explains pheromones from crushed up tadpoles. This is a toad known by chemical formulas and controlled experimentation. Crushing tadpoles up and putting them back in the water has

effects that are invisible to toad busters, but known through a trail of scientific reports diffused through forums and other correspondence. The process by which scientists established truths about pheromones and their effect on tadpoles, as well as the process through which KTB came to adopt and adapt the technique is not articulated in the toad talk. What is even less articulated, and what one can only notice by seeing an absence against a possible presence, are the toads as a nexus for conflict. One could depart in this direction from Jim's remarks that until scientists come up with a solution, only manual toadbusting really works. If only manual toadbusting really works, what doesn't really work is fencing and trapping, which is what STTF and Frogwatch have advocated. I am able to make this connection, and notice the absence of such a connection, because it is one that was made in several other conversations on toads. Jim is able to leave it out to the effect of nurturing engagement on the basis of an assumption that it is a set of connections that Patrick and Emily are sufficiently unaware of not to notice it as an absence. In this situation Jim enacts a separation between KTB and members of the community in order to speak authoritatively on toads and thereby nurture engagement, but he also enacts the situation as one that Patrick and Emily can readily attach themselves to, and thereby become toad busters.

Emphasis and remainders should be understood as some of that which enables the toad talk to have the effects it has. If conversations keep toad realities unfinished and always still in the process of enactment and toad talks utilize and mobilize these enacted realities, then it must be reiterated that there are no pure conversations and no pure toad talks. All conversations and all toad talks stabilize and extend, use and mobilize realities to different degrees. Let us consider one final example.

Halls Creek

More than once did I get the feeling that this toads tale I was becoming a part of was approaching its final chapter. KTB were struggling to get renewed funding, STTF didn't do nearly as much as they had done in previous years, Team Bufo was in a process of turning their attention back towards snakes and reptiles, which was their focus originally, and DEC was incorporating more and more of their toad related practices under other branches. In other ways and for other people the tale was only just beginning. During my time in the Kimberley there were four relatively new places for the toads and for KTB. The toads had reached Wyndham and Doon Doon not long before I arrived in January; they reached Turkey Creek early that same wet season and were progressively nearing Halls Creek. KTB had visited

Wyndham, Doon Doon and Turkey Creek several times prior to the toads' arrival with educational and info meetings, but it was one of the first major info meetings they held in Halls Creek that I was a part of at the end of February. Halls Creek is an old gold mining town that lies near the desert about 350 km south of Kununurra. It is a very remote town with a majority of indigenous people, and today Halls Creek is primarily a hub for welfare and for nearby cattle stations.

After a dinner with Mary who invited and arranged the info meeting, a meeting with two friends of Michael's who work with Juvenile Justice and a talk on the local radio, the big info meeting was due at midday on our second day in town in the Shire Hall. We set out chairs with a KTB pamphlet on each and Michael hooks up his laptop to the projector and makes sure his Power Point presentation is ready to go. The meeting has been advertised in the local paper, on the radio and on notes hung around town. The hall gradually fills up after Michael has started and at the most there are about 50 people present. Michael does a toad talk. He tells about the unique biodiversity of the Kimberley and what will happen to the region because of the toads. Accompanied by photos of iconic Kimberley animals, animals dead from ingesting toads and graphs that show declines, he explains how the toads not only impact by lethal ingestion, but also through decimating the invertebrate base and through occupying shelters and burrows that native animals need. He goes on to talk about what can be done. He tells about the fantastic Kununurra community and how they can really see that it helps. What can be done, he says, is to mitigate the impact and buy time for scientists to come up with a solution and for animals to adapt. Toadbusting, he emphasizes, can also keep the environment from becoming thoroughly toad dominated.

Towards the end it is opened up for questions. Some of them concern myths about toads. Someone wants to know if it is a good idea to kill toads with golf clubs, while another one has heard that crows have learned to flip toads over and eat out their stomach avoiding the poison, and wonders if there is a hope that other animals could learn in similar ways. The question round also presents people with the opportunity to share their own experiences and stories of toads. After the meeting, conversations continue outside as the barbeque is going and Dorothea is making a sheet where people can put their name and contact info so they can be contacted when the toads arrive.



The toad talk at Halls Creek

Images and toad realities play a crucial part in fostering community engagement and facilitating toadbusting. But equally as important are the situation and the response. Making engagement is a collaborative process. What is explicitly emphasized in this toad talk is the image of change; what is enacted through the situation is the toad as a community issue. Through images and toad realities, KTB explicate the severity of the situation and provide members of the community with the grounds and means for a commitment to engagement. But engagement is more than anything actualized in the acts of bringing members of the community together, in their acts of connecting themselves to the case by asking questions and telling their own toad stories, and by establishing a commonality for the community. Toad talks nurture engagement insofar as they are practices that facilitate others connecting themselves to the case being enacted.

What people do when they talk about toads

In this chapter we have seen how toad busters and others articulate images and toad realities. We have seen how the toad multiplies and differentiates with different connections, and we

have seen how images of change and toad realities are mobilized in the practices of nurturing and generating engagement. However, the guiding questions for this chapter embody a problematic connection if left unexamined, namely that between images and motivations. In asking the questions as I do at the start of the chapter, I take for granted a connection between envisioning the Kimberley to be changing and that this should necessarily be, or lead to, a motivation for engagement. But articulating an image of change does not necessarily compel one to act (consider the case of climate change, for example). The image of change is not meant to be a necessary and sufficient explanation for why toad busters commit themselves to engagement with the issue. Indeed, for each toad buster and member of the community there is a particular and specific complex of motivational grounds, even while they all share some variation of an image of change. Neither is the act of articulating an image of change in itself a proof of motivation and sufficient to bridge the gaps between images, motivations and action. Instead, what I can say at the end of this chapter is that what emerges from toad busters' practices of conversations and talks are certain images of change and certain toad realities, which incidentally is far from insignificant. But this is a non-explanatory answer to a question that implies a 'why'. It is easy to say something about how realities are posterior to practice; it is much harder to say something about how they are anterior to action, as it is always in practice that we come across them. We wish to avoid having to resort to envisioning some kind of repertoire or repository of images that one can draw on and mobilize, and that exists outside of and prior to practices and things. That would propel us back into dualism. In addition to the long recognized problems with extracting motivation and intention from practice or exegesis (of not being able to observe motivation or intention), ANT and its cognates associated with a "philosophy of adding" (Asdal 2012) have a particular additional problem with saying anything at all about grounds, reasons, causes and everything else anterior to articulation and enactment.²⁹ How, then, can philosophies of adding also become attentive to continuities with pasts?

Marianne Lien (2012) suggests one answer might be found in language and practices of conversation. From the foregoing analysis, I argue that in conversations, one can witness

²⁹ If in philosophies of adding, everything is practice (see for example Latour 1988: 178ff, 218), if what is anterior to practice is also practice, it is the causal connection – or the detachment of that which causes from that which is caused – that is problematic and impossible to observe. If practice is envisioned as a stream or a flow with no a priori given connections or detachments, then the question of how to cut, and the arbitrariness and contingency of cutting, becomes a challenge.

commitments to continuity with the past, and one can witness continuities themselves being created. If conversations enact commitments to continuity with the past, they might also be said to enact commitments to trajectories to certain futures. Herein lies another connection between images and practices, and this is one that, in my case, tells us something about how exactly images of change elicit and necessitate practices of engagement with the toad case.

So what is it in a conversation that we can recognize as such commitments to continuities? Certainly most clearly, it is in conversational practices of reporting and planning that toad busters insert themselves as active mediators interposed between what has happened and what they want to happen, and as facilitators of that change. But as indicated above, I suggest it is also in what is emphasized and what is left out in conversations. It is when Jim articulates an image of change and a toad that defies expectation and doesn't explicate the scientific path behind practices or the conflicts surrounding different technologies of control; it is when Lee connects toads to indigenous issues, to funding and to the history of the toad case, enacting the present as historically situated when it would be equally possible to enact a break and a new beginning; and it is when Robert emphasizes to Jason that there might be great changes in reptile biodiversity and leaves out the controversies and disagreements between the scientific community and community groups on the matter.

