Community Wildlife Care Education by Wildlife Carers

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Dedication

This thesis is dedicated to the memory of two great wildlife educators;

one globally recognised one local identity.

Steve Irwin

22 February 1962 – 4 September 2006

Ric Natrass

22 December 1949 – 4 September 2009

It is up to all of us to finish the job they began.

Abstract

It has been suggested that the most important role of volunteer wildlife carers in not the rehabilitation and release of native animals, but the incidental public education they provide. The problem for me, a wildlife carer and educator, was the lack of any information about the public or community education role of wildlife carers. The aim of this thesis, therefore, is to describe the community education role of wildlife carers. At a later time, the ultimate goal is to provide adequate carer training in this area.

In order to examine community education by wildlife carers I asked carers what they do that they believe to be environmental community education. Using interpretive inquiry as my guiding methodology, and interview and questionnaire as data collection tools, I invited wildlife carers to share with me their stories of community or environmental education. Twenty-two wildlife carers from across Queensland, Australia told me about their experiences educating the general public about wildlife. The resulting research narrative was cumulative, with various versions of the emerging narrative being offered back to participants and the wider wildlife caring community to ensure I was telling their story truthfully.

I used the stories from my wildlife carer participants and related literature to describe a new construct: community wildlife care education. The emergence of this new construct provides the basis for the distinctive contribution that this thesis makes to community, wildlife and care education. Community wildlife care education has social, temporal and spatial dimensions but it is the social dimension that is dominant. Informal learning encounters between wildlife carers and members of the public are social. Our first experiences of care as humans are social. Care is expanded through the temporal and spatial dimensions, including the development of care for wildlife.

An examination of the theoretical roots of social learning highlighted the existence of wildlife caring as a community of practice. Placing wildlife caring as a community of practice explains the place of wildlife caring within the wider social community, and has implications for the development of training for wildlife carers. Moving forward, I see this as the most important practical outcome of this research.

Primary, secondary and tertiary levels of care are all explained within the community wildlife care education construct. The bulk of primary care for wildlife falls on the shoulders of wildlife carers themselves. The focus of much of their public education is on developing skills for secondary education and should, therefore, become the focus of future training of wildlife carers for their community education role.

The study concludes by recognising the value that wildlife carers themselves place on community education, and the potential for improving community wildlife care education outcomes. It is also proposed that community wildlife care education could be applied to other community and environmental education groups such as zoo workers, environmental education centres, volunteer bush regeneration groups, and domestic animal care education groups.

Statement Of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, this thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Deborah Anne Turnbull Date

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Statement Of Acknowledgement

I would first like to thank my participants who willingly and articulately shared their stories with me. This is their story; I am just the story-teller.

No PhD thesis is completed without the support of a supervisory team, and I had the best. Associate Professor Deb Heck and Associate Professor Darryl Jones stood beside me and guided me from start to finish, through times of personal and academic difficulty and times of celebration. As well as being very clever, I could not have asked for two nicer people to share this journey with me. I would also like to thank my two other supervisors who helped at the crucial times of the beginning and the end. I really do need to thank Professor John Fien for repeatedly asking about the epistemological underpinnings of my early thoughts on what the research might look like. Similarly, I need to thank Dr Ray Brown for asking; "What exactly do you mean when you say…?"

My family never stopped believing that I could do this, and for that I am very grateful. They did not nag me, but there were regular reminders that maybe I was doing too much caring for wildlife and not enough study. I had a few friends who did this too. I'd like a dollar for every time someone said, "But what about your study?" In particular I would like to thank Fran, my 'other' supervisor and friend. At times I really did need to have someone to tell be to stop reading and just write!

Chapter One
Introduction

This introduction gives a sense of the temporal development of the research project, beginning with the journey from working title to the emergence of a new construct. Focus then turns to the identification of a research problem, and the potential this research has to impact on community education within the context of volunteer wildlife caring. Finally, a summary of the thesis chapters is provided.

This thesis does not follow the typical 'running order' of a doctoral thesis. The research seeks to explore and describe an emerging construct, rather than to prove or disprove a hypothesis. In this thesis, the idea of a potential construct existed in just a few academic papers. It was explored from the point of view of practice, and then placed within the literature. An extensive review of literature is usually conducted at the beginning of the research process to identify a gap in the literature that can be filled by the subsequent research. In this research thesis a significant review of the literature is placed after the data analysis and guided by the results of the study. Rather than finding a hole in the puzzle and then creating a piece to fit, a new piece was identified and its place within the literature was found.

From Working Title to a New Construct

This thesis was a journey from a working title to a new construct that was as further from the working title than I could have imagined. The one element that did not change across the thesis was the wildlife carers who inspired the research. The new construct, community wildlife care education, is about what wildlife carers do when they interact with members of the public, family members, institutions, and veterinary professionals, and engaging in conversations about wildlife.

In a practical sense, wildlife caring is the rescue, rehabilitation and release of injured and orphaned wild animals. The major component of wildlife care work is the care, in the carer's home, of injured and orphaned animals that had been taken to a local veterinarian by a member of the public, delivered to the carer's home or rescued by the

carer. As all the participants were from Queensland and operating under the same permit and regulation system, it was expected that all wildlife carers who participated would have a similar understanding of what it meant to be a wildlife carer. The use of the term 'wildlife carer' in the working title would not be interpreted significantly differently across the range of carers who could potentially participate in the research.

This study was not focussed on the core rehabilitation work of wildlife carers. The focus was on what Tribe and Brown (2000) refer to as an incidental side effect of the interactions between wildlife carers and members of the public. It was about what members of the public might learn from wildlife carers. It was therefore important to have a working title that reflected the specific aspect of wildlife caring that was the focus of the research. Rehabilitation techniques were not the central question. Broadly speaking the research was about education. This could mean a one-on-one interaction with a stranger, discussing the 'personality' of a particular species with a family member, or addressing an assembled group about that species' habitat. Education could also mean the training and mentoring of other wildlife carers in the processes of rehabilitation. The term 'education' needed to be modified to exclude the training of other wildlife carers, but to include all other forms of education.

Wildlife carers often talk of 'public' education or interactions with 'members of the public' but the term public education was rejected. First, it did not exclude the passing on of information specifically related to rehabilitation techniques to members of the public who were attempting to care for a baby wild animal without a permit and without any training. This could be particularly relevant in country areas where wildlife carers are scarce and it can take more than a day to get an orphaned animal to a carer. Second, 'the public' tends to be used for people unknown to the wildlife carer or outside their social circles. For example, relatives, neighbours, friends and local school children are not usually referred to as 'the public'. Another option was 'wildlife' education. This term was considered too narrow and could be interpreted to mean simply teaching people factual information about the species of animals in their care. This may well be what most wildlife carers do, but I needed a working title that would allow participating carers to think beyond just wildlife knowledge. A third possibility was 'conservation' education but conservation can be perceived as a value-laden term associated with more extreme environmental views. Some wildlife carers I know are quite extreme and

passionate about conserving habitat but others are more concerned with animal well-being and caring for individual animals than participating in protest marches. Again, my aim was to include a wide variety of wildlife carers' views and to do that I needed to find a title for the study that invited in all wildlife carers.

In the end, the term 'environmental' education was chosen and the working title became 'wildlife carers as environmental educators'. In the academic literature the term 'environmental education' has a specific meaning (Carlsson & Mkandla, 2000; Knapp, 2000; Palmer, 1997). As a working title for this research it simply meant any form of education about any aspect of the environment. As a teacher with post-graduate qualifications in the area of environmental education I knew that whatever emerged from this study would be likely to fall somewhere within the broadest academic definition of environmental education but, at the outset, this position was unclear. It has been suggested that environmental education is a field that is difficult to tie down and "its boundaries are fuzzy and interpretations of its documents, foundations, and directions are multiple" (Gough, 2012, p. 9). The place of this research within the fuzzy boundaries of environmental education would not be clear until after data were collected and analysed. Discussion of the placement of emerging research outcomes within the field of environmental education was carried out at the end of each data collection phase.

The Research Problem

The current research falls broadly within the bounds of environmental education, but the relationship between wildlife caring and environmental education has not been researched to date. An article by Tribe and Brown (2000) stating that public education was incidental but possibly the most important aspect of wildlife caring, indicated that such a relationship may exist. This research was founded, therefore, on the assumption that wildlife carers do engage in education that is broadly environmental. Given there is no available description of this education it was premature to attempt a study that aimed to measure its effectiveness.

Motivating this research was the simple question: What is environmental education by wildlife carers? The research aim was to provide a detailed description of the practice

of environmentally focussed education by wildlife carers and to place it within the academic literature.

Interpretive inquiry was chosen as a research method that honours the experiences and stories of the participants and provides academic rigor. The study was conducted over three phases of data collection, using interview and questionnaire as data gathering techniques.

What Difference Can This Thesis Make?

This thesis can contribute to both practice and theory. As Tribe and Brown (2000) suggested, public education by wildlife carers has, to date, been incidental. By confirming and describing the role in detail it can become a more focussed activity and specific training can be provided. For some, education of the public will remain incidental, but for others it may become a more purposeful activity. A detailed description of education by wildlife carers and subsequent training materials may also be of benefit to others, both volunteer and paid, who engage in environmental education.

This thesis draws on a range of literature, most notably care and social learning theories. This research enhances understanding of these in the contexts of informal and environmental learning. The thesis can also inform areas of the literature such as stewardship, human-wildlife interactions and community-based learning.

Summary of Chapters

The second chapter in this thesis frames the research. Higgs (2001) expounds four frameworks that underpin any qualitative research project: personal, theoretical, philosophical and methodological. This chapter describes each of these frameworks. A preliminary literature review begins an explanation of the theoretical underpinnings of the research project. This is quite different from the review of literature in a non-narrative thesis that is extensive and aims to identify gaps in the literature. In this thesis it helps bound the scope of the research, both in terms of content and philosophical direction.

In settling on a research design the personal and philosophical frameworks were interwoven. Personal experience as both a teacher and a learner led to particular beliefs about what teaching and learning are, and how they interact with knowledge and with each other. These personal beliefs were foundational to the epistemological and ontological underpinnings of the research design. These are expounded in chapter two.

Chapter two also introduces the research methods employed in this research. Qualitative inquiry is a qualitative methodology based in story. Data come in the form of the participants' stories and the thesis itself becomes a narrative of environmental education by wildlife carers. Key to this research method are the three dimensions found in narrative inquiry but pertinent across other forms of qualitative inquiry: temporal, social and spatial. In this chapter the philosophy of a narrative inquiry approach to research and the processes employed in conducting the research are explained.

Chapter three describes the methods used in the two data gathering phases of this research. The chapter begins with a discussion of validation, including ethics and rigor, as it relates to interpretive inquiry in general, data gathering and data analysis. Next, the data gathering phases are described, including an explanation of each data gathering technique and how participants were selected. Phase one consisted of four one hour face-to-face interviews. A preliminary analysis of data from the interviews was used to create the first of two questionnaires for the second phase of data collection. Phase two consisted of two mail-out short answer questionnaires sent to a variety of wildlife carers across the state of Queensland. The same group of wildlife carers responded to both questionnaires. The first questionnaire drew on the data from the phase one interviews. The second questionnaire provided feedback to participants and further explored issues that arose in the analysis of the first questionnaire. Finally, the principles of data analysis that were employed in this study are discussed.

The first phase of data collection in which four wildlife carers in Brisbane were interviewed face-to-face is described in chapter four. Participant selection, data gathering technique and development of an interview guide are discussed. Transcribed interviews were read for key themes and a preliminary analysis of the data was carried out. While the interview data were included in the overall analysis of the complete data

set, an important use of the initial data analysis was to inform the development of a written questionnaire for the next phase of data collection. Recurring themes within and across interviews were seen as important issues for the participants and formed the basis of the first questionnaire.

Chapter five describes the second phase of data collection. Two open-ended, written response questionnaires were administered approximately four weeks apart to nineteen volunteer wildlife carers from across Queensland. Development of the questionnaires, participant selection and questionnaire administration are described. Responses to the first questionnaire were analysed. A summary of the analysis was included as the first item on the second questionnaire. Participants were asked to comment on the accuracy of this summary. Additional items were drawn from points of difference identified in participants' responses across the interviews and first questionnaire. Some topics that were raised by participants were presented for further comment or detail.

Chapter six of this thesis is a review of literature, guided by the results of the data collection and analysis phases of inquiry. The participant wildlife carers agreed on two key issues. First, members of the public know very little and care little about wildlife, in particular wildlife that lives close to where they live their daily lives. Wildlife carers want people to care more about wildlife. Also arising from the data was a seeming lack of structure to educational encounters, and a lack of training for carers in this area. This review of literature is presented in two sections. The first section examines care theory and includes knowledge and awareness of both the care process and the subject of care. The second section examines social learning theory as it relates to the context of environmental education by wildlife carers.

The major outcome of this thesis is a new educational construct. The proposed construct centres around three major components: informal learning, social learning, and care theory. It includes social, spatial and temporal dimensions. Community wildlife care education by volunteer wildlife carers in discussed in detail in chapter seven.

Chapter Two
Framing the research

In a traditional style of thesis, the first major chapter is a review of literature. In qualitative research theses such as this one, it is less appropriate to place a full literature review at the beginning of the thesis. In this chapter a preliminary literature review will be included as part of the explanation of the theoretical underpinnings of the research project. Further and more detailed analyses of the literature will be found in chapter six. Chapter one includes reference to literature that helps bound the scope of the research, both in terms of content and philosophical direction. Higgs (2001) expounds four frameworks that underpin any qualitative research project: personal, theoretical, philosophical and methodological. This chapter describes each of these frameworks.

Higgs (2001) uses the analogy of research as a carpet woven from theory, personal experience, philosophical beliefs about knowledge and learning, and methodological choices. Personal experience and philosophical beliefs are intrinsic to the researcher and, for that reason, will be discussed together. The impetus for this research came from a single journal article that prompted both personal and professional responses. This chapter will describe the personal journey that led the way to the research, and includes direction from theoretical, philosophical and methodological literature.

Text based predominantly on readings is presented in Times New Roman font, and is left justified. This text draws on the writings of others to justify or explain aspects of the current research. Text based predominantly on personal experience is presented in Century Gothic font, indented and fully justified. This text is based on personal recollections and observations, my research journal and reflections on those notes, and on personal reading in and around my research topic. It forms the personal framework that interweaves with the theoretical, philosophical and methodological frameworks.

> My story begins with memories of cubby houses, bicycles, backyards, my uncle's farm and my cousin's beach house. It is peppered with the important lessons of

childhood like climbing trees, riding bikes, catching waves and green ant bites. A little patch of 'wilderness' was never far away.

Childhood also brought with it the gaining of my most treasured skill – the ability to read. Rainy days were no drama; I would just curl up with a book. I cannot remember ever going away on holidays without packing at least one book. From an early age I had a liking for both fiction and non-fiction – for getting lost in a novel and for reading to learn.

As a young adult my memories include camping trips, kayaks, trekking and beer gardens. If an outside entertainment option was available, that was the one I chose. The patches of wilderness were a little further away, and I would drive to them rather than walk to them. Maybe it was just that my adult activities required larger patches of wilderness than those that were close at hand during my childhood. A teaching career that took me all around Queensland introduced me to some wonderful wild places.

As I moved into my thirties and became more 'grown-up' I sold my four wheel drive and my kayak and bought a house. Establishing the garden was the highest priority with indoor renovations being done at night or in winter. I packed my yard with native plants and a few food trees for me. Soon, all manner of birds and lizards moved in. As I write this an oriole is feeding in a grevillea outside my window. This time also saw me gaining skills and experience as a teacher of children with learning difficulties.

After several years in my house the garden was looking good and it was my favourite breakfast spot. One morning a young butcherbird came in and tried to take a dove from its nest. The dove landed at my feet with a minor wound and I became a wildlife carer on the spot. So began the next phase of my life that saw me gaining skills and experience as a volunteer wildlife carer.

People who rehabilitate wildlife are known by several titles around Australia including foster carer, WILVO (wildlife volunteer) and wildlife carer. In Queensland, Australia there are some regional differences but the generic term used, or at least understood, by most people is 'wildlife carer'. Aitken (2004) defines wildlife rehabilitation as the rescue, and subsequent release, of free-living wild animals that are debilitated and considered unable to survive in the wild without human intervention. Such animals are

those whose lives are apparently under threat, or those whose quality of life in the wild is seriously compromised. Intervention is aimed directly at the specific needs of individual animals and has the sole purpose of enabling their return to a wild existence. These animals are considered to be disadvantaged due to orphaning, illness, injury, incapacity, or dispossession. Examples of illness include poisoning, viral or bacterial infection, or parasitic infection. Injury may be broken bones or head trauma. Being tangled in fishing line is an example of incapacity. Orphaned animals may be on their own due to the death of their parents, abandonment or human disturbance of a nest site.

> I began caring for birds but soon started taking possums as well. Being a teacher allowed me the privilege of being able to take animals requiring frequent feeds to work with me. It also gave the children in my classes the opportunity to meet some of the critters. The teacher in me is never far from the surface and I soon began having mini wildlife lessons in my classroom at lunchtime. Children would learn how to feed and care for the animals, the threats to their wellbeing and some of their characteristics. Some of the veterinarians I have worked with have had annual open days to put their practices on show to the public. I was invited to attend these to talk about wildlife. I was also asked to speak to a Scout group, my local catchment group and other community groups. Within a year or so I had quite a collection of information, posters and other display items.
>
> Teaching others about wildlife came naturally to me. I had been a teacher for many years, I was passionate about the environment and I loved the animals in my care. I did not think much about this aspect of being a wildlife carer and I did not think at all about whether or not other carers were doing similar things. I just saw an opportunity and took it. A chance reading of an article by Tribe and Brown (2000) made me think a little more explicitly about the educational side of wildlife caring and prompted the doctoral journey that produced this research.

Tribe and Brown (2000) reviewed the role of wildlife rescue groups in the rehabilitation of injured and orphaned wildlife and drew a number of conclusions. First, the majority of species requiring care were common and widespread. That is, they existed in relatively high numbers, were distributed widely, were not of conservation significance and the species were under no immediate threat of extinction. Second, the reason animals required care was usually a result of human-wildlife interaction (e.g. vehicle accidents, domestic animal attacks, poisoning). It was also found that a large proportion

of animals die in care and that little information is available regarding survival upon release. Finally, it was concluded that the situation in Australia is similar to that in the United States.

Tribe and Brown (2000) also identified an interesting 'however' in their article. That is, the educational message that wildlife rehabilitation inspires. Even though wildlife rehabilitation may have little impact on the preservation of species, there is an indirect but non-the-less important educational benefit. Wildlife rehabilitation organizations raise community awareness of the impacts of humans on wildlife. In the United States the majority of wildlife carers are interested and actively involved in public education about wildlife (Tribe & Brown, 2000). Wildlife rehabilitation provides an opportunity to interact with wild animals in a meaningful way that promotes a sense of stewardship.

The educational message inspired by wildlife rehabilitators can be direct through community involvement in the care of injured and orphaned animals, or through local habitat protection and conservation efforts. There are also indirect benefits such as the promotion of the problems facing wildlife and how these problems may be reduced or prevented. An additional feature of education by wildlife rehabilitators is that they have the potential to reach groups that are not targeted by more formal government and non-government programs.

The article by Tribe and Brown (2000) is unique in its focus. There are numerous books on animal related aspects of wildlife care (e.g., White, 1997; Walveren, 1999), and there are papers that focus on release (e.g., Augee, Smith & Rose, 1996). All of these could be said to address the 'core' purpose of wildlife rehabilitation – the release of healthy animals into the wild. While Tribe and Brown acknowledge some of these core aspects of wildlife rehabilitation, they also discuss incidental components that may be at least as important as the core rehabilitation work. They go as far as to suggest that the educational message it inspires may in fact be the greatest benefit of wildlife rehabilitation.

It is interesting to note the lack of other published work that supports the Tribe and Brown (2000) position. Four years after this article Aitken (2004) published a book that covered some of the same ground, and supported the value of wildlife rehabilitation in

conservation education. These documents stand alone and are seminal in drawing attention to the valuable education role of wildlife carers. That is not to say that wildlife carers themselves do not perceive themselves as educators, just that the wider conservation community does not identify them as a valuable avenue for conservation education. This is despite public education being identified in the Code of Practice as an objective of wildlife rehabilitation (DERM, 2010).

Aitken (2004) writes from an English perspective and agrees that wildlife rehabilitation has subtle incidental or indirect conservation benefits, including public education and raising awareness of issues impacting on wildlife. Wildlife rehabilitators have direct contact with the public, and simply being there, even without any active education, alerts people to the existence of wildlife in their local area and raises awareness of some of the problems faced by wildlife. Rehabilitators are in a position to educate the public about animal welfare, the ecology of local species and local environmental issues. They tackle wildlife conservation from the 'bottom up' (Aitken, 2004).

While acknowledged by Aitken (2004) as a controversial issue, there is no doubt that having a live non-releasable display animal can be beneficial, particularly when it is a less popular species such as a bat. Meeting a tame bat can help lessen people's fears and misconceptions of the animal and may lead to increased tolerance.

While negative responses to wildlife rehabilitation are encountered, the public attitude toward rehabilitators is largely positive (Aitken, 2004). This can be measured by donations made to rehabilitation groups, particularly following specific high profile events such as bushfires. It can also be measured by the numbers of people who rescue wildlife that they find injured or that they have accidentally injured themselves.

> And so a research question was generated. I would investigate the educational role of wildlife carers in my home state of Queensland. I was interested in whether or not carers perceived themselves as environmental educators, and what they did that they considered environmental education. The conclusions drawn by Tribe and Brown would provide the initial guidance for a review of literature. Two issues, the number of deaths in care and survival rates upon release, probably do not have any direct bearing on education of the general public. Regardless of outcomes, animals are still orphaned, injured and rescued and the public still

needs to be educated about the issues affecting wildlife. In my experience, rescuers do not often follow-up with the vet or carer so the final outcome may not be a significant factor for them. A third conclusion, similarities between the United States and Australia, justifies the inclusion of literature based on American research. Aitken's work in England suggests that the situation is also similar in that country and further extends the pool of relevant literature.

The remaining two conclusions are more directly related to this investigation: the predominance of common species, and harm to wildlife as a result of interactions with humans. The issue of stewardship was also raised in the Tribe and Brown paper and this issue is also likely to be important in informing the course of this study.

Reflecting on my own interactions with the public, I believe there is little difference between an endangered animal and a common one – people do not know much about either! Where I live the common brushtail possum and common ringtail possum are both common, yet many people I speak to cannot tell them apart. When asked what species of possum they had found people would say, "just the normal one," or "the little brown one," or "the one that walks across the power lines." Some people do not realise that there are two common urban possum species. When it comes to local public education, there is no difference between common and endangered species.

Human-wildlife interaction is an area of considerable scope and includes everything from hunting to bird-watching. My interest is not so much in interactions where people have to leave their homes to engage with wildlife, but rather the day-to-day interactions between people and the wildlife that lives where people live and work.

Stewardship is a term I became familiar with during some earlier studies, and in particular during a course titled 'Lend the Land a Hand', a Landcare vacation school (Griffith University, 1995). My understanding of this concept is based on land stewardship in predominantly rural areas. Is this what Tribe and Brown were talking about in their paper, or is there a different meaning to this concept?

The following preliminary review of literature explores three issues: the importance of common species for conservation, human-wildlife interactions, and stewardship. A

fourth concept, urban wildlife, emerged as a concept that crosses over the three initial issues and it will also be discussed here.

Literature Review

Common Species

As Tribe and Brown (2000) point out, the vast majority of wildlife in care comprises common and widespread species, and therefore wildlife caring has very little wildlife preservation impact. The issue, though, is not so clear cut. Other authors give good reason for viewing common species as critically important in the conservation fight. Pyle (2002) sees very little difference between common and rare or endangered species for people with a narrow range of experience. For people who have never left their local area, say the south east corner of Queensland, a species that becomes locally extinct might as well be nationally or globally extinct. A species may still be thriving an hour's drive from their home, but people with a limited field of experience may never encounter this animal in the wild again. For them it is extinct. As species die or move away from an area the overall quality and complexity of the environmental experience lessens for people with a narrow field of experience.

Writers from various disciplines have argued for a number of years that interest in, and care for any animal can be the stimulus for developing wider concerns for the environment (e.g., Aitken, 2004; Hair & Pomerantz, 1987; Myers & Saunders, 2002). Aitken (2004) goes as far as to suggest that without first developing an individual caring relationship with animals, care at the species level may never occur. It does not seem to matter whether people care for common or endangered species, as long as an emotional bond and caring relationship are formed. Simple statistics and common sense would tell us that the vast majority of people will be more likely to form bonds with local common species such as the possum in their mango tree than they are with an unfamiliar endangered animal in another state or country (Low, 2003). Few people have the opportunity to interact with and care for an endangered species in their backyard or local park. We bond with and develop affection for what is common and familiar, and such a relationship with common wildlife may well act as a bridge to caring for the wider environment (Miller & Hobbs, 2002).

Adams (1987, cited in Miller, 2005), found that many high school students in Texas, USA could not correctly identify local common mammals and incorrectly identified them as being common or extinct. Even though a species may be common, it is not necessarily well-known. In an urban area of Melbourne, Australia, Miller, Brown and Temby (1999) asked residents a series of questions about local possums. Of those who believed they had possums living around their house, 65% were unsure of the species. Only 26% of respondents knew which of the two local possums (ringtail or brushtail) was the larger species. An adult male brushtail can be as much as four times the size of an adult ringtail (Strahan, 1995). In the same study only one third of the respondents could differentiate between the two species based on tail colour (brushtails have a black tail and ringtails have a brown tail with a white tip).

In a Melbourne study, Hill, Carbery and Deane (2007) asked people about threats to possums in their suburban environment. Only half of the respondents understood that dogs, cats and foxes were a threat to possums and even fewer (44%) understood the threat of cars. Most residents could not identify common species, had little knowledge of them and were ignorant to the threats facing urban wildlife. The predominance of common species in rehabilitation programs may not be a limiting factor, but rather an asset in any education programs offered by wildlife carers.

One difficulty with the term ‘common’ is variation of a species within its range. It is possible for a species to be common in one part of its natural range and restricted in other parts. This is the case with some mammals found in the greater Brisbane area (Strahan, 1995; Ryan, 2007). Some mammals (e.g., squirrel glider, common brushtail possum) are described nationally as being rare or declining but are common in the greater Brisbane area. Others are common or abundant nationally but rare, restricted or uncommon at the local level (e.g. koala, greater glider). As well as variability in the abundance of whole species, there is variation within species that may also be important. When a local variety disappears, no species goes extinct but something unique is lost (Low, 2003).

Far from being a depreciative factor, it is some species’ abundance that may in fact be what makes them special (Aitken, 2004). Each year, islands like Heron Island, off the north Queensland coast of Australia, are inundated with thousands of breeding birds

such as shearwaters and terns, and also with hundreds of bird watching tourists wishing to experience the phenomenon. A popular local Brisbane event is a dusk cruise on the Brisbane River to view the evening flying fox fly-out (Wildlife Preservation Society of Queensland, 2012a). It is abundance that makes these experiences special.

There are other common species that play an important role in defining human cultural heritage (Turnbull, 2005). Icon species such as kookaburras and kangaroos grasp the attention and interest of people who may otherwise have little interest in the natural world. Australia's coat of arms features the kangaroo and the emu; animals that can only walk forward. The platypus, echidna and lyre bird feature on Australia's currency. From a cultural heritage perspective, it is important that these icon species remain common.

Finally, the word 'common' itself requires some discussion. The use of the terms 'common', 'rare', and 'threatened' belong to a classification system used by wildlife managers to prioritise resources towards those species that are at the greatest immediate risk of extinction (Queensland Government, 2012). It is unfortunate that everyday use of the word 'common' implies lesser quality or significance, giving the overall impression that individual animals belonging to abundant species are of lesser value than individuals that belong to rare or endangered species. Individual animals of an endangered species are no more, or less, valuable than individuals of non-endangered species (Aitken, 2004).

Human-Wildlife Interaction

Quality encounters between humans and nature appear to be a good thing for conservation (Chawla, 1998). A wide glance over the human-wildlife literature reveals a range of possible situations in which encounters with wildlife occur, including: hunting, fishing, camping, hiking, bird watching, nature photography, visiting zoos, ecotourism, and the backyard feeding of wildlife. Encounters such as fishing are consumptive. Activities such as nature photography are a passive interaction between human and nature. Relevant to this study, however, are encounters that actively engage members of the public in education and care. The three human-wildlife interactions that potentially have the most to contribute to this study (zoos, ecotourism, and backyard feeding) are education or care based. Zoos and ecotourism are strongly educational and

may provide insights that will help guide this current research project. The backyard feeding of wildlife is of particular interest because it reflects a sustained local interaction with wildlife based on care.

In an analysis of zoo mission statements, Patrick, Matthews, Ayres and Tunnicliffe (2007) concluded that the clear presence of conservation and education themes suggests that these are important components of zoo culture. Conservation was advocated at local, national and global levels and included the dimensions of awareness and stewardship. Some zoo mission statements described cognitive conservation education objectives such as knowledge or understanding of conservation, and knowledge of interrelationships in the natural world. Affective objectives included promoting awareness, encouraging participation and inspiring a conservation ethic. While there is some question over the overall effectiveness of zoos in promoting sustained behaviour change, Swanagan (2000) suggests that demonstrating animal behaviour in a realistic way and presenting conservation issues can encourage environmentally responsible behaviour in zoo visitors.

> At one south east Queensland zoo, Australia Zoo, I have witnessed the conservation education message being delivered first hand at the tiger show. The tigers were worked to display natural behaviours and these were explained to the audience in terms of how tigers living in the wild would behave. A strong conservation message was also presented, explaining how few tigers are left in the wild, threats to tigers in the wild, and what conservation programs are in place. As a volunteer with a donation tin, at the end of the show I was inundated with people wanting to give money for tiger conservation. It seems that in this particular case the combination of seeing tigers up close and a strong conservation message prompted a generous response from the audience.

Some research suggests that actually being in nature is more likely to produce changed behaviour than experiencing nature second hand (Bulbeck, 2005). Ecotourism takes people closer to wildlife in its natural environment. Animal encounters of this type can produce an emotional response that may then lead to more environmentally responsible behaviour (Bulbeck, 2005). Using willingness to pay as a measure of commitment to conservation of wildlife species, Tisdell and Wilson (2000) found that seeing wildlife in

situ has a positive impact. This impact was further enhanced by the provision of concurrent educational activities.

How then may human-wildlife interactions at zoos and ecotourism sites inform this research project? The two common features of zoos and ecotourism that appear to have the greatest combined effect are observation of natural animal behaviour and explicit conservation education. Seeing the animal in the wild may add a positive emotional dimension. Wildlife carers can, in a small way, mimic these phenomena.

> I personally like to explain the behaviour of animals that may have led to their predicament in a human dominated world, and give the rescuer tips to try to avoid such accidents happening again. I have observed an emotional attachment between members of the public and the animals they rescue. This may be demonstrated by the care with which they transport the animal or in the familiar and positive names they sometimes give to the animal, such as Lucky or Princess. What I do instinctively is not structured and purposeful in the same way that zoo or ecotourism activities may be, but I can see similarities in the process. I would be interested to see what other carers do, and the degree to which what we do matches these more formal programs.

Observation of wildlife and explicit conservation education may also be relevant in the case of backyard wildlife feeders, that is, people who intentionally provide food to attract wildlife to their backyard. People like to have wildlife visit them in their own backyards and many go to great lengths, and sometimes expense, to provide food and habitat for wildlife, especially birds (Jones, 2002; Low, 2003). A review of studies of backyard wildlife feeding (Howard and Jones, 2004) estimates that approximately one in every three Brisbane households intentionally feeds wildlife. Feeding of wildlife is a controversial issue, and a practice condemned by experts in Australia (Low, 2003). There are arguments that backyard feeding facilitates the spread of disease, causes dependence on handouts, results in nutritional deficiencies, and attracts a limited range of the most aggressive species (Jones, 2002; Low, 2003). A positive for conservation though is the connection feeding forms between humans and wildlife. Howard and Jones (2004) discovered a sense of responsibility towards and even ownership of the wildlife people feed in their backyards, and many were keen to learn more about how to improve their practices. As previously discussed, a positive connection with local common wildlife may be a stepping stone to a wider environmental ethic.

Related to the idea of encouraging wildlife by feeding, is the idea of encouraging wildlife by providing a wildlife friendly garden. This generally means a garden that provides the basic necessities for wildlife – food, water and shelter. Again there is a level of controversy. Low (2003) acknowledges the value of getting close to nature, and suggests that conservation does indeed begin at home, but he also points out that our meagre attempts to recreate habitat are no match for the destruction of housing estates and, again, may disproportionately benefit a small number of more aggressive species.

The existence of native gardeners and backyard feeders suggests a place for 'backyard conservation'. These people, although often misinformed or ignorant of the consequences of their actions, want to do something for the environment. This is a group of people who would benefit from conservation education but whom, it seems, are not currently the target of any particular education program.

Stewardship

A number of authors have written of the critical importance of instilling a sense of stewardship in every human being. Macy and Brown (1998) write of the Great Turning from an Industrial Growth Society to a Life-Sustaining Society. Central to this Great Turning is an awakening to a new relationship with the world in which we live. This relationship includes an increased awareness and responsibility of the world around us. Stewardship in rural communities has been evident for many years. Campbell (1994) describes a number of state rural land care initiatives dating back to the 1970s and 80s that preceded the Australia-wide Landcare movement. The Landcare movement was supported by the Australian Federal government at the time with the announcement that the 1990s would be the decade of Landcare. The result is an ever-growing sense of land stewardship in rural communities, along with a growing knowledge-base of how to best care for the rural environment.

While Landcare has flowed into some urban micro-environments such as schools (Campbell, 1994), the sense of stewardship that has developed in rural environments has not necessarily developed in urban environments. Aslin and Bennett (2000) suggest that lack of responsibility towards country or species is more evident in people who live in urban environments and who are distanced from natural environments and wildlife.

This may be changing, as more and more urbanites become involved in stewardship activities. Archer and Beale (2004) describe a number of Landcare type activities that are now engaging urban, suburban and peri-urban residents. These include Coastcare, Bushcare and other bush regeneration activities. Water catchments are being recognised by councils and residents as being a better way to define where we live than traditional suburb boundaries. Urban stewardship projects have generally been uncoordinated and limited in their effectiveness in an ecological sense but they are useful in what Archer and Beale (2004: 326) describe as the "psychological tearing down of fences between people and nature."

> My own local council (Brisbane City Council) is assisting both the ecological and human sides of urban land stewardship by appointing catchment coordinators to bring together interested groups in each catchment.
>
> I see wildlife carers with local wildlife knowledge working effectively at the catchment level. My own catchment group has many people who are very knowledgeable about local flora, but less knowledgeable about local fauna. Working with catchment groups and tapping into their community education programs provides wildlife carers the opportunity to share their knowledge with current and potential land stewards.

Urban Wildlife

Approximately 87% of Australians live in urban areas (Davies, Webber & Barnes, 2004) and urban wildlife is the most common nature experience for many of them. The separation of wild areas from human areas puts distance between humans and nature (Davies, Webber & Barnes, 2004). Some (e.g., Miller, 2005) would suggest there is too great a distance between humans and what conservationists want them to value and protect. If quality encounters with wildlife contribute to the development of a conservation ethic, the urban statistics appear to be a death knell for conservation, but this is not necessarily the case. Wildlife does live in urban areas and at this time some writers (e.g., Jones, 2011, Miller, 2005) see the process of connecting people with nature as happening more in urban areas than wilderness areas.

The literature on human-wildlife interaction in urban areas focuses on the negative and includes species such as possums (Hill, Carbery & Deane, 2007), kangaroos (Inwood,

Catanchin & Coulsen, 2008) and magpies (Jones, 2002). There are abundant other species, particularly birds, that also live in urban areas but do not receive the same attention in academic literature. Many people are happy to share their urban environment with wildlife. In a Melbourne study Hill, Carbery and Deane (2007) questioned suburban residents about their attitudes to common brushtail and common ringtail possums. More than two thirds of respondents agreed that possums should be allowed to live in urban areas and that possums and other wildlife were a pleasure to live with. Slightly fewer, but still more than half, welcomed possums on their property and felt they were an important part of the urban landscape. Less than one third viewed urban possums negatively, viewing them as destructive, noisy, smelly, and a nuisance.

There are a number of significant features of the urban wildlife literature that impact on this research. First, the majority of people (including wildlife carers) live in urban environments (Jones, 2011). Similarly, many species of wildlife live successfully in urban environments (Jones, 2011, Low, 2003). Finally, most people are happy to share their urban lives with wildlife but are unaware of the species around them, their biology, and threats to their safety (Hill, Carbery & Deane, 2007; Miller, 2005; Miller, Brown & Temby, 1999).

Bounding the Research

Bounding the research in a qualitative study is not the same as limiting it. It is similar to refining the research question. Clandinin and Connelly (2000) explain that an inquiry is not bounded by a definitive problem and specific solution but is more a continual reformulation of the inquiry. The bounds of this research will continue to be reformed and redefined as the research progresses and new questions arise as a part of the inquiry process.

Theoretical Framework of the Research

The purpose of this brief review of literature has been to focus the reader on issues raised by Tribe and Brown (2000) as they may relate to the wildlife carers in this study. It bounds the initial stages of the inquiry. The aim has been to familiarise the reader with the local context in which wildlife carers are placed, and to suggest some possible avenues for further and more detailed investigation.

Wildlife carers are volunteers who work to rehabilitate and release injured and orphaned wildlife. Many carers and the wildlife they care for are urban, and most of the species are local and common. Wildlife rehabilitators in the United States and in England embrace the role of public education and there is no reason to believe the situation would be any different in Australia, although this has not been investigated to date.

Humans and wildlife interact often and in a myriad of ways. Some experiences are negative for wildlife, such as being struck by a car, and some are negative for humans, such as destruction and disturbance by possums living in the rooves of suburban homes. Human-wildlife interactions can be positive for animals that enjoy a food treat provided by humans or that live safely in a human provided habitat. Experiences can also be positive for humans who enjoy the company of wild animals living close to where they live and work. A striking feature of these interactions is just how little people know about the wildlife they encounter.

Finally, wildlife carers have the opportunity to be active contributors in the growing field of urban land stewardship. Experienced carers have in-depth local fauna knowledge that may complement the flora knowledge held by Bushcare and Catchment Care groups. Their knowledge of wildlife behaviour may help people learn to live in harmony with wildlife and to protect the areas where they live.

This review of literature was sparked by the reading of one journal article. The next, and most important, step is to see whether these, or other, issues are important to wildlife carers. To do this, questions about the knowledge wildlife carers hold and how this is best represented must first be addressed. The ways in which such questions are asked are based on philosophical and methodological principles.

Philosophical Framework of the Research

Research aims to generate knowledge, and it is beliefs about knowledge and how it is formed that establish the basis of research philosophies, more commonly referred to as research paradigms. There are often considered to be three major research paradigms: positivist, interpretive and critical (Willis, 2007). Each paradigm can be identified by the world view it represents and the perspective on knowledge derivation that it supports (Higgs, 2001). More specifically, research paradigms are described by beliefs

about the form and nature of reality, the nature of the relationship between what can be known and the inquirer, and how the inquirer might go about finding what is believed to be knowable (Hennink, Hutter & Bailey, 2011; Lincoln & Guba, 2000). Higgs (2001) refers to these underlying beliefs as the philosophical framework that is defined by the ontological and epistemological perspectives of the researcher.

Ontology has been variously defined as the nature of reality (Cresswell, 2013; Hennink, Hutter & Bailey, 2011; Mayan, 2007), the nature of being (Liamputtong, 2013; Pascale, 2011) and the difference between what is real and what is apparent (Higgs, 2001). My belief is that reality is contextual, social, emotional and psychological. That is, my reality is constructed according to where I am, who I am with, what I am feeling and what I am thinking. This is a relativist ontology that assumes there are multiple realities (Denzin & Lincoln, 2011), and is consistent with the interpretive paradigm. The underlying belief is that an individual's understanding of reality can change over time and across contexts (Liamputtong, 2013).

> Reality is living the day-to-day grind of life. It is the places we live, the people we live with and the behaviours in which we choose to engage. This is why we say something like, "I can't believe it, it doesn't seem real," when something out of the ordinary happens, like the sudden death of someone close.
>
> I remember being in the middle of Africa on a truck full of travellers trying to cross a border. We arrived late in the afternoon but the police/army was not too keen about letting us into their country. At 4:00 a.m. they knocked down our tents, bundled us into the truck at gunpoint and headed us back towards the border. They were real soldiers with real rifles and real bullets but it felt more like I had woken up in a Monty Python movie. It was so far removed from my normal reality that it was a little hard to understand at first. For the local central African people this was everyday reality and they barely took a sideways glance. The geographical, social, political and cultural circumstances were in a combination I had not experienced before and my concept of what was real was challenged. Now, when I sit in my safe suburban Brisbane living room and share travel stories with friends it still seems unreal.
>
> So, what does this bring to my current study? Each individual carer will bring their version of reality to the study. The geographical, social, cultural circumstances

> will not be as different as in my Africa story, but there will be subtle variations. It is important to me to produce a final document that is inclusive of these variations. I want carers to read the story and say, "That's a lot like my version of reality," rather than feel they are reading about someone else, living somewhere else, and doing something very different. I want the end product to be real and meaningful to all my participants.

Epistemology is about the nature of knowledge (Tracy, 2013) and how it is constructed (Hays & Signh, 2012). It is about the relationship between the knower and the known (Denzin & Lincoln, 2011; Pascale, 2011). I believe that the construction of knowledge, or learning, is an active process and that learning occurs through engagement with a task. This is an interpretive epistemology that assumes the knower and the known interact and shape one another (Denzin & Lincoln, 2008). Higgs (2001) describes knowledge in the interpretive paradigm as comprising "constructions arising from the minds and bodies of knowing, conscious and feeling beings" (Higgs, 2001: 49). Knowledge is "generated through a search for meaning, beliefs and values, and through looking for wholes and relationships with other wholes" (Higgs, 2001: 49). Sometimes this occurs in a social context (Turnbull, 1993). As with my ontological viewpoint, my epistemological views are consistent with the interpretive research paradigm.

> As a child I was constantly being accused of day-dreaming. My teachers made it clear to me that the maths worksheet on my desk was the source of learning, not looking out the window. Many years later I was working as an educational researcher in an office where state-wide tests were constructed and education policies written. Here there was a rule that if someone was sitting at their desk staring out the window they were doing their best work and should not be disturbed. To me, the acquisition of knowledge, or learning, is an active process. For practical learning a hands on approach may be appropriate. For abstract learning the learner needs time to integrate new knowledge into existing knowledge frameworks, to gaze out the window for a while. I am asking my study participants to reflect on their practice in light of an abstraction (environmental education) that I have imposed on them. My research methods will need to give participants time and space to gaze out the window.

The interpretive paradigm, often manifesting as qualitative research, aims to understand, describe, interpret, seek meaning, illuminate and theorise (Higgs, 2001; Liamputtong,

2013), and to gain understanding through a reconstruction of the knowledge of the participants (Guba & Lincoln, 1994; Higgs, 2001; Robottom & Hart, 1993). In short, interpretive research uses the knowledge of participants to describe and understand a phenomenon (Liamputtong, 2013). In addition, interpretive research is holistic, contextual and individualistic, and close to the everyday lives of the participants (Marshall & Rossman, 1999; Liamputtong, 2013). These qualities are consistent with my beliefs about the individual and contextual ways that we strive to understand the world in which we live. In this study, the focus is on how individual wildlife carers understand themselves as environmental educators within a range of wildlife rehabilitation contexts. It is important to maintain the experiential and contextual integrity of such everyday experiences if we seek to understand them fully (Higgs, 2001). The use of an interpretive research method lays the framework for a study that maintains such integrity. Qualitative research, in general, allows for multiple constructions of reality. This will allow for people in different carer-contexts to offer different points of view and for them all to be accepted as true and valid.

> I have argued the philosophical reasons behind selecting a qualitative research style and the task now is to select a particular qualitative methodology. When I first started to think about undertaking this research I talked to some carer friends. Their response was to tell me stories about their own experiences. If this was the instinctive way in which carers responded to my proposal then it should, at least in part, be how I collect my data.
>
> I began to look at narrative styles of research and, in particular, narrative inquiry. What appealed to me most was the holistic way in which the narrative of the research was tied to the narratives of the participants. The idea of a continuous narrative bringing together academic literature, personal recounts and formal data offered the chance to produce a thesis with strong academic rigor, but that was also accessible to wildlife carers. It was clear that the search for a methodological approach would begin with narrative inquiry.
>
> Although narrative was a place to start, it was not locked in as a research method. While considering the research method I needed to keep in mind my knowledge of wildlife carers, where they lived, when they were busy, how they might prefer to interact with a researcher and my own limitations surrounding how I was going to approach data gathering. Selecting a research method was a

process of matching features of narrative inquiry and other research methods against the research question and the potential participant pool.

Research Method

Selecting a Research Method

Narrative inquiry, in general does not have the long history and well-established protocols of other research methods such as ethnography and case study research. As Pinnegar and Daynes (2007) explain, narrative inquiry emerged to fill a methodological gap that ran across a number of disciplines including psychology, education, sociology and literary criticism. Common across these disciplines was the search for a research method that involved "changes in the relationships of the researchers and research participants, kinds of data collected for a study, the focus of the study, and kinds of knowing embraced by the researcher" (Pinnegar & Daynes, 2007: 6). Clandinin (2007) refers to these as the four narrative turns – turns away from a positivist approach and towards a narrative approach to research.

Foundational to the other narrative turns are the beliefs about knowledge and knowing that are embraced by the researcher and, in particular, the belief that there are multiple ways of knowing (Patton, 2002; Pinnegar & Daynes, 2006). Narrative style inquiries are founded on the belief that we construct our own understanding of the world through experience and interaction with others (Dodge, Ospina & Foldy, 2005). The researcher is not searching for a single absolute truth but, rather, for a meaning in context (Bleakley, 2005). To do this, narrative inquirers strive to interpret events and understand behaviour instead of more traditional research methods that aim to count, explain and predict (Ospina & Dodge, 2005). Narrative research is responsive to the participants, the data and the researcher's own thinking over the course of a research project (Smith & Sparkes, 2006). Rather than being guided by a predicted or theorised end point, narrative inquiries allows for different and unplanned ideas to emerge and to become valid research outcomes (Pinnegar & Daynes, 2007). Narrative inquiries embraces different ways of knowing and understanding across different contexts.

It could be said that this movement in beliefs about knowledge and the way it impacts on research methods is common across qualitative research in general (Cresswell, 2013; Hennink, Hutter & Bailey, 2011; Liamputtong, 2013; Mayan, 2009). Patton (2002)

affirms the role of participants' narratives and experience as valid forms of knowledge in the social sciences and qualitative inquiry. "The 'biographical turn in social science' (Hollway & Jefferson, 2000) or the 'narrative turn' in qualitative inquiry (Bochner, 2001) honors people's stories as data that can stand on their own as pure description of experience" (Patton, 2002: 115-116). The use of participants' narratives of experience as data is a valid approach for a range of qualitative research methods.

Focus is also a key feature of narrative inquiries (Chase, 2005; Cladinin, Pushor & Murray Orr, 2007; Connelly & Clandinin, 2006; Ospina & Dodge, 2005; Pinnegar & Daynes, 2007). Here focus refers to whether the focus is close, particular and detailed as in a portrait, or distant and general as in a landscape. It captures specifics of place, context, temporality, sociality, uniqueness and complexity. Narrative inquiries result in a unique and detailed snapshot of particular people, in a particular place, at a particular time, and engaged in a particular activity.

Other qualitative inquirers advocate a portait or close focus approach to research. The focus of qualitative research, says Liamputtong (2013), is on context. In two qualitative research approaches, naturalistic inquiry (Norris & Walker, 2005) and interpretive case study (Willis, 2007), the focus remains as close as possible to the participants and their stories. The idea of a close portrait snapshot put forward by narrative inquirers is also common across a range of other qualitative research approaches.

The belief that knowledge is contextual and that a focus on the particular is preferred, will guide decisions about data and data collection – the third narrative turn in narrative inquiry. Nuances of a particular phenomenon in a particular context can be lost in the translation to numeric codes. Language, on the other hand, plays an important role in studying the particular (Pinnegar & Daynes, 2007). Connelly and Clandinin (1990) suggest a range of language based forms of data collection that may be appropriate in any given narrative inquiry. These include: field notes and observations, journal records, interview transcripts and written documents. The primary working method however is the interview (Connelly & Clandinin, 2006). Essentially, data are the stories participants tell researchers, however they are collected.

In a similar vein, Norris and Walker (2005) identified language and context as key features of naturalistic inquiry, and Heywood and Stronach (2005) emphasized the importance of situated understanding in hermeneutic or interpretive research. Liamputtong (2013) also discussed the recent biographical turn in the social sciences and humanities and across qualitative research in general. She described narrative as a spoken or written account that could include stories of an entire lifetime, a long section of talk, or a story told within a single research interview. Language, says Liamputtong (2013) "transmits objects of thought into a format that individuals can understand. And once it turns into a written text, it transforms into 'an object of interpretation'" (p. 11). These authors place a similar emphasis on language and context in qualitative research as the position presented by narrative inquiry theorists.

Finally, methods of data collection, beliefs about knowledge and the focus of a study will influence relationships between the researcher and the researched. Craig and Huber (2007) refer to their participants as co-researchers, a feature that typifies relationships in qualitative inquiries. They are wakeful of how they negotiate relationships at the beginning, during and at the end of their data collection, and of how they should, or should not, use their participant's stories. Relationships inform all aspects of the inquiry from data collection through to the publishing of reports.

Mayan (2009) says that "*Humanness* is a key element of qualitative research. Qualitative researchers enjoy living and learning with people to collectively make sense of our world" (p. 12), thus highlighting relationships in qualitative research. Mayan uses the word 'humanness', Liamputtong (2013) writes of 'conversational relationships' in data collection, and Merriam (2002) and Cresswell (2013) refer to the 'researcher as instrument'. Each of these typifies the importance of the relationship between researcher and researched, not just in narrative inquiry, but in all qualitative research. Personal qualities that are attributed to qualitative researchers underline the more theoretical features of relationships in data collection and analysis. Liamputtong (2013) describes qualitative researchers as being sensitive and committed. Hannink, Hutter and Bailey (2011) use descriptors such as open-minded, curious and empathic. The foregrounding of relationships between the researcher and the researched is common across qualitative inquiries.

Knowledge exists in the minds of knowing, thinking and feeling beings and as such should be generated through the search for meaning, beliefs and values (Higgs, 2001). To gain a deeper interpretive understanding, an interdependent relationship develops between the researcher and the researched as they jointly construct the meaning of the phenomenon that is central to the research project (Higgs & McAllister, 2001). Emerging concepts may be discussed to clarify and elaborate understanding. Guba and Lincoln (1994) suggest that interaction between investigator and respondent is the only way to elicit and refine what are personal, and sometimes variable, social constructions.

Narrative inquiry is a relatively new social sciences methodology (Connelly & Clandinin, 2006) that shares some features with more established qualitative research methods such as ethnography, phenomenology and case study. For example, the data collection method of participant observer that is often utilised in ethnography is also utilised in some narrative inquiries. Interview is a technique of data collection that is often used in narrative inquiry (Connelly & Clandinin, 2006). Individual interview is a technique that is used widely across a range of qualitative methodologies and may be the most commonly used form of qualitative data collection (Hays & Singh, 2012). Questionnaire is a technique employed in qualitative inquiry (Peck & Seixas, 2008).

Data collection needs to be open or semi-structured to allow the participants room to provide sufficient detail so that the researcher can build an understanding of the behaviour in context. Analysis of the data does not follow a strict pre-conceived set of guidelines or codes. It is open-ended and allows for the participants' responses to drive the construction of meaning. Throughout the process of data collection and analysis the relationship between researcher and researched is balanced (Hollingsworth & Dybdahl, 2007). Meanings are co-constructed with both sets of voices being heard. Provision of feedback to participants after or during analysis is common in narrative inquiries.

Narrative inquiry is unique amongst other forms of narrative research. Methods such as content or structural analysis break text down into its content or syntactic components. Story analysis systematically analyses story parts and ends in an abstraction (Smith & Sparkes, 2006). Narrative inquiry, in contrast, ends in a story (Smith & Sparkes, 2006) and is driven by a sense of the whole (Conle, 2000b). It is open-ended, experiential and quest-like and retains temporal and contextual detail (Conle, 2000b). Narrative inquiry,

say Smith and Sparkes (2006) invites the reader into the story, to think with the story rather than about it.

One of the key features that makes narrative inquiry different from other forms of qualitative research is the use of three 'commonplaces' to specify the dimensions of an inquiry space (Clandinin & Connelly, 2000). The commonplaces are temporality, sociality and place. It is important for narrative inquirers to locate their inquiry temporally, that is to look forward and backwards along the past, present, future continuum. Our participants come to our inquiries with a history, a set of present-day beliefs and behaviours, and some idea of what their future may look like (Connelly & Clandinin, 2006). At the same time, narrative inquirers look inward and outward to consider both the personal and the social. Included in the sociality of an inquiry is the relationship between researcher and participants and the positioning of the researcher in the inquiry (Connelly & Clandinin, 2006). Place also defines an inquiry space. The inquiry may be situated in a single place, or place may be linked to temporality and change as the inquiry progresses (Connelly & Clandinin, 2006). There seems no reason, however, why these commonplaces or dimensions cannot be applied in other forms of qualitative research.

Narrative inquirers and other qualitative researchers embrace the assumption that story is a basic mode of thought and fundamental to accounts of experience (Conle, 2000b, Pinnegar & Daynes, 2007) and that humans lead storied lives (Connelly & Clandinin, 2006). People understand and explain their lives through stories (Hones, 1998), recall, sequence and explain past events (Jovchelovitch & Bauer, 2000; Connelly & Clandinin, 2006), and think, dream and communicate through narrative (Conle, 2000b). Narrative inquiry is the study of experience as story. It is a way of thinking about experience (Connelly & Clandinin, 2006). In narrative research, the inquirer collects, retells and writes stories (Hones, 1998).

There are two features of narrative inquiry that are of particular importance to this study; the prominence of story throughout the inquiry process and the three dimensional inquiry space. Wildlife caring in Queensland is diverse and temporal, social and spatial differences may impact on this research. Other qualitative researcher make one or more of these dimensions explicit (Arnett, 2007; Kennedy, 2010; Pascale, 2011), but in

general the emphasis in qualitative research in general is simply on context (Hays & Singh, 2012; Hennink, Hutter & Bailey, 2011).

The three dimensions of inquiry could, at the same time, provide strength and weakness to this study. The spatial dimension, for example, could become a limiting factor if data collection was restricted to a small geographic region or a strength if the research was seen to be representative of a wider geographic spread. Narrative inquiry relies heavily on face-to-face data collection, a method that is difficult to implement with a small number of participants spread over a wide geographic area.

Narrative inquiry had much to offer this research but it also had limitations, particularly in collecting strictly narrative data from a geographically spread participant pool. In terms of narrative inquiry it was not necessary to obtain data from a number of participants in varied situations, but participant selection was an important issue in this study. A research method with the flexibility to potentially include any number of participants from anywhere in Queensland was required. While this study was guided by the principles of narrative inquiry, it did not follow a strict narrative inquiry regime. The topic was examined within an interpretive qualitative inquiry framework that was influenced by elements of narrative inquiry.

Interpretive Qualitative Inquiry

Consistent with other qualitative research methods, interpretive qualitative inquiry is inductive and emergent (Creswell, 2013; Mayan, 2009). In other words, interpretive qualitative inquiry generates or broadens theory. Data analysis begins in the data, not with predetermined theoretically derived categories. To this end, interpretive qualitative inquiry is useful when existing theories do not explain the phenomenon at the centre of the research (Liamputtong, 2013, Tracy, 2013). A research method that begins with the data rather than theory must also be flexible (Hays & Singh, 2012). A flexible design allows for new ideas and new directions to emerge and guide the research so that the end result may not be what the researcher anticipated at the beginning of the research process.

A crucial component of interpretive qualitative inquiry is that the phenomenon is understood from the point of view of the participants (Merriam, 2002; Chen, Shek &

Bu, 2011), focussing on their experiences (Kennedy, 2010; West, Stewart, Foster & Usher, 2012) and interpretations of those experiences (Creswell, 2013; Liamputtong, 2013; Smith, 2008). The way in which the participants understand and make meaning of the issue is more important in interpretive qualitative inquiry than meanings researchers take to the research or that are found in the literature (Creswell, 2013). Researchers look for how participants define the phenomenon (Chen, Shek & Bu, 2011).

Language is a common feature of data collection in interpretive qualitative research (Liamputtong, 2013). Language transforms thought into a format that can be shared, understood and interpreted. Language as data in interpretive qualitative inquiry can be presented in a number of formats but most often takes the form of oral or written narratives or stories that have been described as a spoken or written account of events (Liamputtong, 2013). A narrative can range from an entire life story to a single interview and includes long sections of talk and interpretive accounts. Creswell (2013) recommends using multiple data collection methods such as interviews, journals, diaries and other written accounts.

Another feature of data collection in interpretive qualitative inquiry is purposeful sampling (Hays & Sigh, 2012; Liamputtong, 2013; Patton, 2002). Liamputtong (2013) describes purposeful sampling as a flexible process that uses some form of conceptual or theoretical framework for selecting a number of information-rich cases. The exact number of cases eventually included in the study is not known at the outset. The number is only known when saturation or completeness of data is reached (Liamputtong (2013). The aim can be to find rich examples of the phenomenon but not necessarily highly unusual cases, or it can be to search for maximum variation by including a diversity of cases (Patton, 2002). The later offers two outcomes; in-depth descriptions of individual cases, and shared patterns that run across all cases. Both outcomes are valued in interpretive qualitative inquiry (Patton, 2002).

Additional features are also indicative of interpretive qualitative inquiry. Tracy (2013) and Smith (2008) discuss the practical nature of this form of inquiry. Tracy describes such research as being concerned with practical and contextual knowledge. Exploration of the lived experience of practitioners in the field can explain complex concepts

(Kennedy, 2010). Interpretive qualitative inquiry is a suitable method of inquiry when researching complex issues that are not adequately explained in the literature (Liamputtong, 2013).

A point of difference between interpretive qualitative inquiry and other research methods is the purpose and positioning of the literature review (Creswell, 2013). Existing literature may be used to guide the development of the research question, in which case the review of literature would be conducted at the beginning of the research process. Alternatively, it may be conducted late in the research process. This may occur when the research question is generated in practice and the review of literature is used to place the research and to document its importance in relation to existing theory.

As discussed previously, the three dimensional inquiry space that is a defining feature of narrative inquiry will be applied in this interpretive qualitative inquiry. The three dimensional inquiry space provides a platform in establishing the context of the research at the beginning of the research process, and to refocus data analysis and emerging research texts at critical points throughout the research.

Inquiry Beginnings: Considering the Temporal, Social and Spatial Dimensions.
The first step in planning for this research is imagining the life space of the inquiry (Connelly & Clandinin, 2006). This means becoming aware of the temporal, social and spatial context in which the inquiry will take place. The inquirer is also encouraged to position her or his self within the inquiry space (Connelly & Clandinin, 2006).

One place qualitative inquirers might choose to explore the life space of their inquiry, and their position in it, is through writing a research journal (Clandinin & Connelly, 2000). A research journal is a place for reflecting on personal experience and on the research process; and is where the two may be drawn together. These writings become the first field texts or data. It is through the personal that I begin to define the inquiry space.

> My experience of wildlife carers is that they define themselves and each other socially by asking three questions: What group do you belong to, what species do you care for and how long have you been caring?

In Queensland, at the time of data collection, the Department of Environment and Resource Management (DERM) is responsible for issuing rehabilitation permits to wildlife carers. Carers have the choice of obtaining their permit directly from the DERM or by becoming a member of a registered wildlife group that is covered by a group rehabilitation permit. The latter is the DERM's preferred option as the groups can provide valuable 'on the ground' support and training for carers.

The existence of a large number of groups, in south east Queensland in particular, is a source of some conflict. Carers will quickly leave one group and join another after a falling out with someone in the first group, because they feel their needs are not being met, or because another group might be cheaper, among other reasons. There are some groups who 'don't like each other' but there are very few original members who can remember why this is the case. Each group thinks they are the best and this can cause some tension when it comes to who is best qualified to look after particular species. For some carers, group membership helps define a wildlife carer. Most of us though do not worry about which group someone belongs to but are more interested in what skills they have.

The second feature that helps define a wildlife carer socially is the species they care for. It makes sense that bird carers will associate more with other bird carers than with, say, koala carers. They have more in common with carers who care for the same species. As with groups, there is a hint of a hierarchy determined by the species cared for. Birds are generally considered the bottom of the pile by everyone except bird carers. New carers are often 'started off' with birds before 'progressing' to mammals. Some animals, such as koalas, raptors, echidnas, and snakes, require specialist knowledge and specialist facilities. Carers of these species require a specially endorsed permit. Given what I have just said about carers being concerned about issues such as 'who is best', you might imagine that these specialist permits would lead to elitism, but this is not the case. Specialist carers are respected for their skills regardless of what group they belong to. They are usually experienced carers who take on mentoring roles and are happy to share their knowledge with others.

Experience, or time as a wildlife carer, is another feature that helps define carers socially. An experienced carer is generally considered to have both many years of experience, and experience across a number of species. Many of these carers

are well known to each other and there is often a high level of respect for each other. Some people have been caring alongside each other for twenty years or more and have supported each other through many non-wildlife events such as moving house, changing jobs and raising children. When they talk, you can see genuine care for each other.

Spatially, wildlife caring in Queensland can best be described as diverse. There are species in some parts of Queensland that other Queenslanders never see. There are parts of Queensland where two carers may live in the same street and other areas where the closest carer is two hours' drive away. There are places in cities where carers are anonymous and few people in their suburb know what they do. In other places, all 2,000 residents in a town may know 'the wildlife carer'. For me, my wildlife caring space can be defined by the suburb I live in and several surrounding suburbs. I have not long had a specialist echidna permit so this space may soon change. There are only two carers in Brisbane that I know of, with an echidna permit so I expect that come spring when the echidnas are more mobile and looking for mates I will be travelling further afield to carry out rescues in areas where there is no echidna carer. Spatiality is linked to experience and species cared for. More experienced carers have a wider caring space than less experienced carers. Carers who care for multiple species generally have a wider caring space than single species carers. Specialist carers will have a wider caring space simply because there are fewer of them.

Given some of the potential tensions within the inquiry commonplaces, I have decided to make the inquiry space as inclusive as possible. The single case studied in this inquiry is not a single carer or any particular group of carers, but rather a collective case called 'wildlife carers'. It is not possible to include all wildlife carers and, indeed, not all carers would want to be included. For my collective case to be seen by other wildlife carers as representative of them, it must be seen to cross group, species, experience and geographic boundaries. The purpose is not to gain a representative sample in the positivist research sense, but to produce a document that all wildlife carers can identify with and accept. I want them to be able to see a little of themselves in the collective case.

Connelly and Clandinin (2006) describe two approaches to narrative inquiry: telling and living. Telling inquiries are retrospective and participants are asked to recount stories or reflect on an event. Living inquiries are participatory and life is studied as it unfolds.

This study adopts a telling inquiry approach where participants are asked to make retrospective meaning of past events. In general, qualitative studies that are hermeneutic, phenomenological or interpretive in nature are retrospective telling inquiries. Participants are asked to reflect on their experiences of the phenomenon being studied (Liamputtong, 2013).

> Looking at my own experiences as a wildlife carer and environmental educator, I wondered if it would be possible to conduct a living inquiry. Many interactions with the public are not anticipated; someone drops an animal at my house or someone approaches me in a veterinary clinic waiting room. Although I do give information to these people, my first goal in rescue situations is to assess the animal and determine the circumstances in which it was found. I tried to keep a journal of these interactions but it was sporadic. Sometimes it would be a day or two before I got the chance to write, and in the busy season (Spring and Summer) I barely had the chance to write at all. This would have to be a quiet season project with writing done in the 'off-season', which is also the time when there are far fewer interactions with the public.
>
> Maybe I could use a participant observer format? Again, the unplanned nature of many of the interactions made this difficult. An alternative could have been participant observer at information booths at fetes, field days and environmental awareness events. This, however, is only one aspect of our educational role – of my educational role at least. I did not want to lose other dimensions such as learning that may occur at rescues, and I was still not sure what other people did that they considered was educational.
>
> It became apparent that the most effective way to gather the most representative data was to sit with wildlife carers after the event and talk to them about what happened. This could include any educational situation they would like to discuss. It also took the pressure off my participants by talking to them in the quiet period when they were not run off their feet with attending rescues and feeding orphans around the clock. So, a telling inquiry was adopted and wildlife carers were asked to recount and talk about past experiences in which they believed they were engaged in environmental education.
>
> The main reason for not taking a living inquiry approach was a logistical one. Most opportunity for public education comes in Spring and Summer when wildlife

> carers are very busy, myself included. I felt I would get more co-operation from carers and a higher participation rate in the study if I avoided those times when we are inundated with orphaned baby animals. If carers had more time to sit and just talk with me I would be likely to obtain a higher quality of data.

Positivist researchers may question the validity or trustworthiness of asking wildlife carers to remember events and to retell them accurately. Qualitative inquirers, though, are not claiming to capture or reproduce some absolute truth (Dodge, Ospina & Foldy, 2005; Freeman, 2007). They draw on one person's (or a group of people) understanding and reconstruction of the past in light of the present (Atkinson, 2007; Clandinin & Connelly, 2000; Dodge, Ospina & Foldy, 2005; Freeman, 2007). Meaning is not made from nothing (Freeman, 2007). In this case it is drawn from experiences of wildlife carers engaged in environmental education. Stories are a way of organising, interpreting and making sense of experience (Atkinson, 2007; Clandinin & Connelly, 2000; Freeman, 2007). Each story is an interpretation created for a given audience (Atkinson, 2007; Clandinin & Connelly, 2000). At a different time and in a different place a different story may be told (Clandinin & Connelly, 2000). I am interested in how the participants recreate their experiences for the purpose of this inquiry.

As this is a retrospective inquiry it is bound by the lived past of the participants. They were invited to share with me experiences from 'just recently' to 'years ago' which for one or two of the participants could be as many as twenty years. I also asked participants to look ahead and envision how their educational encounters with the general public, and those of other carers, might be improved.

While some wildlife carers in the inquiry brought with them experiences from interstate, the place boundary of this inquiry is the state of Queensland. At a little over 1.73 million square kilometres, Queensland is the second largest state in Australia (Queensland Government, 2012b). There is a dense concentration of the general population in south-east Queensland around the capital Brisbane, with almost half the Queensland population residing in the Brisbane statistical division (Australian Bureau of Statistics, 2012). Queensland's climatic diversity results in high biodiversity across the state with thirteen distinct bioregions (Queensland Government, 2000). Fauna biodiversity includes 239 native mammal species (85% of Australian species), 562 bird

species (72%), 473 reptiles (50%), and 125 frogs (50%) (Queensland Government, 2012a).

The urban centre of South East Queensland is often referred to as greater Brisbane and includes the Brisbane Statistical Division and a further 60-100 kilometres. It is one of the largest and fastest growing urban areas in the developed world (Barton, 2007). Unique variation in climate and topography, result in a wide diversity of wildlife in the midst of urban development and is one of the most biologically important areas in Australia (Barton, 2007).

The broad social boundary for this inquiry is licensed wildlife carers who consider themselves to be environmental educators. Within that, however, I have taken into account the potential impact of membership of a wildlife care group and employed purposeful sampling to ensure that participants represent a number of large, small, old and new care groups. Carers who did not belong to a care group were also included. Carers tend to have more social contact with others who care for the same species. For this reason I have endeavoured to include a variety of species groups in the inquiry. There are people who care for birds (including water birds and raptors), mammals (including koalas and bats) and reptiles.

Selection of wildlife carers who care for different species, and who belong to different groups is not an attempt at sampling for generalisability in the positivist research sense. Huberman and Miles (2002) refer to internal generalisability, or generalisation within the community, as being more appropriate for qualitative researchers than external generalisability, or generalisation beyond the sampled community. My goal is to produce research that is widely accepted within the wildlife caring community so my sampling process included a range of different groups or sub-groups. I make no claims that this is a balanced or truly representative sample; just that it includes a variety of different people.

Summary

The origins of this research project include personal experiences of wild places, a teaching career across Queensland, and caring for injured and orphaned wildlife. Foundational to the research are the two pillars of current literature and an interpretive research philosophy. Initial topics that frame the work theoretically are: common species, human-wildlife interactions, stewardship and urban wildlife. The research framework was structured around an ontological belief that reality is relative and an epistemological belief that knowledge is constructed. Wildlife carer's recount their lives in story, and this led to the choice of interpretive qualitative inquiry as the most appropriate research method.

Drawing on elements of narrative inquiry, this research is defined by a three dimensional inquiry space. Spatially it is located in Queensland, a state of diverse climate and fauna. The social dimension is limited by possession of a permit to rehabilitate wildlife but this is not a simply described social group. Nuances according to species cared for, years of experience and membership of one of the many care groups make this a complex social context. Temporally, this is a telling inquiry where participants retell their experiences. For veteran carers this may draw on twenty years or more of wildlife caring, or it may draw on very recent experience.

This interpretive qualitative inquiry asked wildlife carers to recount instances of environmental education in which they have engaged. A narrative of environmental education by wildlife carers will be developed through a process of data collection and qualitative analysis described in subsequent chapters. Issues of ethics, rigor and validity will also be discussed.

Chapter Three
Conducting the research.

This chapter describes the methods used in the two data gathering phases of this research. As each phase provides a foundation for the next, both data gathering techniques and data analysis processes will be discussed. The chapter begins, however, with a discussion of validation, including ethics and rigor, as it relates to qualitative interpretive inquiry, data gathering and data analysis. Next, the data gathering phases are considered, including an explanation of each data gathering technique and how participants were selected. Finally, the principles of data analysis that were employed in this study are discussed.

A feature of narrative style inquiry is that it embraces diversity (Conle, 2000b). Different ways of knowing and understanding across different contexts are celebrated. The collective case known as wildlife carers is a diverse group. It is important for this study that the diversity of the group is not lost as a result of restrictive data gathering or analysis methods. Clandinin and Connelly (2000) call it inexcusable to not have a sense of audience while engaging in narrative inquiry. They encourage inquirers to maintain an awareness of what it is that the audience, in this case wildlife carers, may find interesting or useful. For this inquiry to be useful to a wildlife caring audience it has to connect with people who can have quite different wildlife care interests. It has to embrace diversity.

The simple definition of a wildlife carer in Queensland is someone who has a permit to hold sick, injured or orphaned wildlife in temporary captivity. Wildlife carers raise, rehabilitate and release sick, injured or orphaned wildlife. Queensland is a state of extensive environmental variation (Sattler, 1999) and, although they have a common purpose, no two wildlife carers' homes look the same, with different species, different problems and different locations within Queensland all having different needs. To address the whole wildlife carer audience and to adequately represent the collective group, data gathering and participant selection techniques needed to be as inclusive as possible. This is not the same as selecting a truly statistically representative study, but

rather sufficiently inclusive that all carers in Queensland could see a little of themselves in the final story.

In Queensland there are different wildlife rehabilitation groups based on geographic, species and sometimes personality differences. What was not wanted from this study was a story that some people felt excluded them because they belonged to a different group, lived in a different area, or cared for a different species. Selecting carers from a narrow geographic region, a limited number of carer groups and who cared for a limited range of species could limit the acceptance of the study within the broader carer community. The choice of data gathering and participant selection techniques were aimed at ensuring a range of carers was included.

To access carers in different locations both face-to-face interview styles and postal questionnaires were employed. The first interview focussed on a small number of individuals in suburban Brisbane. Then a postal questionnaire provided the opportunity for any wildlife carer in Queensland to participate. The first four interviews were with people known to have frequent interactions with the general public, who belonged to different wildlife care groups and cared for a number of different species. In subsequent phases volunteers were called for and then additional carers were invited to participate if there was an area that was not represented.

This study assumes that narrative is a way of knowing (Dodge, Ospina & Foldy, 2005) and explores what wildlife carers think and know about their role as environmental educators. The emphasis is on making practical use of their knowledge. Stories about practice contain knowledge and insight that can be used to draw generalisations and inform future practice.

Data gathering techniques appropriate for this approach focus on the telling of stories about practice. They include conversations, oral and written reflections on practice, problem solving, observation and documentation (Dodge, Ospina & Foldy, 2005). This study adopts the broad techniques of interview and questionnaire, based on oral or written reflection by the participants. The emphasis in data analysis is on exploring whole stories located in time, space and social context rather than dissecting the stories into fragments and dislocating them from context. The goal is to create a

comprehensive new narrative that reflects the process of making sense of all the stories. The new narrative highlights insights into the phenomena as a whole rather than describing a typical case or giving an ethnographic style commentary. Analysis is about identifying insights, knowledge and theories in use and creating a new narrative that will inform future practice (Dodge, Ospina & Foldy, 2005).

Data collection techniques or methods for gathering field texts in qualitative inquiry are flexible and selected to suit the circumstances of the research. In a telling inquiry, which this study is, narratives are gathered after they have been lived. Field texts are a retelling of lived experience. Interview is a common method for gathering such stories (Clandinin & Connelly, 2000). An open interview style is appropriate when a researcher wants the participants to "tell me about" a certain topic. Unstructured interview was the first data gathering technique used in this study. The second technique, questionnaire, also sometimes used in qualitative interpretive inquiry. It was selected for this study as a practical and time efficient way of reaching geographically diverse participants. In keeping with the philosophy of qualitative interpretive inquiry the questionnaires were open ended and invited participants to share their stories.

Validity in Interpretive Inquiry

It has been suggested (Angen, 2000; Barusch, Gringeri & George, 2011; Creswell, 2007; Maxwell, 2005), that the criteria governing the evaluation of a research project should reflect the underlying research paradigm. A positivist research paradigm warrants criteria such as internal and external validity, and statistical reliability; criteria that reflect a research philosophy of achieving an objective truth (Angen, 2000). Interpretive or constructivist paradigms search for a truth that is an intangible mental construction, constructed in the minds of thinking, feeling individuals, and relative to the lived experience of an individual (Dodge, Ospina & Foldy, 2005; Guba & Lincoln, 1994; Higgs, 2001). The criteria for evaluating an interpretive research project should reflect the process of searching for a particular version of the truth in a particular context (Barusch, Gringeri & George, 2011). Historically, interpretive researchers have adapted positivist techniques of validity and reliability, but interpretive research requires different techniques for evaluation (Angen, 2000; Dodge, Ospina & Foldy, 2005).

Creswell (2007) has described a range of attempts by interpretive researchers to find an alternative nomenclature. Validity, for example could be translated as 'credibility', and reliability could become 'confirmability'. The term rigor has been used to replace both validity and reliability (Horsfall, Byrne-Armstrong & Higgs, 2001). Other authors prefer to retain the term 'validity' but to assign a meaning that is more appropriate for interpretive research. Whittemore, Chase and Mandle (2001) employed a broad dictionary meaning of validity that encompasses quality, soundness and justness. Maxwell (2005) used the term in what he referred to as a common-sense or straightforward manner that implies correctness or credibility.

Whittemore, Chase and Mandle (2001) listed forty-two validity criteria they found in the interpretive research literature. They synthesised them into four primary criteria (integrity, authenticity, credibility and criticality) and five secondary criteria (explicitness, thoroughness, creativity, vividness and congruence). They also identified threats to validity such as bias, distortion and not paying attention to discrepant data. Similarly, Angen (2000) reformulated validity for interpretive research under two broad headings: ethical validation and substantive validation. Ethical validation included attention to the practical value of the research, generative promise and transformative value. Substantive validation included the recognition of bias and documentation of conceptual development. This dual emphasis of ethics and rigor is consistent with the principles of narrative and interpretive inquiries in which the two are closely tied (Clandinin & Connelly, 2000). Attending to relationships, ethics and detail is also attending to rigor (Horsfall, Byrne-Armstrong & Higgs, 2001). For this inquiry Angen's approach of ethical and substantive validation forms a suitable over-arching structure to assessing the quality of the research.

When it comes to the particulars of evaluating interpretive research, there is no consensus on what techniques or how many should be applied (Barusch, Gringeri & George, 2011). Researchers are urged to make individual decisions based on the underlying research paradigm and local context of the research (Barusch, Gringeri & George, 2011). Beyond their four primary criteria for measuring interpretive research, Whittemore, Chase and Mandle (2001) recommend tailoring the specific techniques of validation to each specific project. Each inquiry is unique and, as such, the criteria used to judge each inquiry will also be unique. Clandinin and Connelly (2000) say that each

inquirer should nominate which criteria they wish their research to be judged by. These could be the same criteria as used by others in similar inquiries or a new and unique set of criteria.

Under the broad banners of ethical and substantive validation a range of literature will be drawn upon to establish the criteria by which this interpretive qualitative inquiry should be judged. Angen (2000) includes the researcher herself as an aspect of quality in interpretive research and, following this, Leitch, Hill and Harrison (2010) included 'researcher quality' in the process of validation of their research. At the design and data collection phases their emphasis was on researcher characteristics and attributes. At the analysis stage the focus turned to documenting the researcher's personal involvement and position in the research. A similar approach will be adopted for this study and, consistent with the rest of the thesis, century gothic font indicates personal reflection and comment.

Ethical Validation

Ethical validation begins prior to the research project itself, as the topic must be relevant and have *practical value* for the intended participant group and target audience (Angen, 2000). Justification or relevance of the research is both ethical and rigorous (Dodge, Ospina & Foldy, 2005; Higgs & McAllister, 2001). Relevant research addresses the concerns of stakeholder groups, informs practitioners and is useful and interesting for participants. It is both ethical and good research practice to be able to justify the place of the research socially, in relation to individual participants, and from the point of view of the researcher. Aitken (2004) and Tribe and Brown (2000) have broadly situated wildlife carers in a community education role. The purpose of this inquiry is to confirm and describe the relevance of community education to wildlife carers.

An important criterion for measuring the ethical validity of this research project is *maintaining relationships* (Clandinin & Connelly, 2000). Ethics in interpretive qualitative inquiry is intimate and continual, pervading every interaction and every decision the researcher makes, from research design to publication. Josselson (2007) describes an explicit contract that covers issues such as what is expected of the participants, the logistics of recording data and other concrete, observable issues routinely accommodated in university research ethics approvals. She also describes an

implicit contract that is more individual and personal, and has more to do with relationships than logistics. The implicit contract can be subtle and dependent on the personal skills and behaviour of the researcher. It includes personal attributes such as respect for others, reflective listening skills and the ability to maintain positive working relationships.

University ethics approval was gained for this research project (Protocol number: AES/04/04/HREC). At the data gathering phase the explicit contract between researcher and participants is based on informed consent. This means all participants understand their role in the project, how data will be gathered and recorded, the commitment required by them, and that they are free to withdraw from the project at any time. Telephone and e-mail contact details were offered to participants and they were encouraged to ask about any concerns or queiries they might have about the research.

Issues of privacy and anonymity begin at the data gathering stage and continue through the entire inquiry process. To begin with, participants are guaranteed their interview tapes and transcripts, or questionnaire responses will not be used for any purpose other than this research inquiry. The final stages of an inquiry involve the public presentation of research texts. The participants were reassured that all attempts would be made to mask their identity in reports and other documents or presentations that emerged from the research. The simplest level of disguise is to use pseudonyms for all participants and specific place names such as suburbs (American Psychological Association, 2010). As more data were gathered and generalisations become possible, it was easier to avoid identifying individuals. Care was taken to ensure that direct quotes from field texts do not give away the identity of an individual. Omission of certain sections of text to ensure the anonymity of every participant, even if the quote is a perfect illustration of a key concept in a research text is another way of ensuring anonymity (American Psychological Association, 2010).

In narrative style inquiries research subjects are sometimes referred to as co-researchers (Ospina & Dodge, 2005). This relationship extends from data gathering to research consumption. In this current study relationships were maintained with individual wildlife carers throughout the phases of data collection, and with wildlife carers in general through the presentation of research in progress at three National Wildlife Rehabilitation Conferences (Turnbull, 2005, 2006, 2007). A small number of

participants attended one or more of these conferences and we were able to discuss the research and their contribution informally.

The implicit contract between researcher and participants is personal, and the skills for establishing and maintaining the implicit contract are drawn predominantly from personal experience (Josselson, 2007). Relationship is fundamental to the implicit contract and to narrative style inquiries (Connelly & Clandinin, 2006; Ospina & Dodge, 2005). For me, appropriate experience came from teaching young children. Consistent with other chapters in this thesis, the following discussion of the implicit contract is based on personal experience and is presented in century gothic font.

I drew on my many years of experience as a teacher of special needs children to establish and maintain positive working relationships with my participants. In particular, teaching children, talking with parents and consulting with other professionals taught me to listen well. Good listening includes paraphrasing or asking questions to clarify understanding. When people feel they are being listened to and understood they are more inclined to keep talking (Josselson, 2007).