Furthermore, which connections work to enact continuity and which would be better left out depends on the situation and the participants. Thus connections for example between toads and the conflicts between KTB and STTF are sometimes emphasized – as in the conversation about the toad on the cattle grid – and other times left as a remainder – as in the conversation between Jim, Emily and Patrick – I argue, in both cases to the effect of generating commitments to continuity and to certain trajectories. Taken as an analytical tool, this gives us something transferable, whilst intrinsically specific to each case. Hence, another implication is that in order to recognize continuities being enacted the analyst must know the remainders, know what connections could alternatively have been made (see also Tsing 2010).

What, then, do people do when they talk about toads? Firstly, they enact certain toad realities and images, and they mobilize certain images in certain practices. But they also enact continuity with the past and commitment to trajectories to certain futures. Conversations and toad talks, as an effect of situational factors in conjunction with what sets of connections are

actualized in them and what sets of connections are made remainders effectively generates commitment to engagement with the toad case.

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Chapter 4

Human-toad entangled becomings

The past three chapters have concerned many of the important aspects of the Cane Toad case in Western Australia and the practices of toadbusting. But the aspects analyzed so far have mostly been all those things that go on around, before and after the actual finding and catching of toads. We have seen some of the complexities of toadbusting, but it has so far for the most part been complexities relating to which other domains of practice are also entangled into toadbusting (e.g. the conflicts of Chapter 1, the uncertainties of Chapter 2 and the images and realities conversed into shape in Chapter 3) as well as other activities that surround, underlie and support the activity of catching and killing toads (having forums, meetings and liaisons, preparing, planning, reporting, documenting, conversing and giving talks). In this chapter, I seek to immerse myself in the concrete corporeal meetings between humans and toads. A first set of questions I ask are the following: On what terms do humans and toads meet? What goes on in these meetings? How do such meetings change both people and toads? Who and what actually meet when people and toads meet?

This chapter then, engages a body of literature one can broadly label multispecies ethnography. A trend towards giving other species a larger role spans several fields in the humanities and social sciences. Arguably, these moves have got to do both with a growing awareness that the animals our human interlocutors live and intermix with are more than just a basis for symbolization, but it also emerges from an intellectual climate where the turns to ontology, relationality, practice and the material have had great influence. Posthumanist writing – either focusing on interspecies relations or on entanglements of humans and things (e.g. Bennett 2010; Haraway 1991) – broadly emphasizes that humans have never been categorically exempt from other species and that human being itself is a more-than-human achievement. Taking cues from actor-network-theory's symmetrical approach³⁰, viewing all entities as heterogeneous relational assemblages, means one cannot categorically distinguish between a human and a non-human assemblage. Or rather, there are no purely human assemblages. The world is flattened and all entities are the same in being composed of their

³⁰ Callon's (1986) paper on scientists and scallops is an landmark in this regard.

relations and connections to other entities, and in all being equally, and infinitely, irreducibly singular and complex. According to this perspective, human entities are intrinsically entangled with other species and things, an acknowledgement of which compels one – whether the primary focus of investigation should be humans or relations – to attend more closely to all these non-humans.

However, I aspire to venture further than to relations between humans and other animals. Some have recently expressed the need to press the turn to non-humans on an additional step. It is a paradox, as Nigel Clark (2011) has noted, that a turn towards giving greater regard to the active role played by non-humans has led to an amplification of the role of humans in the places where we are almost absent. At a time when the world is taken by many to be in an era of the *anthropocene*³¹ and nature without humans is seen to be irretrievably lost, the spheres and domains in which humans are absent are conceptually negated and we are led to look at how humans affect nature at the expense of how non-humans affect humans. So, for example when Bennett asserts – with the intention of distributing more agential force to non-humans – that “[t]he locus of agency is always a human-nonhuman working group” (2010: xvii) she defines away working groups that may not have any human constituents, or at least denies them agency. Or if there are indeed no places or networks free of human influence, we are none the less led to exaggerate humans’ influence and potential control over those places and processes where we are near absent, and “...discourage[d from] thinking in terms of natural systems in which the human imprint is negligible or non-existent.” (Clark 2011: 15)

What about the assemblages that only marginally, if at all, connect to something one could call human? And why is this important for me presently? Many of the toads that are the most important ones for my informants are only marginally entangled with humans. If toad busters were able to draw every single toad into their relational networks, then the toads wouldn’t be a problem. The fact that there are such a lot of toads – the vast majority – almost completely evading human intentional influences is the prime instigator of the engagement with toads in Australia. These out-of-reach toads are the toads that cause my informants the greatest concern and worry. To exclude these from analysis would not do justice to the case and to the concerns of my informants. The case is simply that toad busters are completely

³¹ A term coined by Crutzen and Stoermer (2000) to refer to the present as a geological period where humans are the main force of alteration. It has also been widely adopted and debated across the humanities and social sciences.

dependent on toads for becoming toad busters and for the sustainment of all the practices recounted in this thesis, but most toads depend to a very small degree on humans for their ongoing becoming toads.

But nonhuman assemblages are also important because they present to ethnography quite urgent and pertinent questions that we would benefit from engaging with actively. Hugh Raffles, who has previously studied relations between humans and insects (Raffles 2010) and is now engaged with an ongoing study of stones, asks:

“What about all the other stones on that beach that you didn’t pick up [?...] the ones the story leaves behind, the ones that remain in geological time and only on the periphery of human time, [...] those are the stones that raise the most challenging questions for ethnography.” (Raffles 2012: 528)³²

It is crucial that we do not strip non-humans of the ability not only to create realities for themselves, but also “...to make and bequeath worlds *for others*” (Clark 2011: 45, emphasis in original). However, the question must be raised to what degree moves such as these are possible for an empirical science. Will they inevitably take us into the realm of speculative philosophy and away from the empirical (since our very investigation of non-humans draws them into human networks)?³³ How far towards the stones or toads we didn’t pick up we can go while remaining an empirical science is a difficult, but important question.

What I will explore towards the end of this chapter is thus not that which lies completely outside human networks in time and space but instead those network where we only barely touch and intersect; where we only visit non-human realms, so to speak. Specifically, these are some of the reconnaissance trips where toad busters travel out bush to remote locations to look for frontline toads. A second set of questions for this chapter are the following: How can we understand an event where toad busters visit a world that only

³² Latour has also indicated such an asymmetry between humans and non-humans: “Things-in-themselves? But they’re fine, thank you very much. [...] if you missed the galloping freedom of the zebras in the savannah this morning, then so much worse for you; the zebras will not be sorry that you were not there...” (Latour 1988: 193). With regard to things, Martin Holbraad is perhaps the foremost proponent for experimenting with how we can incorporate things in themselves, in this example as active originators of concepts. He asks: “Might one imagine a thing-centric discipline called pragmatology in which things’ material properties would form the basis of conceptual experimentations that would be unmediated by, and run unchecked from any human projects whatsoever?” (Holbraad 2011: 22).

³³ Similar issues are being tackled by philosophers within the movement called *speculative realism* (e.g. Meillassoux 2008). Graham Harman presents the problem as follows: “No one sees any way to speak about the interaction of fire and cotton, since philosophy remains preoccupied with the sole relational gap between humans and the world – even if only to deny such a gap.” (Harman 2007: 188)

marginally intersects with their own world's relational networks and temporalities? And what can an anthropologist say about the toads that we didn't pick up?³⁴

But before venturing both with toad busters and with theory into these barely charted territories, we need to look closely at the practices of catching and processing toads – arguably the nexus of KTBs activities. Instead of following the toads, so to speak, from being found in recons, to being caught in toadbusts, to being killed and inscribed into data in processing, I will go the other way in an attempt to move gradually closer to the toads that are out of reach, in networks with which we barely intersect.