Teachers usually begin to form ideas about a child's learning difficulties before they sit down for an in-depth discussion with the child's parents. How many times have my ideas been quashed by what the parents tell me? After listening to the parents talk about their child at home I would often significantly change my ideas about a child's learning difficulties. This was an important lesson to bring to the interviews in this study. I had pre-formed ideas about what I would say about environmental education but they were based on extensive experience as a professional teacher and post-graduate studies in environmental education. The implicit contract between me and each participant was that I would suspend my ideas and listen to their stories, just as I did when I was listening to parents tell me their stories about their child.

For me, the key to a quality relationship whether it lasts for an hour or a lifetime is respect. By listening to people and valuing what they say respect is being built. Even something as simple as explaining why interviews are taped can reflect respect for the participant's ideas, or it can reflect dominance and control by the interviewer. Such subtleties of language and presence are not created overnight for the purpose of a single inquiry, they are developed and refined over many years of practice.

Relationships are important to ethical interpretive qualitative inquiry throughout the inquiry process, but they alone do not make an ethically valid research project. As research texts are written the emphasis moves from description and analysis to interpretation, and responsibility shifts from a focus on individual participants to anticipated audiences such as the inquiry participants themselves and a larger academic audience. During data analysis, ethics and rigor are closely tied. Here, *articulating decisions* and *providing evidence to support interpretations* are criteria for judging both ethical and substantive validation (Whittemore, Chase & Mandle, 2001).

The written component of articulating decisions includes keeping a research journal and making ample coding notes. These notes, however, are often the end of internal thought processes. Smith and Sparkes (2006) describe the use of a critical friend as someone who can offer a different perspective and challenge developing interpretations as a researcher constructs a theoretically sound argument. In this study, that critical friend was a wildlife carer friend and retired academic with experience in qualitative research methods. Verbalising the decision making process to her facilitated a more coherent, concise and defensible set of coding notes and journal entries.

Evidence to support interpretations comes primarily from the data. To this end, the data must be 'rich'. Rich data (Maxwell, 2005) needs to be both detailed and varied to provide an adequate picture of the phenomenon under study. Wolcott (1994) suggests that in the early stages of analysis it is helpful to include too much data; to include many lengthy quotes and illustrations. It is easier to pare down overwritten drafts than to search later for some recalled but omitted detail. Qualitative researchers build their case on illustrative examples and stories taken directly from the data (Wolcott, 1994). Finally, ethical research offers *generative promise* (Angen, 2000). A measure of the ethical validity of a research project is the degree to which it offers opportunities to extend the theoretical conversation, raise new possibilities and promote new lines of questioning (Angen, 2000). Ethically valid research leads to subjects beyond what is given. Insightful research changes the way the researcher and others think about their own practices, and about larger theoretical issues (Clandinin, Pushor & Murray Orr, 2007).

Substantive Validation

To begin with, attention is focused on gathering data and the implementation of data gathering techniques. A first step towards ensuring substantive validation is the clear *articulation of data gathering decisions* (Whittemore, Chase & Mandle, 2001). Thoughtful consideration is given to the selection of techniques that are appropriate for the inquiry, the participants and the context in which they exist. Then, the techniques are implemented with due attention to the processes of carrying out the data gathering, and to the relationships between researcher and participants. As well as theoretical considerations, practical and logistic considerations were taken into account for this study. Described in detail later in this chapter, the data gathering techniques used in this study were interview and questionnaire.

Providing verbatim transcriptions of interview recordings assists with the process of ensuring substantive validation of qualitative research (Whittemore, Chase & Mandle, 2001). In this study transcripts were made using the conventions of conversational English. Punctuation was applied to enhance comprehension, such as commas for pauses, and following the natural phrasing of the speaker. Sentence structure and grammar followed those of spoken English. Codes of transcription for features such as inflection, talking over, pace, and long pauses were not used. Such codes are important for textual, conversational or discourse analysis, but not for the analysis of narratives and narrative fragments (Hones, 1998; Neuman, 1997)

Once data have been gathered, attention then turns to analysis. *Articulation of data analysis decisions* provides the basis for judging the substantive validity of data analysis (Whittemore, Chase & Mandle, 2001). Narrative inquiries involve some form of systematic analysis and the particular approach taken in any individual inquiry needs to be explained explicitly enough that the research audience knows how particular conclusions were drawn (Hollingsworth & Dybdahl, 2007). Through the clear documentation of data analysis procedures, including the types and levels of analysis, researchers can show how they know what they claim to know (Dodge, Ospina & Foldy, 2005).

Throughout the data analysis and interpretation stages of this research, critical friends were utilised. Smith and Sparkes (2006) describe critical friends as a "theoretical sounding board to encourage reflection upon, and a consideration of, alternative

explanations and interpretations" (Smith & Sparkes, 2006: 172). As with any doctoral research, supervisors play the role of critical friend at different stages of the research. In addition, emerging ideas were discussed with a critical friend with experience in qualitative research. Along with these discussions, coding notes were recorded on a dedicated copy of transcripts. Early drafts and analysis attempts were kept as part of a research journal.

Wolcott (1994) suggests that data analysis is an inherently conservative process that is "more concerned with being right as far as it goes than going as far as it can" (Wolcott, 1994: 175). In the main, the broad approach taken in this inquiry was narrative coding (Clandinin & Connelly, 2000). Story threads appear as categories and begin to interweave. Field texts are read and re-read, and categories are refined, as interconnections, continuities and discontinuities emerge. In narrative inquiry the themes are considered in relation to each other and to the inquiry dimensions of time, place and sociality (Connelly & Clandinin 2006). In line with Wolcott's suggestion of conservatism in analysis, the aim is not to include every word uttered by the participants or to create as many categories as possible (or as few). The aim is to tell a valid story of environmental education by wildlife carers that is anchored in a particular context at a particular time.

As the inquiry progresses and analyses become more complex, considerations of validation will change. Wolcott (1994) uses the terms description, analysis and interpretation to describe different levels or degrees of examination. In the early stages of this inquiry examination was at the level of description and remained close to the participants' meanings and experiences (Josselson, 2007). Later, as analysis turned to interpretation, conceptual implications of the participants' experiences were highlighted (Josselson, 2007). Three specific techniques were employed to demonstrate substantive validation during the analysis and interpretation stages of this research: *member checking, peer review* and *reflexive journaling* (Angen, 2000; Whittemore, Chase & Mandle, 2001). Member checking in this research involved returning the emerging analysis to participants throughout the data gathering process. Details of how this was achieved are detailed later in this chapter and in chapter four.

Finally, the last stage of an inquiry is the writing of research texts and, here too, validation is important. Clandinin and Connelly (2000) list five qualities of a good research narrative. They should have an invitational quality, authenticity, adequacy, plausibility and be explanatory. Research texts in narrative style inquiries require *disciplined thought and logical constructions, interpretive plausibility* and *evidence* (Connelly & Clandinin, 2006). In short, a research text should make sense to its intended audience and expand or confirm their understanding of the topic. In this inquiry the intended audience is wildlife carers. Interim research texts were presented to wildlife carers at three National Wildlife Rehabilitation Conferences to ensure there was continued accuracy of interpretation, understanding and usefulness to them (Turnbull, 2005, 2006, 2007).

Research texts in narrative inquiry also need to reflect the *three dimensional inquiry space* (Connelly & Clandinin, 2006). Temporal elements, personal and social aspects, and places in the inquiry are key components of a narrative research text. Evidence of the three dimensions and their interactions in research texts is another criterion for judging narrative inquiry. As well as situating the research texts within the inquiry space they should also be positioned within wider social and academic communities (Connelly & Clandinin, 2006; Wolcott, 1994).

Wolcott (1994) gives at least four clear pieces of advice relevant to the completion of research texts. The first is to let readers of the text see for themselves something of the raw data. This allows some insight into what the data are like, in effect inviting the reader on the journey from raw data to interpretation rather than picking them up halfway along. While some raw data can improve a research text, filling the body of the text with raw data places too much responsibility for interpretation on the reader when this should be the task of the inquirer (Wolcott, 1994).

Wolcott's second piece of advice is to report fully. By this he means that it is appropriate to include data that do not necessarily fit with the overall analysis and to include some side-stories that do not add much to the narrative but are interesting none-the-less. In quantitative research these pieces of data might be referred to as outliers. In qualitative research they can be important and interesting even if any interpretation of them may be speculative (Wolcott, 1994).

The third recommendation made by Wolcott is to be candid. This is similar to bracketing oneself into the research, and making distinctions between personal feelings and responses, and academic interpretations and judgements. In this inquiry there are some places where the distinction is clear and changes in formatting highlight the different perspectives. Often though, the distinction is not so apparent and clarity must be achieved through the use of clear and precise written language. Accuracy of writing in general is Wolcott's fourth piece of advice. This includes attention to grammar, vocabulary, style and awareness of possible bias (Wolcott, 1994).

The Data Gathering Phases

There were two data collection phases in this study, with two different groups of participants. The first phase (interview phase) was open-ended and exploratory. In the second phase (questionnaire phase) participants responded to two questionnaires. Phase two included a larger number of participants and further examined some of the themes and concepts raised in phase one. A summary of the data collection phases, instrument, implementation and participant information is shown in Table 1.

Table 1

Summary of data collection phases

	Phase one	*Phase two*	
Instrument	interview	questionnaire 1	questionnaire 2
Implementation	face-to-face	postal/email	postal/email
Participants	4	18	17
location	Brisbane	Queensland	Queensland

The first data gathering phase and the first questionnaire from phase two were dual purpose. While all data were included in the pool of data for final analysis, the first two sets of data were used to inform subsequent data collection. Phase one data was read for general themes, points of agreement, and points of divergence. Phase two involved the sending of two questionnaires to the same group of people. The first questionnaire was based on phase one data. The second questionnaire provided feedback to participants on their responses to the first questionnaire, and asked for further thoughts on points of divergence or issues that were unclear.

Phase One: Interview

This inquiry began with an open-ended unstructured interview. This style of interviewing is a relaxed occasion where the relationship between interviewer and interviewee is significant to the outcome of the interview (Singleton & Straits, 2002) and includes the researcher as a part of the social context (Johnson, 2002). Open-ended unstructured interviews take a form that resembles a conversation (Gubrium & Holstein, 1998; Singleton & Straits, 2002; Warren, 2002). Like conversation, this style of interview allows for a deeper understanding (Johnson, 2002; Singleton & Straits, 2002) and co-constructed meaning making (Ellis & Berger, 2002; Gubrium & Holstein, 1998; Landay, 2001) which is consistent with the ontological underpinnings of narrative style inquiries.

This style of in-depth interview is suitable for inquiries where a researcher is exploring a phenomenon of which they are already a part. In such a case in-depth interviewing is suitable for confirming the researcher's own understanding of the phenomenon, exploring the understanding of others and encouraging self-reflection by both the researcher and the researched (Johnson, 2002). Gillham (2000) promotes the open-ended interview as a way of honing a topic and identifying specific ways of phrasing topics. If further questioning is to occur, as in this multi-phase project, open-ended interview responses can assist with the writing of more respondent-friendly future questions.

Also consistent with the philosophy of narrative inquiries are the temporal and contextual aspects of open-ended unstructured interviews. As Warren (2002) explains, the temporal range of qualitative interview extends into the past and into the future. In-depth interviews also allow the researcher to explore the contextual boundaries of the participant's experience (Johnson, 2002).

One of the main advantages of informal and unstructured interview is flexibility (Gray, 2004; Patton, 2002). It is flexible for the interviewer who has the freedom to pursue unforeseen paths if they arise during the interview (Gray, 2004) and to probe responses for motives and feelings (Davies, 2006). Informal conversation interview also gives some control of the interview to the participant, allowing them to guide its direction (Sarantakos, 2005). As a result, this style of interview produces highly personalised,

rich, grounded data (Davies, 2006; Gray, 2004). An interview guide can be used to keep interactions focused and ensure maximum use is made of the interview time. Guides can be more or less detailed depending on the aims of the interview and the degree to which relevant issues can be identified before hand (Patton, 2002). The interview guide for this study included key questions that provided an overall structure and search questions aimed at probing responses, or providing stimulus if the conversation faltered or began to stray off topic.

There are two main disadvantages associated with informal open-ended interviews (Davies, 2006; Gray, 2004; Patton, 2002): time and bias. Time relates to both the time it takes to collect and to analyse the data. Analysis can be difficult due to the complex and unstructured nature of the data. Unstructured interviews do not direct the interviewer to keep within any particular line of questioning and this can lead to interviewer bias. In part, bias can be minimised by having a highly skilled and aware interviewer.

Sarantakos (2005) lists a number of personal attributes and skills required by a good qualitative interviewer. These include: friendliness, trustworthiness, dependability, ability to concentrate, objectivity, high level of communication skills, listening skills, familiarity with the research topic, creativity in devising questions on the spot, and personal and professional maturity. Although there are potential pitfalls associated with an informal conversational style of interview, a skilled interviewer can minimise their potential impact on the quality of the data collected.

A good interviewer maintains control of an interview, even in the most open-ended informal settings (Gray, 2004). They spend time before the interview organising the logistics of getting together with the respondent and doing whatever background research is necessary to prepare a questionnaire guide if one is to be used. The interviewer controls the preliminaries of the meeting: the welcome and thank you, explaining the study and building rapport. It is the responsibility of the interviewer to ensure the interview takes place in an appropriate setting, that the language they use is clearly understood by the interviewee, and that the interview runs to time. Continual feedback from the interviewer keeps the respondent on track and motivated to continue.

There are a number of features that are common to conducting this style of interviewing. Setting the scene (Johnson, 2002; Jovchelovitch & Bauer, 2000) and establishing good rapport (Johnson, 2002) are essential. To begin the interview, Johnson (2002) suggests starting slowly with small talk then moving into an explanation of the purpose of the interview and the research. The interview itself may begin with some simple planned questions. The attitude of the interviewer should be friendly and interested. Ellis and Berger (2002) describe a co-constructed interview as a sea swell of meaning making; a conversation that opens up as both participants connect their own experiences with that of the other.

The interviews in this study had very little predetermined structure but a guide was developed for use if required (Appendix A). As this data collection was to be exploratory in nature, a high level of direction by the interviewer was not desirable. However, all interviews started with the same introductory statement:

> My study is looking at just one aspect of wildlife caring – the interactions between carers and the general public. In particular, I want to learn more about what carers say and do when they meet with the general public in their 'carer' role. I am interested in your thoughts on what might be called the role of the carer in environmental education (Interview guide: Appendix A).

Three key questions and nine search questions were generated to provide a framework should the interview begin to move away from an obvious education focus, or should the natural flow of the interview stop for some reason. These acted as cues to the researcher rather than questions to be asked directly. A similar interview protocol was employed by Libarkin, Anderson, Dahl, Beilfuss and Boone (2005). In that study initial discussion was guided by protocol questions, and suggested probes were used to encourage further explanation of responses. Their interviews typically included one to four questions and lasted a half to one hour, similar to this current study.

Phase One: Selection of Participants

> Choosing these four participants was not an easy task. I had to consider my research, data quality and rigor, and ethical issues associated with inviting people I knew to be part of my study. Three of the four women worked full-time and I stressed that they were under no obligation to participate. I was somewhat

> surprised at their immediate and definite positive response to the invitation. They all said the topic was worthwhile and that they wanted to contribute. Two of the women initially questioned whether or not they were educators but, on reflection, found they frequently engaged in a range of educational encounters with members of the public.

The primary reasons for selection of the first three participants were the large amount of contact they had with the general public and their experience as wildlife carers (more than ten years). Hundreds of animals have, and continue to, pass through the hands of these three carers each year. It was also a diverse group. Their working backgrounds included the police force, and university teaching in the field of nursing. Their caring backgrounds also varied. Two of the participants cared only for birds with one also involved in rescues. The third participant has cared for some birds, but focused mostly on possums and flying foxes. Differences in the personalities of the three participants made me think that their approaches to dealing with the general public would be quite different. One carer had experience across two states. All carers lived within the greater Brisbane area, one in an eastern suburb, one in an inner western suburb, and the other in an outer western suburb. The area known as greater Brisbane is a sub-tropical area of approximately 3000 square kilometres in south east Queensland. It includes the Brisbane City Council area and the surrounding sixty to one hundred kilometres (Barton, 2007).

The fourth participant was a secondary school science teacher. She was a new carer who, at the time, was caring only for birds. She lived in a northern Brisbane suburb. There were at least three reasons why her responses could expand the representativeness of the inquiry. First, as a new carer, she had far less experience and intimate knowledge of individual species than the other participants. Second, with a degree in environmental sciences, she was likely to have an understanding of broader environmental issues. Finally, her experience with teaching young teenagers may have brought a different perspective to the way she engaged with the public.

All four participants in this phase were personally invited to be a part of the study. The interview and the study were explained to the participants and they all accepted the invitation. Selection of the participants was based primarily on their experience and

known frequent interaction with the public. Variation in the species cared for was also taken into consideration as a secondary selection feature.

Phase Two: Questionnaire

In qualitative inquiry it is not necessary for a researcher to be distanced from the research process. The researcher's voice becomes part of the inquiry (Conle 2000b). This research, however, is about a single collective case – wildlife carers in Queensland. For the research to be widely accepted by wildlife carers across the state, the participants' voices needed to dominate the second phase.

There were three broad considerations in this process. First, I withdrew my membership of a wildlife care group and obtained a private rehabilitation permit. Belonging to a particular group could be seen by some carers as a form of bias and lead to the exclusion of carers from other groups. Second, an advertisement calling for participants was placed in a newsletter produced by the Queensland Wildlife Rehabilitation Council (QWRC). QWRC is the peak body representing all groups and all carers in Queensland. This newsletter is sent twice yearly to all wildlife carers in Queensland, and all carers receive the newsletter at the same time. No group or individual was favoured over another. Finally, written questionnaire was chosen as the data collection approach to allow easy and equal access for wildlife carers across Queensland.

In general, a questionnaire is defined as a set of questions given, in the same format, to a group of people, with the aim of generating data about a given topic of interest to a researcher (McLean, 2006). There are two broad types of questionnaire. One is structured, pre-tested for question reliability, and has closed-response questions. This type of questionnaire is an effective and popular data collection tool in quantitative research (McLean, 2006; Sarantakos, 2005).

Questionnaires used for collecting qualitative data are different. They are less structured and the questions are open-ended. Open-ended questions do not have a pre-determined response set and respondents are free to answer the questions however they wish (Neuman, 1997; Sarantakos, 2005). This type of questionnaire works best with

educated literate groups (Gillham, 2000), and is valuable in early or exploratory stages of research (Neuman, 1997).

Another way of categorising questionnaires is according to the way they are administered: self-administered mail questionnaires or face-to-face interviews that follow the prescribed format of a questionnaire (McLean, 2006). This study adopted an open-ended, self-administered mail questionnaire format.

As with all research methods, this style of questionnaire has advantages and disadvantages. One of the key advantages in this study was that participants were free to complete the questionnaire at a time convenient to them (Gillham, 2000; Neuman, 1997; Sarantakos, 2005). This, combined with choosing the least busy time for wildlife carers (winter) made it as easy as possible for as many carers as possible to be able to participate in the study. Another advantage particularly relevant to this study is the ease of including respondents from a wide geographic area (McLean, 2006; Neuman, 1997; Sarantakos, 2005). It was important to tap into the thoughts of wildlife carers beyond the greater Brisbane area; and to include people from different carer groups, with experience across a variety of species, in as many locations as possible. Self-administered mail questionnaires allowed this.

Other advantages relate to the resultant data. Because respondents have the freedom to respond as they like, and time to ponder the questions, the responses may be more detailed and of higher quality and clarity than in an on-the-spot interview. Also, the issues addressed and the responses given can be more complex. As a result, there is the potential for unexpected or unforeseen findings to be discovered (Neuman, 1997; Sarantakos, 2005). As this is the first study to investigate the role of wildlife carers as environmental educators, and little is know about it, it was important to allow for unanticipated outcomes.

From a logistical point of view, a self-administered mail questionnaire is a time and cost efficient way for a single researcher to collect large amounts of data across a wide geographical area (Gillham, 2000; McLean, 2006; Neuman, 1997; Sarantakos, 2005). Because responses are written, rather than spoken in the case of an interview, there is no need for transcribing (Gillham, 2000). If respondents are from a specifically targeted

population, are well educated, and have a strong interest in the topic, then the return rate of mail questionnaires may be high, increasing the effectiveness of this data collection method (Neuman, 1997). In addition to selecting a targeted audience, the study was advertised in a state-wide wildlife carers' newsletter and questionnaires were sent only to those carers who responded to the advertisement and showed interest in the study.

Low return rate is the main weakness of self-administered mail questionnaires (Gillham, 2000; McLean, 2006; Neuman, 1997). This may be particularly so when the researcher and potential respondents are not known to each other (Gillham, 2006). There are, however, strategies for maximising the rate of return of questionnaires.

The cover letter that accompanies a questionnaire is a critical factor in determining the rate of return (Gray, 2004; Neuman, 1997; Sarantakos, 2005). A cover letter should be on letterhead, dated and addressed personally and correctly to individual respondents. The researcher and their organisation should be clearly identified with accurate up to date contact details. The content of the cover letter should include a statement of what respondents are required to do, an approximation of how long this will take, a reassurance of confidentiality, and the reasons why they should complete the questionnaire. The cover letter is the first thing respondents read and it creates a first impression. It should therefore be clear, concise and professionally presented. It is also important to make clear what is to be done with the questionnaire on completion and to include a stamped addressed envelope (Gillham, 2000; Gray, 2004; Neuman, 1997; Sarantakos, 2005). The initial invitation to participate in the study and subsequent cover letters for the two questionnaires are included as Appendix B.

Another potential weakness of mail questionnaires is data quality. There is no way of knowing the conditions under which the questionnaire was completed, the accuracy or honesty of the response, or whether or not the question was fully understood (Gillham, 2000; Gray, 2004; Neuman, 1997). Also, there was no opportunity for clarification or probing, or to simply encourage or motivate the person to provide a comprehensive response (Sarantakos, 2005). The summary at the beginning of the second questionnaire provided opportunity for some clarification of general ideas. Given that respondents were selected for their interest in the study and volunteered to participate, this was not considered to be a major concern.

Some of the weaknesses associated with open-ended mail questionnaires, such as low return rate, inadequate or incomplete responses, and poor motivation, can be minimised by careful attention to the construction of the questionnaire. In particular, layout and overall format and question content can affect the strength, or weakness, of a questionnaire. The questionnaire should be clear, neat and easy to follow (Neuman, 1997), with plenty of space for the questions (Gillham, 2000), and responses (Gray, 2004). An uncluttered appearance without mixing too many different fonts or using fancy fonts is best (Gillham, 2000). The length of the questionnaire is also critical (Sarantakos, 2005), with factors such as research objectives, target response group, and research resources needing to be considered. For the general population a questionnaire of three to four pages is appropriate, although some researchers have had success with much larger questionnaires (Neuman, 1997). When designing individual items on the written questionnaire it was taken into consideration that people may write to fill the space so it was important to provide sufficient space. On the other hand, people may be daunted by too much space. Sections of narrative from the oral interviews were used to gain a general idea of how much space was appropriate.

Gray (2004) emphasises that each question must have an obvious purpose in the context of the research, and that there is some logical flow from one question to the next. Each question should address one point only (Sarantakos, 2005). Questions that are leading, ambiguous, non-specific or hypothetical should be avoided, as should language that is either too vague or too complex (Gray, 2004; Sarantakos, 2005). It is also important to avoid assumptive or presumptive questions (Gray, 2004; Sarantakos, 2005). Neuman (1997) recommends the use of simple vocabulary and grammar to minimise confusion or misunderstanding. The language should be appropriate for the target response group (Sarantakos, 2005). Gray (2004) noted that what researchers choose not to ask may be as important to the research outcomes as what they do ask. Both inclusion and omission of questions is a reflection of the world view of the researcher.

In this study, items for the first questionnaire were based on the major themes that emerged from phase one. The items were presented as statements to which participants were asked to comment. They were invited to agree or disagree, to illustrate the statements with their own experiences, or to provide any other comment they thought

appropriate. The statements were drawn from phase one responses and, wherever possible, used the same words and phrases used by the phase one participants. The purpose in using the language of carers was to make the content as familiar as possible to the phase two respondents.

The first questionnaire (Appendix C) was presented in two parts. In part A participants were asked to respond to ten statements. The statements were drawn from an analysis of phase one responses. Part B gave participants the opportunity to describe specific situations in which they felt environmental education had occurred. In the first phase of data collection, participants explained their environmental educational experiences through telling stories of specific events. This new group of respondents was given the opportunity to respond in the same instinctive way. Additional stories could lead to further insight into the experiences of wildlife carers in this particular context.

A second questionnaire (Appendix D) was sent to all carers who responded to the first questionnaire via their preferred method (by post or electronically). This questionnaire was based on responses to the first and was presented in three sections. First, participants were given a brief summary of the nature of environmental education by wildlife carers as described by the participants themselves. A wide right hand margin was provided in which participants were asked to make comment on the summary. The second section focussed on one subset of the general public that appeared to gain the most benefit from interactions with wildlife carers, and on one issue that resulted in some difference of opinion. Finally, participants were given the opportunity to provide any additional comment on the role of wildlife carers as environmental educators, or on any aspect of the research project.

Phase Two: Selection of Participants

A total of eighteen wildlife carers participated in phase two of the data collection. An advertisement was placed in 'Rehabilitate and Release' (RnR), a newsletter produced twice each year and sent to all wildlife carers in Queensland, asking for people to participate in my study. The only requirement was that they held a current wildlife rehabilitation permit. There were seventeen responses but two of these did not return the consent forms or the questionnaire. A further three people were approached personally to participate in the study. It appeared that a number of less experienced carers (less than three years' experience) felt they would not have anything to contribute

to the study. Two of these people were approached by telephone and encouraged to participate. A third person who cares for koalas and conducts frequent public talks on the plight of the koala in southeast Queensland was also asked to participate. Koalas are of conservation significance in southeast Queensland and this person's experience of public education in relation to this species would be likely to make a worthy contribution to the inquiry. None of the other participants cared for koalas.

Participating carers were located from the Gold Coast area in the far south of the state of Queensland, to the Townsville area in the north of the state. Collectively, they cared for a diversity of species including birds, marsupials and reptiles. Some participants belonged to large well-known wildlife care groups, some to small regional groups, and a small number had individual permits. This information was not asked for but the majority of participants offered the information in either the first or second questionnaire, reinforcing the belief that group membership would be an issue of importance in the general acceptance of this inquiry among wildlife carers. The same eighteen wildlife carers who participated in phase two were sent a second questionnaire and invited to respond.

Participants were given the choice or receiving the questionnaire by regular post or by e-mail. About half returned the questionnaire by post and about half by email. If responses were not received by the nominated date a reminder e-mail was sent (all non-respondents had chosen to communicate electronically). The final response rate for the second questionnaire was seventeen.

Principles of Data Analysis

There are three key issues in relation to data collecteion: types of data transformation, the three-dimensional inquiry space and methods for transforming data (Clandinin & Connelly, 2000; Wolcott, 1994). The principles of data collection discussed here are aimed at asserting order that will result in a clear and coherent outcome to the inquiry. Data transformation in this inquiry will not follow a step-wise progression from least analytical to most analytical, or cover the three narrative inquiry dimensions in sequence. It will be emergent and, may at times, appear disordered with topics and the relationships among them being revisited and revised.

Wolcott (1994) talks of transforming qualitative data and introduces three terms that describe three different types of transformation: description, analysis and interpretation. Description remains closest to the data and allows the data to more-or-less speak for themselves. The emphasis is on establishing what is going on in the lives of the participants. At some point, the transformation of data needs to move beyond just description, but Wolcott recommends staying descriptive for as long as possible. At the same time, however, he points out that there is no such thing as pure description. Simply choosing to focus a description on one issue over another implies different levels of importance among different pieces of data and is the beginning of analysis.

Wolcott (1994) describes ten approaches to presenting data through description, but stresses that this is not an exhaustive list. Of the ten, several have relevance to this inquiry. The first is progressive focusing, moving from the general to the specific or from the specific to the general. The later will be the approach taken in this inquiry, beginning with particulars of individual carers and gradually including more carers and a wider context. There will be times though when a particular issue necessitates its own zooming in or zooming out within the social, temporal or spatial dimensions; from focusing on the particular to focusing on the broader context (Conle, 2000b).

Another approach is to focus on just a few aspects of the data rather than trying to tell the whole story. This inquiry will focus first on topics that are raised frequently by a number of carers, but will also include interesting or unusual counterpoints for discussion. A third approach is to follow a pre-existing analytical framework, either a framework that is in the literature and has been suggested by others, or one that is

developed specifically for the inquiry. One theoretical framework in narrative inquiry is the three-dimensional inquiry space with its temporal, spatial and social elements. This framework will be employed most explicitly at the descriptive stage of data transformation which, as already discussed, will not necessarily be found just at the beginning. As new themes began to emerge new frameworks were developed and refined over the full course of data transformation.

Wolcott (1994) and others (e.g., Ely, 2007) refer to the next approach as the Rashomon effect, named after a movie in which a violent event is differently recounted by four eye witnesses. Consistent with the philosophical underpinnings of interpretive inquiry, the principle is that there is no one fixed version of reality but, rather, there are as many versions as there are witnesses. One of the major components of this study is to describe environmental education by wildlife carers and the inclusion of a range of different accounts of what it means to be a wildlife carer engaged in public environmental education is one way of ensuring the description and subsequent analyses are broad and inclusive.

Next Wolcott (1994) talks of analysis, a process that requires the careful and systematic identification of key factors and the relationships among them. Analysis goes beyond simply describing what is happening to explain how it is happening. First, Wolcott differentiates between data processing and data analysis. Data processing is mechanical and includes actions such as data entry and coding. While data analysis may begin while data are being processed, true analysis is careful, systematic, formal, grounded in the data and carefully documented. Analysis is conservative, orderly and not as speculative as interpretation. Analysis draws attention to "aspects of a study that are (or appear to be) incontrovertible" (Wolcott, 1994: 29).

Analytical and interpretive processes are determined by the research goals and, according to Josselson (2007) fall into one of two broad categories: to give voice to participants, or to decode at a conceptual level. While it was hoped that the voices of the participants were not lost in the analytic process, the broad aim of this study was to decode the texts with a view to gaining greater understanding at a conceptual level. Wolcott (1994) describes a number of more specific and detailed approaches to analysing data, four of which have relevance to this study. The first approach is to

return to the data descriptions and highlight certain key aspects that are then refined and examined in greater detail. Key features, and the relationships among them, can be presented in a way that draws the reader's attention to concepts, relationships among them, and structures.

The second approach is to be guided by the same frameworks that guided data collection. In this way data are collected and analysed to address a selected framework. Examples of this approach include content analysis which focuses on what was said (Riley & Hawe, 2005), discourse analysis which focuses on how or why things were said, and analysis of social aspects with a focus on relationships (D'Cruz, 2001). Clandinin, Pushor and Murray Orr (2007) suggest using these inquiry dimensions as a scaffold for analysis and interpretation.

The next approach is to look for regularities in the data. Studies with small samples cannot claim correlations among different aspects of data but careful detailing of even a single case can make a significant contribution towards expanding the body of knowledge. If a topic or issue is raised several times by a single participant or across a number of interviews it should be reported as such.

The final approach Wolcott (1994) proposed that may be of particular use in the data transformation of this study is to conceptualize aspects of the description in relation to a broader analytical framework. Particular aspects may be compared to literature in the field, personal experience, social norms or conventional wisdom.

Interpretation is Wolcott's (1994) third broad category for transforming qualitative data and addresses the "So what?" questions. Interpretation aims to make sense of what is going on. It goes beyond what can be explained with any degree of certainty. Even though the purpose of interpretation is to move further away from the data than is the case with description, Wolcott still warns researchers not to stretch too far beyond the case in hand and to maintain a discernable link with the data. The inspiration for analysis comes primarily from the data, but the inspiration for interpretation may come from virtually anywhere. What is important is that the process of interpretation is made clear to readers of research texts, and that distinction is made between the claims based on field texts and claims inspired by some other source.

Of eleven ways Wolcott (1994) offers for approaching interpretation, six are relevant to this study. The first is to simply extend the analysis by raising doubts or questions that emerge from the analysis. This approach offers potential avenues of interpretation for others to pursue.

Another approach is to link a project that may be of limited scope to larger issues and theoretical structures. Interpretation in this instance is the process of drawing and justifying links between the research and existing theory. Alternative to positioning the research in relation to an existing theoretical framework is to create a new interpretive framework or theory. This is Wolcott's (1994) third approach and is of particular relevance to this study. Yet another alternative is to connect the research with personal experience rather than a theoretical model. This could include offering a personal interpretation by relating the experiences of the researched to the experiences of the researcher, or by exploring ways in which the research and the process of reflecting on the experiences of others has affected the researcher and her beliefs and understandings of the topic.

The final two approaches focus on data transformation processes themselves. The first is to examine the interpretive process and identify problems that remain unanswered or pieces of the puzzle that are still missing. The final approach is to examine the analytical process and question its accuracy or completeness or, as Wolcott (1994:45) says, "to make the obvious dubious." Both of these approaches invite the reader into the interpretive process and to go beyond the single interpretation offered by the researcher at that time. For the purpose of any single presentation of the research, in this case a doctoral thesis, the data transformation is complete but that is not the end of the story. Other interpretations are always possible. Opening the door to other multiple interpretations is one way of transforming data.

In this inquiry data transformation continued throughout data collection and beyond. There is a general tendency for description and analysis to dominate the earlier phases and for interpretation to come towards the end, but this is not a strict formula. Description, analysis and interpretation may, and sometimes do, occur within an individual phase. At other times a single phase may be dominated by a single form of data transformation, such as analysis. The relative emphasis of each category of

transformation at each stage of the research is less important than the clarity with which the transformation is conducted.

The previously discussed inquiry dimensions of time, place and sociality continue to hold importance throughout the processes of description, analysis and interpretation. They do not guide the process of data transformation, or take the place of codes or themes but, rather, they create a boundary within which data transformation occurs – particularly in the earlier stages. Staying within the three-dimensional inquiry space helps the inquirer stay true to the data. The inspiration for interpretation may come from outside the inquiry space (Wolcott, 1994), but the interpretive outcome should remain within the three-dimensional inquiry space. Even at the most abstract levels of interpretation, the three-dimensional inquiry space should be visible in the background.

> Data analysis methods in qualitative inquiry are not usually prescriptive, which is the main reason I established a set of principles to guide my decisions about data analysis in this particular inquiry. As I was collecting my data, I was also deciding, more-or-less, how it would be described, analysed and interpreted and where these transitions might occur. This was a general feel for how things might happen, not a prescription. I began the data transformation process with an open mind and was quite prepared to rethink the whole process if the data demanded. Wolcott (1994) used the analogy of building a wheelbarrow, suggesting that all parts should be in place before the screws are tightened. In this inquiry the last data transformation decision was not made until the last of the data had been collected and read, and much analysis had already been completed. The details of how the strategies that were employed during data analysis are discussed in each of the phase chapters.

Summary

This inquiry was conducted over two data collecting phases using interview and a two-stage questionnaire. A total of twenty-two wildlife carers from across Queensland participated in the study. Participants either self-nominated or were invited to participate. The only restriction on participation was that the person held a valid Queensland wildlife rehabilitation permit.

Criteria for measuring the effectiveness of this inquiry were classified under two types; substantive and ethical validation. Substantive validation might also be called rigor and refers to attention to detail in the application of a research method. Ethical validation refers to not just the ethical implementation of the research, but also the value of the research for participants and the research community.

Once collected, data were transformed into research texts through description, analysis and interpretation. The development of research texts for this study progressed across the phases of data collection, moving from an emphasis on description to a final research text based on interpretation.

Chapter Four
Phase One: Interview

This chapter discusses the first phase of data collection in which four wildlife carers in Brisbane were interviewed face-to-face. In-depth open interviews were used to establish an initial understanding of how wildlife carers perceived their role as environmental educators. First, development of the interview guide and data gathering technique are described. Data are then described and preliminary analysis conducted.

Collectively, the four wildlife carers who participated in phase one care for a wide range of wild bird and mammal species. They also engage with members of the public in a variety of ways and on a regular basis, particularly in the spring busy season. Informal interviews with the four participants were conducted during the quieter time over winter.

The aim was to begin to develop an understanding of what it means for a wildlife carer to be an environmental educator. The open-ended, unstructured interview format allowed for a range of responses to emerge. At the same time, it allowed for the interviewer to question the participant and obtain a deep and accurate understanding of public environmental education within the broader context of being a wildlife carer.

Gathering Field Texts

The purpose of the interviews was to explore the unknown and therefore, as discussed in the previous chapter, a high level of direction by the interviewer was not desirable. All interviews, however, started with the same introductory statement. Three key questions and nine search questions were generated to provide a framework should the interview begin to move away from an obvious education focus, or should the natural flow of the interview stopped for some reason (Robson, 2002). These acted as cues to the researcher rather than questions to be asked directly.

The introductory statement was read to each participant at the start of the interview. It read:

> My study is looking at just one aspect of wildlife caring – the interactions between carers and the general public. In particular, I want to learn more about what carers say and do when they meet with the general public in their 'carer' role. I am interested in your thoughts on what might be called the role of the carer in environmental education (Interview Guide: Appendix A).

The purpose of this statement was to focus participants on the target aspect of wildlife caring - interactions between the carer and members of the general public - and to elicit some general thoughts or comments about the role of wildlife carers as environmental educators.

There were four key questions, and each one had between one and four search questions. The fourth question revisited the first, with more probing search questions.
Key question one: What do you think about wildlife carers being seen as environmental educators?
Search question: What about your own interactions with carers prior to becoming a carer yourself?

The key question was aimed at eliciting the participants' points of view about wildlife carers in the role of environmental educator. It was expected that, having been informed of the topic in advance, an open question such as this would invite participants to start telling stories of their experiences as environmental educators. It was hoped that the initial drawing out of stories would begin a process of story sharing between participants and researcher, and a mutual refining or deepening of understanding of environmental education by wildlife carers would occur. Further question prompts were prepared in case this progression did not evolve naturally.

Question two aimed at drawing a picture of some specific situations, or contexts, in which environmental education by wildlife carers may occur. It began to focus more directly on describing what it is that carers do, that carers themselves describe as environmental education.
Key question two: Tell me about some situations - as a carer - where you might have educated someone on anything to do with wildlife or the environment. These could be fairly typical situations or unique situations that really stick in your mind.

Search questions: Is the carer engaged in a problem-solving process with the person? Has the carer described the context sufficiently? Who generally initiates the conversation – carer or person? Is the conversation driven by one party (either carer or person), or is it equal and interactive?

Following on from question two, question three focused on the strategies carers employed to impart knowledge, and the range of topics that might be covered in such engagements.

Key question three: How do you go about passing your knowledge on to others? (e.g. Do you talk with people, tell them your own stories, show animals to them, refer to other information sources etc.).

Search question: Are they trying to communicate skills, knowledge or attitudes?

Having refined the participants' thoughts somewhat, the final question returned to the beginning. It was hoped that at this stage the participants would be able to provide a clearer and more insightful response to the original question. It would also bring a sense of summing up and closure to the interview.

Key question four: What do you think about wildlife carers being seen as environmental educators?

Search questions: Should carers be encouraged to do more/less of this type of thing? Do you think carers have the skills or knowledge to do this? Are there any aspects of environmental education that carers should not deal with (e.g. moral and ethical issues, animal welfare, and conservation?).

The phase one data collection process was straightforward and incident free. Participants knew of the research focus before the interview began and could draw on extensive experience of dealing with the general public. There was little need for an interview guide as the participants were all very articulate and organised in their thoughts. A wide range of topics were covered by participants in their own time and in their own way.

Each of the four interviews was tape-recorded and later transcribed by the researcher. The transcripts became the first field texts. Maxwell (2005) recommends the researcher

do at least some of the transcribing herself, and that she makes notes or memos as the transcribing is done. These notes become part of the coding process and may inform later decisions about coding categories.

From Field Texts to Research Texts

The writing of research texts begins with reading; the seemingly endless reading and re-reading of field texts (Clandinin & Connelly, 2000; Maxwell, 2005). Coding may be used as a way of cataloguing or organising field texts, but not to reduce then. In narrative research data are not reduced to decontextualised segments, but kept whole. Participants' narratives are then read in relation to each other. The inquirer looks both within and across field texts for themes, patterns and narrative threads. There is a case, at times, for bringing forward the stories of each individual and a case, at other times, for finding meaning within the entirety of the inquiry space (Clandinin & Connelly, 2000).

The first task undertaken was to look at each field text individually and describe the ways in which each participant engaged in environmental education. When considering what to put forward for public viewing, participant anonymity was critical. Some of the information reported to me by the participants was specific to them and their situation, and reporting this information would make them easily identifiable by other carers in the area. The descriptions provided here are a general representation of each participant's activities and thoughts in relation to the environmental education in which they engage.