Processing toads

After a toadbust around a billabong near toad HQ we are back at the depot to process the toads. The billabong is one of the places that are most regularly busted and we frequently pick up large numbers of toads there. We took an Argo and an rough terrain vehicle (RTV) out for the bust and upon returning we lift the large garbage bags half filled up with toads from the vehicles and over to the concrete patio in front of the house. It is an outside area covered by a tin roof and lit up by a couple of strong bulbs. There is a large table against the wall where most of the everyday equipment for toadbusting lies – torches, garbage bags, plastic gloves, scissors and pincers, high visibility jackets, bottles of Dettol (a household disinfectant), rulers, data sheets and various things for vehicle maintenance. Next to the table there are two freezers, one of which has a large yellow sticker on it saying “biological hazard” and a sign over it that says: “If you are putting toads in the freezer, please fill out form or name where they came from.” The other freezer contains food for volunteers. Attached with ropes to a vertical beam roughly in the middle of the space is a large cylinder with CO₂ gas for killing the toads and next to it another table and a few chairs. To the side of the table there are a number of bins of various sizes. Maps of the Kimberley and the Northern Territory as well as KTB information posters for example about how to distinguish toads from native frog species in their different life stages hang on the walls.

³⁴ Some would argue that this last question is neither interesting to ask, possible to answer or anywhere near the anthropologist's domain. And why should we not leave most of these matters to biologist, ecologists and zoologists? I have indicated both empirical and theoretical reason to engage with questions of non-humans in themselves. But most importantly I believe the anthropological mode of enquiry can supplement other fields, as it can access and engage with non-human worlds in other ways and through qualitatively other meditative networks. The analyses and discussions that follow in this chapter seek to explore the limits and horizons of our engagement with non-human alterity.

Michael empties the bags with the recently caught and very much alive toads into a large black bin and fetches a small bucket with a lid with a hole in it and a white ruler (he makes sure it is the white one because it is more difficult to make out the numbers on the translucent or the yellow rulers). He puts a yellow, lemon-scented bin bag in the bucket and puts the lid on. The work is delegated. Michael does the measuring, Elizabeth writes and I do the gassing. It is a pretty routinized process, the steps are well known and have been tinkered with over several years. Michael sits with the large and the small bin in front of him. He reaches into the bucket of toads and grabs one. Many of the ones at the top are hopping up on the side of the bin trying to get out and when he grabs a male toad it sometimes makes the little chuckling release call that only males make. Some of the toads stick together in pairs, as males have latched onto females (and sometimes onto other males) in order to mate (*amplexus* is the technical term), and these have to be plied apart with some force; some toads pee when they are picked up, while some of the toads at the bottom of the bin have light yellowish *bufotoxin* exuding from the paratoid glands on their shoulders, presumably from the pressure of being huddled so closely together with so many other toads. He places the ruler on the toad's back starting at the vent and measures the length to the snout. The toads are not difficult to handle and Michael does it quite fast, dropping the toad into the small bucket with the hole in the lid once it is measured. The lid prevents the toads from jumping out of the bucket, while it is still possible to drop them in. As he reaches for the next one from the bin, he informs Elizabeth, who is sitting beside him with a clipboard with a data sheet, about the sex of the toad and the length in millimeters to the nearest five. She fills in M for male, F for female or J for juvenile (toads measuring less than 85 mm) in one box and the length in another. Michael has done this hundreds of times before and can instantly tell a male from a female by the texture and color of the skin – males are generally rougher and lighter while females are smoother and darker – or from the sound. On the very rare occasion when he is in doubt – in the dry season the difference in color between males and females can be less clear – he tickles the toad on the stomach and if it “chuckles” he knows it is a male. There is a steady stream of “male 120, female 135, male 115” and so on from Michael as Elizabeth writes and I wait for the first bag to be ready for gassing. Once 15 toads have been measured, sexed and translated onto the datasheet, Elizabeth lets Michael know and he takes the bag out of the bucket and hands it over to me. I take it over to the table by the gas tank while Michael and Elizabeth go on with another bag. I stick the hose from the gas tank into the bag and use my hands pushing down on the toads to press all the air out. I can feel the toads through the semi-translucent plastic and I can make out the contours of the toads as they jump up against the inside of the

bag. With a turn of the regulator on top of the tank, CO₂ quickly fills up the plastic bag and in less than ten seconds the bag is filled to the size where you can only just reach around it and I turn the gas off, tie it up with a balloon knot and put it to the side. I finish my bag just before the next fifteen are ready to be gassed. Once the bag is filled with gas, there is only a hop or two to be heard from the toads for a few minutes, and then they have all gone to sleep and will be dead within a few hours. The stream of “male 115, male 110, juvenile, female 140” and so on, continues until all the 142 toads that we caught this time have been through the process.

Every now and then during the measuring, Michael stops for a few seconds and feels the stomach of a toad. If it feels like it is quite full he puts the toad aside in a different bucket – there are mostly large females this time. He has put these aside for dissection, and since the toads have to stay in the CO₂ filled bags for at least four hours – they are usually left overnight – Michael has to euthanize³⁵ these in another way, by pithing. He prepares a table for dissecting by putting a garbage bag on top of it and finding a couple of scissors and pincers. He then takes a toad, puts it on the table and kills it by inserting the scissors firmly through the skull of the toad and into the brain. The toad dies instantly.³⁶ Michael then flips the toad over on its back and cuts it open by making an incision on the stomach almost down by the vent and cutting along both sides of the toad so that the skin of the stomach can be neatly folded back. He then starts by cutting out the lungs to check for lungworm parasites. He inverts the lung over his finger and counts the number of parasites on each lung. The first one didn't have any, to which Michael notes jokingly, “Nice and pink lungs – she's not a smoker.” Elizabeth writes down how many parasites on the back of the data sheet, in this case zero. After that, Michael cuts out and opens the intestines. He then spreads the content out on the table separating the different things with his finger to discern what they are. In this evening's toads he found some leaves, a few bombardier beetles, a couple of crickets and some termites. Other things that frequently find their way on to the data sheets are whether or

³⁵ Euthanize was the term that was most often used, in addition to terms specific to the method, such as “to gas”. There are many intriguing questions one could ask about this choice of wording. My understanding is that it signals a wish to give the toads as far as possible a “good death” and that it enacts a separation between methods where this is a concern and methods that the KTB disapprove of, such as using golf clubs or rocks. For my own part, I do not wish to imply a value judgment in using either euthanize or kill and I use them interchangeably for want of a more neutral term.

³⁶ The first time Michael showed me this method he felt he had to explain that it was a “humane” method despite the fact that it looks quite brutal, and that it is also a method used by the DEC and by scientists.

not the toads are gravid (the term used for toads carrying eggs) and whether or not they have cysts on their stomach.³⁷



Lungworm being counted during processing

The next morning I take the dead toads to the toad pit. The toad pit is basically a large narrow hole in the ground about a meter deep. I load the yellow bags on to the back of the RTV and drive to the pit which is about 50 meters away. I empty the toads into the pit as quickly as I

³⁷ There is considerable variation even in this quite routinized procedure. There are often practical considerations that can mean the toads are put in the freezer overnight for processing the morning after; some bags are filled with more than fifteen toads, some with less. If large groups have been out toadbusting, there is often more than one such pair of measurer and scribe processing at the same time. People have different speeds and styles of measuring, some are more thorough and accurate than others and with toads from certain places accuracy is deemed more important than with toads from certain other places; sometimes dissections are done, sometimes not and dissections are done for different purposes, be it for stomach content, for lungworm, for both, or for something else altogether. Not uncommonly, processing has to be done in other locations than at toad HQ, places where there is no gas bottle and no freezer. Out bush, toads are often euthanized using Dettol. The use of Dettol is effective, but controversial. There has been quite a bit of conflict around the use of different euthanizing tools. DEC use cooling then freezing, does not support the use of Dettol (partly because it is an off the shelf product and partly because they consider it not to be sufficiently humane), but they do condone the use of CO₂ after a conflict with KTB over the issue. KTB use all the different tools, each when deemed most practical, but have a preference for CO₂. In the federal governments recommendations (<http://nrmonline.nrm.gov.au/catalog/mql:2853>) CO₂ is considered acceptable along with stunning followed by decapitation and an aerosol spray called "Hopstop" which has been developed especially for the purpose, while both cooling then freezing and Dettol are among the methods not considered acceptable.

can, trying not to breath in too much of the rank, indescribable, but unmistakable, smell of half rotten toads. The toads from the toadbus a couple of days ago, at the bottom of the pit, have become a fluid mosaic of indistinguishable toad parts in various hues crawling with insects, and when I dump the new ones in, hundreds of flies rise from the toad slurry. The contents of the pit are dug up once in a while by Tom, a KTB board member, who uses it as fertilizer for his tomatoes.