The researcher alone knows the whole story and chooses what to write (Conle, 1999). The power and responsibility of choosing what to write, what to leave out, and which examples to use are that of the researcher-narrator (Adams, 2008; Clandinin, Pushor & Murray Orr, 2007). It is ethical to respect the participants' way of understanding and meaning making (Huberman & Miles, 2002). This can be achieved by keeping experience in the foreground and staying close to the data (Conle, 1999), by keeping stories whole (Huberman & Miles, 2002), and by maintaining context (Carter, 1993; Huberman & Miles, 2002).

Adams (2008) stresses the ethical responsibilities associated with the presentation of research texts. First, there is a responsibility to the participants. An ethical narrative researcher gives voice to those who have previously not had a voice, and presents the research in a form that is accessible to the participants. This does not mean that the researcher must agree with everything the participants say, but that they are respectful of the participants and their views (Ospina & Dodge, 2005). In addition, the researcher considers an academic audience and must present a novel reading of the data (Connelly & Clandinin, 2006; Czarniawska, 2004).

The first research texts in this study examine the responses of each of the four interview participants individually. Throughout the research texts, direct quotes from transcripts and questionnaires are reference by providing the participant's pseudonym, the data set and the page number on the transcript. Interviews are data set 1. The questionnaires are data sets 2a and 2b. For example, a quote from page eighteen of Annie's first questionnaire is coded as Annie, data set 2a: 18.

Looking within individual field texts

June is a bird carer with more than twenty years' experience. She believes that wildlife carers definitely are environmental educators. In her words "Every time we meet the public we probably impart some little bit of information" (June, data set 1: 1).

Three broad strategies were identified that June uses to pass knowledge on to the general public. The first involves taking people to where the birds are kept in her backyard, and letting them see for themselves what takes place.

> Every time someone comes… they get ushered out the back because I think it's good for people to see who's going to look after the bird and what standards you keep etc. etc. (June, data set 1:1).

These visits are accompanied by an explanation of the processes of hand-raising and through sharing the birds' stories. "I think just by story telling, I think we get the message across" (June, data set 1: 15). June is happy for families to come back and visit the baby birds they have rescued, and sees this as a valuable part of reinforcing a positive attitude towards wildlife.

The second approach is related to June's belief that the general public knows so little about birds and, as a consequence, does not value them. She said,

> I think birds are really the most misunderstood … There seems to be no education on them at all is there? … It's amazing. Here's the magpie, the great Aussie icon. They're everywhere, and people just ring up and say it's black and white … They have absolutely no concept of what sort of birds – even the rainbow lorikeet, the numbers of those (June, data set 1: 10).

June assigns human qualities to the birds in an attempt to help people understand and value them more. She talks about them having feelings, being in caring family relationships, being intelligent and living in what can be complex social structures.

> I used to tell them stories about, they could see, the adult micky [noisy miner, also known as micky bird] coming in and feeding the baby mickies. It projects some sort of little social system that they've got (June, data set 1: 1).

June will also actively intervene in situations where people are seen to be doing the wrong thing, such as a group of boys throwing stones at a nest of crested pigeons.

> There was a couple of little treasures down the park one Saturday afternoon, nothing better to do so they stoned this nest. The babies fell, one of the adults was killed and I went down the park like a rocket. I went up and menaced every child in the park until I found the culprit (June, data set 1: 3).

In such cases June emphasises aspects of welfare, tolerance and respect. June feels that birds are not given the same level of respect as other animals. Some people, too many people she thinks, have the attitude that "it's only a bird" (June, data set 1: 8). June invests a lot of time in what might be called problem solving interactions with the general public. Some of June's problem solving stories began with a spate of poisoned crows or magpies in a particular area. She would talk to people in the area in an attempt to find the cause of the problem. Often the problem would be that one person liked to feed the birds and another did not like having the birds around, particularly in large numbers. June would talk to both the feeder and the poisoner in an attempt to overcome the problem.

> I got a call one Saturday morning – there's a maggie [Australian magpie] down in the yard. So I went over and picked it up, and it was obviously poisoned… by the

> end of the weekend there were 36 down… The following weekend it started again. At this stage I knew who was feeding the birds. I went up to her… And I just begged her to stop feeding them immediately. And she said no she couldn't… because they'll starve. And in the end I was a bit probably rude, I said to her, you are as guilty as the person who is poisoning the birds… I knew who did it, she pointed the finger and I went and saw him and I said it's really not the birds' fault. Leave it with me, don't do anything else. For the first time in my years as a wildlife carer I actually got some help from Parks and Wildlife (June, data set 1: 4).

Mary has been caring for birds and mammals, including possums and flying foxes, for more than twenty years. She has had considerable community education experience and agrees that public education is an important role of wildlife carers:

> As a carer/rescuer you are on the front line. You're actually dealing with the people who sometimes purposely but usually inadvertently caused the damage to the animal, to the wildlife. And a lot of the time they have no idea, they just don't know (Mary, data set 1: 19).

A major environmental education strategy adopted by Mary is to simply share the animals' stories with people.

> My job was basically to get the stories about the animals and educating the public out there into the face of the public as much as possible (Mary, data set 1: 32).

The story telling was accompanied by 'slide shows' in previous years but more recently are likely to include the electronic presentation of digital photographs.

Mary believes that one area of education particularly relevant to wildlife carers is in relation to the control of domestic cats:

> Definitely we are at the forefront as carers/rescuers in educating these people because who the heck is going to do it otherwise? And, I think, there's a real need for us to do it because you really want to make sure this doesn't happen again. You want to save the animals in that yard or in that area from that pain all over again. So you really do try hard to educate people (Mary, data set 1: 20).

Generally, Mary feels that wildlife carers do make a positive contribution to environmental education, but it is extremely limited by at least four factors. First, is the educational skill of carers, as Mary said:

> There are carers out there who I think are enthusiastic and they would really like to do this but they botch it, they do a very bad job (Mary, data set 1: 27).

The second factor was time constraints on carers that result in limited time devoted to public education, as Mary explained:

> But the problem is there's not enough foster carers and rescuers to go around for the animals coming in and we're basically flat out keeping our heads above water, let alone going out there doing all these other things (Mary, data set 1: 31).

Financial constraints were another factor that Mary suggested might influence public education.

> But right now in Brisbane, realistically, we haven't got the resources, people or money or anything (Mary, data set 1: 42).

Finally, Mary identified wildlife rescue organisational factors in south east Queensland at the time of the interview as limiting public education by wildlife carers.

> I would say, that the way the system is set up with wildlife in Brisbane at the moment that by the time a member of the public actually gets through to any of the foster carers and rescuers they would have made at least seven phone calls and they really have staying power (Mary, data set 1: 23-24).

These limitations restrict the degree to which environmental education can move beyond the simple one-on-one interaction when a member of the public finds an injured or orphaned wild animal. Mary summarised the current limited role of wildlife carers as public educators in this way:

> If I really, really had to like summarise and say anything regarding public education and the role of foster carers is that it's happening on a very small ad hoc basis at the moment. Way too tiny to make an impact and we really have to co-ordinate ourselves and get everything together, to get out there and start making an impact with the public on issues such as backyard feeding and what to feed and what not to feed (Mary, data set 1: 41-42).

Despite the limitations, Mary believes that there is potential for wildlife carers to contribute significantly to community environmental education. Rather than this occurring through the usual one-on-one interaction between a wildlife carer and a member of the public, Mary sees a major contribution happening through partnerships between carers and: local councils, catchment care groups, schools, community organization such as Scouts and aged facilities, local newspapers and radio stations, and local shows and festivals. Mary herself has participated in all of these educational partnerships. As described in chapter three, to help maintain anonymity, place names have been replaced with pseudonyms.

> I could then hone in, into proactively ringing up other organisations like scouts, guides, you know, elderly, there's so many organisations and groups out there which look for guest speakers every month. And people just love this thing with wildlife. It was never ever difficult (Mary, data set one: 32-33).

Mary advocates a multi-level approach ensuring carers come in contact with the general public through many different avenues.

> I look at it like a multi-levelled system. You've got the public over here and you have to use all these different nets, all this different education and resources, and first you'll catch some people, maybe professionals. The second net might catch or appeal to the older generations. The third net, whatever falls through, will catch some of the other people so you have to have a system set up for public education and that's how you go about it (Mary, data set 1: 33).

Lisa has been caring for birds for about twelve years. Foremost in Lisa's mind is always the welfare of the animal – any animal. She wants people to be kinder to animals and to care more about the world around them (Lisa, data set 1: 66).

Lisa spends a lot of time talking to people about the animals they bring to her, believing that providing background information on the animal and explaining how it may have come to be in its current situation will help people understand and remember more about the animal.

> I think you can make it much more interesting if you can explain to people about its background, how the bird lives and what sort of food they eat, and you know, how long it'll be before they grow up and everything. If you can just give them

> some basic information about how might it have come to be in the situation it's in (Lisa, data set 1: 66).

> They've just rescued something or found something. That's when it often sticks in their minds much better (Lisa, data set 1: 68).

Two issues raised by all participants were backyard feeding of wildlife and domestic pets. Lisa has a fairly realistic approach to both of these issues. She acknowledges the reasons why people feed wildlife and offers alternatives that still allow for close encounters with wildlife, but that are a more healthy option for the animals.

> I have had people bring me things and say, "oh, I feed the birds", you know. So I always check out with them what they're feeding, what birds they're feeding and how much they're coming and what food they're actually giving them and talk to them about healthier alternatives and also about cutting down so that they're not doing it, so it's just like a treat, you know, they're still getting the pleasure of it but they're not doing it to the extent that the birds are virtually eating artificial food most of the time (Lisa, data set 1: 45-46).

Lisa advocates responsible pet ownership by recommending the de-sexing of all cats and encouraging people to keep their cats inside at all times.

> I talk to people about keeping their cats in and about, I show, because I've got a catmax over the garden, I show them how my cats are in. And if it sounds like the cat's not de-sexed then I talk about that sort of stuff (Lisa, data set 1: 59).

Another issue of high importance to Lisa is the chopping down of trees, particularly large old trees that provide roosting and nesting places for birds.

> The other thing I'm always talking to people is trying to stop them cutting down trees and, if they must, the time of year they do it (Lisa, data set 1: 60).

No matter what the situation, Lisa will try to pass on knowledge and change the behaviour of members of the public who bring wildlife to her. She realises, however, that this is not always going to be possible. If it appears that people are unwilling to change, the immediate welfare of the injured animal becomes Lisa's priority.

> Then you've got to be really diplomatic because you need to get the animal off them. You can't tell them what you really think of them (Lisa, data set 1: 67).

Lisa understands that in any profession there will be people who never quite reach the standard of their higher achieving peers, and she sees wildlife caring as being no different. While some of this difference can be explained by training, there is also an element of personality. Some people will continually seek new information and others will not. This later group often believes they know more than may actually be the case.

> Some people naturally get all the information they can. That's just their approach to anything new, and other people don't, they muddle along and assume they know lots more than they do (Lisa, data set 1: 48-49).

Lisa recommends that wildlife carers in the latter category, and very new carers, should not interact directly with the general public. There are many ways in which carers can contribute to public education and the key is matching the person to the task. For some that might be talking one-on-one with members of the public, or working in conjunction with other environmental or educational groups. Other people are better suited to situations where they can be guided by a more experienced carer.

> I'm sure some people give some really wrong information… even just general information about things I'm sure that some people would give very questionable information (Lisa, data set 1: 69).

> They [new carers] shouldn't be making those decisions without consulting someone who knows something about it… group executive committees really need to make sure that all new carers are linked with another carer (Lisa, data set 1: 70).

In terms of training methods that might improve the educational outcomes of interactions between carers and the general public, Lisa feels that increasing a carer's general wildlife knowledge will in turn improve educational outcomes. She suggests that those carers who have a broader environmental understanding and can see the 'big picture' are better educators.

> I think with people, it's about the attitudes of carers too, and how much interest carers have and how much they have that broader picture… that links with how

> much public education there is but I think carers are really in an ideal position to be able to have a positive influence if they give the right information (Lisa, data set 1: 68).
>
> I think the people who would be the best at doing that sort of stuff are the people who've got sort of a bigger picture, a bit of a bigger picture, a broader picture of things (Lisa, data set 1: 59).

Lisa identified three different types of people who might call on a wildlife carer. The first group are generally angry and want some unwanted animal, such as a brush turkey, removed by the carer immediately.

> There are people who are irritated about some type of wildlife, scrub turkeys digging up their gardens, crows waking them in the morning, magpies or butcher birds swooping their kids or whatever and they ring up and they want you to remove them (Lisa, data set 1: 51).

The second group often feel guilty because the animal's predicament is a result of their own behaviour – for example, their cat caught a bird.

> Then there's the group of people who are really worried about the animal and probably feeling guilty if their dog or their cat has picked it up or even some people when they've flown into their windows, you know, they say, "Oh I'm going to put stickers on the windows. This is the second time this has happened", and they are really concerned that something they're doing has caused injury to the bird (Lisa, data set 1: 52).

Lisa described the third group as being interested in an animal and its predicament without showing any strong emotion. They may have just come across an injured or orphaned animal and are interested enough to pick it up and take it to a carer. They may be quite interested in finding out what will happen to the animal after being taken into care.

> Then there's the other people who bring something along because they found it and they don't want to leave it there, you know, they're concerned, but it's not something they actually feel guilty about, but they're just interested in general information and to see what you do and stuff. And of course people with kids.

> The kids are always interested in seeing what birds there are around and what I've got (Lisa, data set 1: 52-53).

Although Lisa does not work directly with schools, she engages in a lot of incidental work with children. This is mostly with children who accompany their parents to Lisa's house with a rescued bird. She will show them all the animals in care, and sometimes an older child may return another day to do some helping.

> I have quite a few kids whose parents will bring me a bird and oh can Becky come around and help you with the birds… I've had a few kids come for little times like that, do a little bit of helping (Lisa, data set 1: 55).

The children in Lisa's own neighbourhood are quite young, but she encourages them to visit too.

> And I'm the zoo for the local neighbourhood, the locals all bring their children in. Yes, I do quite a bit of education in the neighbourhood, just my neighbour's kids, they're fascinated and that's great, they're learning (Lisa, data set 1: 55).

At the time of the interview, **Kate** had been a wildlife carer for only a few months. She cares for birds but plans to also care for other species when she gains experience. Kate came to caring partly because, as a teacher, "I've got a whole heap of kids that bring injured animals to me" (Kate, data set 1: 77).

Like the more experienced carers, Kate realises that the large numbers of animals in care is partially the result of human ignorance, "I mean that's half the reason I've had some of the birds I've had is because of ignorance. People don't know" (Kate, data set 1: 77). She also recognises a general lack of knowledge about common species:

> It's amazing how common they are. Everyone grows up with them but you really don't know much about them, like you don't know their habits, you don't know much about them at all. You certainly don't know what to do when you find one on the ground (Kate, data set 1: 81-82).

Kate sees her position as a teacher in a school as ideal for passing on information to others. When asked about the situations in which she is most likely to provide

environmental education experiences, Kate's responses all focussed on the school environment.

Children, according to Kate, are "particularly impressionable, particularly willing to want to know what to do; and every kid loves animals" (Kate, data set 1: 80). When injured animals are found by the children themselves, the situation is in context and meaningful to them. This is more likely to lead to a greater retention of information. While talks and poster presentations could be useful teaching aids, Kate feels that nothing beats having a live animal there to stimulate interest, particularly for children.

> I think it's going to be a good thing to actually have some of the animals at school because it's an opportune time to talk to the kids and they are keen and they're interested. You know, they want to know about stuff, and especially if you've got it, a live animal there, that generates their interest and that's a great opportunity to inform and pass on some information (Kate, data set 1: 78).

> I know from organising guest speakers at assemblies and stuff, the most popular one is always the guide dogs because they bring the dog. And that's the one that has the kids' attention and they'll sit there and listen to boring rubbish for 20 minutes because there's a dog on stage. 'Cause kids just love animals. And after assembly they all flock up there and they all want to pat the dog. And it's exactly the same with me being able to have animals at school in the classroom and show the kids. Because, that's just going to be, I think, the most powerful way of reaching them (Kate, data set 1: 88).

Kate was guarded in her discussion of values education. Children's values are often passed down to them from their parents, and while opportunities to offer a different point of view should be taken, it is important, "to be careful because there's a fine line between that and being seen as interfering or trying to lecture people and that would do us more harm than good" (Kate, data set 1: 82).

Networking among carers has been a lifeline for Kate, both in terms of actual caring and in relation to information to pass on to the public.

> That's the one thing I've been really, really grateful for is this little network that I feel really like there's always someone I can ring when I need help or when I need

> something or I have to ask someone something, and that's been fantastic (Kate, data set 1: 87).

In her experience finding accurate information to pass on to the public has been difficult and she relies heavily on more experienced carers in this regard. Having access to information about the animals is seen as important to Kate, and she greatly values time other carers spend with her and the resources they share with her.

> It's just a case of, as you say, when you come across something, having somebody that knows that you can ask, because that's the biggest hurdle, I think, is where to get the information (Kate, data set 1: 90).

> I was looking through all the bird books over there, that's the other thing I meant to mention before, having those books and having access to those pieces of information. I had a couple of reads, like, you know the possum book and the bird book and the caring book and that other book we bought off [Jane], whatever it was. I mean that's been good. And it's not something I probably would have gone to the bookshop and bought. Probably a lot of bookshops don't even carry that sort of stuff (Kate, data set 1: 90-91).

Looking across the field texts

Moving from field texts to research texts includes positioning the texts socially and theoretically as well as against each other (Clandinin and Connelly, 2000). On the first read through of the field texts the original question was the focus for analysis – what wildlife carers think about their role as environmental educators, the contexts in which education occurs and the strategies carers use to pass on their knowledge.

During another reading of the field texts a simple coding system was used to identify the content of educational interactions between carers and members of the public. First, transcripts were printed with wide margins where codes, coding notes and reflections could be recorded. Throughout the process university supervisors acted as peer reviewers of process and the resultant codes.

As described in chapter two, the early stages of data analysis should remain close to the data (Wolcott, 1994). Participant's stories and story segments were coded according to

the main idea or dominant theme, for example, the lack of general knowledge of wildlife within the general public was a recurring theme. Some stories were long and complex, and received multiple codes. For example, a story may have included reference to lack of knowledge about wildlife, and to domestic cats. No attempt was made to limit the number of codes used. If the number of codes became too unwieldy, the collapsing of codes could be done at a later date. The codes themselves were descriptive. In all, twelve codes emerged:

Wildlife carers are environmental educators.

A significant portion of a wildlife carer's time is devoted to public education.

Effectiveness of carers as environmental educators.

Lack of basic knowledge about wildlife.

Wildlife feeding.

Domestic cats.

Clean houses and trim trees.

Fostering respect for wildlife and positive attitudes.

Significance of having a live animal.

The use of story telling.

Education of children is important.

The wider environmental context.

In the next section, each of the twelve emergent coding categories is described and illustrated with examples from the data.

Wildlife carers are environmental educators.

There was a high level of agreement among the four participants that wildlife carers are environmental educators. This was not surprising given the small sample of carers who were chosen because of their high level of contact with the public. What was somewhat surprising was the extent to which education was discussed, with carers describing themselves as being "at the forefront" (Mary, data set 1: 20). There was a sense of urgency and a "real need for us to do it" (Mary, data set 1: 20). In a broad sense, the educational aspect of wildlife caring was described as "really important" (Mary, data set 1: 27). Participants generally felt that every interaction they have with a member of the public results in a degree of education. As June said, "Every time we meet the public we probably impart some little bit of information" (June, data set 1: 1). Lisa agreed, "There'd hardly be a conversation I'd have with anybody where there wouldn't be some

educational stuff involved in it, to a greater or lesser degree" (Lisa, data set 1: 66). Mary (Mary, data set 1: 20) felt that education was a natural consequence of all interactions between wildlife carers and the general public simply because carers have a vested interest in ensuring that the circumstances leading to the injury of an animal are not repeated.

There was a perception that carers may in fact provide the only source of education of the general public on some issues, such as backyard wildlife feeding and the impact of free-roaming domestic cats on wildlife. Kate suggested there was "nobody else to do it" (Kate, data set 1: 77), and Mary asked "who else is going to do it?" (Mary, data set 1: 19). This was particularly evident in discussions on the control of domestic cats.

> Puss's never done this before in his life. And you think, yeah, right. You can tell them this is just the tip of the iceberg… all very remorseful but not enough to do anything with the cat… I don't think we've got a chance really (June, data set 1: 7).

Domestic dogs were not raised as an issue, so it may be that well-established council dog laws (Brisbane City Council, 2012) and regulations have made dog owners aware of their responsibilities, or at least motivated to avoid fines, but this does not appear to have been transferred to the control of domestic cats.

It was possible that the four hand-picked carers invited to participate in this phase of the study held views that were different from most other carers. A search of wildlife care group goals was made to determine the degree to which public education was systematic.

A search was made to locate the websites of wildlife care groups in Queensland. The Queensland Wildlife Rehabilitation Council (QWRC) is the peak body for wildlife carers and wildlife care groups in Queensland. They list fifty-five groups associated with wildlife care in Queensland (Queensland Wildlife Rehabilitation Council, 2012). Wildlife care groups, some of which are quite small, are managed by volunteers with interests in wildlife, but not necessarily in computing and it was expected that websites would not be found for many of the groups. Of the fifty-five groups listed by QWRC,

websites were located for twenty-seven wildlife care groups. Of these, sixteen engaged in wildlife rehabilitation and provided aims, goals or objectives for the group.

Of the sixteen groups, fifteen include public education as one of their goals. One group simply listed 'education' as one of five working groups. Species-specific goals are likely to be included for groups that care for a single species such as koalas, or for a particular class of animal such as bats. Generalist groups are more likely to have more general goals. Other goals may refer to habitat, conservation and valuing wildlife. Target audiences include schools, community groups, the general public or the community. Table 2 lists the educational goals of the fifteen wildlife care groups that were reviewed.

The groups identified in Table 2 account for a little more than one quarter of the groups listed by QWRC, indicating some systemic support for public education by wildlife carers. These groups are spread across Queensland, supporting a wider examination of community education by wildlife carers.

A significant portion of a wildlife carer's time is devoted to public education. All four carers interviewed in this phase commented on the amount of time they dedicate to educating the public. Time can be spent on the telephone solving a wildlife problem, at the front door when a rescuer is handing an injured animal over to the carer, or participating in 'outside' activities such as fetes, school visits or community environmental activities. It can be a challenge at times to manage these different demands on a carer's time.

Time is taken with simply exchanging information about the individual animal that has been injured or orphaned. Carers need as much information as they can get from the rescuer when they are trying to determine the nature and extent of the injuries the animal sustained. At the same time the carer is sharing information about common causes of injury, how they can be minimised, treatment plans and prognosis, as Lisa and Mary discussed:

> You can explain to people about its background, how the bird lives and what sort of food they eat, and, you know, how long it'll be before they grow up and

> everything. If you can just give them some basic information, how might it have come to be in in the situation it's in (Lisa, data set 1: 66).

> You want to save the animals in that yard or in that area from that pain all over again. So you really do try very hard to educate people. Sometimes that can take quite a lot of work, a lot of talking and convincing. And other times people are pretty good, oh I wasn't aware of that. Yes, yes, I'll try this and I'll try that (Mary, data set 1: 20).

Some people ask for more detailed information about the care process for that animal, species, or for injured wildlife in general. Some may be particularly interested and the carers may show them around their homes, explaining the various animals and their treatment.

> I have people … It's basically babies, you take them in, these babies, what you're going to do with them, whatever. People used to come here with their children to visit – like they'd get all the little stories associated with the birds (June, data set 1: 1).

Other members of the public may ask to come back to check on the progress of the animal they rescued or to bring their children to see the animals.

> We had one family, I'm not joking, they used to come, they brought me a bird, and they came every week until that bird was ready for release. And they'd be here for hours (June, data set 1: 16).

Lisa and Kate were the only participants to give an estimate of the length of some conversations.

> I thought this could be a fairly long conversation, he was just ringing for advice about cockatoos … that could take half an hour or so, those conversations (Lisa, data set 1: 71).

Table 2

Education goals of Queensland wildlife care groups.

Name of group	Goals
Community for Coastal and Cassowary Conservation	Education
Tolga Bat Rescue and Research	Education about Bats through schools and the onsite Visitor Centre.
Far North Queensland Wildlife Rescue Association	The education of people about the value of native fauna and its habitat. Encourage education of the community about the conservation of native fauna and its habitats
North Queensland Wildlife Care Association	To provide education concerning native fauna to the community.
Australian Animals Care and Education	The continuous distribution of information to our members and the greater community by organising lectures, education programmes and seminars.
Fauna Rescue Whitsundays Association	To promote and support our endangered wildlife. To educate the community concerning the care and survival of our native wildlife and their environment via our School and Community Education Project, public displays and meetings. To encourage the community and our members to maintain and protect current habitat as well as to re-vegetate new habitats to support our wildlife.
Granite Belt Wildlife Carers	Increase public awareness and educate the community about wildlife and their habitats.
Wildlife Rescue, Rehabilitation and Education Association	Providing education about our wildlife within the community.
Wildlifes Welfare Carers	We help educate the local and surrounding communities and schools with knowledge of wildlife.
Bat Rescue	To provide education and information to the general public. The promotion of bats as an important part of our ecology.
Wildlife Wanderer's Carer Group	Public displays and raising awareness through talks, displays and presentations at schools, clubs, organisations etc.
Wildcare Australia	Advise the community on solutions to wildlife problems. Raise public awareness of Australia's unique wildlife and its diverse habitat requirements through community talks and education programmes.
F.A.U.N.A. Association	We organise educational information seminars, give talks to local groups and provide training sessions to volunteers who would like to become wildlife carers.
Ipswich Koala Protection Society	IKPS provides information to the community and to local government on koalas, their needs and their future.
Pine Rivers Koala Care Association	Increasing public awareness of the koala and its protection by participating in displays, conducting information and awareness activities, providing presentations to the community and relevant organisations. Writing articles and editorial comments to the print media, participating in radio and television interviews and organising media coverage of events and activities that impact both positively and negatively on the koala and its habitat.

Although Kate had not engaged in many such interactions at such an early stage of her caring career, she recalled a time when she and her partner rescued a bird and took it to a carer.

> I know one time we dropped a bird to another carer and [Sam] was in there for about half an hour, and I was starting to think, what's he doing? But he obviously had the time and had the inclination and wanted to show [Sam] what he did and talked to him about some of the animals he had and why they were there. So I guess it's just a situational thing whether there's time available, whether you're in a hurry, whether those people are inclined to want to talk about it
> (Kate, data set 1: 78).

This seemed to sum up what the other carers were saying – if someone is interested, you find the time to talk with them.

Not only can each interaction be time consuming, but the behaviour of some people leads to repeat cases. On-going or repeat cases identified by participants were the result of an uncontrolled pet or backyard feeding and subsequent poisoning. June and Lisa both commented on the time taken with individual cat owners in their local area. "Three times I've been down there. All cat attacks." (June, data set 1: 6). The frustration was repeated in Lisa's comments, "the worst repeat offender I ever had was a woman … her cat permanently caught doves … and she'd ring up … there was no way she'd bring it over, I had to drive over every time." (Lisa, data set 1: 53). June recalled a particularly bad season of poisonings.

> There was this woman out at [Cornfield] that fed magpies … I got a call one Saturday morning – there's a maggie down in the yard. So I went over and picked it up and it was obviously poisoned. I spent the entire weekend, I'm not joking, from [Cornfield] and back, somebody would ring up and by the end of the weekend there were thirty-six down … Apparently the year before there were masses of lorikeets killed. This was an ongoing thing, it wasn't just this particular weekend. It was previous years … The following weekend it started again
> (June, data set 1: 4).

The most time-consuming telephone conversations tend to be of a problem solving nature. An example of this is where a carer is trying to encourage pet owners to be more responsible, "Sometimes that can take quite a lot of work, a lot of talking and

convincing." (Mary, data set 1: 20). Sometimes members of the public ring for advice on issues related to wildlife in their local area. Two examples from Lisa were a gentleman with concerns over the health of a local flock of wild cockatoos, and a woman concerned about a mother duck trying to get her new-hatched ducklings across a busy road. The carer would take some time to gain a clear picture of the situation before discussing options with the caller. It is sometimes possible for the carer to return the call at a time they know they will have sufficient time to discuss the issue fully with the person. As Lisa explained, "That's why I didn't try to ring him back before I had to come out. Oh, no, that could take half an hour or so, those conversations." (Lisa, data set 1: 71).

Other lengthy phone-calls can occur when someone is very angry about something. The first step in these situations is to diffuse the anger which, in itself, can take a long time. Anger can result from difficulties in finding a wildlife carer to help them, or in response to an unwanted animal behaviour such as, "scrub turkeys digging up their garden, crows waking them in the morning, magpies or butcherbirds swooping their kids or whatever" (Lisa, data set 1: 51). Mary suggested that "every second phone call that I get is where people are irate and after I'm like the seventh or eighth person they've tried" (Mary, data set 1: 24). Generally, this type of problem solving conversation can take a "very long time" (Lisa, data set 1: 52). A very long time was not explicitly defined by the participants but timeframes of half an hour to an hour were mentioned and the context would suggest that this is about the timeframe of a long conversation.

'Outside' or community-based activities also take a lot of time, time that many carers do not have. Some of the additional activities identified by participants are: preparation of handouts and newsletters, radio or television interviews, going into schools and other community groups, and working alongside other environmental groups such as catchment groups and bushcare groups. Each carer seems to have their own preference for where their time is focussed. Mary has been involved in a range of educational activities.

> I could then hone in, into proactively ringing up other organisations like scouts, guides, you know, elderly, there's so many organisations and groups which look for guest speakers every month. And people love this thing with wildlife. It was never ever difficult (Mary, data set 1: 32-33).

> They've given me a small budget to work with that I can use for laminating and things and we've done a big board for the [Riverdale] Show that we have up there for three days and the [Bellbird Valley] Green Day and education is very, very much a part of it, and we incorporate that with the [Merry Brook] Catchment Group (Mary, data set 1: 26).

> We can get so much of everything done through [Rangeview Environmental Education Centre], like the courses that we've got upcoming, we've got two bird courses and two possum courses. We're having everything put onto a desktop publishing system and having really good notes with everything and having it done professionally, you know, really professionally (Mary, data set 1: 26).

> We had quite a bit of TV exposure as well, regular radio slots even if they worked it by phone from the radio station, brochures and flyers and newsletters and things like that (Mary, data set 1: 32).

Lisa acknowledged the value of these extra activities but chose to take extra animals in care rather than leave time for outside activities.

> Yes, I mean I would really like to be involved with something like that probably I've never really had time. I mean sometimes I get things in my letterbox about different activities they're doing just around my area but blimey Charlie, you know, when you've got 90 birds to feed on Sunday morning you don't actually get a chance. Even though my intentions are good sometimes
> (Lisa, data set 1: 63).

Effectiveness of carers as environmental educators.

Opportunistic engagement with members of the public seems to be the most common form of education, with all four participants recalling stories of one-on-one interactions with members of the general public in rescue or problem solving situations. Kate felt it was important that wildlife carers take advantage of these situations and that they have the potential to be beneficial because of their immediacy, "When an opportunity presents itself you've got to make the most of it, I think … In context, absolutely. And they'll remember it" (Kate, data set 1: 79). Similarly, Lisa reflected on the importance of actual engagement in an on-the spot wildlife experience, "they've just rescued or

found something. That's when it often sticks in their minds much better" (Lisa, data set 1: 68). June and Mary recounted success stories where there was a change in the behaviour of a chronic backyard feeder (June), and a cat owner (Mary).

> So it actually does work. But it took a lot of dead birds to get the message through to that woman (June, data set 1: 5-6).

> One story I can think of, a lady who lived up here at [Rivergum] on acreage and had a couple of tawnies. A mating pair that she'd had these for years and years and years and one day the cat got one of them. She had become so attached to these beautiful wild birds. She was so upset about the cat doing this, but she still loved the cat but I am positive that from then onwards she did not kick the cat outside for the night the way she had done for years beforehand (Mary, data set 1: 20).

Mary sensed that while the one-on-one education that is most common for wildlife carers can be effective, it is nowhere near enough to bring about significant change.

> I think as long as we're doing it on a one-on-one basis as foster carers and rescuers we're not going to achieve much. We're not going to change the habits or anything like that (Mary, data set 1: 33).

Mary discussed a range of situations where more was needed to change people's behaviour. These included keeping the cat in at night through to stopping broad-scale clearing of residential development sites. Mary suggested going into schools and educating children, or attending local shows and field days as appropriate ways in which wildlife carers could extend their educational reach to include a greater number of people and a wider range of issues. Both Mary and Lisa advocated a multi-facetted approach that included the one-on-one and a range of other public education activities.

> I look at it like a multi-levelled system. You've got the public over here and you have to use all these different nets, all this different education and resources (Mary, data set 1: 33).

> I think they're all important aspects, you know, it's like health education, you can't, you've got to use fifty different strategies, you know, at all different levels. It's the same thing, you know, I think they all have their place, they're all parts of the jigsaw puzzle, the education day at some sort of seminar thing, the little stall down the street in a local festival or fair, something at the RSPCA open day, you

> know, the stuff for carers, they've all got their place. And also people see different information in different places, you know. Yeah, and then the one-on-one stuff that I think is really important. Yeah, but all these things require multiple strategies to have impact in the long term (Lisa, data set 1: 75).

Mary also thought that environmental education by wildlife carers needed to be more co-ordinated than its current form.

> If I really, really had to like summarise and say anything regarding public education and the role of foster carers it is that it's happening on a very small ad hoc basis at the moment. Way too tiny to make an impact and we really have to co-ordinate ourselves and get everything together, to get out there and start making an impact with the public on issues such as backyard feeding, and what to feed an what not to feed … It's issues of backyard feeding, issues of what we do with our domestic cats, issues of simple things like what to plant, clearing our native habitat and putting up and English garden (Mary, data set 1: 41-42).

Lisa described a particular group of people for whom education by wildlife carers may be most effective – regardless of method. This group was described as having neutral feelings about wildlife and being unthinking and lacking in knowledge. They did not display any aggravation or intolerance towards wildlife, just passive neutrality. They may be quite unaware that some of their behaviours could be harmful for wildlife. It is this group that Lisa believes wildlife carers can have the most influence on.

Lisa discussed variability in the abilities of volunteer wildlife carers to provide environmental education. Based on past experiences with many carers she felt that there were "lots of carers who give some really questionable information to the public sometimes (Lisa, data set 1: 48)". Lisa was not criticising carers per se, but simply reflecting on a phenomena that occurs in any field where there might be variability in skill levels. In any field, some people are better at what they do than others:

> Yes, that's right. I think they're … I guess it's like, sort of, in any field you get people who never quite get their act together, you know, you get people who never quite understand properly. So they probably don't, some people naturally get all the information they can. That's just their approach to anything new, and

> other people just don't, they muddle along and assume they know lots more than they do (Lisa, data set 1: 48).

Mary suggested that the best approach to providing quality education to the wider community is to have someone dedicated to that job, that is someone who provides education instead of caring for wildlife, not as well as.

> What you really, really need is somebody who is dedicated to it and THAT is what they do. They do the PR and the education, they go out there as a travelling person. (Mary, data set 1: 33-34).

The issue of training carers for their role as public educators was raised by Mary and Lisa.

> There are carers out there who are enthusiastic and they would really like to do this, but they botch it, they do a very bad job and that example we were talking about before with after-hours lines being manned. I don't think people are adequately trained to do that, to give out the correct information (Mary, data set 1: 27).

Both suggested that to be more effective educators carers had to have a broad knowledge of the species in their care and of wider environmental issues.

> And if we ever get to the point where we are fortunate enough to be doing more broader public education, I think it will be a terrible waste if you just gear it towards one particular issue. I think you should try to work into the lesson, broader conservation issues and things like that (Mary, data set 1: 37-38).

> And I think the people who would be the best at doing that sort of stuff are the people who've got sort of a bigger picture, a bit of a bigger picture, a broader picture of things (Lisa, data set 1: 59).

While wider community education experiences are seen as desirable, not all carers were seen by participants to have the time or the skills to engage in them effectively.

Lack of basic knowledge about wildlife.

Three areas of lack of knowledge were identified by the participants: knowledge of wildlife species, understanding of the consequences of their behaviour, and knowledge of what to do with injured wildlife.

There were two broad aspects of wildlife knowledge that carers felt were severely lacking in the general public: identification of species and knowledge of common animal behaviours. June was astounded at the inability of some members of the public to identify common suburban bird species:

> It's amazing. Here's the magpie, the great Aussie Icon. They're everywhere, and people just ring up and say it's black and white. Or you go to pick up a magpie and it turns out to be a peewee. They have absolutely no concept of what sorts of birds, even the rainbow lorikeet. The numbers of those, it's absolutely amazing (June, data set 1: 10).

Even for commonly seen and easily recognised animals, such as the magpie or brushtail possum, it has been identified in the literature that people's lack of knowledge of animal habitats was seen to be lacking (Jones, 2002). The participants in this study made similar observations. As Kate said:

> It's amazing how common they are. Everyone grows up with them but you really don't know much about them, like you don't know their habits, you don't know much about them at all. You certainly don't know what to do when you find one on the ground (Kate, data set 1: 81-82).

General lack of knowledge of the wildlife that lives close to people can lead to problems – mostly for the animals. An example from Mary occurs when people assume that the noise in the ceiling is being made by rats, when it may well be possums.

> They don't realise that the thumping they hear in the roof are actually possums and not rats, when they stick up bucket loads of rat sack up there, and then start finding possums with babies on the lawn (Mary, data set 1: 19).

> The human occupants then place out bran-based rodenticides that kill anything that eats them, including possums. Possums, like rats, are attracted to bran-based baits but people who are intent on removing the 'rats' from the ceiling either do not know or do not care about the consequences for animals other than rats eating

> the bait. People are not usually aiming to kill possums but lack of knowledge about possum activity in and around their homes can lead to unintended poisoning … Or they don't realise that snail-bait and things like that, anything that is bran-based that's attractive to rats and mice is going to be attractive to possums as well (Mary, data set 1: 19).

The consequence of people's behaviour often extends beyond their initial intention.

Even when an animal or bird is correctly identified, ignorance about their behaviour, combined with a few urban myths, can result in negative outcomes for wildlife. An example of this is magpies. People initially want nesting magpies removed, but a detailed and well-researched explanation of behaviour can help people understand, and they may then be quite happy to live alongside and in harmony with a family of nesting magpies. Mary described this misunderstanding of magpie behaviour:

> There's a lot of education I do regarding that where people just have this fear. Even though the magpie has never dive-bombed their kids or anything, they've just read about it or it happened at the local school or something and therefore that's what these guys are going to do in their yard to their kids and peck their eyes out, you know, the way magpies do of course. After some education they do tolerate it (Mary, data set 1: 21).

When things go wrong and people do find injured wildlife, they often do not know what to do. They are sometimes unaware that wildlife carers even exist. June had a woman say to her, "I didn't believe they had something like this in the middle of [Mossfield]." Others may be broadly aware that some people are wildlife carers but, until they encounter an injured or orphaned animal, they have no understanding of the process. In addition, people have very little understanding of how to provide initial emergency care. The participants in this study reported instances where people have drowned baby birds trying to give them a drink or fed inappropriate food to the animal. As Kate found, it can be difficult to convince members of the public to do nothing:

> She said she just wanted to know what to feed it. And I said I don't know what to feed it because I don't know what sort of bird it is, and that's really crucial that we find out what sort of bird it is … After saying to her don't give it anything until I find out what it is, and I'll ring you back in half an hour if I can't get a hold of

> somebody to call you, and I couldn't, so I rung her back and she said, oh we just gave is some water and milk (Kate, data set 1: 90-91).

June related the story of a woman who poured several millilitres of neat brandy down a bird's throat after it had flown into a window.

People often want to keep baby animals to raise themselves but, when they do not have the skills to provide adequate care, the animal suffers. A carer may be called a few days down the track when the animal begins to look unwell. At this stage it is often too late to save the animal.

> One year I had hardly any deaths, with the exception of the ones that kept them for two or three days and then rang up because they were looking a bit poorly (June, data set 1: 15).

Other people might provide adequate physical care but humanise the animal. As Lisa explained:

> I've had a few ducks brought to me that people have had for weeks and they've been totally tamed by the time they've been brought to me. Poor things take a long time to know they're a duck … I had one brought to me, about six weeks old, that they'd had sitting on their shoulder you know. It took ages. It just sat in the pen, the other side, the opposite side from the other ducks. He just sat on the other side; he didn't know he was a duck for ages and ages (Lisa, data set 1: 49-50).