This event is one in which human and toad bodies meet and entangle. It is a process that starts with garbage bags of lively toads hopping, jumping, peeing and chuckling and ends with a pile of dead toads in a pit as well as a filled out datasheet – it transforms living toads into data, knowledge and toad carcasses. The practice of processing toads is an ontological choreography (Cussins 1996) of entities and practices in coordinated action. A relational network consisting of bags, bins and buckets, rulers, a gas cylinder, a datasheet, scissors and pincers, two toad busters and an anthropologist constitute a trail through which the toads are displaced and their identities shift and alter. The toads have been removed from the environment and constitutive networks of which they previously were part and placed in a network that enables them to be killed, to be made into data and to be known in a certain way.

It is an interface characterized by several textures (Hayward 2010; Law and Lien 2012) and mediators. In relation to Michael, the toads are wet, muddy and sometimes bloody. To my touch – mediated by a plastic bag – the toad are mere contours and motion. All in all, they flow through the process quite smoothly. The temporality of processing is aptly described as smooth and rhythmical. But this is also an accomplishment of the coordinated actions of the processing network. There are many little things, seemingly inconsequential in themselves, that when placed into the choreography of processing elicits and enables the smoothness of the activity. The processing flows thanks to, among other things, the lid with a hole in it – without it the toads would jump out of the bucket and there would be a lot of work running around after escapees – the white ruler which lets Michael read the numbers without any trouble and the trained hands and eyes of all of us, which means that Michael doesn't have to struggle with a slippery lung or an ambiguously gendered toad or that Michael and Elizabeth doesn't have to wait for an anthropologist who gasses the toads too slowly. But sometimes toads resist or act disobediently, despite a well functioning choreography, and this leads to a more punctured temporality, to breaks and periods of intensity instead of an even flow. Sometimes a toad manages to hop out of the bin because it is filled up to high with

toads, sometimes a toad pees on you when you pick it up from the bucket, sometimes there's a hole in the bags we use to gas them and sometimes the anthropologist (before having seen sufficiently many toads) is unsure whether he is measuring a male or a female and has to ask for guidance.

The ontological choreography of processing toads makes it possible to enact them in a specific mode of generalization (cf. Winthereik and Verran 2012). They are for the most part enacted through a one-many mode of generalization in which a toad is simply a toad, an example of a general toad. They are stripped of the specificities that their own relational networks would have given them and enacted as quantifiable, discrete objects with distinct variables and not idiosyncrasies. They are severed from nearly all their relations and connections and enacted as discrete entities. These are not singular, complex and uncertain toads, but toads that are enacted through handling, measuring, sexing and inscribing as an entity which is the sum of the variables species, sex and size. Some are singled out for closer scrutiny and taken through a trail that makes visible certain other variables as well, such as stomach content, gravidity, cysts on stomach and number of lungworm. As such, they are shown to be very much multispecies toads.

It is a process that both pacifies and potentially activates toads. Placing them in a toad busters' network and temporality renders them passive, but translates them into data that potentially can be mobilized in other settings. This way of meeting toads bears significant likeness to how animals are treated in laboratory science. In lab-based natural science there is also a specific material relational network that enables the objects of enquiry to emerge as quantifiable, discrete entities, with variables rather than idiosyncrasies. A network and choreography can for example transform toads into numbers and graphs that then can be aggregated and mobilized in order to challenge certain theories in biology.³⁸ Also in ecological fieldwork, as described by Roth and Bowen (1999) does such a process occur. They describe an "observational machinery" (722) that turns concrete encounters with lizards into numbers and graphs. However, the objective of processing toads is not just inscribing data. Arguably, euthanizing the toads is even more important for KTB. The processing event is also one that distributes the act of killing toads – by subjecting them to a network in which

³⁸ One example is Shine et al's (2011) theory of 'spatial sorting', where they use the toads as model to challenge classical evolutionary theory by arguing that species traits can be selected not only because they are the most viable, but also because they are the traits that enable individuals to spread faster and further where a species is expanding its range. That is, phenotypes can be selected through space, not only through time.

they can only mildly resist and by inserting mediators such as gas tanks and plastic bags between the toads being killed and the toad buster doing the deed. The case of pithing, by contrast, is quite different, and Michael told me on a few occasions that it would be unbearable for himself if he had to pith every single toad. Paraphrasing Lien on killing salmon (Lien in prep.), in some choreographies sentimentality is not needed.

The fact that killing is the prime objective, and not just necessary for data production, which is the case in biology, also makes KTB's practices different from science. Whereas the processing event may resemble many other cases where animals are killed and inscribed into data, it is in a sense also the opposite from most of these. In biology, animals are usually killed in order to create data, but practices of processing toads, the data are created for the sake of catching and killing toads more efficiently. However, as we have seen from the previous chapters, killing toads is not perceived to be a good thing per se. Rather, killing toads is seen as necessary, indeed imperative, in order to protect and care for the Kimberley.

The toads can resist the process, but they also sometimes resist the mode of generalization that the process elicits. This didn't happen in the event described above, but it is not uncommon that toad busters come across toads that are ambiguous in some way or toads that they don't wish to strip of any specificity. These could be toads with abnormalities – such as too many limbs – that are preserved singularly for shipping (see note 25); it could be toads with discoloration, the reasons for which are uncertain; it could be toads with extraordinary stomach content that subsequently find their way into toad talks; or it could be any other toad that they don't know what signifies and thus resists being reduced of specificity. Even though it is a process that enacts toads as passive and generic, it is not a process that excludes the possibility of specificity and surprise. Toad busters are readily open to observing and taking into consideration specificities and particularities. Roth and Bowen recount how lizards are being made quantifiable, and the processes through which the multitudes of uncertainties and doubt that are present in fieldwork are transformed into matter-of-fact propositional knowledge in formal academic settings (Roth and Bowen 1999: 720). The difference here is both that KTB's knowledge doesn't quite go through the same processes and rarely reaches formal academic settings, but it is also a matter of KTB's commitment to intervention and engagement with something highly specific. If KTB's goal were to say something about evolution, then most specificities could and should be taken away from each toad, but when the goal exists in relation to those specific toads it is another

matter entirely. Furthermore, they differ in that the ecologists described by Roth and Bowen create ahistorical data about the lizards they process while both KTB's toads and their data are specifically historically situated, having significance mainly insofar as they relate to the ongoing trajectory of the spread of Cane Toads into the Kimberley. In other words, toads in the practice of processing are not exclusively enacted as generic one-many toads but also, though to a lesser degree, through a whole-part mode of generalization (Winthereik and Verran 2012), where certain parts are connected to and productive of emergent wholes, such as for example the ongoing trajectory of the toad invasion.

Toads can be specified at different levels of scale within a one-many mode of generalization, for example as individual animals or as an individual species or even as lungs or lungworm. It is not given what the units and the general should be. Particularity, no less than universality needs to be enacted in practice (see for example Choy 2011). A call for complexity is often an insistence that our objects of enquiry resist universal claims, but it can just as well be that they resist being particularized and divorced from a multitude of different wholes. In a whole-part mode of generalization, the given entities cut across scales and domains and have to be held longer in a state of indeterminacy, neither as particulars nor as generalities, but as entities that emerge from different practices.

In this account of processing, the toads appear as relatively passive, only mildly resisting the networks and temporalities that they are being aligned with by much more active toad busters. This is indeed how, thanks to the ontological choreography of processing toads, they emerge for toad busters. But as we shall see, for this to be possible toad busters have to enter worlds, temporalities and relational networks where the toads are the much more active.

Toadbusts

Having participated in fifty-odd toadbusts over the course of the fieldwork, what strikes me most is the variation. The diversity of toadbusts themselves is something I can only begin to convey within the bounds of this thesis. The toadbusts presented here should therefore not be taken as typical or necessarily representative toadbusts; neither should they be viewed as unusual or extraordinary. So while presenting two toadbusts that are quite different from one another is a point in itself, the toadbusts I will present are first and foremost chosen, cut and given descriptive emphasis in order to display the human/toad interface and allow us to discern certain features of this relation.

Toads around town

On an evening in early February, I was out with Jim for a toad bust at a few places around Kununurra. We left before sunset, at about half past five. We were supposed to pick up a few other people, but they couldn't make it after all, and so it was just Jim and me. The first stop was a dam by a sandalwood factory only a few kilometers outside Kununurra, just off Weaber Plains Road. This road leads from town and out towards the Ord Stage Two agricultural scheme which is under development. There the road turns into a dirt track which takes you out to Legune Station in the Northern Territory. On another occasion Jim had called this road a "super highway for the toads". But this time we pulled off just outside town by a man-made little dam beside a factory for processing sandalwood trees. We were there a bit early and got to see one of those beautiful Kimberley sunsets before we could get started. Once it had gotten dark, we fetched our torches and some bags and went in separate directions to look for toads. I saw one almost right away that managed to escape into the tall grass, but other than that it was slim pickings. Jim, on the other hand, had stayed closer to the dam itself and had a dozen or so toads when I walked back to catch up with him.

After another little look around the edge of the dam, we decided to move along to the next spot Jim had planned. We tied up the bag and marked it so we would know which toads were from which place and chucked it on top of the car. The next place was only about fifty meters down the road, a place called The Sandalwood Factory Café. In front of the café there was a large boab tree standing on a small patch of grass watered with sprinkles and lit up by strong lights. Jim told me as we pulled up that they always found a lot of toads here, since they are attracted by the lights. We got out and walked over to the lit up tree. Tens of toads were sitting on the wet grass near the lights flickering with thousands of insects. Jim walked around picking up the toads, grabbing two or three at the time, and I followed with a bag that he dropped them into. Some of the toads tried to hop away and Jim had to chase after them crouched down towards the ground. We marked this bag as well and headed off to the last place for the night.

This was also just down the road; a place Jim called Uncle Tom's. Jim said Uncle Tom had been busting toads around his garden almost every night since the toads got there, but since he was now in his eighties he couldn't do the entire area. We parked in front of Tom's house, he wasn't home. Then we had a look about the place. We picked up some in the garden, and then we hopped over a fence to get to the two irrigation ponds nearby. There

wasn't much water in them, but quite a few toads. We had to be careful when catching toads from the steep banks of the dam so as to reach them but not fall in. We marked the third bag too and headed back to the depot to process.

This event comprises a series of overlapping, nesting and intersecting moments of entanglement. Some are very short and intense, as the concrete touching of human and toad bodies that happens when one of us picks one up. Others have longer durations, as the ongoing familiarization of toad busters with toad places and the behavior – and behavioral plasticity – of toads (as we saw in the example from Matilda Creek), and no less importantly, the ongoing interweaving of toads and their own constitutive networks and environment. In this case, it is an environment with significant anthropogenic features. These are toads interwoven with roads to spread by, man-made dams, lights that attract insects and sprinklers to give them opportunities to hydrate. They are synanthropes – non-humans that are able to benefit from relations with humans and more-than-human networks. So whereas Jim and I follow the toads and attune to their behavior, the toads are also attuned to anthropogenic, more-than-human environments.

But the toadbust is also a coordinated activity and a choreography of displacement. It is a practice of removing toads from their environment and setting them on a trajectory towards being killed and transformed into data. It is this displacement that is the most crucial aspect of dealing with toads. All the other activities of the KTB are in one way or another in the service of enabling removal of toads.

The Sandalwood Sanctuary

It is a wet and warm evening in March and Keith has suggested that we do a toadbust around the Sandalwood Sanctuary, the area on which KTB's toad HQ is located. We all get ready with torches, spray on Aeroguard – the tropical strength insect repellent without which at least some of us would be absolutely eaten up – fetch bags and bins, and get in an Argo and a quadbike. There are seven of us this evening, all of whom are currently staying at toad HQ (which makes it easy to do spontaneous toadbusts like this).

We drive along the dirt road to where the rows of sandalwood trees begin. An irrigation canal runs along one side of the block of sandalwoods that stand in perfect lines roughly a meter apart. Keith drives the argo with a bin in the back. He drives slowly on the

other side of the irrigation canal from the trees where it is less muddy, while the rest of us catch toads in among the sandalwoods. We have recently had quite a lot of rain and it doesn't take many steps in the mud before my wetsuit boots start to get heavy with mud.

Once in among the sandalwood rows you are almost cut off from the others who appear only by ethereal cones from their torches through the thicket and the dense, humid air. We can see the toads from quite a distance by their eyeshine or by the contours, and once the torch light focuses in on a toad not only your gaze but your entire body feels like it is drawn in that direction. Most of the toads sit quietly and let themselves be picked up, only some take a few hops away and have to be pursued. I pick up the toads with my right hand, grab them quickly over the back and lift them up, and shift them over to my left where I hold them by the back legs so as to be able to hold many toads in a sort of cluster. In the background I hear the sound of the Argo and I see some lights from the others, but apart from that I feel almost alone under the full moon, among the trees, insects and toads. After having picked up a toad it usually doesn't take many seconds before I spot the next and I am in among the trees for some minutes before the cluster becomes so big that I have to go back to the Argo to drop them off in the bin. The toads almost disappear when held by their back legs like this. They hang there almost completely still and I experience them more like a weight than a cluster of toads. Back at the Argo, I meet one or two of the others also coming back with large clusters to deposit in the bin. Few words are exchanged.

After a while we reach the end of the block of Sandalwoods and we continue on around the corner. A couple of us get in the Argo where we sit with our feet outside, ready to jump off if we spot a toad. Keith, who is driving, has a very strong head torch and is often able to spot toads before we do. When he does, he points towards it or simply bobs the cone of light from his torch up and down and says something like "there's one" or "two more over there, see where I'm shining?", and we jump off to get them. He can spot a toad from at least 30-40 meters away and I sometimes notice that things catch his eye which he almost instantly rules out as something else. A few times when I think I see one quite far away Keith corrects me and tells me it's something else; he can just as easily recognize a Green Tree Frog or a Giant Burrowing Frog as a Cane Toad. We head back to process when the bin is almost full.

This toadbust shows a bodily and multisensory immersion in the toads' anthropogenic environment. We attune, but we are also immersed – we affect, but we are also affected (cf. Despret 2004). But it also shows some toadbusting techniques; individual, collective and

distributed. There is the technique of holding toads in clusters which immobilizes them and lets one carry a large number of toads. There is the collaborative action of spotting toads, in which torches direct toad busters' bodies and mediate between toads' eyes and toad buster's eyes. And there is the coordinated action where each of us catches some toads and then returns to the Argo intermittently, and the cooperation involved in following both the Argo going gradually forward along the rows of trees as well as the toads you spot and catch (which I described in a my notes from another toadbust at the same place as resembling a game of snakes and ladders). It is also a good example of the sort of trained vision that toad busters acquire after a while. Keith spots toads and frogs in a similar way to how Ellis (2011) describes skilled vision (see also Grasseni 2004) based on the notion of *jizz* – a vernacular from the world of bird watching (see also Macdonald 2002) – which indicates a way of seeing that is immediate, affective (cf. Lorimer 2008) and lets one recognize species very quickly without consciously evaluating specific traits and features. Together with a network of toadbusting involving an Argo, insect repellent, torches and a bin, these techniques are all aspects that enable the rhythms and flow of the coordinated action of a toadbust.