Be it when they put rat poison in the ceiling, feed bread to ducks in the local creek, cut down trees in nesting season or attempt to raise wild orphaned animals on their own, many people, according to the participants in this study, seem to be totally unaware of the impact of their behaviour on wildlife. Mary saw this as a key reason why wildlife carers must engage in public education.

> As a rescuer/carer you are on the front line. You're actually dealing with the people who sometimes purposely but usually inadvertently caused the damage to the animal, to the wildlife. And a lot of the time they have no idea, they just don't know (Mary, data set 1: 19).

She saw the wildlife carer as being in the best position to educate members of the public of the consequences of their behaviour for wildlife. In essence, this process aims to break the cycle of human-caused injuries to wildlife.

Wildlife feeding.

The main issue raised in relation to the feeding of wildlife was animal welfare. Within this broad issue, three major points of concern were raised: nutrition, disease and deliberate poisoning.

Lisa made sure she would, "always check out with them what they're feeding, what kinds of birds they're feeding and how much they're coming, and what food they're actually giving them" (Lisa, data set 1: 45-46). Once she had an understanding of the situation she could then go about discussing healthier or more appropriate alternatives. She did not try to stop the person from feeding, just to improve conditions for the birds, so "they're still getting the pleasure of it but they're not doing it to the extent that the birds are virtually eating artificial food most of the time" (Lisa, data set 1: 45-46). A similar strategy was applied to people who feed bread to ducks and turtles in the park.

Disease was discussed explicitly by Mary. She expressed concern about a situation where an elderly woman was group feeding and whose backyard had become a hotbed of a range of diseases that are easily transmitted through faeces, feather dust, sneezing and vectors such as mosquitoes:

> there's galahs coming in with coccidiosis, maggies and ravens coming in with the pox, like so badly, and Trichomonas and just absolutely revolting stuff (Mary, data set 1: 23).

> The woman's intentions were good but she was unwilling to change her behaviour, despite Mary's arguments. "People don't realise that you're trying to do it for the animals' own good" (Mary, data set 1: 23).

The third animal welfare issue discussed was the situation where mass feeding leads to mass poisoning. This can be a very frustrating time for wildlife carers who are trying to change a person's behaviour for the benefit of what can be quite large numbers of birds. As June said, "in the end I was a bit probably rude. I said to her, you are as guilty as the person who is poisoning the birds. It's actually your fault" (June, data set 1: 4).

Kate had far less caring experience than the other three and preferred to simply present the pros and cons of backyard feeding and allow the person to make an informed

decision. In light of comments by the more experienced carers and their approach to backyard feeders, this appears to be a fairly naïve approach.

While the debate continues about the pros and cons of the backyard feeding of wildlife, up to 40% of urban households maintain the practice (Wildlife Preservation Society of Queensland, 2012). That is, every second or third household feeds wildlife. All four carer participants raised the issue of wildlife feeding and, given the reasonably high incidence of wildlife feeding in the community (Jones & Reynolds, 2008), this is not surprising. It makes sense that some of the people rescuing wildlife will be among the 40% of people who feed wildlife in their backyards. An interest in wildlife and close contact with wildlife may increase the chances of wildlife feeders finding injured wildlife and therefore increase their chances of coming in contact with a wildlife carer. It is understandable why the carer participants raised wildlife feeding as a specific issue of concern.

The three major concerns raised by wildlife carers in this current study were nutrition, disease and deliberate poisoning. These correlate somewhat with other recorded concerns about the practice of wildlife feeding. The Wildlife Preservation Society of Queensland (2012b) includes disease and un-appreciative neighbours (who may become poisoners) as two of six concerns. The other four concerns are: increased risk of predation, dominant species are given an unnatural advantage, animals may become less fearful of humans, and pests such as mice may be attracted to left-over food. Nutrition is not listed as an issue of concern. This is possibly due to research suggesting that wildlife will continue to forage for the majority of their food (Jones, 2011).

Jones (2002) also discusses concerns regarding backyard wildlife feeding. These include the potential for aggressive behaviour towards humans, disease, dependence, poor nutrition (or indeed harmful foods), and injuries and stress that may occur at busy feeding stations. The disease and nutrition concerns seem to be shared by wildlife carers.

Wildlife carers are justified in their concerns about backyard wildlife feeding, and their attempts at educating the public in this regard can be seen as productive. Some of the worrying cases reported by the carers in this study involved what seem to be unco-

operative and somewhat obstinate feeders, but for the average backyard feeder the welfare of the animals is of concern. Jones (2011a, 2011b) reports that many backyard feeders are highly motivated to do the right thing by their birds and it is likely that wildlife carers could have a positive influence on these people by providing advice on how to modify their behaviours and provide better outcomes for the birds.

Domestic cats.

All four carers have had experiences with the owners of cats that have injured wildlife. There is variety though in the ways in which they go about encouraging the cat owners to be more responsible for their animals. Lisa is a cat owner herself and tries to influence other cat owners by modelling responsible behaviour. She also talks to cat owners about de-sexing their cats to minimise the number of unwanted kittens on the streets.

June and Mary, two of the more experienced carers, report a deteriorating attitude towards cat owners. It seems that, over the years, they have become far less tolerant of irresponsible cat ownership. It is likely that this is partly the result of the large number of wild animals that come into care following cat attacks, and the extremely low recovery rate from those attacks. As June said, "I don't even bother being pleasant any more. If I know it's a cat attack, I tell it exactly as it is … of course it's going to die, and your cat did it, and you are responsible for that cat" (June, data set 1: 6).

Another reason for carer's waning tolerance may be a perceived failure in changing the attitudes and behaviours of cat owners. As June put it, "I think we fail on that one … all very remorseful but not enough to do something about the cat" (June, data set 1: 7). June and Lisa both discussed on-going interactions with one or more cat owners whose cats repeatedly catch wildlife. Each time the cat brings in an animal, the owner takes it to a carer but does not attempt to change their habits with their cat. This is very frustrating for the wildlife carers involved. June suggested that changing people's pet ownership behaviours could not be achieved without some form of regulation from local council and believes, "there needs to be a cat curfew" (June, data set 1: 8).

A study in Michigan (Lepczyk, Mertig & Liu, 2003) found a surprising lack of relationship between education and the number of cats allowed access to the outdoors.

Their expectation was that focused attention from a range of agencies directed towards keeping domestic cats indoors would have a negative effect on the number of cats allowed outside, particularly among the more highly educated cat owners. This effect was not found. Participants had access to multiple sources of information but still did not change their behaviour. Three possible explanations for their unexpected outcome were identified in the research. First, the information may simply not be reaching the target audience. This would be consistent with the view suggested by some of the carers in this current study that they have to engage in this type of education because there is no-one else to do it. Second, people know the rationale behind keeping domestic cats inside but simply choose not to act on this knowledge. Third, there is a general indifference to the predatory role of cats. The results of the Michigan study are consistent with what carers reported in this study in Brisbane.

A study by Barratt (1997) on prey composition and preference of domestic cats found that approximately three-quarters of all prey were introduced species (e.g. mice, rats, sparrows and starlings). If cat owners see their cats bringing home mostly introduced species, it may go some way to explain why they do not act upon information they receive from conservation groups about the need to keep cats inside for the benefit of native wildlife.

June suggested a cat curfew would offer a solution to the problem, but the study by Barratt (1997) on predation by domestic cats indicates that this would only solve a part of the problem. An examination of the time of day particular prey items were caught shows that predation on mammals was greatest in the evening between 18:00 and 24:00. A curfew beginning at 18:00 could have an impact on the number of mammals caught by cats. Birds, however, were caught predominantly in the morning between 06:00 and 12:00, outside the hours of a night curfew, suggesting a night curfew would have little impact on the number of birds taken by cats. To fully protect all wildlife cats may need to be kept inside or in an enclosure twenty-four hours a day.

Clean houses and trim trees.

There was a general concern among participants about the trend towards the recent domination of “Burke’s Backyard” and “Backyard Blitz” styles of gardening. These are

examples of popular Australian garden make-over and lifestyle reality shows on commercial television. As Lisa lamented:

> Yeah, well the fashion now is Burke's Backyard gardens isn't it? … They're so sterile, all those things he's created. All these new houses you see and all the polished up gardens, you get these absolutely immaculate sterile gardens (Lisa, data set 1: 64).

Or, as Mary put it, "clearing our native habitat and putting up an English garden" (Mary, data set 1: 42). The implication here is that this style of gardening is not particularly wildlife friendly and leads to problems for individual animals that previously lived in those areas.

Lack of appropriate habitat for wildlife is only part of the problem. The spotless sterile gardens have spotless sterile homes. This can also be a problem for wildlife, as June found:

> These little guys [two nestling spotted turtle doves] were deliberately ripped out of their nest by somebody who found it offensive to have a little pigeon's nest between a pipe and the wall of the house. Last season I got so many birds – swallows' nests – taken down because so-and-so was wanting to come and clean the house (June, data set 1: 16).

Whether cleaning the outside of the house or cutting a tree, people seem impatient to get the work done immediately. June has on-going contact with a tree-lopper. He always checks before they start and if they find something like a nest of birds he tells the property owner, "but he says no, it's [tree lopping] got to be done today" (June, data set 1: 17). He appears at June's door with a nest or branch hollow complete with nestling birds. June is pessimistic about changing people's attitudes to having perfectly trim trees and clean eaves all of the time. Lisa also lamented the loss of large habitat trees in her local area and encourages people to at least avoid major tree work during nesting season.

Fostering respect for wildlife/positive attitudes.

Explicit in the words of each of the four participants in this phase of the study was a desire for members of the public to show more respect for, and to have more positive

attitudes towards wildlife. An underlying ethic of care for wildlife was seen as very important, as the following quotes suggest:

> I think the problem with the public, when they do find birds or possums or what have you, they seriously think they're just toys. And it gets back to the lack of understanding and lack of respect for them (June, data set 1: 15).

> But this public education thing, honestly, if we could really start to make an impact on changing people's habits and stupid thoughts and what they do with wildlife and in their little habitat, we would get so far (Mary, data set 1: 34).

> Just try to promote some sort of tolerance and respect I guess (June, data set 1: 3).

> I guess at the back of my mind, my aim is about making people more caring about what's around them, and that they are a bit kinder to animals.
> (Lisa, data set 1: 66).

Most other issues raised about the human impact on individual animals or wildlife in general held an attitudinal element. People who cut down trees with nesting birds were seen to not care about the birds. People who allowed their cats to roam free appeared not to care about the wild prey caught by the cats. The use of large amounts of rodenticide in the ceiling was perceived as a sign of lack of care for non-target animals such as possums that may also consume the poison. Even some people who believed they were helping the animals, such as backyard feeders, were sometimes seen to be motivated by their own needs rather than the needs of the animals.

Kate, the high school teacher was as enthusiastic as the other participants about changing the attitudes of members of the public but was a little guarded, realising that it is possible to over-step the line:

> I personally think that where-ever you get an opportunity to try and change the way people see the world or their role in it, you know, it's giving them information that they didn't have before and making them look at things in a new way. You know, because some of those values that kids have, you know are just cyclical, they just come down from their parents and they'll just transmit the same values and it's a never-changing sort of cycle so if we get in there and we get an

> opportunity to modify that or just present things in a different way. I think that's a good thing, but you've got to be careful because there's a fine line between that and being seen as interfering or trying to lecture people and that would do us more harm than good. So, I think there's just a very fine line (Kate, data set 1: 82).

An explicit link was not made between attitudes and behaviour, but the contexts in which these comments arose, and the declarative way in which the words were said, suggest that the participants were drawing a link between an ethic of care and improved outcomes for wildlife. Mary talked about changing the habits of people, and it may well be that these habits will only change after there has been a shift in attitude.

> If you are passionate about what you do as a foster carer, you are passionate about changing the habits of public out there because that is what's causing grief to these animals. Think about it, 99% of the things that are happening out there with the wildlife that come into our care, one way or another it's person caused, it's man caused. Man-made problems domestic cats, dogs, electrocution, poisoning, the works. So it's in our interests to change public behaviours and habits when it comes to living with wildlife (Mary, data set 1: 31).

A series of studies by Tisdell and colleagues (e.g., Tisdell, 2003; Tisdell & Wilson, 2004; Wilson & Tisdell, 2004[a]; Wilson & Tisdell, 2004[b]) explored the relationship between knowledge of and attitudes towards wildlife. They link knowledge of wildlife to enhanced enjoyment of wildlife and found that knowledge is a key factor influencing the value people place on the environment and on individual species. To this end, they see education of the public as an important goal. The common strategy that carers use of telling people about the natural habits of animals they have rescued has the potential to increase people's understanding of, interest in and care of common wildlife.

Lee Curtis (2005) asked a number of people involved in the preservation of wildlife, "If you had three wishes for Australian wildlife, what would they be (Curtis, 2005, p. 32)?" Changes in public attitudes emerged as the largest category. This included the end to attitudes of selfishness, intolerance and domination. These should be replaced with a biocentric world view. Improved education and changes in attitudes were seen to be congruent with public involvement in the care and maintenance of our natural heritage. Be it care for individual animals or conservation on a larger scale, those who might be

considered environmental stewards see an urgent need for changes in the way a large proportion of the population think about wildlife, the environment and the place of humans in the environment.

Significance of having a live animal.

One of the distinguishing features of interactions between wildlife carers and the general public is the presence of a live animal (Aitken, 2004). The animal may have been rescued, be causing a problem, or being fed by a well-meaning human. But always there is an animal. Kate, the high school teacher, saw this as a critical factor in engaging children, and developing an interest in wildlife, "because, that's just going to be, I think, the most powerful way of reaching them" (Kate, data set 1: 88).

Animals provide a point of interest and affective or emotional engagement (Zeppel, 2008). Wildlife carers are in a position to be able to facilitate simultaneous emotional and cognitive engagement. Kate continued her story to include this different level of engagement:

> And if you tried to make it that they all had to stay that would be when you'd lose them, and it's the same with adults, you can't try to ram stuff down their throats. They've got to want to know and want to see (Kate, data set 1: 89).

Lisa also recognised the educational benefits of an immediate and purposeful encounter with a wild animal – an encounter such as a wildlife rescue.

> the people have … just rescued something or found something. That's when it often sticks in their minds much better … It probably gives them some knowledge that if something else happens later or they see the same species or something and it gives them some knowledge that might influence their actions the next time (Lisa, data set 1: 68).

People sometimes connected with their rescued animal to the point of following up on its progress.

> The people who come back with their kids are converted and they're trying to convert their children, so you don't mind that (June, data set 1: 16).

June had one experience of school children rescuing an orphaned bird and asking if it could be released back at the school. June did take the bird back and the children were

excited to see what it looked like when it had grown up. June also had a family that visited their rescued bird every week until it was released.

Participants reported that people, especially parents with young children, seemed particularly interested in raising baby animals. It was seen as something that would be good for the children and that the children would enjoy. June and Lisa were particularly concerned about the welfare of the animals in these situations. Inviting families back to visit their babies as they grew may be one way of maximising the benefit to humans and improving outcomes for the animals. Both had stories to share:

> I had this fellow … he had six little ducklings. Keep them warm and bring them here straight away, they have special needs. My daughter wants to keep them. I didn't get them (June, data set 1: 15).

> And the other thing … the people … who decide they want to do caring for all the wrong reasons, you know. Oh, it'd be great for the kids to see these little animals, you know. You know, they just do it for the wrong reasons and then the kids are squeezing them and poking them and pulling them … (Lisa, data set 1: 49).

A more positive type of interaction that took advantage of people's attraction to live animals was the role some carers played in their local neighbourhood, as Lisa described:

> And I'm the zoo for the local neighbourhood, the locals all bring their children in. Yes, I do quite a bit of education in the neighbourhood, just my neighbour's kids, they're fascinated and that's great, they're learning… (Lisa, data set 1: 55).

The use of story telling.

The only specific educational strategies that were mentioned by carers were the use of story and visual displays. June repeatedly mentioned the use of story-telling as a way of getting the message across and giving meaning to the birds in her care. She explained:

> People used to come here with their children, to visit – like, they'd get all the little stories associated with the birds … I used to tell them stories about, they could see, the adult mickies coming in and feeding the baby mickies … But you tell stories like that (June, data set 1: 1).

Mary made reference to getting "stories about the animals … into the face of the public as much as possible" (Mary, data set 1: 32). The other two carers did not talk about telling stories but, rather, they talked about explaining aspects of animal behaviour or the caring process to members of the public. It is not clear whether or not they used story to help with the explanation. They did, however, use story to recount these incidents to me, and to exemplify issues they wanted to discuss. For example, June began explanations with narrative phrases such as "A couple of years ago," (June, data set 1: 1) and "I got a call one Saturday morning" (June. Data set 1: 4).

Education of children is important.

The education of children was seen as important by all four participants. June felt it was a "place to start. I mean, realistically, you get them while they're young, you've got a hope" (June, data set 1: 13). Lisa added that "children are the most important thing I suppose, aren't they, really, in the long term" (Lisa, data set 1: 57). Mary and Kate, both with experience educating children and young people expressed similar but more detailed views:

> I'm a big believer in whatever you do with kids now is going to build their habits later on in life. Educate the younger generation and they're going to be more responsible pet owners and more environmentally responsible adults later on, you really have to get the kids in the early years, now (Mary, data set 1: 34).

> I think kids are much more likely to change because when you're trying to convince an adult of something different from what they've believed for thirty or forty years, you know, that's a lot harder to do, especially when they're not very receptive to it (Kate, data set 1: 83).

Each of them is involved with children to some degree. This involvement can be formal in nature through organised school visits or other events for children. Most, however, seems to be informal and directed at children in the carer's own immediate neighbourhood, or the children of people who rescue injured wildlife. The following examples from Lisa and June were typical:

> I have quite a few kids whose parents will bring me a bird and oh can Becky come around and help you with the birds. It's nice but I think oh gawd, I'm in the busy season I'm in such a hurry and trying to tell an eight or ten year old, you know,

> but I've had a few kids come for little times like that, do a little bit of helping. But that's good too. Good for the kids gives them a good attitude about animals and stuff. And I'm the zoo for the local neighbourhood, the locals all bring their children in. Yes, I do quite a bit of education in the neighbourhood, just my neighbours' kids, they're fascinated and that's great, they're learning…
> (Lisa, data set 1: 55).

> I had to pick up this noisy miner from [Bermount], and the kids there were all fascinated with that, and I promised them I would bring it back when it was released, and I went to the class and they all came and had a look at him, and he was having a fit. And he did get released back there (June, data set 1: 13).

The wider environmental context.

June focused her discussion entirely on issues that pertained to her local area. She hinted at some broader issues such as living with nature and the consequences of humans on habitats and food chains but they were all discussed within the context of her local area. The other three carers discussed broader environmental and conservation issues more explicitly. Broader issues included conservation and land clearing. There was also a suggestion of the importance of linking the localised one-on-one work of carers with wider issues:

> We need to be concerned about the environmental stuff too because otherwise where are we going to release our birds into, our animals into if we haven't got a decent environment out there. I mean you can't just separate off
> (Lisa, data set 1: 60).

At times it was not clear what participants meant by 'broader issues'. They used a variety of terms such as broader issues, broader picture, bigger picture, and "the way people see the world and their role in it (Kate, data set 1: 82)". Lisa included knowledge of natural animal behaviour within a wild situation as the broader picture – that is beyond just the human perspective.

> I try to explain to them the bigger picture about how the animals live and how they are part of the environment and like for swooping things it's only going to be for nesting season and talk to them about other strategies they might be able to

> implement like don't use that corner of the garden until the baby's left the nest (Lisa, data set 1: 51).

The issues of wildlife feeding and domestic animal control were deemed important by all four participants. Two considered these to be wider environmental issues, and two were not sufficiently specific to determine whether or not they included these as broader issues.

Lisa and Mary mentioned catchment groups and June described a local creek habitat, lamenting the domestic cats that are allowed into such a wonderful wildlife refuge. It appears that, for wildlife carers, the term 'wider environmental issues' pertains predominantly to issues at a local catchment level as opposed to global issues such as global warming, issues in different locations such as plastic bags killing wildlife in marine habitats, or any other circumstances that could constitute a wider environmental issue.

One difficulty participants perceived with wildlife carers educating the public on wider environmental issues was that the carers themselves may not have the knowledge, or the correct knowledge. Lisa supposed that the attitudes of individual carers to the wider environment would determine their level of knowledge and their ability to teach others.

> A lot of carers have got a lot of ability … I think the people who would be the best at doing that sort of stuff are the people who've got sort of the bigger picture (Lisa, data set 1: 59).

Some carers do not seem to have much understanding of larger or deeper environmental issues. That is not to say these people have no role to play in public education. They may, for example, be very caring and pass on an attitude of caring for animals, including wildlife.

Reflecting on an Emerging Narrative

The three-dimensional inquiry space is typically used at the beginning of an inquiry to define the parameters within which the inquiry will take place (Clandinin & Connelly, 2000). The temporal, social and spatial dimensions will provide a structure for early forms of the emerging narrative. As more data are gathered, described, analysed and

interpreted the relative importance of the inquiry dimensions will change. However, at this early stage of the inquiry process it is appropriate to address each of the dimensions in developing the emerging narrative and to redefine the parameters of the inquiry space in which subsequent data gathering and transformation will be placed.

The three-dimensional inquiry space is defined by temporal, spatial and social dimensions (Clandinin & Connelly, 2000). Time presented as the dominant dimension in this phase of the study. Although none of the participants complained, it was clear that they had set an hour or more aside just for their interviews. Lisa suggested a meeting place away from her house, because she knew the telephone would ring and the interview would be interrupted at her house. Kate took her phone off the hook so the interview would not be interrupted. Each of the four participants gave their undivided attention for more than an hour. It seemed that these four women were all accustomed to managing their time across a range of activities such as work, family and wildlife. They knew how to fit things in. This commitment was greatly appreciated.

The women also manage their time within the part of their lives devoted to wildlife. Each carer has a busy season which varies according to the species they care for. During their busy season rescues, care, release and public education all compete for their time. Of importance to this study, time is always found for public education. For the wildlife carers interviewed, time pervaded everything. There was calendar time as they recorded the comings and goings of animals, counting days for medication regimes and planning ahead for external education events such as an information stand at the local show. There was clock time as carers juggled veterinary appointments and regular feeds or medications while still taking time to talk with the public. Time in years, or experience as a carer, was also perceived as important. Skills as a carer develop over many years and so does an intimate knowledge of individual species and their habits. Experience may be a key factor in the ability of a carer to provide quality public education.

Within the interviews themselves the participants moved seamlessly from present, to past, to future. For the three experienced carers, many of the stories they shared were from the past. There were stories from the recent past and from the beginnings of their careers as wildlife carers. The beliefs they hold about public education are based on

many years of interacting with the public. The participants also spoke of their thoughts, dreams and plans for the future and how environmental education by wildlife carers could be improved.

Defining the spatial dimension of the inquiry space begins in each carer's home. Much environmental education by wildlife carers is opportunistic and may occur anywhere, such as a school, veterinary surgery, and local fete or at a rescue. For the three experienced carers, however, most of their discussion centred on what happens in their own home. The fourth participant, the high school teacher, talked mostly about what has or might happen at her school.

For the wildlife carers interviewed, their homes appeared to be the centre of their wildlife worlds. Many educational interactions in which carers engage occur in their home environment. For some, this is just about the only place. There are three significant places within the home space that were discussed

The first is referred to as 'at the front door'. This is where members of the public first meet the carer and hand over their rescued animal. Education at this point is mostly focussed on the individual animal, that species of animal, or the rehabilitation process. More expansive education is more likely to occur in the second home space – 'out the back'. Out the back refers to where the animals are housed and consists of an array of cages, aviaries and enclosures. The final location in the home is 'on the phone'. Much wildlife problem solving is done over the telephone and some days carers can spend hours on the telephone talking about injured, displaced or problem wildlife. Here the dimensions of time and space cross-over as carers manage a range of wildlife responsibilities, including public education.

Another view of the spatial dimension can be taken from the natural environment. What are the spatial bounds of the local environment as expressed by wildlife carers? They referred to places such as their own suburbs, neighbouring suburbs, local schools and parks, and to their catchment area. The environmental term that best embraces these locations is local catchment area, although it is not clear whether or not all participants fully understood the concept of a catchment or that they consciously think in these terms.

Place, time and environmental education are also linked by the experience of a carer, or numbers of years of caring. External events such as fetes and local shows are more likely to be attended by more experienced carers. In fact, there was a suggestion that only experienced carers should engage in such wider-reaching educational events. In a sense, new carers were seen as a sub-group of the general public, albeit a group that is about to experience a steep learning curve.

The final inquiry dimension is sociality which includes both the social (looking outward) and the personal (looking inward) (Clandinin & Connelly, 2000). Just as time is impossible to separate from wildlife caring, it is also impossible to separate sociality. Wildlife caring is a social activity involving daily encounters with other carers and wildlife agencies, members of the public, and veterinary surgery staff. Some relationships are maintained over many years, such as the friendships that form between wildlife carers and the professional relationships that develop between carers and their local veterinary staff. As well as providing friendship and support, these associations result in much sharing of information about wildlife. Other social interactions are short and the carer may never meet that person again. The focus during these interactions is on exchanging information relevant to a particular animal, species or situation. Most interactions with the general public fall into this latter category, although some may extend beyond just a single contact.

Sociality also has an internal dimension. It was evident that the four participants in this study think, worry, or reflect upon issues such as providing better outcomes for animals and changing people's behaviour. They all find time to engage in public education as a part of their daily wildlife care routine. Some do more and engage in external community events, widening the social and spatial dimensions of their educational contribution.

This emerging narrative describes the temporal, spatial and social dimensions of environmental education by four wildlife carers. The next data collection phase builds on the emerging narrative. The views of more wildlife carers across a wider geographic range and caring for a wider range of species will be included to complete the narrative of environmental education by wildlife carers.

Revisiting the Literature: Phase One

In chapter two, a preliminary and tentative literature review was conducted and four potentially important issues were raised. The first of these was that the majority of species coming into care were classified as common. The participants in the first round of data collection did not discriminate between common species and other classifications such as endangered or rare. They saw animals as individuals and treated every animal with the same high level of care and respect. A frequent comment about the common nature of the species was that despite commonly being seen, members of the public knew very little about them. In response to this, wildlife carers saw that their role should include the provision of knowledge and information about wildlife to members of the public.

The issue of common species is linked with two other issues raised in the preliminary literature review: urban wildlife and human-wildlife interactions. The carers interviewed in phase one dealt predominantly with common urban wildlife species. When wildlife occurs commonly in urban areas that are populated by large numbers of people, conflicts may follow. Once again, the response of wildlife carers is to educate members of the public about the wildlife that lives in urban areas. This education consists of information about the wildlife and solutions for individual problems that may occur when living close to wildlife.

The final issue raised in the literature review was stewardship, and the wider issue of a land ethic. While there were moments in the interviews where conversations turned to broader environmental topics such as land clearing, ecology and nature preservation, the majority of the interviews focussed on an ethic of care for individual animals in individual urban backyards. The grouping of animals was at 'family' level rather than species level and conservation focussed on individual trees or small patches of habitat in parks and urban backyards. It is questionable that care for just a small pocket of habitat constitutes stewardship or a land ethic.

Revisiting the literature from chapter two of this thesis is only part of a complete revisit of the literature. The second component addresses the question of whether or not wildlife carers engage in environmental education. Based on just four interviews, a definitive answer cannot be given at this stage. However, it is appropriate to explore similarities and differences between what wildlife carers describe as environmental

education and what the academic literature defines as environmental education. This discussion includes a clarification of the terms environmental education and education for sustainable development, and an indication of where education by wildlife carers might lie within the literature.

Education for sustainable development has its origins in environmental education (Australian Government, 2006), a term that became popular as an educational pedagogy and research topic in the 1970's (Australian Government, 2006; Gough, 2012).

The first twenty years of environmental education drew heavily on the goals set down in the Tbilisi Declaration (Greenhall Gough, 1990). These goals were:

- "to foster awareness of, and concern about, economic, social, political and ecological interdependence in rural and urban areas;
- to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment;
- to create new patterns of behaviour of individuals, groups and society as a whole towards the environment " (UNESCO-UNEP, 1978, p. 3).

While these goals remained reasonably consistent over this period, Palmer (1997) noted a transformation from learning about nature in the 1970's, to experiential fieldwork and values education in the 1980's, to action research and student led problem solving in the 1990's. A parallel trend was noticed in environmental education research from the dominance of applied science, behaviour change and quantitative methods in the 1970's to a broadening of research designs in the 1990's to include interpretive, critical and postmodern inquiries (Gough, 2012). This shift in research mirrored a shift in the focus of environmental education towards emancipatory and socially transformative aspirations. In 1997 the UNESCO sponsored Thessaloniki Declaration saw the neutralisation of environmental education and the establishment of education for sustainable development as the dominant pedagogy (Knapp, 2000).

Gonzales-Gaudiano (2006) describes education for sustainable development as a superior version of environmental education that transcends the limited scope of environmental education. The individual focus of environmental education with goals that centred on knowledge, awareness and personal behaviour change (Australian Government, 2006; Boyes & Stanisstreet, 2012) has been overtaken by education for

sustainable development and a focus on global issues such as world peace, global food security, unsustainable consumption and sustainable economic development (UNESCO-UNEP, 2009). The focus on education for sustainable development has also seen a move away from an emphasis on formal education to recognition of the importance of informal and non-formal education, and links between the different forms (Gough, 2012; Knapp, 2006).

The topics raised in the earlier review of literature and by the four wildlife carers interviewed in phase one have more in common with environmental education than its more recent iteration of education for sustainable development. The exception to this is the seemingly non-formal nature of education carried out by wildlife carers. The nature of education by wildlife carers was explored and then discussed in greater detail in subsequent data collection phases and reviews of literature.

The content of education by wildlife carers lies within the bounds of early iterations of environmental education rather than the more recent trend towards education for sustainable development. As such, the following discussion compares education by wildlife carers to environmental education as described in the early literature of the 1970's through to the 1990's. At this point the aim is not to judge the relevance of education by wildlife carers to current understandings of environmental education but to simply describe it and to tentatively place it within the literature.

Education by wildlife carers shares some commonalities with zoo education and wildlife tourism and, in the same manner as zoo education, may form a particular sub-type of environmental education. Just as zoo education is applicable mostly is zoos, education by wildlife carers may be specific to wildlife carers. As described by Ballantyne, Packer and Falk (2011) wildlife tourism impacts on visitor knowledge, attitudes, awareness, respect and appreciation. They also found, however, that these gains have only a small impact on behaviour change. The lack of change in environmental behaviour puts outcomes such as those found in zoos at odds with documents such as the Bonn Declaration (UNESCO, 2009: 249) that describes education for sustainable development as "education that empowers people for change", and individual authors such as Ferreira (2013) who says that changing environmental behaviour is generally regarded as environmental education's ultimate goal.

A model of environmental education that emphasises knowledge gain is sometimes referred to as the information deficit model (Boyes & Stanisstreet, 2012), and reflects a fairly early model of environmental education (Gough, 2012b). Much of the education by wildlife carers fits this deficit model. Despite the somewhat out-dated connotation of this model, some current national and international plans for environmental education or education for sustainable development include knowledge gain as part of an overall vision or goal. Such plans include The National Action Plan for Education for Sustainability (Australian Government, 2009), and United Nations Economic Commission Europe (Harder et at, 2014).

What needs to be made clear, however, is the indirect (Boyes & Stanisstreet, 2012) or non-linear (Gough, 2013) link between environmental knowledge gains and changes in environmental behaviour. In addition, Boyes and Stansstreet (2012) make clear that this relationship is not robust. Various other situational and social influences mediate behaviour change and may be more or less dominant at different times. In addition, an increase in environmental knowledge may not influence all behaviours equally (Corraliza & Berenguer, 2000).

An emphasis on knowledge gain does not exclude education by wildlife carers from the environmental education construct but, at the same time, does not meet current best practice in the latest iterations of education for sustainable development. With the added elements of attitude change, awareness and respect for wildlife, education by wildlife carers is emerging as a discrete construct somewhat like zoo education that has a unique but marginal place in environmental education or education for sustainable development. In the following chapter more data are collected and a clearer positioning of education by wildlife carers in the literature is made.

There are three possibilities looking ahead, beyond the next phase of data collection. The first possibility is that education by wildlife carers lies clearly within the field of environmental education and it can then be judged against these criteria. The second possibility is that the emphasis on non-formal and informal education places education by wildlife carers within the field of education for sustainable development. In this case, the content of education by wildlife carers should be judged against the content of education for sustainable development. The final possibility is that education by wildlife carers cannot be described as either environmental education or education for

sustainable development. In this case, the unique place of wildlife carers needs to be located within a wider framework of literature. It may be that education by wildlife carers emerges as a unique theoretical construct that may or may not have theoretical connections with environmental education or education for sustainable development.

Chapter Five

Phase Two - Questionnaire

This chapter discusses the second phase of data collection. Two open-ended, written response questionnaires were administered approximately four weeks apart to nineteen volunteer wildlife carers from across Queensland. The aim of the questionnaires was to expound on responses from the first phase of data collection. Development of the questionnaires, participant selection and questionnaire administration are described. Responses are analysed and discussed.

In Queensland, wildlife carers are issued with a wildlife rehabilitation permit that allows them to keep injured and orphaned wildlife in temporary captivity for the purpose of rehabilitation and subsequent release back into the wild. There are two ways to obtain a wildlife rehabilitation permit (Queensland Government, 2012d). An individual may apply directly to the Queensland Department of Environment and Heritage Protection (EHP) for a licence that covers a limited number of specified animal groups such as birds or mammals. Alternatively, a number of carers may join together to form an incorporated wildlife rehabilitation group and apply for a group permit. Individual carers may then join one of these groups and operate under the group permit.

Wildlife care groups are numerous and varied. They range in size from about twenty members to over one hundred. Some groups care for all species and others care for a single species (e.g. koala) or a particular grouping of animals (e.g. birds). The boundaries of most groups tend to be geographic but there is great overlap of groups, particularly in the heavily populated south east corner of Queensland. Some groups are well established and have been serving injured and orphaned wildlife for decades. Other groups are relatively new and may have existed for less than one year. As with any situation where people belong to groups there will sometimes be conflict within or between groups. There is an element of conflict among wildlife care groups with some people believing their group provides the best care for animals, offers the best rescue service, or has the best carer training and support. New groups are easily formed when a small group of disgruntled members leave an established group and form a new group of their own.

> Prior to beginning this study I was a member of a medium-sized, well established group that focussed on mammals. To avoid any potential perceived conflict of interest or bias I withdrew my membership of the group and obtained an individual permit. This was probably a wise move as a small number of participants did ask me about my group membership.

Given the human dimension of groups and the sometimes fragile interpersonal relationships among carers from different groups, care was taken to ensure this study would be seen by all members of the wildlife caring community as being representative of all carers. The care taken was justified by a comment from one of the participants:

> Regarding the research project, I am pleased for you that you seemed to have obtained quite a lot of information from a number of carers. It has been professionally carried out, and I congratulate you (Kerrie: data set 2b: 94).

This is the main reason phase two diverged from a traditional narrative inquiry approach and employed a written questionnaire. This format quite visibly allowed for members of all wildlife care groups, and individual permit holders, to become involved in the study. While increasing the representativeness of the sample is not necessary from a narrative inquiry methods point of view, it is essential if this study is to be accepted by the whole wildlife caring community in Queensland.

The questionnaire phase provided an opportunity to further explore some of the issues from phase one, and to deepen the understanding of what it means for a wildlife carer to engage in environmental education. To meet these multiple goals, the questionnaire needed to be structured enough to be able to present previous findings and open enough for new voices to be heard. The structure of the questionnaire was drawn from phase one data analysis and coding categories. The openness came from the way participants were invited to respond to the items. Participants were encouraged to explain why they agreed or disagreed with aspects of the emerging narrative, and to give examples from their own experience. Encouraging extended responses allowed the data to continue to move forward and evolve.

Developing the First Questionnaire

The first questionnaire was presented in two parts. **Part A** asked participants to comment on ten statements covering five themes constructed around the twelve coding

categories generated in phase one. Some of the twelve emergent codes had similarities that allowed the collapsing of the codes into five broad themes. For example, wildlife feeding and domestic cats are both examples of the *content* of educational interactions. Table 3 shows the data codes and themes used to inform the questionnaire phase.

Table 3

Data codes and themes

Codes	Themes
Wildlife carers are environmental educators. A significant portion of a wildlife carer's time is devoted to public education.	The importance of environmental education to wildlife carers.
Effectiveness of wildlife carers as environmental educators.	Effectiveness.
The wider environmental context	
Lack of public basic knowledge about wildlife.	Content.
Wildlife feeding.	
Domestic cats.	
Clean houses and trim trees.	
Fostering respect for wildlife and positive attitudes.	
Significance of having a live animal.	Strategies.
The use of story telling.	
Education of children is important.	Form.

As much as possible, words and phrases from the phase one data were used in the construction of the phase two questionnaire items. Remaining close to the phase one data was respectful of the phase one participants and their responses. Using the words and ideas of the phase one participants assured the questions being asked in the second phases were plausible or meaningful to the participants, and that they can see

themselves, or other wildlife carers, in the items. Wildlife carers responding to issues raised by other wildlife carers, and in the language of wildlife carers, helped maintain an open and honest relationship with participants.

Participants were invited to agree or disagree with each statement, to give reasons to support their point of view, and to give examples from their own experience. The purpose of these questions was to establish a deeper understanding of the main issues raised in phase one and to examine their relative importance to a wider group of carers. The ten items covered five themes derived from the analysis of phase one data, with between one and three items relating to each theme. The five themes were: the importance of environmental education to wildlife carers, content, strategies, form and effectiveness.

In phase one, interview participants had suggested that environmental education was an important aspect of wildlife caring and that a significant amount of time was devoted to it. These two aspects of environmental education by wildlife carers were combined to form item one.

Item 1. Wildlife carers are at the front line and devote a considerable amount of their time to environmental education. Every time carers meet with a member of the public they impart some little piece of information.

The second theme focussed on the content of educational interactions between wildlife carers and the general public. Content varied among different carers and in different situations but at least five content areas were described in phase one. They were lack of basic knowledge about wildlife, backyard wildlife feeding, domestic animal control, wildlife unfriendly home and garden practices, and fostering respect for wildlife. In educational terms, these can be grouped into three categories – knowledge, attitudes and behaviour. Items two to four focussed on these content areas.

Item 2. The general public, on the whole, know very little about wildlife, even common species.

Item 3. Wildlife carers are in the perfect position to change people's attitudes and behaviour in relation to issues such as responsible pet ownership, cutting down trees and backyard feeding.

Item 4. Wildlife carers can help change the way people see the world and their role in it, encouraging tolerance and respect for wildlife, and generally to make people care a bit more about wildlife.

Interview participants in phase one discussed a range of strategies they employed for public education. These ranged from broad approaches to specific activities, with repeated reference to having a live animal to look at and talk about, and story-telling. Items five and six on the questionnaire were simple restatements of these phase one coding categories. Again, participants were asked to agree or disagree with the statement and to explain why.

Item 5. Having a live animal to talk about gets people more interested, particularly if they have just rescued it.

Item 6. Telling stories about the animals in care is a good educational strategy.

One feature that became apparent in phase one was that there was little variation in the form of educational interactions between wildlife carers and the general public. All carers seem to engage in one-to-one education, and it seems to be accepted that this was just the way it was, and always will be, done. Education is simply a consequence of a meeting between a carer and member of the public that occurred for some other reason, such as an animal rescue. Mary, though, had definite views about the limited effectiveness of this approach and expressed a need for more structured educational experiences to become a part of the collective wildlife carer role. Items seven and eight focused on the form of educational interactions between wildlife carers and members of the public.

Item 7. The one-on-one education carers do with people who find injured or orphaned wildlife is really important.

Item 8. Strong educational links between carers their local neighbourhood or local community are a positive feature of wildlife caring. It would be good if wildlife carers could work more with other groups in their local community, such as catchment groups, Scouts and Guides, and in local schools.

Items nine and ten addressed different aspects of an issue that was raised by two of the phase one participants; the effectiveness of some individual carers in providing quality environmental education experiences. Item nine was more open; asking participants to say what they think makes an effective wildlife carer educator. Item ten addressed one of the many fields of knowledge a wildlife carer may draw on when engaged in public education – knowledge of wider environmental issues. Measuring this effectiveness is beyond the scope of this study but the issue will be important if environmental education does emerge as a valid and important role of wildlife carers, and a further in-depth exploration of the topic may be warranted in the future.

Item 9. Some carers are excellent educators while others just muddle along doing the best they can. What is it about some carers that make them better at passing knowledge on to others?

Item 10. An understanding of the broader picture of conservation issues and the environment is really important.