Toadbusts can be extremely different. Some come close to the processing in the way that they strongly involve human networks and are patterned and flowing thanks to the choreographies and techniques of toad busters. Others are more unpredictable, unstable, happening in places less familiar to toad busters and involving a more punctuated temporality. The latter more closely resemble reconnaissance trips, to which we now turn. Preceded by recon and followed by processing, toadbusting forms the centre of a trajectory and a repeating cycle, while it is also a whole that can encompass the three parts. In toadbusts, toad busters meet the toads somewhere on “the halfway”. This entails more-than-human humans and synanthropic toads – toads and humans that partially share relational networks and who each attune to the other's world – and toad busters with techniques and choreographies to mediate the difference.

Reconnaissance

Recons and toadbusts often overlap and are often done in conjunction. A crucial difference, however, is that on recons one is less certain what one is likely to find. Whereas toadbusts are done in relatively familiar locations where one can be relatively certain there are at least some toads (I didn't experience any toadbusts where we didn't find any toads but recons without

toads did occur), reconns frequently take place in areas that are unfamiliar and where one can never be sure to find toads.

Osmond Valley and Texas Downs

During most of my time in the Kimberley, Jim was KTB's reconnaissance expert and in the middle of January I accompanied him on a four days long reconnaissance trip to Osmond Valley and Texas Downs. These were areas he expected to be near the frontline at the time and the purpose of the trip was to try to map this particular section. It was several hours driving to get to where Jim had planned the first nights camp. First a couple of hours on the bituminized highway, then on a dirt road which at times was very difficult. The road, Jim told me, hadn't been graded in several years and in some places we had to use the GPS to ascertain whether we were on the road or not.³⁹ At some places the road was washed out, at others it was overgrown. Jim had been in the area a couple of months earlier, but hadn't found any toads then. In the meantime the wet weather, he assumed, would have given the toads opportunity to spread further and he was genuinely unsure whether we would find any this time.

We had brought the Argo along on a trailer and once it had started getting darker we took it out to see if we could find any toads. We drove back along the dirt road. Jim drove quite fast at first, but slowed down after a little while and we started looking more closely. We passed a bush fire which Jim reckoned must have been a prescribed DEC burn. It was only a small one and it should stop by the road he said, but we ought to keep an eye on it nonetheless. I sat with a strong spotlight which I shone ahead of us and on the sides of the road. We were looking for eyeshine from the toads' eyes and for the familiar shape of the animal. We stopped by a couple of creek crossing as well to listen for the male toads calling signal. At these places Jim would turn off the engine and we would listen. Each time, we heard only native frogs, Jim told me, which at the time, having only been in the Kimberley for a short time, appeared to me as little more than a cacophony of indecipherable sounds. On a recon trip about a week earlier Jim had showed me how to find toads by their calling signal. He had a recording of the toads' calling on his mobile which he had played back to me and when we stopped by creek crossings he asked me if I could hear toads. Eventually we came to

³⁹ This is not necessarily straight forward either, as the maps can be several decades old and the satellite images (which Google Earth uses) often as much as ten years old. On another recon trip we had planned to check out a dam which John had found on Google Earth and plotted in on his GPS, only to find no sign of it when we reached the correct GPS coordinates.

a crossing where we could hear calling and we walked around the area stopping to listen and then following the sound until we had picked up all the five toads that Jim had heard initially. To me it was difficult both to make out how many toads were calling and the direction that the sound came from.

We had been driving for a little while and I was beginning to think we wouldn't find any toads, when all of a sudden one appeared in the torchlight. I gave the spotlight to Jim and hopped off to pick up the toad. Jim took a brief look at it to see approximately the length and plotted in "TOAD MALE 110" on his GPS. He seemed surprised and almost a bit put off as he had hoped that the toads hadn't come this far. We drove on and soon found another one. I jumped off the Argo and picked up that one as well. Then there were three in quick succession, a couple of big females and a male. We drove on, picking up another three toads before we came to a fork in the road, which was the place Jim had planned to turn around. We didn't pick up a single one on the way back to camp.

Back at the camp we had a look at the data from the GPS. Jim had brought a laptop running on a car battery and he imported the data into a Google Earth map. He showed me how the toads we picked up revealed a pattern. He told me he could notice it when we were out there as well, but the fact that all of the toads were picked up near the different arms of the same creek was much clearer on the map. He told me this could indicate that the toads are coming down through Texas Downs from the big Ord River further up, and not yet along the road. In a few days we were going to go to Texas Downs, and Jim said that "we can make some more assumptions there".

On the third day we moved the camp to a place called Helicopter Springs, in Texas Downs northeast of Osmond Valley. Since we found toads in Osmond Valley, Jim thought there would be good chances we would find toads in Texas Downs as well.

It was an insufferably hot day, 40 degrees and humid, and while we were waiting for the sun to go down so we could go out looking for toads there was nothing to do but find a shady spot to sit down in. A storm was approaching as we were getting ready to go out and after having driven no more than five minutes along the very rough dirt road the rain caught up with us. It was sudden and hard, it felt like being whipped in the face and I had difficulty keeping my eyes open. Soon we decided to turn around and head back to camp to wait it out. The rain kept on as we drove back and the creek beds that twenty minutes ago were bone dry

were now overflowing, melding with and altering the track in many places, and crossings were getting perilous. After about half an hour, the rain had stopped and we were ready to go out again. With the rain came the bugs in the thousands. It was pitch dark as we drove along the now extremely wet track and over fast flowing crossings. Parts of the track had gotten very muddy and some stretches were a challenge to negotiate. I sat with the spotlight and hopped off each time we spotted a toad. I showed them to Jim and he plotted them in on the GPS with sex and approximate size, after which they were put in the bag. We found some toads on the way out, but not many. Eventually we reached a crossing that Jim was unsure whether it was safe to cross, as we might have been washed away. It was flowing fast and the water looked like it could be too high for the Argo and even if it wasn't, you never know when a wall of water could come down at you from further up river (there were plenty of anecdotes about this sort of thing). We picked up a few more toads on the way back as well. All in all we found eight toads that evening.

The plan was to shift camp again the next day to check out another area, but with the heavy rain and the possibility that there would be more rain Jim decided – after a chat with Michael at toad HQ on the satellite phone – that it wasn't worth the risk. If we got more rain we might not have been able to cross that last river crossing and we would be stuck out here at least for a few more days.

Attunement, temporal discrepancy and the toads' point of view

Whereas the toadsbusts described happened in environments partially shared and shaped by both humans and toads (and many more), this recon involved immersion in and attunement to a world where humans are almost completely absent. What do I mean by almost completely absent and barely or marginally intersecting? It could be argued that when I am there with KTB I am thoroughly and completely in a human reality and equally as far from the toads in themselves as I would have been back at toad HQ. However, these are places where there are very few humans living or traveling, and where humans rarely pass through. They are places that are almost not at all anthropogenic, where humans have hardly had any effect or hardly left any traces. But most importantly, they are places where Jim and I are very much at the mercy of non-human processes, temporalities and relational networks. If ethnography is a form of 'uncontrolled immersion' (Willerslev 2007), then so is certainly also some KTB reconnaissance trips. But more than simply attunement to something other than human, and since we are out trying to find toads, we specifically tune in to the toads' world. Moreover,

where in the processing it is easy to see how toads are enacted – most of the toads emerge as clear and unambiguous – in the case of the Osmond Valley recon, the toads are almost completely indeterminate – we’re not even sure if they exist.

Just as a toad bust, the recon involves directed and skilled perception. The example shows a form of perception where the sounds of other species and things are set aside as one attunes to the familiar sound of the male toads’ calling signal; and the vision, mediated by torches, GPS and an embodied and affective ability to immediately recognize the toads’ jizz, zooms in on toads and places where one expects to see toads at the expense of all else that there is to be seen. But it is also a matter of being where and when the toads are. Considerable work is going in to making times and places converge. We have to be out at night in a wet and muddy, hot and humid environment. We also attune to the toads preferences for crossings, creeks, shallow and still water and roads, preferences that go with the season, as more toads are on the move in the wet and congregate around permanent waters in the dry. In short, we go to considerable lengths to assume as many of the toads’ constitutive relations as possible. And as we are searching for something we are unsure if is even there, this is a prerequisite and a way to increase the chances of finding the toads if they are indeed there. The recons still turn out to be very uncertain, though. Not only in the sense of the accumulated uncertainty and partiality of the frontline (as described in chapter 2), but also in a highly immediate sense in which it is far from certain that our times and places should converge with the individual toads that might or might not be out there. Every one of the sixteen toads on the recon in Osmond Valley and Texas Downs were picked up thanks to the intermeshing of a number of temporal rhythms, but it also took a good deal of serendipity.

Furthermore, the techniques and choreographies that in the toad busts act to mediate a difference are markedly less efficacious in the recon. Cooperation, technology and embodied techniques fail to elicit the same sort of flow as described in the Sandalwood Sanctuary toad bust. The fact that we are uncertain about what we might encounter means we have to be dynamic and flexible and open to change of plans. We must be more attentive to the toads’ world than to each other and our technologies of toad busting.

However, despite intense attunement, a temporal discrepancy emerges. Seeking to avoid a dualism of objective and subjective time⁴⁰, I see temporality as an always multiple

⁴⁰ E.g. Gell’s (1992) series A and series B time.

and corporeal effect of entities touching, or as Latour puts it “...*consequences* of the ways in which bodies relate to one another” (Latour 1996: 176, emphasis in original). We can see how this goes for space in the example from Matilda Creek, but how would it apply to the recon case?

As I have indicated, it is fruitful to attend to mediators, to those things that effect and elicit flows and ruptures, rhythms, durations and intensities. And I intend specifically mediators, not intermediaries (Latour 2005: 37ff), meaning that they are entities that make a difference as they are interspersed between other entities. Analogue to the difference between prism and lens (Pedersen 2011: 221), mediators diffract rather than simply transfer, transport or link. Furthermore, they are mediators from a situated point of view and they participate differently in the toads’ activities than in the toad busters’. Thus, the difference in the temporality of the flowing and rhythmical Sandalwood Sanctuary-toadbus and the much more syncopated recon described above comes down to what entities mediate and affect our practices with the environment and how. Mediators to toad worlds – such things as bad roads and bugs, mud and bog, thicket and overgrowth, heavy rain, impassable crossings and washed out roads (but also GPS, torches, insect repellent and the Argo) – give the recon a temporal dynamic and highlight the difference in the temporality of recons from the toads’ temporality. For the toads, these things are not so much mediators that create friction and that have to be negotiated with much labor; rather they are amplifiers and enablers, mediators that work synergistically with the toads. As vegetation lends the toads shelter from the heat of the day and rain and flooded creeks let them spread, breed and hydrate and gives them easier access to food, these are some of the things that enable them to go on with the practices that sustain their being toads. If GPS, torches, vehicles and the like can be seen as extensions or even as parts of our toadbusting bodies, as I argue they can, likewise we must regard the crossings, the roads, the bugs and the weather as extensions of the toads’ bodies. Thus the recon is a matter of extending to attune to the extensions of the toads. Regarded as a form of practice, the mediators mentioned help to sustain both, and in different ways, the practices that make toads what they are and the practices that make toad busters what they are. Recon-time does not flow imperceptibly by or revolve in rhythmic cycles. Instead, it is frequently punctured, syncopated, broken up and intensely event-like. The practice of recons, even while it seeks to

attune to the relational network of the toads, emerges as temporally other.⁴¹ The attempt to coordinate space and time leads to considerable friction.

The temporal alterity that emerges when humans attempt to be in toad worlds gives us a point of divergence that can reveal something about how toads go on with their becoming in their own worlds. Again, this is premised on the view that toads are relationally constituted and extended and that the relations they have with their environment is part of what makes them what they are and enables them to do what they do. Clearly, as I hope to have shown, the toads in the processing are radically different from the toads at Osmond Valley. What we have mobilized through the prism of our mediated attunement is the toads' relational and constitutive networks. And what the temporal alterity grants us is a contrast through which we can grasp some of the rhythms of toad practices and extensions of toad bodies. If – as in Amerindian perspectivism (or in a different way in Haraway (1988)) – the body is where perspectives are situated, and we grant, with ANT, that extensions and mediators are a part of bodies, then couldn't we claim to have partially attained the toads' point of view? Granted we are still keeping with the non-dualist perspectivist notion that "...there are no points of view *onto* things, things and beings are the points of view *themselves*..." (Viveiros De Castro 2004: 11, emphasis in original) then attaining the toads' point of view entails describing the world as it is expressed through toads. This is a way in which we can access and say something about the toads in themselves (or at least very nearly) without having to resort to exegesis or authoritative scientific sources, but rather through the concrete and tangible interfaces between toads and the all the non-toads that they become with. Not quite through contrast and not simply through connections, but through a sort of connective contrast, a contrast that stems from a certain way of connecting, or failing to connect. The world as expressed through these toads is a world of seasonal and daily cycles and rhythms, of shade and humidity, of movement contingent on temperature and access to water, of open dirt tracks, shallow waterways and still water, insects, mud, streams, creeks and crossings. And it is a world where much of what are obstacles to toadbusters are mediators that allow them to sustain their practices as toads.

⁴¹ In an aside one might wonder why the notion of temporality seems to be especially suited for engaging with non-human alterity (see for example Clark 2011; Ingold 2000; Raffles 2012; Serres 1995; Uexkull 1957). Perhaps it is because temporality – more so than concepts of space – can let us see alterity not only as that which is not us, but also as that which cannot fully be comprehended.

If we act towards toads based on our knowledge or assumptions, then the effects of those actions will reveal something that will marginally support or oppose this knowledge. Most of the toads out there are unreachable for toad busters. Thus, the shortcomings of the knowledge of toads and the apparatus of attunement is continually made evident, at the same time as they are continually supported by each of the thousands of toads that toad busters do manage to connect to.

Taking a step back, we are now in a position to ask again how far towards the toads we didn't pick up we can actually get, either as toad busters or ethnographers. In what ways can we know the toads in themselves?

Having indicated some rhythms of toad practices, extensions of toad bodies and the environments with which they intermesh, I still seem to have some trouble stating explicitly what the connective contrast and temporal discrepancy actually say about the toads in themselves. As we access these aspects not directly, but through a contrast, we seem also to be able to describe them only implicitly, from the situated perspective of our mediated attunement. Perhaps this is an indication that we have reached a limit in the experience of other species? Does it mean that multispecies ethnography is always bound by a certain asymmetry?⁴²

To be able only to describe the toads in themselves indirectly or implicitly directs our attention to the difficulty of distinguishing between the meditative networks and that to which we attempt to attune. I have attended to mediators because they are entities that are at the same time part of that which mediates and that between which the mediators are interspersed (i.e. humans and toads). They disrupt the division between humans and toads. These are toads with which we ontologically intermix. The difficulty of distinguishing, then, should not be understood in terms of an uncertainty of where the partition line in actual fact might lie, but rather as a matter of ontological indeterminacy. That we can only describe these toads indirectly is an effect of our connections to them rather than our separation from them, and an attest to our entangled becoming with them.

⁴² On the other hand, it may be argued that the difficulties of knowing other species in a direct way turn our attention to the fact that this is no different from the ways we know other humans, other societies or other things. We cannot truly know how it is to be another human directly and experientially, an acknowledgment of which is forced upon us in the face of the often much more conspicuous alterity of other species.

Perhaps paradoxically then, the toads that affect and alter toad busters the most – both in terms of relations, notably mediators and bodily extensions, and practices – are the toads that are out of reach – the toads we didn't pick up. Eduardo Kohn sees becoming as the transformative ontological blurring that comes as an implication of adopting viewpoints and positions of other beings (Kohn 2007: 7). Reconnaissance, toadbust and processing are all practices through which toad busters become toad busters and toads become toads. These examples show that becoming is far from a matter of free and intentional adoption of viewpoints and positions, and that it also involves resisting the viewpoints and positions of others and the contrasts and frictions that follows from not fully being able to be in radically other worlds.