In **Part B** participants were asked to describe some typical short and long contacts they have with the public. From this it was hoped to gain a sense of how long some of these interactions were and the nature of various interactions. The structure of part B of the questionnaire gave participants an opportunity to recount stories about their experiences as environmental educators. The recounting of stories to illustrate a point of view was a common strategy employed by phase one participants, and it provided rich data. Due to the effectiveness of story recounts in phase one, phase two participants were also invited to tell stories about their experiences.

I want to get some idea of the range of educational experiences that wildlife carers provide. Describe each of these types of educational encounters with the general public.

(a) A typical short contact.

(b) A typical long contact.

(c) An interesting or unusual contact.

The final item on the questionnaire was an open opportunity for participants to tell me anything else they felt might be relevant to the topic.

2. Are there any other comments you would like to make about your role as an environmental educator or the strategies you use?

A copy of the first questionnaire is included as appendix C.

Developing the Second Questionnaire

The second questionnaire was developed in light of responses to the first questionnaire. It was divided into three sections. The first section, the narrative, was a summary of the analysis of the first questionnaire. It described typical interactions, typical content and typical behaviours of members of the public. The purpose of the narrative was two-fold. First, it would provide some feedback to participants so they could see how their responses had been incorporated into the larger narrative. Second, it would give participants the opportunity to provide feedback about the interpretation of their responses. Member checking is a measure of substantive validation (Angen, 2000; Whitmore, Chase & Mandle, 2001).

The narrative in section one began by describing the most common interactions between wildlife carers and members of the public. They are short and the information shared is quite basic and factual such as the species, how old the animal is or what it eats. Longer interactions were also described. Although not so common, these interactions can be far more beneficial in terms of educating the general public. The narrative went on to describe various types of people who might engage with wildlife carers. These include knowledgeable, caring people as well as less-informed ego-centric people. Veterinary staff, new carers and children were identified as special groups that may benefit from educational interactions with wildlife carers. The narrative was presented to participants with wide page margins allowing adequate space for comment. Participants were asked if they could see themselves in the emerging narrative and whether or not it incorporated their views on environmental education by wildlife carers.

The second section of the questionnaire sought to further explore some aspects of the narrative. Four questions requiring written responses were asked. Three items focused on the general public, in particular those who have an interest in learning more about wildlife. It may be that this is the group that will benefit most by education from wildlife carers. Participants were asked to explain what makes these people different from others, what they most want to learn, and what the carers themselves felt should be included in educational interactions with the general public, and also with new carers and veterinarians. Those items and the introductory statement were:

> I have identified a section of the public with some existing knowledge and interest in wildlife as a group that may benefit most from our time (the 'gaining knowledge' group), and would like to explore interactions with this group further. If you can, I would like you to describe some of the characteristics of this group of people. What is it that they say or do that makes you think, "I am not wasting my time with this person."
>
> Is there a pattern to the sorts of things these people want to know? If you could have an information sheet on hand to give people, what would it include? Just focus on the species you care for. If you have a handout or any other printed material that you give people, I would appreciate you including a copy for me. Very briefly, what are the topics that stand out as ones that new carers and vets ask about most often, or that you think they most need to know?

The fourth item addressed an issue that resulted in some difference of opinion in the first questionnaire. It asked participants whether they are totally honest with the public about some of the less pleasant aspects of wildlife caring, including death and euthanasia, or whether they sometimes gave a sanitised version of the truth.

This final question relates to an issue that raised some difference of opinion in the first questionnaire – how honest are we about the prospects for individual animals and wildlife in general. Some people preferred to 'tell it like it is' and others preferred a 'sanitised version' of the truth. There was some mention of protecting people, especially children, from what can sometimes be a gruesome reality. I am not sure this issue is quite that clear-cut. How do you decide just how honest you are going to be with someone?

The third section gave participants the opportunity to offer any final comments, or to raise any issues or concerns about the research itself. A copy of questionnaire two is included as appendix D.

Participants

An advertisement asking for volunteers for the study was placed in 'Rehabilitate and Release' (RnR), a twice yearly newsletter sent to all permitted carers in Queensland, Australia irrespective of whether they held an individual permit or which group they belonged to. At the time RnR was produced by the Environmental Protection Agency (EPA) and sent to approximately 2000 carers across the state. This avenue for reaching carers was chosen because it would reach all carers equally at the same time. Most care groups do have their own newsletters but taking this avenue would have excluded individual permit holders. Group newsletters are sent at different times and intervals and it would have been difficult to place an advertisement that would appear in all group newsletters at approximately the same time.

Altogether, twenty-one wildlife carers expressed interest in participating in the study. This included three people who were approached personally, and invited to participate. One of these people was involved in regular community koala education activities. Koalas are of conservation significance in south east Queensland and I felt that this person's experiences of public education in relation to this species could make a worthy contribution to this study. Although a very busy person she agreed to participate. The people volunteering to participate in the study were all experienced carers and there were no newer carers of only one or two years experience. On approaching a few new carers it was found that they felt their lack of experience meant they would have nothing to contribute to the study. To address this issue, two new carers known to have had some contact with the public were invited to participate in the study. One of these people later commented that she had not realised just how much public education she provided and how valuable it could be (Barbara, data set 2a: 82). Of the twenty-one people who initially expressed an interest in the study, nineteen returned the consent forms and participated by completing at least one of the phase two questionnaires.

Six carers came from Brisbane, the Capital city of Queensland, suburbs and a further six came from surrounding areas that border Brisbane city. This represents approximately

two thirds of the participants in this phase of the study. One participant came from the Sunshine Coast just to the north of greater Brisbane, two came from central Queensland (Bundaberg to Rockhampton) and four came from north Queensland (Townsville to Cairns). This breakdown approximates the distribution of wildlife carers across the state with the majority living in the south-east corner. There were eighteen female participants and one male. Wildlife caring is a female-dominated field and the fact that there was only one male amongst the nineteen participants is probably also representative. Collectively, the volunteer participants cared for a diversity of species including birds, marsupials and reptiles. Some participants belonged to large well-known wildlife care groups, some to small regional groups, and a small number had individual permits. This information was not asked for but the majority of participants offered the information in either the first or second questionnaire, reinforcing the idea that obtaining research data from a number of groups and individual carers would be important for the acceptance of the inquiry among wildlife carers, group leaders and environmental managers.

Implementing the Questionnaires

When advertising for participants for this study both a land-line telephone number (with answering service) and e-mail address were provided. During the initial interactions with potential participants contact details that included a telephone number, e-mail address and postal address were obtained. A postal address was required from all participants for the posting of consent forms. The consent package included information about the study and details of participation requirements. Details of ethical clearance by the university, and avenues to express grievances were also included.

Participants were then given the choice of receiving the questionnaires in hard copy by regular mail or electronically by e-mail. Eleven participants requested the hard copy format, six requested an electronic version. Two participants asked to be sent both hard copy and electronic forms and both responded via the hard copy version. The same cover letter and instructions were provided for both formats of the questionnaire. All consent forms and hard copy forms of the questionnaire were accompanied by a stamped addressed envelope. Examples of consent forms, project information and cover letters are attached as appendices (appendix B).

All of the first questionnaires were returned by the requested date. Some participants did not return the second questionnaire by the requested date and reminder notes were sent by either regular post or e-mail. Copies of the questionnaire and another return envelope were included. This resulted in all but one of the second questionnaires being returned.

Analysing the Questionnaires

Five themes (the importance of environmental education to wildlife carers, content, strategies, form and effectiveness) were used to structure the first questionnaire, and these same themes formed the coding categories for analysis of both questionnaires. Initially all questionnaires were read to gain a general impression of how participants responded. Note was made of any responses that did not fall into one of the five coding themes, but that were still noteworthy. Some comments were about the specifics of treating certain medical conditions or other issues not within the scope of this research. For example, in the second questionnaire Penny made a comment about funding for wildlife caring in general, not specifically wildlife education, "The government should offer incentives to long-term carers (Penny data set 2b: 50)". These comments were excluded from the coding process.

All open-coded categories were able to be placed within the five themes. For example, comments relating to honesty regarding particularly horrific injuries and negative outcomes were coded as a strategy. Descriptions of short and long interactions between wildlife carers and members of the public provided insight into the potential for education in different situations and were coded as 'effectiveness'.

General Impressions

The majority of participants gave extended answers to all items, with most responses filling at least half of the space provided, and many extending beyond the given space. Some electronically returned questionnaires included even longer responses. The overall first impression was that participants had something to say, and they were not hesitant in saying it.

There were numerous comments explaining what the person cared for, how long they had been caring, or other details specific to their circumstances. Individually, the

comments did not relate directly to the study. They did, however, offer an insight into the person. Both sets of responses were read for each participant and, in so doing, some familiarity with the respondents was gained. They shared the highs and lows of wildlife caring and their frustrations and celebrations dealing with the general public.

Introducing each participant might be interesting for readers of this thesis but it is not necessary for the study. Also, it would be difficult to achieve without compromising confidentiality. Familiarisation with participants was used to add depth of understanding as responses were compared and contrasted. This process contributed to maintaining relationships and ethical validation. It positioned the responses within a context.

In the second questionnaire, part A gave participants the opportunity to provide feedback on the emerging narrative of wildlife carers as environmental educators. Quite often their responses were just a tick or the word 'yes', sometimes in large uppercase letters. These responses indicated a high level of agreement with the emerging narrative, giving confidence that analyses to that point were valid.

The Five Analysis Themes

The importance of environmental education to wildlife carers.

Participants discussed the relative importance of education, the time it takes, skills and aptitudes required by carers, the reluctance of some carers to engage in educational activities, and education as a form of recruitment of new carers. While there was agreement that wildlife carers do engage in environmental education and that most interactions with the public result in some degree of education, some participants felt that it was an overstatement to say that it took a considerable amount of a carer's time. On the other hand, Sandy's experience was that public education can be very time consuming:

> I have previously had the mobile telephone for my club for a period in excess of a year and during that time it would be reasonable to say that the time spent on the telephone to the public exceeded that which I spent caring for animals (Sandy, data set 2a: 129).

There was generalised support for the idea that wildlife carers are, and should be, environmental educators. This varied from accepting the role with some reluctance to Holly's view that education may be more important than the caring of animals. In the first questionnaire she pointed out that for some members of the public wildlife carers may be the only people they interact with who have knowledge of wildlife. In the second questionnaire Holly looked beyond individual people and individual animals to a more holistic or ecological view:

> I find it encouraging that you are focussing on the carers as <u>educators</u> aspect. Personally I am quite cynical of the overall effect we have on populations of wildlife just by saving individuals. It makes us feel warm and fuzzy and good about ourselves but I feel it has minimal, if any, effect on the populations as a whole (possibly even a negative effect). However, in the role as educators, I feel carers have a very important role and really make a difference. And that's what it all boils down to, making a difference (Holly, data set 2b: 74).

The importance of wildlife education in general was discussed by Debbie, who suggested that research into wildlife education should be a priority and that "Education in school and in the community should be specific and ongoing" (Debbie, data set 2b:33). Debbie did not restrict responsibility of such education to wildlife carers, and recognised that not all wildlife carers would necessarily make good educators.

Some wildlife carers are confident speaking with members of the public and answering their questions but others are not confident and may not have the skills or the knowledge to carry out this role successfully. Experience was one factor identified as impacting on a carer's ability to be a confident educator. Lillian linked experience to the use of story telling as an educational strategy:

> This is exactly what I do as I have been a carer for 34 years so it comes easy for me (Lillian, data set 2a: 4).

Margaret offered a similar view from the point of view of a less experienced carer:

> As a new carer my knowledge is not as extensive as more experienced carers and therefore do not tend to "educate people" but if asked I will certainly advise to the best of my ability (Margaret, data set 2a: 145).

Wildlife carers live with wild animals every day and gain an intimate knowledge of the behaviour. Val (data set 2b: 62) believes this puts carers in the best position to be able to educate others about wildlife. Although changes in people's behaviour may be small, Ruth (data set 2b: 43) feels carers must at least try to improve the prospects for wildlife. She believes there is no point interacting with the public if carers do not make some attempt to educate, no matter how small the change in the member of the public's knowledge, attitudes or behaviour may be.

Some carers embraced the environmental education role with enthusiasm and some resisted interacting with the public at all. Lillian (data set 2a: 1) is one of the enthusiastic ones, taking her collection of photo boards to schools, offering a handout on what to do when injured wildlife is encountered and working closely with local landcare and other environmental groups.

Penny does not think that wildlife carers are necessarily the best people to be environmental educators and sees the two, carers and educators, as being two distinct groups. Only rarely is there someone who can be good at both.

> Wildlife carer should not have to equal 'wildlife educator'. Some people are great at educating, some are fantastic carers, if you're lucky you will find both in one person. Carers should definitely be specialist educators to either new carers or vet professionals. School and community education should be left to those who are good at it. These people should not necessarily be carers (Penny, data set 2b: 50).

Sandy is somewhere in between and typical of most respondents. She sees herself as an "accidental educator for the general public (Sandy, data set 2a: 136)". If given the choice, Sandy would prefer not to engage in such activities but, in the absence of anyone else to do the job, she does her bit by presenting seminars and assisting at public information displays. Jodie (data set 2b: 106) has a similar view and sees training as the vital link between carers simply being in the perfect position to provide public education and actually being effective environmental educators. She believes that carers need adequate co-ordination and support before being asked to take on this additional role.

Rather than saying that every interaction between wildlife carers and members of the public *is* educational, it may be more accurate to say that every interaction *has the potential to be* educational. The carer is just one variable influencing the degree to which education occurs. As Kerrie (data set 2a: 103) pointed out, the member of the public does not always want to be educated. The attitudes and prior knowledge of the member of the public may limit education, even if the carer has a high level of appropriate skills and knowledge.

Finally, Sandy (data set 2b: 95) discussed one important but mostly overlooked aspect of public environmental education – the recruitment of new carers. The issue of recruitment is not a focus of this study but it would be interesting to explore the impact education by wildlife carers has on a range of decisions people make about how they choose to interact with wildlife, including the decision to commit to caring for injured and orphaned wildlife.

The content of educational interactions between wildlife carers and members of the public.

Three items in the first questionnaire and one item in the second questionnaire related directly to the content of environmental education by wildlife carers; and covered the elements of knowledge, attitudes and behaviour. There were clear differences in the way participants discussed knowledge as a content area and what they said about attitudes and behaviour. While there was agreement that education was required in relation to all three, there were differences in what aspects should be included in the wildlife carer's role and those that would be better provided by some other agency. Participants were comfortable engaging in knowledge education but there was a range of concerns relating to education that focussed on attitude and behaviour change.

On the whole, participants agreed that there was a paucity of wildlife knowledge within the general population. Claire (data set 2a: 11) described the knowledge they do have as vague and general. Annie (data set 2a: 16) believes that an individual's knowledge is restricted to wildlife that is encountered in their own back yard. There may be some variability in knowledge levels between people living in rural or semi-rural areas and their urban counterparts, with the rural residents knowing more. The following participant statements are indicative of this difference.

> I am pleased to say that in the semi-rural area in which I live, residents on the whole are very concerned about wildlife and environmental issues (Margaret, data set 2a: 148).

> [Members of the public] seem very surprised that wildlife lives in the suburbs. They see birds every day but make no effort to find out the species or learn about their life cycles. If a snake enters their yard, they are mortified. [Members of the public] believe that because they have a fence and pay rates, wildlife is not welcome in their yard (Annie, data set 2a: 16).

Difference in knowledge levels may also occur between adults and children. Jill (data set 2a: 23) and Penny (data set 2a: 95) both said their experience led them to believe that children know more about our native wildlife than adults. Ruth (data set 2a: 123) is sometimes pleasantly surprised by how much some children know about wildlife. Noela (data set 2a: 56) cares for koalas, an iconic Australian species, and is appalled by the lack of knowledge Australians have of their own native wildlife. In her experience overseas students are often better able to recognise Australian wildlife, and are more knowledgeable, than resident Australians. It is not only members of the public with limited wildlife knowledge. Injured wildlife is often taken to veterinary surgeries for treatment. As Lillian (data set 2a:2) explains, veterinarians are trained to treat domestic animal species, and many have very limited knowledge of wildlife.

Identification of wildlife species arose as a primary area of concern for participants. Many felt that there is widespread ignorance of wildlife species. Five participants made general comments about species identification and three focused specifically on lack of knowledge within an individual's back yard or local area. Val (data set 2a: 2) expressed concern that veterinarians are often no better than the general public at identifying wildlife species. Barbara (data set 2a: 80) is primarily a bird carer and reported diversity in the level of knowledge of members of the public who bring animals to her. Some have consulted bird books and already have some knowledge of the species when they arrive. Another group is more interested in the caring process and what they need to know to care for the bird themselves. The third group is not interested in learning anything about the bird, not even its species. They just want to hand the problem over to someone else.

Learning about the caring process seems to be a fairly common response when members of the public find animals and take them to a carer. In the second questionnaire respondents identified the rehabilitation process as what people ask about most often. The usual sequence of questions follows these lines:

> What is it?
> How old is it?
> What does it eat?
> How long will it be in care?
> Where will it be released?

Other questions from members of the public may include: breeding information (Jill, 2b: 16; Noela, data set 2b: 78), why wildlife ends up in care (Noela, data set 2b: 78; Claire, data set 2b: 84), and biology of the species (Noela, data set 2b: 78; Sandy, data set 2b: 98). All these questions give an indication of what members of the public do NOT know about wildlife. In short, in the experience of the carers in this study, the general public know very little about wildlife. On the positive side, the fact that they do ask these questions suggests that some are at least interested in rectifying their ignorance.

Approximately one quarter of participants gave examples of questions that indicate some prior knowledge and a higher level of interest. These members of the public request information on making their gardens more wildlife friendly, where they can buy possum boxes, backyard wildlife feeding, management of domestic animals to protect wildlife, and environmental groups they can join.

Related to lack of wildlife knowledge is lack of care. Some people do not care that they are uninformed and some simply do not care about wildlife. This is of greatest concern to some participants in this study and can be summed up by Holly's comments:

> And what I find more worrying is their high level of apathy regarding the environment and wildlife issues. They know very little and often care even less (Holly, data set 2a: 64).

Fay (data set 2b: 6) feels too many people take wildlife for granted and simply do not realise how quickly they are disappearing. "The more people who take an interest in our wildlife the better chance they have of surviving" (Fay, data set 2b: 6). There was a

sense of frustration at the 'me first' attitude of many members of the public who are not prepared to share their back yards with wildlife (Lillian, data set 2b: 26; Mark, data set 2b: 8).

Care for wildlife is related to attitudes towards wildlife, and it is here that disagreement emerges in regard to the role of volunteer wildlife carers in environmental education. There were three types of responses to questions about changing the attitudes of members of the public: agreement that it was appropriate for wildlife carers to engage in this type of education, disagreement and a belief that changing attitudes was beyond the role of a volunteer wildlife carer, and a hesitant or qualified response. Ruth (data set 2a:124), for example, agrees that wildlife carers are in a perfect position to address the issue of public attitudes and that bit by bit, one individual at a time, attitudes are changing. Tracey (data set 2a: 39) believes changing public attitudes is a role for others such as the Department of Primary Industries and the Environmental Protection Agency. There were roughly equal numbers of responses in each category. Generally though, there was a sense that even though wildlife carers might be in a perfect position to change public attitudes towards wildlife, there are numerous barriers to achieving this.

Some members of the public simply do not want to know about changes they could make that would improve outcomes for wildlife. In Kerrie's words, "The public don't always listen (Kerrie, data set 2a: 104)". It seems that it is too easy for people to pick and choose what advice they listen to, and what behaviour changes they are prepared to make for the sake of wildlife and the environment. Too many people are not prepared to shift their attitudes and become more wildlife friendly in their behaviour. Instead, when a problem occurs as a result of their behaviour (for example their cat roams at night and injures a baby possum), they only want to hand the problem (injured possum) on to someone else. They do not want the lecture about keeping their cat in at night. They know the consequences of their behaviour but are unwilling to change.

There is a sense among respondents that wildlife carers are not having a large enough impact on a sufficiently large number of people to have any real impact on changing attitudes and some ingrained behaviours. As Lillian (data set 2a: 2) said, it is very hard to convince a person otherwise when they believe their cat is simply born to hunt and it

is beyond their control. A sense of helplessness and frustration was evident in many of the responses. It is perceived that environmental education by wildlife carers is carried out in isolation and limited by each carer's knowledge, resources and commitment to education. Even when the carer is skilled and committed, the usual short one-off interactions with members of the public may not be sufficient to change attitudes towards wildlife – at least not in isolation.

It was apparent that while carers are trying hard, they need support from a range of other individuals, groups and government bodies. In the words of Val:

> We have the position but lack the backing from our local government. Reaching small numbers are a start, but as a whole we need a large voice for a constant campaign (Val, data set 2a: 139).

Annie (data set 2a: 17) has offered to contribute to the local newspaper but finds only the cute and cuddly stories make it to print. People do not want to read about the negative consequences of behaviours they are not willing to change, such as leaving the cat outside at night. There is a sense that if only carers could tap into a larger system of education they would certainly have the knowledge to make a significant contribution to changing attitudes and behaviour. Local government was singled out as an agency that could support or work with wildlife carers to achieve this goal (Noela, data set 2a: 57; Penny, data set 2a: 101; Ruth, data set 2a: 124; Val, data set 2a: 139), but that same local government presents an image of showing disrespect and lack of care towards wildlife by supporting development in areas with high environmental value (Fay, data set 2a: 51; Debbie, data set 2a: 73; Kerrie, data set 2a: 105). Lack of council regulations also support attitudes and behaviour, such as irresponsible cat ownership, that lead to the unnecessary injury and death of native wildlife (Lillian, data set 2a: 9).

Penny (data set 2a: 96) raised the question of whether wildlife rescue has a positive effect on people's attitudes or whether existing positive wildlife attitudes are what lead a person to engage in a rescue to begin with. This acknowledges that wildlife rescue and a positive wildlife attitude are linked, but does not claim any causal effect. Therese (data set 2a:116) believes that, on the whole, wildlife carers are simply "speaking to the converted". If wildlife carers interact primarily with members of the public who already

have a positive and supportive attitude towards wildlife, there is limited capacity for them to bring about change. There is, however, always room to educate further.

While the responses were scattered with stories of disappointing outcomes, there was also a thread of optimism, or at least the potential for positive outcomes. Wildlife carers such as Ruth and Penny persist despite the many barriers and limitations because they believe that they can and do make a difference.

> But we can and do make a difference, I have to believe that. I have a bedroom dedicated to my joeys and the walls have cards, posters, and thank you notes from the public so I guess that what I do has some good impact. (Ruth, data set 2a: 125).

> I write a small article about wildlife in my local newsletter. Some people have told me it is a complete waste of time, others have said they love reading my submissions. I will continue as I know I am reaching some members of the public and encouraging them to improve their properties for wildlife and taking the time to educate themselves (Penny, data set 2a: 96).

Strategies employed by wildlife carers in public education.

There was a positive response to the suggestion that having a live native animal is an effective educational strategy. All of the participants agreed with the statement, but one in three qualified their response with concerns about animal welfare. The belief that there is benefit in limited supervised interaction with wildlife was summed up well by Noela:

> Most people have very little physical/visual contact with our native wildlife. A live animal makes a direct link – spectators can see the fragility and vulnerability of our native species. Provided the welfare of the animal is the first priority – supervised interactions with people is usually a positive experience for those concerned (Noela, data set 2a: 57).

In all situations where the general public interact with wildlife, animal welfare must be a prime consideration. Wildlife carers are able to demonstrate respect for the animal through the way they handle it and through their own attitude towards the animal.

If a person has just rescued an injured or orphaned animal this impact can be even greater. The person has already taken some responsibility by picking up the animal and made a commitment to its well-being by finding someone to care for it. Barbara (data set 2a: 81) observed that rescuing an injured animal "invariably opens up that soft place within most people where they do care" and "hopefully encourages them to continue their vigilance for animals in need". Annie (data set 2a: 17) and Holly (data set 2a: 65) suggested that rescuing an animal puts people into a frame of mind where they are more open to learning about the animal, its place in the ecosystem, and how to better care for wildlife. The impact of having a live animal may be particularly effective with animals that are less popular or shrouded in misconception, such as flying foxes (Debbie, data set 2b: 31).

While rescuing an injured or orphaned animal was generally seen as having a positive impact on most people, Ruth was wary about making a generalised statement. She felt there were exceptions, and believed that some people are more motivated by what their peers would deem 'doing the right thing' than by any sense of concern for the animal.

> Others just want it out of their way and in the past they may have left an animal to die, or bonked it on the head but as I said, the public are more concerned now with how it looks, and what is a legal response (Ruth, data set 2a: 125).

Rescue situations not only allow for a member of the public to see and possibly handle a wild animal, they also prove an opportunity for members of the public to interact with wildlife carers. Some wildlife carers see this interaction as a convenient and useful situation in which they can engage in environmental education.

Fifteen participants, or approximately three-quarters, mentioned follow-up with members of the public. This was generally perceived as a positive action but one participant (Sandy, data set 2a: 131) noted that it can become a burden as in the case of one person who rang her twice a day for the several weeks their rescued animal was in care. Follow-up could be instigated by either the wildlife carer or the member of the public. Some participants routinely rang the rescuer with an update after a specified time such as on the third day, or when the animal died or was released. Other carers left it to the member of the public to call for follow-up information on their animal. Some carers used both approaches depending on the perceived level of interest in the rescuer.

Broadly, the more interested a person is, the more likely the carer will make the follow-up call. Some members of the public never follow up on the animal they rescued and Annie (data set 2a: 18) sees this as a limitation of the typical one-on-one incidental education in which wildlife carers usually engage. Sandy (data set 2a: 134) is one carer who sometimes invites interested rescuers to attend the release of their animal.

Five participants (approximately one in four) discussed potential educational benefits of follow-up with members of the public when it does occur. Fay (data set 2b: 1) and Therese (data set 2b: 63) both described follow-up through to release as a rewarding experience for members of the public, especially for children. When a rescue experience is rewarding for them, people are likely to share it with family and friends, thus increasing the reach of the educational experience (Fay, data set 2b: 1). Similarly, Val (data set 2a: 140) feels that sharing the progress of an animal with the rescuer helps to make them feel special. Sandy (data set 2b: 98) sees follow-up with an animal as reinforcing the rescuer's sense of ownership of the animal. It may also reinforce an ethic of care.

Follow-up conversations with rescuers, even if the animal did not survive, present an opportunity for wildlife carers to provide information about what to do next time (Jodie, data set 2b: 106), and to provide additional information and advice (Jodie, data set 2a: 89). Throughout the questionnaires, participants talked about education for the prevention of future trauma to wildlife. In line with what Jodie said, it is possible that follow-up after a rescue is an appropriate time for this education to occur. Val (data set 2a: 140) uses follow-up conversations as a time to raise awareness of the importance of wildlife in our backyards and in our lives.

Story-telling was seen by all respondents as a useful educational strategy. Some even suggested that story-telling is the best strategy available to wildlife carers, and one that is particularly useful when working with children. Story-telling is an age-old strategy that has survived the test of time, as Sandy pointed out:

> Stories represent the ancestral method by which humans communicate, and an anecdotal story well told provides an amazing opportunity
> (Sandy, data set 2a: 131).

Participants gave a number of reasons why story-telling is such a good strategy. Claire (data set 2a: 13) and Holly (data set 2a: 66) said that stories help to personalise the information and facilitate understanding, including understanding of ecological concepts. Some individual animals have amazing stories, and sharing these stories can prove inspirational to others (Sandy, data set 2a: 131), encouraging a greater commitment to a particular species or to wider environmental issues. A well-told story is uplifting and sparks interest in the topic.

> It is the only way to get the public's interest in our animals. I often reminisce about cases I have handled (Mark, data set 2a: 33).

The ability of a carer to use story-telling as an effective strategy may be linked to experience. It makes sense that the more animals that have passed through a carer's hands, the greater their repertoire of stories. Lillian (data set 2a: 4), who has been a wildlife carer for thirty-four years, acknowledged that her years of experience mean that story-telling does come easy for her. One of the less experienced carers (Margaret, data set 2a: 150) enhances her repertoire by using the stories of her more experienced mentors. Penny (data set 2a: 97), who is experienced but with no-where near thirty-fours years of caring behind her, still enjoys listening to and learning from the stories of other carers. Some animal's stories are ideal for sharing with the public to illustrate certain issues or to highlight the remarkable attributes of a particular species. Carers share these stories amongst themselves, increasing the collective set of stories, with their embedded knowledge, that are available to the less experienced carers to use when they engage in educational interactions with the general public.

One point of difference amongst participants was whether or not the 'horror' stories should be told along with the 'nice' stories. Participants varied the degree of truthfulness and sanitation of horror stories according to at least three explicit criteria. First, there was a difference between children and adults. The age of a child and cues from the parents were used as guides as to exactly how open a carer should be when talking to children, and when to hide the gruesome details. Second, participants tended to be more brutally honest when the animal's injuries were a direct result of the behaviour of the member of the public (for example, their cat roams day and night and kills wildlife). They were a little gentler with good Samaritans who simply came across an injured animal. A third category for determining how honest to be was to judge the

level of distress the member of the public was already experiencing and, then, decide whether or not the raw truth would cause an unjustifiably high level of suffering. Most participants seemed able to adjust the detail of 'horror' stories while still being committed to telling the true story.

Ruth felt that it is not really possible to adequately portray the 'sad-side' of wildlife caring as experienced by wildlife carers and that, for the public, talking with the public is essentially a feel-good exercise.

> It provides a feel good atmosphere if we make it sound sweet and heroic but I feel we don't even begin to portray the horror of real life scenario's. Nobody wants to know what it is like to use a knockout gun on a badly injured macropod on the roadside. They don't want to know what it feels like to hold a bird as it dies, or what it feels like to use ether on a dog mangled brushtail possum. They don't see the tears when we take a koala in to be euthanized and pull her squashed Joey from the pouch (Ruth, data set 2a: 125).

Other participants were quite definite in what they felt constituted appropriate content for public stories, as these two differing statements illustrate:

> For general public consumption, most rescue stories still need to be 'sanitised', especially for children. The medical side is never pretty (Penny, data set 2a: 97).

> Even the horror stories must be told. We must not put glamour to all as there is just as much heartache along the way (Val, data set 2a: 141).

Mark (data set 2b: 10), Sandy (data set 2b: 97) and Annie (data set 2b: 110) have handouts with general wildlife rescue information that can be used in conjunction with a rescue to reinforce the positive behaviour of the rescue and improve the process for the benefit of future injured animals. Handouts are also used at static displays.

The form of interactions between wildlife carers and members of the public. The most common form is one-to-one education of members of the public at rescues or the hand-over of animals to a carer. Overall, participants agreed that the one-to-one education that wildlife carers engage in with the general public is important, although they may not be conscious of what they are doing at the time. Barbara (data set 2a: 82)

saw the importance of such interactions but admitted that, prior to answering the questions for this study, she had not recognised their value. There are some carers who have little contact with the general public but for those with frequent contact at rescues and the like, this may be the most convenient opportunity for education.

One-to-one interactions provide an opportunity to share specific meaningful information with members of the public who rescue animals, and to reinforce their behaviour. Debbie (data set 2a: 74) and Val (data set 2a: 141) both suggested that if people feel good about what they have done and are interested, they will want to share what they have learned from the wildlife carer with friends and neighbours. This creates a ripple effect of knowledge and care. Noela (data set 2a: 58) agrees that one-on-one education is important, but is concerned that this method alone does not impact on enough people and the goal of reaching a critical mass of appropriately educated people will not be reached in time for some wildlife species. If one-on-one education by wildlife carers could be supplemented with other forms of public education, the ripples of knowledge and care would be able to extend further and more quickly.

In short, one-on-one education by wildlife carers is important but not sufficient if the goal is to change people's behaviour and reduce negative human impacts on wildlife. Thirteen participants (approximately 70%) felt support from other agencies, particularly local government, was necessary to supplement and extend their one-on-one work. Some participants simply lamented a general lack of support, from any level of government, for what they perceived to be a government responsibility (Penny, data set 2a: 102; Sandy, data set 2a: 136; Val, data set 2a: 139; Annie, data set 2b: 111). Sandy went so far as to say that governments rely on wildlife carers to rescue injured wildlife and educate the public. As she said, "It is not politically correct to allow native animals to die is public view" (Sandy, data set 2a: 137).

There were at least five suggested ways in which local government in particular could support the work of wildlife carers. Lillian (data set 2a: 9) suggested local government should better educate cat and dog owners about responsible pet ownership. Annie (data set 2a: 18) suggested a more hands on, practical form of support for projects such as tree planting and maintenance. Development and tree clearing, and a perceived lack of local government control over these was raised as a major environmental and political

issue for some participants (Fay, data set 2a: 51; Kerrie, data set 2a: 105; Ruth, data set 2a: 127). These carers saw development as a cause of injuries to wildlife and as reducing the availability of release sites for rehabilitated animals. Local government education programs to pass on knowledge and foster positive attitudes towards wildlife were also seen as an important measure missing from council agendas (Tracey, data set 2a: 39; Noela, data set 2a: 57; Penny, data set 2a: 95). Finally, Holly (data set 2a: 70), Jodie (data set 2a: 88) and Ruth (data set 2a: 127) talked of organisational support for a co-ordinated educational effort that included wildlife carers.

Debbie (data set 2b: 33) and Ruth (data set 2a: 124) were quite cynical of governments and political process, driven by money and votes at the next election, that place the environment as a very low priority. This may be compounded by a lack of environmental knowledge and care of individual local council members (Debbie, data set 2a: 76; Kerrie, data set 2a: 105).

Although it was less common for carers to engage in organised community education activities, all respondents were aware of the types of other community programs that wildlife carers could potentially become involved with. Most agreed that links between wildlife carers and other groups such as Landcare, bushcare, Scouts and Guides can provide useful educational opportunities. Half of the participants, however, qualified this with a comment about taking time away from their core work – caring for wildlife. Fay's comments are typical:

> The idea sounds great, and if carers have the time, by all means go for it. When asked I try to find the time to give a talk to any group who asks
> (Fay, data set 2a: 50).

Overall, the belief is that education is worthwhile and linking with other agencies sounds good in theory but the reality is that time is short and most carers choose to devote their limited time to the actual care of injured and orphaned wildlife. Penny (data set 2a: 98, data set 2b: 50) feels strongly about all of these issues. She believes that wildlife carers are capable of providing high quality public education, but also believes that a carer's most important job is the actual hands-on care of animals. Her solution is that a small number of carers with skills particularly suited to education take

on a purely educational role while the rest of the carers devote all their time to caring. This is what she said:

> In an ideal world, having carers as educators is a great thought. Few carers actually have time for this. Once again, I believe there should be a separate group to promote wildlife and fill the hole between carers and the public. Carers care for animals, if they have extra time, then sure, educate the public and forge those links. If you don't have the time then having to be a spokesperson for wildlife is a huge negative for wildlife caring (Penny, data set 2a: 98).

Another issue was training. Holly stipulated that carers who wish to extend their educational reach to include other groups must be trained, including having a "good understanding of effective methods of communicating (Holly, data set 2a: 67)". Jodie (data set 2a: 89) and Sandy (data set 2a: 137) both talked about this type of extended education and the additional expense of resources. From comments made throughout this study, such resources could include photo boards, power point presentations, posters, pamphlets and other items that are typical of any static information display. Except for a few rare occasions, all resources are made and funded by carers themselves. The issues of skills, knowledge, time and resources may put additional educational activities beyond the scope of many carers.

The effectiveness of wildlife carers as environmental educators.

Participants were not asked directly about whether or not they felt their educational efforts were effective, but comments about the influence of wildlife carers on members of the public were made that could be interpreted in this way. For example, Jill made the following comment:

> True that each time a carer meets someone they educate them, however more education is needed (Jill, data set 2a: 22).

Taken in the context of the rest of Jill's responses, this could be interpreted as meaning wildlife carers are effective educators but in a limited capacity. This type of generally positive response was typical. There were, however, some exceptions. Sandy's comments across the two questionnaires were mixed, but tending more towards a

pessimistic view. She suggested effective educational interactions were infrequent (Sandy, data set 2a: 130).

The questionnaires focused not so much on how effective education was but, rather, what characterised the most effective educators. Responses were clear and consistent. Seven attributes were raised by at least five participants (one quarter of the respondents):

knowledge, understanding and information (thirteen references),
experience or practice (eight references),
confidence (six references),
training (six references),
communication skills (five references),
interest or desire (five references),
passion or love for animals (five references).

The picture of an effective wildlife carer-educator emerged as an experienced carer who is very knowledgeable about wildlife. They may themselves be well educated (three references) and have a solid understanding of broader environmental issues (two references). This carer would have good communication skills, including listening (one reference) and public speaking (two references), good people skills (two references), and be confident speaking with members of the public. They are very interested in wildlife, and possibly public education, and have a strong desire to share their knowledge with others. They would be enthusiastic (three references) and able to make education interesting (two references). This is not surprising. These characteristics describe any effective educator in any field. As the majority of wildlife carers are not professional educators, some training may be required if the effectiveness of wildlife carer-educators is to be improved. Such training could include wildlife and environmental knowledge, communication skills, and how to create an interesting presentation.

Context was as much a factor in some stories of effective education as the skills of the carer. The most effective encounters were usually longer, or particularly memorable and unique. These contacts with the public are not common and there appears to be greater variety in their content. While the circumstances may be the same, such as a

rescue or static display, there is usually something out of the ordinary about the interaction. A common thread running through them all was a higher than usual level of care, concern and commitment by the member of the public.

Some animals, such as raptors, capture people's interest more than others and this can result in a longer interaction. Such as in Sandy's story of a member of the public who kept track of an injured whistling kite for more than half an hour until help arrived, and then assisted with the rescue (Sandy, data set 2a: 135). Ruth (data set 2a: 128) also described situations in which the member of the public was required to assist with the rescue.

Other stories evolved over some weeks, as in the story of an antechinus who was determined to make her nest and raise her babies in someone's car (Kerrie, data set 2a: 113-114). One woman knocked a hole in her wall to rescue a baby possum before calling for a wildlife carer (Fay, data set 2a: 54). Annie (data set, 2a: 20) and Holly both told of longer and more memorable interactions that involved snakes and education, as illustrated in Holly's recount:

> Rescuing a brown snake tangled in nylon netting the property owner mentioned that he often saw snakes around the chook shed. I suggested they were probably coming after rodents (there was lots of spilt food). I helped him plan how to minimise the spillage of food (Holly, data set 2a: 69).

These examples are all special cases and the resultant education of members of the public is higher. All the wildlife carers who provided these stories have many years of experience, and most of the animals are species not commonly encountered by members of the public, such as snakes and raptors. The level of commitment of these members of the public is also extraordinary, possibly because of the uniqueness of the animals, but also likely due to an existing ethic of care for wildlife and the environment.

Advancing the Research Narrative

This narrative builds on the emerging narrative presented in the previous chapter and is structured around the three narrative inquiry dimensions of place, time and sociality. In the previous narrative, the carer's home was the focus of much of their environmental

education. In the second phase the teaching place has been extended. The narrative now includes a wider range of places where wildlife carers go specifically to engage in educational events. Talks with school children are conducted at schools, and short-term static displays are assembled and staffed in shopping centres. Some carers carry out challenging rescues of less common animals such as snakes and raptors and enlist the assistance of members of the public.

Sense of place differed among participants and members of the public. Some carers became frustrated when members of the public would not see beyond their own backyard, a place where wildlife was not welcome. Carers themselves work within what resembles a catchment sense of place. They carried out rescues and releases and cared for animals within their local area. The carers who were perceived as the best educators had an even broader sense of place extending from local to global and including knowledge of a wide range of species and events effecting wildlife.

Time emerged in the second phase as a defining aspect of environmental education by wildlife carers. Whereas the first phase participants spoke in more general terms about time management, the second phase participants used time to define the type of environmental education in which they engaged. There were three basic types: minimal, knowledge-based, and attitudes. Some carers prefer to devote all their time to rehabilitation of animals and only engage in education when an animal passes from a member of the public to the carer. These carers devote little time to education and do not actively seek out opportunities for education. This type of minimal education consists of basic knowledge such as species identification. Carers in the knowledge-based group go out of their way to engage in some educational activities, or are prepared to extend the interactions they have with members of the public to provide more detailed information such as the biology or breeding behaviour of an animal. These carers draw the line between knowledge education and attitude or behaviour change based on time. They believe the later to take too much time away from their core business of caring for wildlife. The final group engages in education for attitude or behaviour change. They believe it is essential to educate the public to avoid future wildlife mishaps. Interestingly, this group does not complain about the time such education takes. It seems as though they simply have a different focus when they engage with the public.

While time and place help define the environmental education role of wildlife carers, it is the social dimension that most clearly distinguishes between the carers who engage in minimal education and those who take the education role more seriously. As a social activity, a high level of social skills is required for education to be effective. Good carer-educators need social communication skills such as listening and speaking, and relational skills such as compassion and patience. Some wildlife carers feel more comfortable with their animals than with people, especially with members of the public they do not know. Others are comfortable talking with strangers and in front of large groups. They are people-persons. Some carers do not believe they have the knowledge or skills to engage in effective education. This may be because they are inexperienced carers who have not amassed an extensive knowledge base. If these carers have the communication skills to allow them to confidently engage in educational activities they will often draw on the stories and experiences of other carers to supplement their own knowledge base.

As well as outwardly relating with others, the social dimension has an inward or reflective component. The wildlife carers in this study were able to identify some inner characteristics in themselves and others that help to make an effective educator. These include passion for wildlife, the environment and education, and confidence or belief that they can, and should, convince others to live better for the environment.

The life world of a wildlife carer is unique and at times it intersects with the life-worlds of others that may be similar to, or very different from the carer's life-world. These intersections may be intentional, such as a wildlife carer being invited to speak to a school group. Other intersections are accidental, such as a member of the public seeking help for an injured animal they came upon. In this instance the person may find the life-world of a wildlife carer to be a fascinating contrast to their own, and they want to see inside. They want to know what it is like to be a wildlife carer. Every interaction between a member of the public and a wildlife carer has the potential to be educational but can be limited by factors within the member of the public, within the carer or within the situation. Quite often these interchanges are a single, point in time event, with random connections to an individual's prior and future experiences.

There is a continuum of wildlife carer-educators, with a small number spending little time on education, in a limited range of places and with minimal social involvement. An equally small group devotes an extensive amount of time to education, in a range of places and in a range of social settings. Most fall somewhere in between.

Wildlife carers themselves want to educate people so they care more about wildlife and so human-caused injury to wildlife is reduced. Members of the public want to learn facts about the animal and its species, and about the rehabilitation process. These goals may seem a little at odds with each other but the core content is the same; knowledge of the species and the skills of caring. Knowledge of the species satisfies the public desire to learn more about a little known, although often common, species. Knowledge of an animal's biology and behaviour forms a platform from which wildlife carers can go on to discuss potential points of conflict between people and wild animals. The ultimate goal of wildlife carers is for members of the public to engage in more caring behaviour towards wildlife and they do this by first providing information about the wild animals they encounter.

Interactions between wildlife carers and members of the public are social, and usually one-on-one. The interactive nature of these education encounters allows wildlife carers to answer questions and direct learning to the specific needs of the learner. Given the incidental nature of this education within a context that focuses primarily on rehabilitation, there is variability in both the willingness of carers to educate the public and in the quality of that education. The instinctive form of education is social and the instinctive strategy is story-telling. At a rescue, the interaction begins with the story of the injured animal. Visitors to a wildlife carer's home will hear the stories of various animals in care. Successes and negative outcomes are both recounted through story.

None of the carers in this study reported any form of training in education from their wildlife care groups, and only one reported professional assistance with resource preparation. Lack of a consistent theory of education for the style of experience provided by wildlife carers, and lack of training for wildlife carers who engage in public education may be important limitations to the effectiveness of environmental education by wildlife carers.

Revisiting the Literature: Phase Two

Throughout the second phase of data collection the carers' focus remained on providing members of the public with knowledge and information, and the desire for people to care more about wildlife. This focus somewhat resembles early iterations of environmental education and the goals set down in the Tbilisi Declaration (UNESCO-UNEP, 1878). Given the changes to environmental education over the last forty years (Gough, 2013; Palmer, 1997), however, and the emergence of education for sustainable development as the dominant pedagogy, it is difficult to draw sufficient parallels between education by wildlife carers and recent iterations of environmental education and education for sustainable development. Public education by wildlife carers has emerged as a construct different from environmental education and education for sustainable development while sharing a common direction towards a more environmentally caring society.

There at least two aspects of education by wildlife carers that are shared with environmental education and education for sustainable development; care (Bonnet, 2013; UNESCO-UNEP, 2009), and the relative importance of informal learning as a pedagogical approach (Australian Government, 2009; UNESCO-UNEP, 2009; Stevenson, Dillon, Brody & Wals, 2013). Historically, environmental education has been concerned with developing an understanding of and care for the environment (Bonnett, 2013). There is benefit, suggests Bonnett (2013), in retaining the development of care and respect as central to the evolving concept of education for sustainable development. Care is also central to education by wildlife carers. They want people to care more about individual animals, local wildlife and habitats near where they live, and the wider environment. However, the ways in which wildlife carers go about attaining this goal are different from environmental education and education for sustainable development.

The second feature of education by wildlife carer that is becoming increasingly important within education for sustainable development is informal and non-formal learning (Australian Government, 2009; Stevenson, Dillon, Brody & Wals, 2013; UNESCO-UNEP, 2009). Informal and non-formal learning is essentially the same when compared to formal learning, in that they are what formal learning is not (Hodkinson, 2010). Hodkinson (2010) believes the concept of informal learning has

such widespread usage that definitional problems are bound to occur and that it is essential that researchers and educators clearly define how they are using the terms informal and non-formal learning.

Hodkinson (2010) describes the difference between formal, informal and non-formal based on the history of their application. The term informal learning emerged in opposition to formal *learning*. Formal learning took place in schools, colleges and other institutions, and informal learning took place outside such institutions. Non-formal, however, emerged in opposition to formal *education*. Formal education was seen as elitist with the purpose of encouraging social reproduction. Non-formal education emerged in opposition to formal education, and its purpose was emancipation and empowerment through democracy. Smith (1999), in describing environmental education for adults employed the term non-formal education with much the same democractic intent. The environmental education described by Smith (1999) was based on the transformation of consciousness and cultural transformation. With even a superficial reading of the responses of wildlife carers in this study, it is clear that wildlife carers are not engaged in non-formal education as described by Hodkinson (2010) and Smith (1999).

Formal and informal learning differ in at least five key areas; setting, purpose, curriculum, pedagogy and relationships. The setting for formal education is often set apart from the context of everyday life and associated more with schools, colleges and other specified educational institutions (Nunes, 2010). Informal learning is embedded in daily life and everyday activities (Hodkinson, 2010; Mills & Kraftl, 2014; Nunes, 2010). Learning experiences vary across different local and global contexts and can include formal settings (Mills & Kraftl, 2014). In relation to the setting in which learning occurs, wildlife carers are most likely to be involved in informal learning encounters.

The purpose of formal and informal learning can be in part as simply the pursuit of external or internal goals. Connolly (2010) and Nunes (2010) describe the purpose of formal learning as the award of external specified qualifications or credit, whereas informal learning results in no external learning outcomes. Goerisch (2014) describes two purposes of formal learning; preparation for civic life and preparation for the workforce. Informal learning, on the other hand, is empowering through the gaining of

knowledge and skills and transformative in regard the development of a more satisfying public life (Goerisch, 2014). Learning facilitated by wildlife carers comes with no external markers, but it may improve the knowledge and skills of an individual. To this end, education by wildlife carers is informal.

The formal learning curriculum consists of explicit, prescribed, propositional knowledge that is generalizable (Hodkinson, 2010; Nunes, 2010). Informal learning has no explicit learning outcomes (Nunes, 2010), and the content is situation specific (Hodkinson, 2010). Informal learning addresses the individual concerns of individuals (Mills & Kraftl, 2014). The core content of education by wildlife carers is situation-specific information about individual animals and species, individual problems and local habitats. Flexible situational learning such as this is indicative of informal learning.

Pedagogy in formal learning is typified by the teacher dominated classroom setting seen in many schools, universities and other educational institutions with an emphasis is on written forms of knowledge and learning. Knowledge is organised into structured packages and presented as a deliberate, planned event (Hodkinson, 2010; Nunes, 2010). Informal learning is spontaneous and achieved through observation, imitation and equal dialogue between teacher and learner (Mills & Kraftl, 2014; Nunes, 2010). Wildlife carers found some difficulty in describing particular teaching approaches, but noted that the better educators seemed to have better interpersonal skills. The primary approach to teaching was to engage simply in conversation with a member of the public, in the style of informal learning.

The final area in which formal and informal learning differ is in the relationships between teachers and learners. Formal learning environments are impersonal, with a designated teacher or trainer who is not related to the learners (Nunes, 2010). Informal learning is personal, and there may be no designated teacher within the group. Where a teacher is designated, it is appropriate for this person to be related to the learner (Nunes, 2010). Even when not related, a positive relationship may be built between educators and learners (Mills & Kraftl, 2014). Informal learning often occurs within social networks (Connolly, 2010). The environment in which education by wildlife carers occurs is social. The wildlife carer may be seen as the ‘expert’ in the relationship, but knowledge sharing may be equal. That is; the wildlife carer is interested in what the

member of the public can relate about the circumstances of the animal's rescue just as the rescuer is interested in what will happen to an animal in care.

Across all aspects, education by wildlife carers is informal. The setting is outside a formal institution, quite often occurring in a carer's home. The purpose of education by wildlife carers is for members of the public to know more about the animals and environment around them. There is no external reward for learners, just the satisfaction of knowing something as simple as the species of bird they rescued. The content in wildlife carer educational situations are almost always situation specific, focussing on the individual animal, species or problem. As wildlife carers are not trained teachers, there is no conscious pedagogical approach to teaching something to a member of the public. The approach is to engage simply in conversation with a person who has just rescued an injured or orphaned wild animal. The relationship, while brief, is usually as equals with both the rescuer and the carer contributing to a shared knowledge of an individual animal and shared investment in the animal's wellbeing.

The next chapter reviews a new set of literature with the aim of combining a number of academic ideas and concepts into a new construct. The two beginning concepts are care theory and informal learning. A deep examination of these will be made, keeping in mind the description of education given by wildlife carers. The outcome is a new construct that defines and explains education by wildlife carers.

Chapter Six

Literature Review

In this inquiry the review of literature follows and is guided by the results of the data collection and analysis phases of inquiry. The participant wildlife carers agreed on two key issues. First, members of the public know very little about wildlife, in particular wildlife that lives close to where they live their daily lives. A far more heartfelt issue was care – wildlife carers just want people to care more about wildlife. Also arising from the data was a seeming lack of structure to educational encounters, and a lack of training for carers in this area. This review of literature is presented in two sections. The first section examines care theory and includes knowledge and awareness of both the care process and the subject of care. The second section examines teaching and learning theory as it relates to the context of environmental education by wildlife carers. Finally, the theoretical narrative of community wildlife care education is introduced.

Care, Responsibility and Behaviour

What is care? Noddings (2002, 2003) suggests that care is essentially relational, between a care-giver and cared-for. The cared-for has a need that is identified by the care-giver, the care-giver services that need, and the cared-for responds in a way that acknowledges receipt of the care given. According to Noddings, all three elements must be present for care to have occurred. For example, a child falls over in the playground and requires first aid (need); an adult cleans and dresses the graze (care-giving); the child stops crying, thanks the teacher and returns to play (response). To a large extent Noddings excludes animals from this process because they cannot complete the care triad by acknowledging care in a way that is meaningful to humans. Her exception is domestic pets that may show some form of affection to their care-giver. This very narrow definition of care does not contribute significantly to an understanding of environmental care. In fact, Noddings exclusion of the environment from the care processes may explain how some people come to view the environment as being outside their obligation to care and, therefore, not their responsibility.

Other authors offer broader definitions of care that may be useful in discussing environmental care. Like Noddings, Oliner and Oliner (1995) define care as a response to a perceived need in an ‘other’, but provide a more inclusive definition of other. For them, other includes particular and generalised others, humans in close proximity and

far away, non-human living others, and non-living others. Their simple definition of care is "assuming personal responsibility for others' welfare" (Oliner & Oliner, 1995: 2). While the Noddings definition is too narrow, Oliner and Oliner's definition could be accused of being too broad to be useful as a way of examining and enhancing environmental care relations.

Lynch (2007) provides more detail and describes three concentric circles of care ranging from an inner circle of very personal care, which resembles Noddings' definition of care, to an outer circle that she describes as solidarity work. The three types of care relations are referred to as primary, secondary and tertiary and they differ along a number of dimensions including moral commitment, and emotional, mental, physical and cognitive work. Lynch (2007) focuses on inter-person care relationships rather than environmental care, but the theory can readily be transposed to describe layers of environmental care.

The inner circle of primary care relations is described by Lynch (2007) as love labour. This type of care is characterised by strong emotional attachment and deep engagement. Primary care is entered into through affection and commitment with the principal goal being the well-being of the other. The benefits are almost entirely with the receiver of care, with the giver of care receiving small or delayed benefits. The care-giver may even experience financial, social or emotional loss (Lynch, 2007). Here, Lynch differs from Noddings' belief that there must be some response from the cared-for and that the cared-for contributes to the care relation.

Primary care, or love labour, is typified by the parent-child relationship (Lynch, 2007). A parent cares for the child with no expectation of return, except to see the child grow happy and healthy. The same could be said for wildlife carers, particularly those who care for unfurred orphaned marsupials that require intensive around-the-clock care. Raising orphaned marsupials requires a high level of moral, emotional and mental commitment, and may result in financial, social and emotional loss (Markus, 1998). There is an intense and prolonged engagement and the carer is focused solely on the well-being of the animal. There is considerable mental work too, with the carer constantly alert to changing needs of the animal in care and both short and long term planning for its future needs. The carers whose views were discussed in previous

chapters gave just one or two examples of an extraordinary rescue where a member of the public may have briefly entered into a primary care relationship with an animal but this is not the norm. Typically, it is only wildlife carers who have the opportunity to enter into primary care relationships with wild non-human others (Markus, 1998).

Myers and Saunders (2002) focus primarily on environmental care and take yet another approach to defining care. They address care from a developmental perspective. The first stage is *natural care*. It involves being open to the needs of others, being able to put their needs first, and a degree of acknowledgement by the cared-for. Noddings' three elements of a care relation are all present, but there is one significant difference – Myers and Saunders are referring specifically to a developing sense of care for animals while Noddings' refers almost exclusively to human-to-human care.

Similarities can be drawn between Lynch's primary care and Myers and Saunder's (2002) natural care. Lynch describes primary care as a basic, almost instinctive form of care in much the same way that Myers and Saunders describe the intuitive desire of a young child to care for an animal. For young children, the experience of caring is primarily emotional, but for others in primary care roles the experience is far more complex with additional requirements of mental, cognitive and physical work. For example, such caring could include thinking about and planning for the needs of the other (mental work), having or gaining skills and knowledge (cognitive work), and preparing food or cleaning (physical work). To this end, primary care (Lynch, 2007) has similarities to ethical and environmental care (Myers & Saunders, 2002) which are more advanced stages of environmental care development.

As described by Lynch (2007), secondary care relations are one or more steps removed from intimate primary care relations. Such relations could occur among extended family members, neighbours or work colleagues. Secondary care also includes paid care work. Environmental examples could include bush regeneration activities, paid veterinary care and backyard feeding. Care responsibilities and attachments still occur but without the deep moral obligation associated with primary care, and without the expectation of long-term dependency needs. Secondary care relations are context related and may cease when the context changes. For example, work colleagues may be in a secondary caring relationship that ends when one person changes their place of

employment. Secondary care work is not restricted to an individual's personal life and may extend to wider community relations.

Parallels can be drawn between secondary care (Lynch, 2007) and ethical care (Myers & Saunders, 2002). Both types of care carry the seed of moral commitment to the environment and the space in which it can grow. For Myers and Saunders (2002) this stage of environmental moral development marks the emergence of a sense of obligation and an associated desire to learn more to enable that sense of obligation to be acted upon. Lynch (2007) describes the cognitive, mental, emotional and physical work associated with this type of care as being moderate and variable. It follows that, at this level of care, there is opportunity for an individual's care ethic and work to be enhanced if their desire to learn and a sense of obligation to care are reinforced. Also, though, there is the possibility that an individual's ethic of care might diminish if learning and caring are not supported. It is probably at this level of care that wildlife carers have the greatest opportunity to impact on individual members of the public as they journey towards an ethic of environmental care.

Tertiary care, or solidarity work, is Lynch's (2007) third care type. It is the most distant form of care and does not involve face-to-face engagement with the care recipient. Solidarity work may not include any immediate benefit to the giver of tertiary care. Care, as solidarity work, can be statutory as in paying taxes that go on to fund public social services, or take the form of voluntary community work. Voluntary work can be as simple as making a donation to support an organisation or campaign with goals that match the beliefs of the giver. Alternatively the giver may be a more active participant and give their time for the cause, writing letters, taking political action or participating in fund-raising and awareness campaigns.

Participation in tertiary care can be motivated by a deep moral commitment to a cause, or by the financial benefit of making a tax-deductible donation. The motivation for involvement will influence the degree of cognitive, emotional, physical, and mental engagement. In relation to the environment, environmental care as described by Myers and Saunders (2002) may be a significant mediator. An ethic of environmental care may influence career and lifestyle choices, motivate learning or cognitive work relevant to the cause, and deepen mental work or thinking about the environment as an 'other' in

need of care. An individual with an ethic of environmental care is likely to have a strong moral and emotional commitment to environmental causes. This type of care falls outside Noddings' (2003) very narrow definition of care.

Aitken (2004) views care for animals at species or ecosystem level as an abstraction of care for individual animals; an attitude of care as opposed to actual care. The development of an attitude of care must always begin with actual care for an individual (Aitken, 2004). A consistent pattern has emerged in the literature (Lynch, 2007; Myers & Saunders, 2002): abstract care is based in actual care, tertiary care is based in primary care, and an ethic of environmental care is based in natural care. This means that to care for the environment it seems essential to first experience a caring relationship with an individual.

Experience of care

We remember times when we were cared for with affection and maybe with gratitude. We also have memories of when we cared for another and had that care acknowledged in a positive and reinforcing way. Oliner and Oliner (1995) describe the cumulative nature of care. What may begin with a small gesture often becomes more spontaneous and complete over time. A caring adult will draw on a lifetime of caring experiences as motivation to care for others (Noddings, 2003). Noddings writes specifically about care between humans, but other authors such as Carson (1965), Milton (2002) and Orr (2004) write of experiences of care for the natural world. They suggest that the experience of care and nurturing in and for nature in childhood is an important factor in the development of young people and adults who care for the natural world.

Rachel Carson (1965) recognised the importance of nature in the lives of young children. She described the child's world as being full of wonder and excitement. Children, she said, have a "true instinct for what is beautiful and awe-inspiring" (Carson, 1965: 42). The secret of keeping this natural sense of wonder alive is the companionship of an adult who cares deeply about the environment and who can share the joy and excitement of the natural world (Carson, 1965). Milton (2002) confirms that other people's emotions impact on how an individual learns to feel about, and care about, the natural world. A child growing up in a nature-friendly, or at least nature-neutral social world, *and* with access to nature appears to instinctively develop an ethic

of care for the natural world. Myers and Saunders (2002) suggest this moral sense develops spontaneously and, rather than needing to be taught, it is there to be lost or inhibited by factors such as lack of contact with animals and no access to nature. This natural affiliation with nature and instinctive concern for the well-being of other life has been described as biophilia.

Orr (2004) suggests that biophilia, the natural affiliation humans have with other life-forms, needs the active participation of significant adults to flourish. Children need their love of the natural world to be supported with examples, instruction and validation. The need may well be reciprocal, with adults needing the spontaneous excitement and wonder of a child to rekindle their own sense of wonder (Orr, 2004).

Carson (1965) and Milton (2002) both stress the importance of developing thinking *and* feeling attitudes to nature from childhood. Milton (2002) states that to understand how someone comes to enjoy nature, and ultimately protect nature, the whole of their past experience must be considered. That includes social interactions, perceptual experiences, and thinking about both themselves and the environment. Carson (1965) suggests that at this stage it is more important for parents to *feel* for nature and instil an emotional connection than it is to know about nature as a series of facts. Early childhood is the time to arouse emotions of excitement, admiration, love and a sense of beauty. Later, the child will yearn for knowledge about what they are emotionally connected to, and the learning will be long-lasting (Myers & Saunders, 2002).

It is probably true that a caring adult is the product of a natural developmental process within an appropriate environment, rather than explicit teaching of knowledge or skills. At least three processes have been described and, despite different contexts, follow similar developmental stages. Myers and Saunders (2002) describe care specific to the environment and begin their theory with an instinctive care for animals. Oliner and Oliner (1995) describe the development of empathy for other humans, but a sprinkling of references to other animals and the environment suggest the theory could also be used to describe environmental empathy and care. Lynch (2007) describes different levels or types of care within adults. Interestingly, these levels of care are comparable with the developmental stages described by Myers and Saunders (2002), and Oliner and

Oliner (1995). This could mean that care continues to develop across the life span and at a greatly varied pace among individuals. It may be that some adults never reach the higher levels of care and empathy described by Myers and Saunders (2002), and Oliner and Oliner (1995).

It is possible that experiences in nature provide an additional experience of care, or nurturing. Grinde and Patil (2009) and Weinstein, Przybylski and Ryan (2009) reviewed the literature on the effect of nature experiences on humans and found that even small connections with nature, such as potted plants in an office, had positive effects on a individual's physical and psychological well-being. It may be that nature nurtures us in ways that are yet to be fully understood.

In a series of experimental studies, Weinstein, Przybylski and Ryan (2009) found that even minimal contact with nature can promote greater intrinsic aspirations including relational emotions such as care and love, relational mindsets such as perceptive taking, less selfish decision making (including environmental decision making), and other-focused value orientations. It appears that being immersed in nature may have a similar effect to being cared for by another human. This could be a contributing factor to why authors such as Chawla (1998), Louv (2008) and Orr (2004) so often report the importance of childhood experiences in nature to adults who have a strong ethic of environmental care. Nature may care for us as much as we care for nature.

When very young children interact with animals they perceive them as social others and, even after the animals have been separated cognitively as being different from humans, children still assign human psychological traits to them. Animals are seen as both living and feeling social others and are therefore open to caring relationships. This relationship between children and animals as described by Myers and Saunders (2002) is consistent with Oliner and Oliner's (1995) description of how young children learn to empathise with other humans. Oliner and Oliner (1995) propose an elementary form of empathy is present at birth, and that it matures as the child gains more awareness of self and others. At one or two years of age the child develops a form of egocentric empathy. While still self-centred, the child begins to identify feelings in others that are different from their own feelings. Knudson, Cable and Beck (2003) suggest that the ability to understand the feelings of others comes somewhat later. Developmentally, they say,

pre-schoolers are egocentric and unable to fully understand another's perspective and that it is only by age five or six that they become more subjective and more able to understand another's perspective.

When young children engage with animals, they interpret the animal's behaviour as indicating shared interests, for example in play. If a kitten comes towards them, the child interprets the behaviour as the kitten liking the child. If the kitten purrs when stroked the child believes it likes being stroked. As language develops, the child talks to the animal believing it is taking part in the communication (Myers & Saunders, 2002). The development of a relationship between a human child and an animal that is seen as a social other opens the door for a caring relationship to establish.

The development of care has been described at a more general level in relation to the cognitive, language and moral development of children. Freeman and Swick (2000) describe a continuum of care that emerges in infancy, is nurtured during the pre-school years, comes to fruition in young adults and further matures as adults engage in caring activities. Learning to care is a process that is refined as individuals gain knowledge and skills. Research on the development of empathy, a precursor of care, focuses on both external factors such as early experiences and internal factors such as emotionality and cognitive abilities (Moreno, Klute & Robinson, 2008). Knudson, Cable and Beck (2003), describing social cognitive development, suggest that children are able to understand another's perspective by age seven to nine, and that by age ten to twelve they can place individual perspectives within a social context. By the age of fifteen or sixteen young people are able to perceive a detailed social perspective. These stages, however, may linger and continue to develop into adulthood (Knudson, Cable and Beck, 2003).

Hart (1997), Noddings (2002), Oliner and Oliner (1995) and Swick (2006) stress the almost singular importance of modelling caring behaviour in the development of caring in children. Moreno, Klute and Robinson (2008), however, describe the process as being somewhat more complex.

The model of empathy development in early childhood proposed by Moreno, Klute and Robinson (2008) includes factors such as parental care, mother-child social interaction,

the child's cognitive and language development, and the child's socio-emotional skills. All of these contribute, but the relationships among them are unclear. It may be that sensitive care and positive mother-child relations lead directly to the development of empathy in the child, or that they contribute to cognitive and language development and it is these factors, in turn, that have the greatest impact on empathic development. There is a suggestion of a somewhat cyclic development where different factors contribute more at different ages and in different contexts (Moreno, Klute & Robinson, 2008). What is clear is that modelling of care, positive emotional states, praise of caring behaviour and high levels of cognitive and language skills are all present in the lives of young children who display empathic behaviours (Moreno, Klute & Robinson, 2008).

The Moreno, Klute and Robinson (2008) model is consistent with Myers and Saunders (2002) model of the development of an ethic of environmental care, and also with Carson's (1965) suggestion that in early childhood an emotional connection to nature modelled by a significant adult and experience of nature with that adult are more important than learning a series of facts. Knudson, Cable and Beck (2003) also recommend that children are taken to natural places where they feel safe in the presence of a parent or other significant adult, and where they engage in positive, fun, meaningful activities. To widen Moreno, Klute and Robinson's (2008) model to an environmental context, it would be reasonable to suggest that environmental care develops when care for the environment is modelled, when positive relations with nature are made explicit and rewarded, when children feel the emotional security of a significant adult when they experience nature, and when children are emersed in a language of care for the environment.

Knowledge of how to care

For care to be effective, for a need to be perceived and addressed, the developing child needs to learn how to care and to move from *natural care* to *ethical care* (Myers & Saunders, 2002). At this stage elements of caring are generalised beyond individual caring relationships. The emphasis changes from an intuitive care for an individual to a more cognitive level. Thoughts of '*I ought'* see the transition from natural care to ethical care. Children want to understand more about the likes and needs of animals and are concerned for their well-being. Oliner and Oliner (1995) suggest that at this stage

children learn to better identify feelings in another and to empathise with them, but without understanding the complexities of their life situation. It is care for the broader well-being of animals that links care for an individual animal to care for its environment.

Once established ethical care may lead to *environmental care* (Myers & Saunders, 2002) which is much more morally complex and allows the individual to address conflicting needs between individual and ecosystem levels. To generalise care from the individual to ecosystem level, a greater level of conceptual knowledge is required, plus a mature empathy and ability to empathise with whole species (including the human species) and individuals. Finally, individual thoughts and feelings, life histories and life conditions are understood and a mature empathy results. Mature empathy requires both the recognition of individual differences and an appreciation of shared humanity, but need not be restricted to empathy for humans. Deep ecologists, suggest Oliner and Oliner (1995), would advocate mature empathy for all human and non-human living beings, and also for non-living natural phenomena.

Not all adults will demonstrate mature empathy (Oliner & Oliner, 1995) or move beyond ethical care. For feelings of empathy to become action, Oliner and Oliner (1995) suggest the carer must identify a need and believe they can respond to that need in an effective manner. The transition to a higher level of care or empathy may begin with new experiences that require the individual to accommodate additional knowledge and new choices into their developing cognitive and moral structures (Myers & Saunders, 2002). Oliner and Oliner (1995) suggest that providing a direct experience of a human in need may be the most effective way of helping people perceive a need in another. Direct experiences of animals in need and modelling effective responses may also be effective in helping people learn to care about animals. It is here that wildlife carers may prove to be invaluable education providers.

As children reach adulthood they gain the capacity to care for nature in more practical ways through career choices and life-style decisions (Myers & Saunders, 2002). Rather than acting upon a simple concern for an individual animal, some young people are now grappling with "complex and non-immediate human-environment interactions" (Myers & Saunders, 2002: 171). Although the precursors for an ethic of environmental care

may occur naturally as a child interacts with animals, the more mature manifestations of care require expert knowledge and a supportive cultural context. For some, an extended care for animals and nature continues to develop throughout life (Myers & Saunders, 2002).

Caring routines become more encompassing over time. An initial small commitment may lead to larger and more complex care commitments (Oliner & Oliner, 1995). While the instinct to care may be natural, the ability to care appropriately in complex and diverse situations requires skills and knowledge. Oliner and Oliner (1995) describe mature care as such:

> Whether the risks are small or life itself, whether the tasks are simple or complex, caring is a practiced art and skill, primarily born out of focused willing attention, escalating levels of participation, and a sense of evolving personal responsibility (Oliner & Oliner, 1995: 96-97).

Noddings (2002) suggests that empathy in a caring relation entails a specific type of attentiveness to the feelings and needs of the other. It is an attentiveness that is affective in the first place, but that also includes an intellectual dimension. Empathy in caring means accepting the feelings of others, even if the carer herself may feel differently in a similar situation.

Knowledge of subject of care

In the context of this thesis, the subject of care is the environment and, in particular, wildlife. Aitken (2004) argues that the subject of environmental care should be the individual animal. Wildlife rehabilitation does focus on the individual and it is on this point that Aitken argues her case that wildlife rehabilitation is, potentially, a conservation strategy. We cannot, says Aitken, care for holistic and abstract categories such as species in the same way that we can care for an individual. Through caring for individuals, we come to care more widely and it is only then that we can extend our caring to abstract concepts such as species. Individuals are more easily understood than abstractions and they are also foundational to relationship and to care (Aitken, 2004). On this point, Turner (1996) sees abstraction as the major cause of the negative impact of modern civilisation on nature. The decrease in personal experience of nature and

increase in mediated or abstract versions of nature has a greater impact on the environment than the usual fall-guys such as industry and development (Turner, 1996). An increasing proportion of people, especially young people, are living in cities with little or no personal interaction with living nature (Harris, 2002; Jones, 2011). McNeely (2004) compared former times, when people had an intimate knowledge of local wildlife species and limited or no knowledge of species far away, to current times when people are more likely to have a mediated knowledge of far away species than first-hand familiarity with local species. The cause of this is a trend away from experiential learning about species encountered on a daily basis towards virtual encounters with exotic wildlife through television and other media. This modern urban lifestyle leads to what Pyle (2002) refers to as extinction of experience.

Extinction of experience is the loss of daily contact with the natural world. Pyle (2002) suggests that daily contact with a diversity of natural experiences, including botanical and zoological, leads to an understanding of and preparedness to conserve natural settings. For an increasing number of people, though, these natural experiences are becoming far less frequent. For some, they may have stopped altogether. Pyle (2002) describes a growing group of people who have a narrow radius of reach. This means that the nature they experience is restricted to a small area within a limited geographic range. For these people, if a local species goes extinct then the species might as well be fully extinct for they will not encounter it again in the wild. Diversity, for some people, is a poor cousin to that found in an untouched ecosystem. As species of plants and animals are lost from the everyday experience of people, that experience becomes less interesting. Mediocrity sets in, followed by indifference towards nature and, then, even less inclination to experience it or to strive to protect it. The appeal of mediated nature takes over. Extinction of experience is a downward spiral of more and more impoverished experiences of nature (Pyle, 2002), and does not inspire an attitude of care for the environment.

Similar to extinction of experience in development and consequence is a condition referred to as generational amnesia. Kahn, Severson and Ruckert (2009) describe generational amnesia as a downward shift, across generations, in the baseline perception of what constitutes ‘normal’ nature. Each subsequent generation is born into a world of increasingly degraded nature but it is all they have experienced and, therefore, becomes

what they know as a normal or baseline condition. At the same time as decreasing interactions with non-degraded nature, Kahn, Severson and Ruckert (2009) report an increase in the current generations' interaction with technological nature in the form of television, video games and robot pets. Technological nature refers to technologies that "in various ways mediate, augment, or simulate the natural world (Kahn, Severson & Ruckert, 2009: 37)". It is second-hand nature. In terms of psychological well-being and cognitive functioning, experiences with technological nature are better than no nature at all, but not as beneficial as experiencing real nature first-hand. The increase in technological nature at the expense of real nature experiences may prove to be another factor that contributes to generational amnesia (Kahn, Severson & Ruckert, 2009), and also to extinction of experience. The abstract and distanced relationship between urban residents and wildlife leads not just to reduced personal connections with wildlife but also reduced responsibilities for wildlife (Aslin & Bennett, 2000).

Research on patterns of use of green spaces and woodlands in the United Kingdom adds to the notion of progressive decline in human contact with and knowledge of nature (Ward Thompson, Aspinall & Montarzino, 2008). They found that those adults most likely to visit woodlands and green spaces were frequent visitors to similar places as children. The reverse relationship was also found to be true with even greater statistical significance. That is, children who seldom encountered natural places are likely to never or rarely visit woodlands or green spaces as adults. These adults are also less likely to encourage their own children to engage with nature. Adults who were frequent visitors as children feel comfortable visiting green spaces and woodlands and, even as adults, acknowledge the magic of such places. Ward Thompson, Aspinall and Montarzino (2008) suggest that visiting outdoor environments as children sets up a life-long physical, psychological, cognitive and emotional relationship with nature. In the current time of crime and fear over safety it is likely that fewer children now than thirty years ago will have the opportunity to freely explore and come to know nature. This further reinforces processes such as extinction of experience and generational amnesia.

It is not always necessary to go to a park or patch of bush to experience wildlife. Many urban Australians experience wildlife in their own back yards. Often, however, this leads to conflict rather than an ethic of environmental care. In a study on attitudes towards, and knowledge of, possums Miller, Brown and Temby (1999) found only one

quarter of surveyed urban residents had a positive attitude towards local possums, and one third had a negative attitude. The rest were ambivalent. They also found a link between knowledge of possums and attitudes towards them. The direction of the link was not determined. That is, it was not determined whether knowledge of possums led to a positive attitude, or a positive attitude prompted a desire to learn more about possums.

The downward spiral of experience of nature paints a picture of doom and gloom for the preparedness of each subsequent generation to preserve the environment. Jacobson, McDuff and Monroe (2006) say that freedom to explore natural places in childhood is significant and preferred but they add that there are many other factors that can help develop children's ethic of care for the environment. They add that these factors may also influence youth and adults. The factors include: positive experiences in nature (at any age), appropriate role models, environmental organisations, education, negative experiences of the degradation of natural areas, books and other media, and first-hand experience. Despite what appears to be a negative outlook for the environment, Jacobson, McDuff and Monroe (2006: 72) suggest that "It may never be too late to experience the wonder of nature, to understand the threats of environmental contamination, or to gain experience in taking environmental action."

The core elements of environmental care have been identified: experience of care, knowledge of how to care, and knowledge of the subject of care. The relationships among these variables are multidirectional but it is most likely the process begins with experience of care. Initially, that experience is as a recipient of care but a positive experience of care-giving can also be incentive to care more. With the incentive to care more, comes the desire to care better. As the quality of care improves, so does the reward for the carer, and so the cycle continues. As care for a particular person, group, animal or thing increases so too does the carer's knowledge of the object of care. The quality of care is enhanced through focused specific care behaviours. Again the positive care cycle is reinforced.

Teaching and Learning Theory

The educational work by wildlife carers, as described in this study, is varied. It ranges from one-on-one interactions that are the most common, to group talks. It can be

located at the carer's home, at a rescue or at a public gathering. Topics vary too, depending on the location, the situation, the expertise of the carer and the interest of the member of the public. Generally educational interactions last for less than half an hour and may be as brief as just a few minutes.

Examples of what the wildlife carers in this study called environmental education have been drawn from the data analysis. Telephone conversations are one-on-one and usually of a problem solving nature. Topics include what to do with a cat attacked possum, how to reunite fledgling birds with their parents and dealing with snakes in the garden. At rescues there may be more than one member of the public and sometimes more than one wildlife carer. Conversations generally focus on the individual animal in need of rescue and centre on enlisting the help of members of the public, identification of the animal, determining the circumstances leading up to the rescue situation, assessment of injuries and future preventative measures. Wildlife carers also attend organised talks at schools, youth groups, aged care facilities and environmental events. The format is most often the carer 'up front' talking to a seated audience. They may have animals to show the audience. Topics range from the biology of individual species to conservation issues. Static displays at shopping centres, agricultural shows, gardening shows and environmental events follow a question and answer format. Members of the public may be drawn to an interesting display and ask the attendant for additional information, or to help solve a wildlife problem at home.

The educational work of wildlife carers falls broadly under the term of 'environmental education'. Environmental education was chosen as a temporary term for the data collection phases because of its general nature, while at the same time discriminating between the rehabilitation or animal-focused work carers do, and people-focused work such as education and training. Examples given by wildlife carers fall under the often quoted basic principles of environmental education: awareness, knowledge, attitudes, skills and participation (Jacobson, 2009). Environmental education covers a diverse range of teaching and learning situations from formal schooling to informal free-choice learning in recreational settings such as zoos. Wildlife carers are volunteers working as individuals or within small-scale rehabilitation centres. They are not trained teachers, their core work is not education and they do not follow a formal curriculum. In light of the data analysis the term 'environmental education' is too broad for the limited range

of type and scope of education in which wildlife carers engage. To place the educational work of wildlife carers within a theoretical context it makes sense to begin with informal setting such as zoos and interpretive centres, rather than with formal education in school settings.

Wildlife carers rarely engage in anything other than informal education. At times education occurs in a fixed place with a static display, with a carer in attendance in a role similar to a museum guide explaining a museum display. Some education is carried out in situ at rescues and may resemble park interpretation with the carer explaining where and how the animal lives within its habitat. When an animal has been rescued and taken to a carer's home the education may resemble what is some-times referred to as free-choice learning in environments such as zoos. The animal is out of its natural environment but the learner engages with the zoo keeper or wildlife carer specifically to learn more about a particular wild animal species. Similarly, when carers field telephone inquiries about wildlife, their role resembles that of museum inquiry centre or zoo staff.

Wildlife carers fill a unique niche within the broader construct of informal environmental learning, a notion supported by empirical findings of this current study. Some activities could be described as conservation education, a term used by Aitken (2004) and Jacobson (2009). Other educational engagements are directed at the individual species and could be called wildlife care education. Others are directed at animal welfare and could be described as wildlife care education. All involve working with the general public or local community and all include discussion of wildlife. Only some interactions extend to conservation education. It is now apparent that a more appropriate term to describe the educational work of wildlife carers is 'community wildlife care education'.

Dillon (2003) recommends that researchers in the field of environmental education have focussed too strongly on the practical side of learning and neglected to address learning theory. This review of educational literature aims to place community wildlife care education by wildlife carers theoretically within the broad construct of informal learning. A precise definition of informal learning is difficult to pinpoint or, as Church, Bascia and Shragge (2008) suggest, the definitional boundaries of informal learning are

fluid and blurred. Mundel and Schugurensky (2008) describe formal education as curricula-based institutionalised instruction, nonformal education as short courses and workshops where learning is an expected outcome, and informal learning as "a residual category for all other learning activities" (Mundel & Schugurensky, 2008: 50). In a similar vein, Hager and Halliday (2009) define formal learning as occurring in a formal institution such as a school or university, having a defined curriculum with pre-determined outcomes, and following a prescribed framework such as attending classes. They then suggest that all learning that does not meet the criteria for formal learning is informal learning. Informal learning can be planned or unplanned, voluntary or involuntary, but there is an element of conscious awareness that learning is occurring and the boundaries between social, intellectual, emotional, technical and political forms of knowledge are not always clear (Church, Bascia & Shragge, 2008). Hager and Halliday (2009) suggest informal learning is: indeterminate, opportunistic, ongoing, and inclusive of both internal and external goods.

The indeterminate nature of informal learning is what makes it difficult to describe. It is contextual, but each context is multidimensional and fluid making each context unique. Informal learning is an evolving process rather that a series of successive tasks to be completed. Outcomes are not necessarily specifiable in advance. Life, suggest Hager and Halliday (2009: 237), "continually throws up unanticipated opportunities for new learning". Informal learning can be of an internal nature where things are learned simply for the sake of learning or knowing. It can also be external as in learning a skill to enable the completion of a particular desired task.

Informal and incidental learning are seen by some (e.g. Church, Bascia & Shragge, 2008) as being different types of learning, and others (e.g. Mundel & Schugurensky, 2008) view incidental learning to be a sub-set of informal learning. Differences between the two relate to intention and awareness. Informal learning may be unplanned but is generally intentional and self-directed, and there is a level of conscious awareness that learning is occurring. Incidental learning is unintentional but the learner is still aware that learning is occurring (Church, Bascia & Shragge, 2008; Mundel & Schugurensky, 2008). Authors such as Aitken (2004) and Tribe and Brown (2000) suggest that the learning that occurs between wildlife carers and members of the public is incidental but in this review of literature it will be considered within the broader

construct of informal learning. This takes the Mundel and Schugurensky (2008) view that incidental learning is simply a type of informal learning. Based on the responses of participants in this study some education by wildlife carers is planned and intentional. For a few carers this may be a significant proportion. To focus just on incidental learning, as Aitken (2004) and Tribe and Brown (2000) suggest, would fail to address the full range of educational activities in which wildlife carers engage.