Conclusion

In this thesis I have crafted creative re-descriptions (cf. Jensen 2012) of matters that straddle ontological divides. From a diffractive field co-occupied by people, toads and theory we have seen toads, toad busters and engagement emerging in a number of different guises.

Many diffractions have happened along the way, but they have for the most part happened at the margins, implicitly. I have attempted to elude certain pitfalls of generalization either by giving empirical shape to phenomena that I have chosen to only loosely define or by taking arguments only so far that they still have some loose ends. I have been reluctant both to take my case as an example of more or less readymade wholes, such as volunteer science, invasive species, Australian culture, community groups or humans and animals; and to use such wholes as explanatory devices. However, if the case forces upon the analysis certain things, one of them is that there must be a middle ground between explanation and exclusion – some way of acknowledging and being attentive to the ways that for example the concept and reality of invasive species is important and effectual in the Cane Toad case, without arresting the term by raising it to another level as a generality, something that the case can be reduced to, or an explanatory key. The sideways anthropologies presented in the introduction are all attempts at creating such a middle ground.

So, if invasive species is a whole, a context or a level of analysis that has remained at the margins, implicitly there, unarticulated but never absent, throughout this thesis; now is the time to bring it to the fore. Recursively, if modeled on my account of the case – an account that has been meticulously grounded, at times obtusely myopic and that has attempted always to stay with practices and relations – what is an invasive species?

What is often imputed to invasive species is that they manifest a particular way of relating to nature; a framework that makes it meaningful to distinguish species that belong to a certain place and species that do not belong (alien, exotic, introduced etc.). Otherwise put, to distinguish between those that invade and those that are a part of what is invaded. In such a version of the concept, one part, that which is invaded, is made to be static, while the invading part is mobile, active and has great altering force. What also follows is a human exceptionalism, where any species can be invasive except for humans. Within such a

framework, the concept of invasive species is strongly bound to a dichotomy of nature and culture. But the actors in this thesis did not articulate something like this very often and it is quite far from what emerged from most of their activities. As opposed to Helmreich's (2009) case, where the concept was continually under negotiation and different definitions abounded, in my case it was largely relegated to the margins, undefined. Neither in practice nor in discourse did the Cane Toad case uphold a clear-cut dichotomous ontology. A reason to mobilize the term again in the conclusion is that there appears an interesting tension where from the outside, Cane Toads often figure as the prototypical invasive species, whereas when one becomes immersed in the complex interaction among and between toads and toad busters they appear as anything but. Firstly, then, we need to divest "invasive species" of any sort of tautological bond to dualisms between nature and culture.

Furthermore, only rarely was "species" the level on which toads were enacted. Instead toads appeared in many guises, most of which cut across levels and blurred species divides. Consider for example a frontline toad, an entity that is a part of the frontline, all the while embodying and producing this emergent whole; or the toad as a nexus around which matters of the community, politics and scientific uncertainties can be brought together; or a toad dissected to reveal an occurrence of lungworm indicative not only of an advancing lungworm frontline, but of the hope of a thinned out Cane Toad frontline, as well as being a possible ally in the ongoing struggle for KTB to be heard and gain credence among scientists and government agencies.

But between all the things that differentiate and complexify Cane Toads, something still holds them together. These things, I claim, are all the practices that concern an unspecified and indeterminate "Cane Toad". In many practices, toads are determined and articulated *as* something: as numbers, dirt and yellow bags, as an amazing animal, as a threat to goannas, as lungworm and stomach content, as frontline toads and so on. From different practices emerge different toads. But it is when such complexity, specificity and partial determination are temporarily held in abeyance that toads are drawn together and unified for toad busters and other people. This happens in more minute practices and arrangements, which seem in a way to inhabit the cracks between all the others more marked out ones. As such, it lies in the very name Kimberley Toad Busters, it is in answering phones at toad HQ, and it is in the moments immediately preceding more specifying practices – before specification, when a toad bust is just a toad bust and a toad is simply a toad. But they don't

appear here as species, let alone invasive species, but as equivocal and open-ended “Cane Toads”. It is when “Cane Toad” is indeterminate that it works to unify. When it is a matter of Cane Toads, or toads – whatever they might be – as opposed to everything else. Cane Toads then, emerged in the practices recounted in this thesis either through something that can be likened to what Holbraad and Pedersen call “abstensions” – abstractions that aren’t generalizations, abstractions that are also extensions (2009) – that is, Cane Toads-as-something; or they appeared undetermined, that is, Cane Toads-not-yet-as-something. Either differentiated and specifically enacted and embedded in practices and relations or unified under the unspecified, porous and partly transparent veil of “Cane Toad”. The toads in this thesis are either multispecies and multiscaled, or unspecified and unscaled.

The preceding chapters have also put us in a position to ask in what sense Cane Toads are invasive. As emphasized in Chapter 3, toads do not invade an abstract, untouched and pristine wilderness – neither Cane Toads nor the Kimberley can be envisioned as static. Rather, they affect and intermesh with specifically situated practices and relations. In a curious inversion of Despret’s notion of domestication as “...practices that allow themselves to be pervaded by humans...” (2004: 125), in the case of the toads we have seen more than anything practices that allow themselves to be pervaded by toads. Toads instigate engagement and elicit the creation of new settings and new realities, which involve – paraphrasing Despret who writes about quite different animals and humans – new ways of being human with Cane Toads and new ways of being Cane Toads with humans (131).⁴³ Synanthropism as figured on the toads appears as inverse domestication, as humans are having their networks and temporalities incorporated into the world of toads. This is the figure of the toad buster. Thus, whereas for example the articulated and for the most part unambiguously quantified toads in the processing event are toads that enable and elicit practices that bring KTB closer to established and standardized science, the uncertain, unarticulated and indeterminate toads of the recon – toads that evade our best efforts of attunement – would scarcely have a place in science. As a way of becoming human with Cane Toads, the scientific borderland that is expressed through KTB could be seen as an effect of the strongly felt necessity of making room for both quantifiable and indeterminable entities. On these borders of science, there must be made room for both practices of care and choice; for both entitative one-many toads and relational whole-part toads.

⁴³ Another point worth noting is that these new settings and realities also involve new ways for example for indigenous and non-indigenous people to interact as well as new ways in which science and community knowledge can intersect.

Just as “species” is a less than helpful level for KTB to elucidate interesting and important aspects of processes involving toads,” invasive” conceals most of the complexities of what is actually happening.

“Invasive species” as diffracted through the toad case appears as an entity sometimes unified, at other times multiplied, emerging differently in different practices; that affects and blends with a variety of different activities and relations and brings about new realities. Perhaps the reason why invasive species went unarticulated was that the case, as KTB engaged with it, so forcefully negated and resisted the concept as normally defined. Perhaps it wouldn’t be completely wrong to call toads an invasive species, but as the reality quite obviously wasn’t that clear-cut, it didn’t help as much as it made matters unclear and out of focus. As KTB continually seek to attune to the ever-changing reality of the toads in the Kimberley, they need articulations of toads that facilitate more fine grained images, not the rough abstraction of invasive species that sharpen boundaries but blur the contents of that which lies on either side. Another reason might be that the question of whether to engage with the case or not – to kill or not to kill Cane Toads – for most people in the Kimberley wasn’t a question at all. It was a matter of course to care about the Kimberley in such a way that the animals one envisioned as part of the community should be protected from this new peril. To reiterate and rearticulate: When it comes to Cane Toads, nothing’s ever stable ... except for engagement.

Appendix 1: Abbreviations

CALM –	The Department of Conservation and Land Management (later DEC)
CDEP –	Community Development Employment Program
CTWG –	Cane Toad Working Group
DAFWA –	Department of Agriculture and Food, Western Australia
DEC –	Department of Environment and Conservation
KLC –	Kimberley Land Council
KTB –	Kimberley Toad Busters
KTP –	Key Threatening Process
STTF –	Stop the Toad Foundation
TAP –	Threat Abatement Plan

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