The hallmark of narrative inquiry is the explicit exploration of the three inquiry dimensions; temporal, spatial and social. The narrative of informal learning also has aspects of the temporal, spatial and social. Hager and Halliday (2009) describe informal learning as being a lifelong process and often opportunistic. The temporal dimension can be simultaneously endless and focussed on a point in time. They also describe informal learning as being context specific. While formal education provides generic skills that can be applied across a range of situations, informal learning enables learners to participate in specific tasks in specific places or communities such as living in a farming community and learning to drive a tractor, or living in the inner city and learning train and bus timetables. Informal learning is distinctly social. Hager and Halliday (2009) view lifelong informal learning as both a social process that benefits the individual and an individual process that benefits society. Lifelong learning is essentially a response to on-going micro and macro social changes.

Temporal dimension of informal learning

Hager and Halliday (2009) view learning throughout the life-span as developmental or transformative. Learning, and the learner him or herself, are part of an evolving process that, in principle, has no ending. Schools and other formal institutions present learning in packaged units that have a discrete beginning and ending. These units make up a small proportion of a much larger and continuous process of life-long learning. Incidents of informal learning are a significant part of this on-going process.

Each individual learner has their own learning history and learning future; and is also a part of a collective learning history and future. Learning is taken to include the full range of possible learning experiences including skills and knowledge, and also other factors such as experiences of success and failure. Individual learning is influenced by social and cultural histories, and by our interactions with countless other learners and

teachers and their learning histories. This says Lemke (1997) influences our learning future. A brief encounter between a wildlife carer and a member of the public may be a single point in time event but, as suggested by authors such as Hager and Halliday (2009) and Lemke (1997), it is also part of a process in which every part has the potential to influence future learning.

Vygotskian educational theory is temporal or developmental. It explains the process of how the mind, and knowledge, develops. Vygotsky's social learning theories emphasise the long-term temporal nature of learning. Social learning is intergenerational, as much as a result of social and cultural history as it is the personal history of an individual learner. At the same time, Vygotsky describes a learning process of individual development within a personal time frame. The zone of proximal development is a central feature of Vygotsky's theories and illustrates the short-term temporal nature of individual learning and development. What the learner can now do independently is an end product of learning. It describes development retrospectively. Immature functions develop in the zone of proximal development into what will be mature functions tomorrow and describe development prospectively. The zone of proximal development is the transition time between the individual's developmental history and their developmental future. This is not an even step-by-step process that can be measured by the mastery of predetermined blocks of knowledge or skills. Rather, it is a complex, uneven process of qualitative transformation over variable time frames.

Spatial dimension of informal learning

Context is a key component within the informal learning literature and forms the spatial dimension of the informal education narrative. Context is complex, multi-facetted, and diverse (Hager & Halliday, 2009). It includes the learner and the learning environment (Hager & Halliday, 2009; Wertsch, 1993) and is continually shaped and re-shaped by the learning process (Hager & Halliday, 2009). The spatial and temporal dimensions of the informal learning narrative are entwined and interdependent.

Despite being discussed in the singular, there is no single context. Hager and Halliday (2009) talk of different contextual levels within learning. While it is true that context is continually evolving with the learner it would be rare for change to occur at all levels simultaneously. Lemke (1997) talks of networks of interdependent activities. Both the

networks and the connections within are different among groups and individuals. Different connections are perceived and acted upon by different individuals making each learning context unique even if the learning activities and networks are similar. The goal of wildlife carers is to facilitate connections between their interactions with a member of the public and the wider context or spatial dimension of the learner. Mediation may be beneficial in bridging contexts and experiences for individual learners.

Situations are complex. They may be integrated with other situations, or one may be a subset of another (Greeno, 1998). Adding to the complexity, the spatial also interacts with the temporal and the social. Take, for example, the antechinus story related by one of the participants in this current research. A female antechinus (small Australian carnivorous marsupial) made a nest is a car and moved in with her babies. The spatial context centred on one small car but there were extensive temporal and social consequences for the human family that was reduced to one car for several weeks while the antechinus raised her babies.

The wildlife carers in this study worked within a local context, rehabilitating local animals and interacting with local residents. The wildlife carers themselves, however, were conscious of much wider spatial contexts and issues.

Social dimension of informal learning

The primary dimension within the narrative of public education by wildlife carers is the social dimension. There are four broad social frameworks: cultural-historic, community, interpersonal and intrapersonal. Most learning theories will emphasise one framework over others and most include more than one. For example, Lave and Wenger (1991) devote most of their discussion to community. Rogoff (1995) describes three frameworks: community, interpersonal and intrapersonal. This discussion will follow generally from the widest (cultural-historic) to the narrowest (intrapersonal), while allowing for overlap among the frameworks to occur.

The broadest interpretation of the social dimension is intergenerational and culturally historic. For any individual learner or groups of learners, their immediate social environment is built upon a socio-cultural history. Cole and Gajdamascko (2007) say

that it is the merging of language with sign (psychological tools) and tool (technical tools) use that allows humans to build on a socio-cultural past, remediate, and produce cumulative cultural change. Human tools and signs include written language, mnemonic techniques, number systems, mechanical drawings, and forms of diagrammatic representation. Combined with oral language, this gives humans the capacity to learn and evolve as individuals and as a society. The goal of learning and instruction (Wertsch, 2007) is the mastery of cultural tools such as language. Existing social order is characterised by a set of cultural tools, and becoming expert in the use of these tools means being socialised into that social order. Through constant use in social living, signs and tools evolve to meet specific social needs, while remaining grounded in a continuous cultural history of tool and sign use. The tools and signs of past generations become the tools and signs of the current generation through mediation. Learning and change at this level are slow. This slow change was identified by wildlife carers in this study as persistent attitudes from past generations in relation to, for example, English style gardens, the heavy use of pesticides and other poisons, and the shooting of wildlife 'pests'.

The widest reading of the social dimension is not restricted to socio-cultural learning theorists. Wider social and cultural understandings are also endorsed in the park and wild areas interpretation literature. For Beck and Cable (2002: 9) "Identification with our land and culture helps to sustain us as a society." They go on the say that an informed public is essential to sustaining a democratic society such as ours. Interpretation, in its wide range of settings, contributes to an environmentally, socially and culturally informed public. For interpreters, the accumulated wisdom they share with others has been accrued over a lifetime of learning and experience with their environment, and through interacting with and learning from others. This approach to the accumulation of environmental, social and cultural wisdom is consistent with learning theories such as those proposed by Wertsch (1993, 2007, 2009), and also with the social/situated learning theories of Lave and Wenger (1991), and Rogoff (1995). It is also consistent with the collective use of stories by wildlife carers.

Lave and Wenger (1991) propose a theory of learning based in situated practice. Meaning, they say, is socially negotiated arising from a socially and culturally structured world. Knowledge is socially mediated, being produced, reproduced and

modified in the course of social activity. Central to Lave and Wenger's (1991) learning theory are the related concepts of community of practice and legitimate peripheral participation. A community of practice is a culturally organised set of practices where participants share an understanding of what they are doing and what that particular community of practice means in their lives. Lave and Wenger (1991) describe communities of practice as having an intrinsic knowledge base and social structure that members themselves come to know and understand. Part of the purpose of a community of practice is to engage less experienced participants and to develop them into mature participants (Rogoff, 1995). This does not necessarily mean, however, co-presence of participants, socially visible boundaries or a well-defined easily identified group (Lave and Wenger, 1991). Learning is mediated primarily by the community of practice as a complete unit, but does not exclude closer interpersonal mediation between individuals. Wildlife caring is one example of a community of practice. There is a shared understanding of what carers do, an intrinsic body of knowledge about wildlife and wildlife care. Carers are located across the state and do not often gather as a visible group. None-the-less, wildlife carers have a strong sense of identity as part of a wildlife caring community, and the general public have some sense of their existence and what they do.

A community of practice includes participants with the knowledge and skills to achieve a particular goal. It is also a set of social relations within the community itself that overlap with different communities. Wildlife carers belong to other communities of practice besides that of wildlife caring. Many work as teachers, nurses, accountants, and in a myriad of other professions. Also, the goals of members from other communities of practice, such as veterinarian and other animal care professions, sometimes overlap with the wildlife care community. People who may belong to totally unrelated communities of practice may interact with wildlife carers when they, by chance, rescue injured wildlife. It is at these points of overlap or contact, or participation at the periphery, where the opportunity for education by wildlife carers occurs. While a member of the public may legitimately participate at the periphery of the wildlife caring community of practice, very few will go on to become fully engaged members.

A community of practice has a reproductive cycle in which new members are recruited and, over time, learn to be fully participating members (Lave & Wenger, 1991). Legitimate peripheral participation is the beginning of the process of becoming a member of a community of practice. Individuals observe, and begin to participate in a mediated form as they learn not just the required tools and signs but the language and social structure of the community. The learner does not yet fully participate in the community's activities or social relations but they do play a legitimate role in achieving the community's goals. Over time, by watching, participating in increasingly complex tasks, and developing their own identity within the social structure of the community, peripheral members become fully engaged members.

Learning in the early stages of joining a community of practice has been described as legitimate peripheral participation (Lave & Wenger, 1991) and also as apprenticeship (Rogoff, 1995). Apprenticeship is sometimes seen as an expert-novice dyad, but this is not always the case. Peers and other learners with varying degrees of expertise may engage in activities with the learner. Individuals participate with each other in a socially organised activity for the purposes of learning skills and achieving a more mature and responsible participation within a community of practice (Rogoff, 1995). It is an active process for both the learner and the expert other who provides activities and support.

Guided participation is a term used in socio-cultural learning (Rogoff, 1995) and a concept consistent with the interpretation literature. It is particularly relevant to guided walks and tours but, as Knudsen, Cable and Beck (2003) suggest, the essence of all interpretation lies in direct participatory experience between an individual and the object or place of interpretation; an experience that is mediated by the interpretive guide. Rogoff (1995) describes guided participation as the interpersonal or mutual involvement of individuals as they participate in a socially structured activity. The guide or teacher selects, modifies and interprets environmental stimuli for the learner (Gindis, 2003). The ideas of active participation and interpersonal engagement are central to learning.

Another way of looking at guided participation is to examine the notion of scaffolding. Kozulin (2003) describes scaffolding as a mediation technique, and it does occur as part

of a mediated learning experience. Daniels (2007), though, does not see the definition of scaffolding in such simple terms. He warns that the term scaffolding runs the risk of being over used and applied in almost any context without any consideration of its theoretical underpinnings (Daniels, 2007). At its most basic level Daniels (2007) describes scaffolding as simplifying the learner's role (as opposed to simplifying the task). He describes at least four ways this might be achieved: assisted performance, distributed cognition, prolepsis and instructional conversation. Understanding these instructional concepts (described below) helps develop an understanding of scaffolding.

Assisted performance refers to prompts, cues or scaffolds provided by the teacher that allow the child to complete a task. This strategy may need to be applied in situations where the learner is not able to generate or negotiate their own mediation strategies. This step is seen as a precursor to distributed cognition.

As the name suggests, distributed cognition sees knowledge and responsibility for learning shared among the teacher, the learner, and artefacts or sources of cultural knowledge. The construction of scaffolding is negotiated between teacher and learner.

As a learner first begins to learn a new task they may only complete some aspects of the task. As they gain competence they take on the responsibility for completing a greater proportion of the whole task. When communicating with the learner, the teacher may not at first make all the information available. Some information is left implicit at first and made explicit at a later date. This is prolepsis and it assumes future competence.

Instructional conversation is a form of dialogue between a teacher and a learner. The teacher, or expert other, engages with the learner to determine their existing level of knowledge or understanding and to then connect that knowledge to wider theoretical or institutional concepts and abstractions. This type of interaction involves mediation. Mediation in this context is explicit. It is obvious and the signs or tools involved are material and nontransitory. The person directing the learning overtly and intentionally introduces a tool or sign to the activity (Wertsch, 2009).

At the core of each scaffolding strategy is a social learning environment where responsibility is shared among experts and learners, and where the degree of

responsibility varies for each participant. The weight of responsibility increasingly lies with the learners as they become more competent at a particular task.

Once internalised, psychological tools are used to mediate memory, attention, problem solving and personal action. Vygotsky views tools and signs as being internalised only when they can be manipulated to mediate action (Wertsch, 1993). The move to higher order concepts marks a change from the interpersonal to the intrapersonal. Higher order concepts represent the "generalization of the experience of human-kind" (Karpov, 2003: 66). Thus, through systematic interpersonal instruction, the cultural-historic becomes the intrapersonal (Karpov, 2003). Higher order or intrapersonal functions include thinking, voluntary attention and logical memory (Wertsch, 1993) as well as specific concepts such as scientific principles. To illustrate the intrapersonal use of a socio-historic concept, Vygotsky (1978) uses the example of a knot in a handkerchief as an aid to memory. The *idea* of using the knot as a mnemonic strategy is socio-historic; people have been using the strategy for generations. The *act* of using the knot to remember to buy milk on the way home is the intrapersonal process of using a psychological tool or sign.

Higher order concepts are coherent, logical and hierarchical, and their relationships to other objects and everyday thought are mediated through other concepts. An individual is consciously aware of and makes deliberate use of higher order concepts to think and solve problems (Daniels, 2007; Karpov, 2003; Hedegaard, 2007). Higher order concepts are acquired and internalised through interpersonal communication with more competent others and through the course of using them. Everyday spontaneous concepts based in experience are restructured to become higher order concepts and thinking becomes independent of experience (Karpov, 2003).

Theoretical Narrative of Community Wildlife Care Education

The proposed construct of community wildlife care education, as it applies specifically to wildlife carers, centres around three key overlapping components: informal learning, social learning and care theory. There are social, temporal and spatial dimensions to the theory so it is appropriate to view each component through a three dimensional inquiry lens. The over-arching feature is informal social learning. Wildlife carers do not follow

a prescribed curriculum, apply a set pedagogy or aim towards a formal outcome. Informal learning is life-long and consists of many encounters among many people in many situations. Community wildlife care education by wildlife carers is just one example of a relatively short one-on-one informal encounter that occurs between wildlife carers and members of the general public in the local community. It is short, personal and local.

With very few exceptions, community wildlife care education by wildlife carers is social, whether the interaction be a telephone conversation of a problem-solving nature or a collaborative rescue. A common feature is that a member of the public finds themselves in a position where they are unable to attend to a situation without the help or guidance of a wildlife carer. The wildlife carer mediates learning by scaffolding the task so the member of the public can complete the task as independently as possible. Such learning typifies learning in the zone of proximal development which is a key feature of social learning theory. The learning is always social and always accompanied by the modelling of caring attitudes and behaviour.

Following authors such as Carson (1965), Louv (2008) and Orr (2004) it could be concluded that it is the modelling or shared experience of care for wildlife that is the most significant feature of community wildlife care education by wildlife carers. Members of the public bring with them a range of experiences of care. A few have little experience of care for any animal, many have experience of care for domestic pets, and some have experience of care for wild animals or their habitats. The rescue of an injured animal is one example of an act of care. Care for animals and nature can be instinctive but requires modelling, nurturing and reinforcing to flourish (Milton, 2002; Myers & Saunders, 2002; Orr, 2004). The care relationship wildlife carers have with wildlife is unique. They experience an intimate care for wild animals on a daily basis. It is a care commitment that most people never experience themselves but that they can experience through interactions with a wildlife carer. The combination of a short but focussed social interaction, the experience of deep care for wildlife, and purposeful learning is what sets community wildlife care education by wildlife carers apart from other forms of wildlife or conservation learning.

Learning and the experience of care are life-long and accumulative. There are two temporal dimensions to life-long learning: long-term and short-term. Long-term learning combines the learning experiences of an individual with the inherited knowledge of the community in which they live. Through public education programs some wildlife carers attempt to tap into long-term social learning processes but change at this level is usually generational and slow. It is in the realm of short-term learning, however, that wildlife carers have the greatest potential for educational change. In a relatively short encounter with a wildlife carer, a member of the public can learn to manage a developing wildlife situation independently. This includes a wide range of activities such as rescuing an animal, protecting wildlife by changing the way they manage domestic pets and reuniting a fledgling bird with its parents. In all cases the wildlife carer mediates learning by providing information and strategies that will enable the member of the public to complete, or at least partially complete, a task independently. In a relatively short period of time a member of the public can experience caring conduct, learn caring behaviours and learn about the subject of care.

The spatial context for community wildlife education by wildlife carers is the local environment (Tribe & Brown, 2000). The wildlife at the centre of interactions between members of the public and wildlife carers are most often common species encountered during normal daily living. The subject of care varies among wildlife carers and is largely determined by where they live. Members of the public want to know about the animals in their backyard, or the animal they have just rescued in the local park. Wildlife carers, though, have a keen awareness of a much broader spatial dimension. Whenever the opportunity arises they seek to educate members of the public about wider issues such as land clearing and littered waterways that are located beyond their immediate living space. There is a tension of sorts here between becoming more familiar with and caring for commonly encountered species and understanding issues that impact on the wider environment.

To summarise, the construct of community wildlife care education by wildlife carers includes social, temporal and spatial dimensions. The social dimension is dominant. The informal learning encounters are social. Our first experiences of care between people are social. Learning how to care results from social interactions: caring for, being cared for and caring with. Learning how to care for people or wildlife or the

environment is also temporal. It develops with maturity, experience and knowledge over a life-time of observing and participating in caring behaviour. Finally, community wildlife care education by wildlife carers is spatially located in the local environment. The dilemma for wildlife carers, however, is that they know the importance of extending the spatial dimension to include issues located outside the local environment.

Chapter Seven
Conclusions and Implications

Community Wildlife Care Education: Defining a construct.

This research began with an article by Tribe and Brown (2000) suggesting that education is an important but incidental by-product of wildlife rehabilitation. Other authors support the idea that wildlife rehabilitators have a role to play in public education (Aitken, 2004; Siemer, Brown, Martin & Stumvoll, 1991). All these authors, however, have failed to provide a useful description of what this education may look like, and how it might be achieved. It is these issues that provided the focus for this research. The key research purpose was to ask wildlife carers whether or not they saw themselves as environmental educators, what they did that they perceived to be environmental education and whether or not this was an important part of being a wildlife carer.

The first clear findings of this current research are that wildlife carers believe that they do engage in education of the general public, and that they regard it as an important part of being a wildlife carer. Community wildlife care education emerged as a definable construct. It was founded in the descriptions of practice provided by wildlife carers and developed in the theoretical contexts of care and social learning. Community wildlife care education is a new educational construct and this is the first undertaking to describe it. This description draws on both theory and practice and identifies areas where further research is required.

Community Wildlife Care Education: Part of a Wider Construct

Community wildlife care education is an artefact of wildlife care and rehabilitation. Community wildlife care education only exists because wildlife care exists. Foundational to both is the description of wildlife caring as a community of practice. While the aim of this thesis was not to describe wildlife caring as a community of practice; doing so helps to explain community wildlife care education.

A community of practice is a coherent and complex generative social practice that can be identified by a single word or phrase (Hager & Halliday, 2009; Lave & Wenger, 1991). Wenger (1998) described three dimensions to a community of practice:

- it is a joint enterprise with shared goals and accountability;
- participants are mutually engaged, working together to achieve a common goal;
- there is a shared repertoire of resources, stories and tools.

While discussing their roles as educators, a number of the participants in this study discussed more general aspects of practice, offering some insights into wildlife caring as a community of practice. Wildlife caring is a joint enterprise with different carers taking on different species, different animal needs and different aspects of the process including rescue, rehabilitation and release. There is, however, a common goal across all roles, and that is to release healthy animals back into the wild. A code of practice governs wildlife rehabilitation practice (DERM, 2010). It was suggested by some participants in this study that wildlife carers also share broader environmental and conservation goals:

The use of conversations and stories, particularly stories about difficult or problematic cases, supports the learning of apprentices, or peripheral participants (Lave & Wenger, 1991). As Lave and Wenger (1991) explain, the sharing of stories acts as an exchange of information within the community, and as a way of passing on the language of inclusion in the community. Peripheral learners learn *from* talk and they learn *to* talk. Sharing stories within the community reinforces communal memory. The sharing of stories was portrayed by the wildlife carers in this study as an explicit learning mechanism within a wildlife caring community of practice. Less experienced carers use the stories of more experienced carers to supplement their own limited experience. Stories become part of the collective experience of wildlife carers within a community of practice (Wenger, 1998).

As Wenger (1998) noted, a community of practice is defined by both explicit and tacit characteristics. Explicit procedures for becoming a wildlife carer include structured learning in the form of introductory programs, training and courses, and documents such as handbooks. Mentoring, however, was the aspect of learning within the wildlife caring community of practice that was referred to most often. Mentoring aligns with the

apprenticeship model and legitimate peripheral participation as described by Lave and Wenger (1991). Mentoring is one of the most important training methods for wildlife carers. Although seen as critically important, the linking of newcomers to mentors does not seem to have consistent explicit application across Queensland.

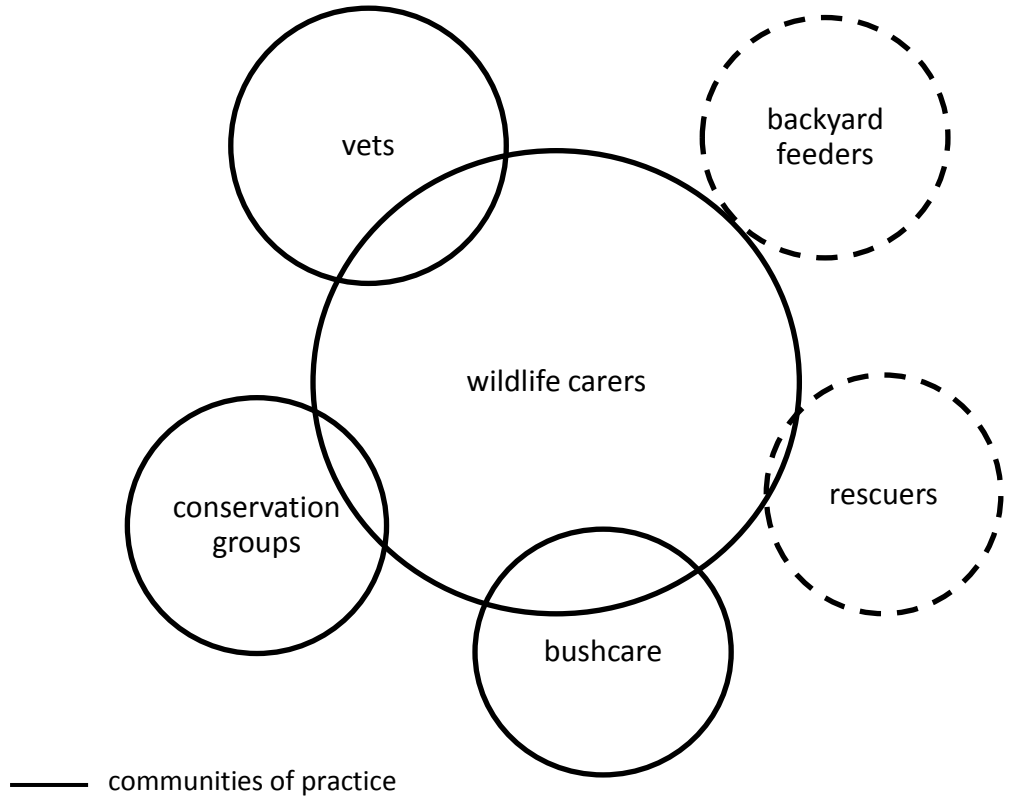
A number of carers described the level of devotion wildlife carers are prepared to give for the animals in their care, including temporal, physical, financial, cognitive and emotional commitment. The key element that differentiates those within the wildlife caring community from those without is the practice of primary care. This is seen as doing more than members of the general public and while not necessarily understood, can be perceived by those outside the community of practice.

Wildlife carers sometimes belong to additional but related communities of practice such as conservation or environmental groups. The goals of these groups may overlap and the wildlife carer may facilitate the sharing of information across the two communities of practice. Within these other communities of practice, wildlife carers may engage in secondary or tertiary levels of care such as planting trees with a bushcare group or lobbying government to increase protection of wildlife.

There are three key aspects of learning within a community of practice (Wenger, 1998). First individuals engage in activities and learn how to contribute to the community. Second, the community itself is continually refining practice and regenerating. Third is the learning that sustains interconnectedness with other related communities of practice. Of interest in this research is learning among different communities of practice and learning between wildlife carers and individuals from outside wildlife caring. In some instances there may be direct and sustained overlap between two practices and learning focuses on achieving a common goal (Wenger, 1998). This is the case when wildlife carers and veterinarians come together to treat a wild animal. At other times wildlife carers interact with individuals who are outside a relevant identified community of practice, but that may have some common features. For example, 'backyard wildlife feeders' is an identifiable cluster of individuals but not a community of practice. Such peripheral experiences occur when communities of practice connect with the rest of the world. Outsiders are offered casual but legitimate access without the expectation of full membership of the community of practice (Wenger, 1998).

Figure 1 illustrates how wildlife carers may interact with other communities of practice, or individuals, in the pursuit of their wildlife rehabilitation goals. There may be a strong and easily identified overlap of goals such as when wildlife carers and veterinarians work together to save an animal's life. In other instances, such as interactions between wildlife carers and backyard wildlife feeders, the goals may not overlap but there may be sufficient common ground for the two to come in contact with each other. This is not an exhaustive list and is intended only to illustrate a process.

Figure 1. Relationships between wildlife carers and other communities of practice and individuals.

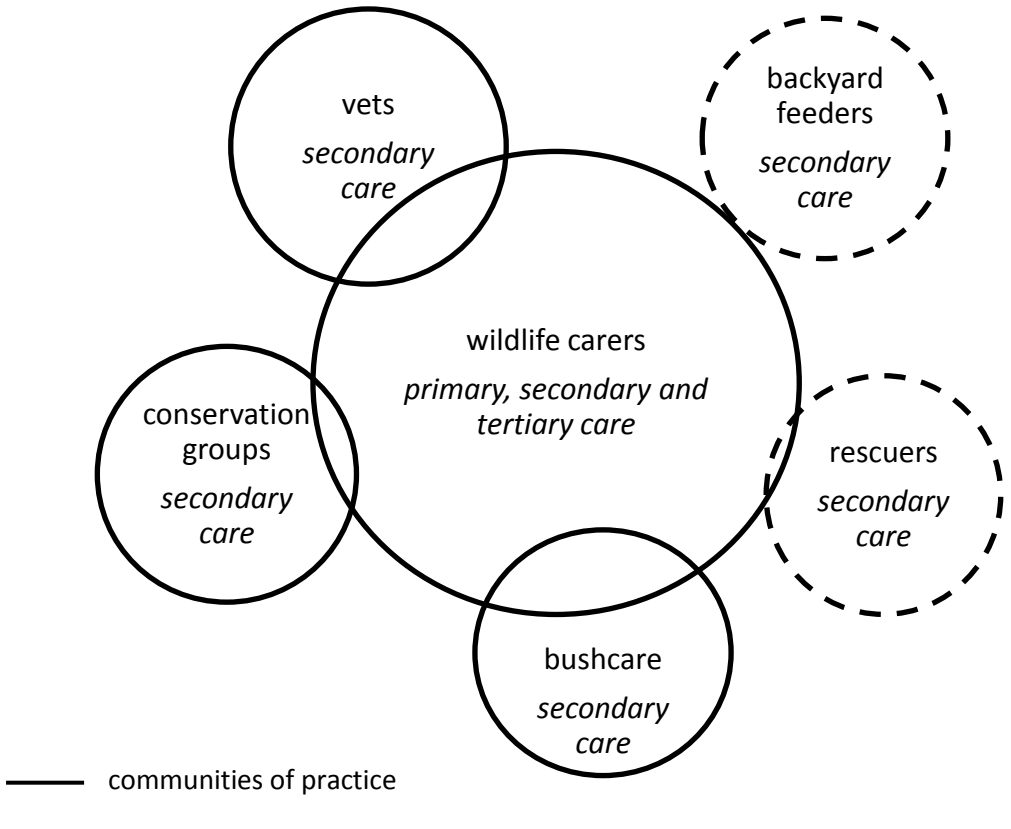


Levels of Care in Community Wildlife Care Education

Wildlife care as a community of practice and the primary care of injured and orphaned wildlife are foundational to community wildlife care education. Without them, and the desire of wildlife carers to improve outcomes for wildlife, community wildlife care education would not exist. The core element of such education, however, is the secondary care of wildlife. Secondary care (Lynch, 2007) is one or two steps removed

from the intimacy of primary care, and includes paid care work such as doctors, nurses and veterinarians. Attachment to the cared-for may occur but without a deep moral obligation and long-term perspective. Using the same examples shown in Figure 1, Figure 2 shows the level of care provided by groups and individuals that may interact with wildlife carers.

Figure 2. Levels of care of wildlife carers and other communities of practice and individuals.



Veterinarians provide secondary care and can also be viewed as a community of practice. It is a community of practice defined by technical knowledge and skills, and a specific set of relations among people, activities and the wider social and physical world (Lave & Wenger, 1991). Like all communities of practice (Lave & Wenger, 1991), it overlaps with other communities of practice in particular ways. Wildlife carers discuss 'vets' as a collective group and have a common understanding of veterinary services.

Generally, this understanding is that vets are highly trained in feline and canine medicine but not in wildlife.

Sometimes the two communities of practice, wildlife carers and veterinarians, overlap to achieve a common goal of diagnosis and treatment of an individual animal. Relationships between wildlife carers and veterinarians develop over time. The goal of working together is not for wildlife carers to become veterinarians or for veterinarians to become wildlife carers, but for information about an individual animal in care, its species and veterinary practices to be shared between carer and veterinarian in order to treat a particular animal.

The care provided by veterinarians is secondary care. While the treatment of wildlife is usually pro bono, veterinarians are working in their professional capacity at their place of paid work. Their commitment to the animal may be high, but it is usually only for a short period of the overall rehabilitation process. Community wildlife care education between wildlife carers and veterinarians is reciprocal and based on mutual respect of each other's skills and knowledge. Both parties are teaching and learning about wildlife. The reciprocal nature of community wildlife care education in this situation is unique, and seen as important to wildlife carers. It is an area that would benefit from future research.

Community wildlife care education of the general public is more one-sided. A member of the public may have some knowledge of an individual animal's circumstances that is useful to the wildlife carer, but education is predominantly the role of the wildlife carer. When members of the public pick up an injured or orphaned animal and keep it warm and quiet until a carer arrives, or assist with a difficult rescue, their behaviour briefly touches on primary care. They temporarily connect with the wildlife care community of practice and the primary care provided by wildlife carers. It is not a long-term commitment, but rather a short-term emotional commitment, and there is not necessarily any social or financial cost. In short, community wildlife care education is largely education by wildlife carers about the secondary care of wildlife.

Secondary care of wildlife includes a wide range of activities such as feeding, providing shelter and assisting the injured or orphaned. Activities can be direct, such as providing

supplementary food or nest boxes for wildlife in backyards, or engaging in the rescue of an injured animal. It can also be indirect, such as bushcare groups planting seedlings that will one day provide natural food and shelter for wildlife, or calling a wildlife rescue organisation to execute a wildlife rescue. The spatial context of secondary care is close to the person offering the care. It is often in the person's backyard, street or local park. The temporal context is short to medium term. In backyards people put out food or place nest boxes for the immediate benefit of wildlife. Bushcare groups plant trees for food and habitat in the medium term. Of all the care levels, secondary care is the most likely to have a strong social element. Bushcare and other hands-on environmental groups meet regularly and work together to achieve the group's aims. Interaction between humans and wildlife could also be considered social in the sense that backyard feeders refer to the recipients as 'their' birds or possums, and people who rescue injured wildlife will often give the animal a name.

As described by Lynch (2007), tertiary care can involve deep moral commitment to a cause, or be a simple one-off donation to a worthwhile cause. It includes voluntary community work, participation in political action, letter-writing, fund-raising for a cause and awareness campaigns. There may not be any immediate return for tertiary care. Community wildlife care education by wildlife carers, itself, is an example of tertiary care. Carers are attempting to educate people and ultimately change their behaviour, rather than directly affecting any individual animal or species. Apart from public education, the participants in this study rarely mentioned instances of tertiary care and, when they did, it was only a brief reference.

In contrast to primary and secondary care, tertiary care is often characterised by temporal, social and spatial distance. People from different parts of the world, who have never met in person, and who live in different time zones can be working towards a single environmental goal. On-going programs may see a coming and going of participants with some involved at the beginning of a campaign and others joining much later. Goals are often long-term and focused on political or social change.

Though separated by time and space, individuals can belong to a community of practice and engage in tertiary care activities. Wenger (1998) refers to this as alignment. He illustrates alignment through an environmental example:

> A movement like environmentalism, for instance, is constituted by a collection of motivations, beliefs, and passions that may have very different origins for different participants. Yet, the alignment behind the idea of preserving the environment does create a vast community united by a common purpose. A positivist biologist and a new-age worshiper of the planet-being may not agree about very much, but they will show up at the same rally anyway, ready to forget all their differences and join forces in order to save a piece of marshland (Wenger, 1998: 182).

Wildlife carers may interact with people from varied backgrounds at tertiary care events such as rallies, conferences or public fauna counts. At a single event, a wildlife carer may interact with people motivated by animal welfare, social justice or economic issues. As is the case with veterinarians, community wildlife care education at the tertiary level may be reciprocal.

The Nature of Education in Community Wildlife Care Education

Education by wildlife carers is informal and social. For the majority of carers, what they do is instinctive and a response to their main task which is the rescue or rehabilitation of a wild animal. This instinctive education has a theoretical counterpart in social learning theory.

Most community wildlife education by wildlife carers is socially one-on-one, temporally placed in the present and spatially located in their immediate environment. Members of the public want to know about something they have seen where they live and work. Wildlife carers want to give members of the public the knowledge and skills to better care about wildlife today and into the future in their own backyard. When wildlife carers engage with members of the public the encounter may be of a problem solving or how-to nature. The interaction is a form of instructional conversation (Wertsch, 2009), where the wildlife carer first attempts to determine what the member of the public already knows and how they act towards wildlife. This allows the wildlife carer to then connect what the learner knows to new ways of knowing, thinking and acting. Wildlife carers often use story as a meditational tool to bridge the familiar with the unfamiliar. They give strategies and tools for dealing with wildlife problems and to improve animal welfare.

In this study wildlife carers described situations where members of the public assisted with difficult wildlife rescues. The carer guided their assistance with the rescue. Members of the public were asked to watch or monitor an animal until rescuers arrived, help restrain an animal, run errands, or stop traffic while an animal was retrieved from the road. While engaging in these legitimate tasks the member of the public becomes a member of the rescue team for the duration of the rescue. They observe the expert rescuer, become engaged in the task in a legitimate way, and may offer additional useful skills or equipment. Alternatively, a member of the public may have partially completed a rescue and then called a wildlife carer for assistance when it becomes apparent that they are unable to complete the task independently. For example, they may have knocked a hole in the wall to retrieve a possum but still be unable to extract the animal from the hole. The wildlife carer may talk the rescuer through the rest of the rescue, or complete the rescue themselves. A hesitant rescuer may require additional tools or skills to complete a rescue and these may be provided by a wildlife carer. A person hesitant about picking up an injured possum may be told to throw a towel over the possum and pick it up 'like a pile of washing'. By linking a new task to a familiar task the wildlife carer is unknowingly applying the social learning theory strategy of mediation.

Social learning theory is also cultural-historic (Wertsch, 1993, 2007, 2009), and wildlife carers sometimes find this frustrating. Cultural-historic knowledge forms the basis of an individual's attitudes towards wildlife. For a person who has parents and grandparent who shoot crows, for example, encouraging them to take on a positive attitude towards crows may not be simple and straightforward. Behaviours such as allowing cats to roam freely are probably based in a time when farms had a house-cat to keep rats and mice from the house and sheds. Allowing cats to roam free is a cultural practice that may be changing but, as with all cultural change, it may take several generations. These are long-term goals that need a different educational approach or, as suggested by some carers in this study, a change in laws relating to domestic cats.

Most interactions with members of the public are based in conversation. As with all education by wildlife carers this conversational style of education is social and informal. Informal learning is not based on a formal curriculum and does not have predetermined outcomes. It does not follow a prescribed structure or teaching method and is often

incidental (Hager & Halliday, 2009; Mundel & Schugurensky, 2008). The content of community wildlife education is driven by the context, the needs of the learner and the knowledge base of the wildlife carer. Hager and Halliday (2009) view informal learning as a distinctly social process.

The content and strategies of community wildlife care education are not usually planned, and wildlife carers are not explicitly trained in what to include in educational encounters, or how to approach such activities. Wildlife carers learn about rehabilitation within a community of practice, beginning at the periphery. This learning process gives carers the content and strategies that they will, in turn, employ with others. Making this process explicit through training for carer educators has the potential to improve community wildlife care education.

Reflecting on a Research Process

The reasons interpretive qualitative inquiry was chosen as the research method for this study are outlined in detail in chapter two. Briefly, the method was chosen because it allowed for multiple ways of knowing (Pinnegar & Daynes, 2006) and, in this study, multiple ways of learning. Narrative inquiry, from which this research process draws heavily, is responsive to changes in participants' and researcher's thinking over the duration of the study. It invites unexpected outcomes and provides a learning opportunity for both participants and researcher (Pinnegar & Daynes, 2006). Some participants acknowledged a greater awareness and appreciation for their role as community educators after participating in this research.

Important to this study is that it allows for the equal exploration of a single question across a range of contexts (Pinnegar & Daynes, 2006). This study purposely engaged wildlife carers caring for different species, in different locations and from different care groups. Extending the exploration of community wildlife care education beyond geographical, species and group boundaries was an important component of the wider acceptance of this study across Queensland.

In chapter three, two broad criteria for validating this interpretive qualitative inquiry were identified; ethical and substantive validation. These were described in detail in

chapter three and are summarised below in Table 4. Application of these criteria was described in the data gathering chapters (chapters four and five).

Table 4

Criteria for judging narrative inquiry

Ethical validation	Substantive validation
Practical value	Articulation of data gathering decisions
Maintain relationships	Provide verbatim transcripts
Articulate decisions	Articulation of data analysis decisions
Provide evidence to support interpretations	Member checking, peer review, reflexive journaling
Interpretive promise	Research texts: disciplined thought and logical construction, interpretive plausibility, evidence.

Ethical validation focuses on whether the right decisions have been made in relation to people, both the participants in the study and to potential audience members. In this study both the participants and the primary audience for the research belong to the same group; wildlife carers and those associated with wildlife rehabilitation. Ethical validation is central to the philosophy of interpretive qualitative inquiry with the importance it places on maintaining relationships. Relationships are nurtured when participants see practical value in a research project, are well informed, and see the potential for a better future as a result of the research.

Throughout this research, relationships were maintained through feedback to participants and presentation of aspects of the research at three national wildlife rehabilitation conferences (Turnbull, 2005, 2006, 2007). These conference papers focused on the practical implications of the research and have been accessed by wildlife carers around Australia. A request to share one of the papers within a wildlife care group was made as recently as November 2012 (K. Scott, personal communication, 27 November, 2012). There was a gradual transition from a focus on maintaining relationships with participants to establishing relationships with the audience (which includes the participants). The relationship between researcher and audience is

anticipated to continue beyond the temporal, spatial and social bounds of the research project.

Articulation of research decisions is a factor that contributes to the ethical and substantive validation of interpretive qualitative inquiry. In this research aspects of the data gathering were researched, discussed with critical friends, and recorded in a research journal and early iterations of methodology texts. Data analysis was shared with participants, discussed with critical friends, and recorded through coding notes and research journaling. In this research critical friends, including university supervisors, acted as reflective listeners as various ideas and interpretations were raised, reviewed, revised, discarded, and reinvented. Consistent with the narrative underpinnings of this inquiry, telling and retelling the story of the research was both process and product.

The final product of any research is a research text. This particular research text is a thesis and intended for an academic audience. Disciplined thought, logical construction, and the presentation of evidence in the form of rich data provide for interpretive plausibility and a clear understanding of the research process and product. Other research texts intended for a different audience have been presented and judged at wildlife rehabilitation conferences (Turnbull, 2005, 2006, 2007). New research texts will continue to be developed for a range of audiences including wildlife carers and researchers.

Implications for Future Research and Practice

The generative promise of an interpretive qualitative inquiry contributes to the overall validity of the research. Generative promise is discussed here as implications for future research related to community wildlife care education. In addition, implications for the practice of community wildlife care education are discussed.

Research

Theories of care and environmental care are well documented and fit well alongside community wildlife care education. Research into the development of environmental care behaviour is also extensive. There is, however, no research into the relationship between wildlife rehabilitation and the development of care behaviour of wildlife carers,

people close to them and the wider community. It has been determined that wildlife carers do engage in community wildlife care education, and that wildlife carers want people to care more about wildlife. Further research needs to explore whether or not community wildlife care education leads to changes in care behaviour within the general community.

Central to the theory of community wildlife care education is the notion that wildlife caring is a community of practice. This emerged as an unexpected outcome of the current research and would benefit from closer investigation. Research on this topic could assist wildlife care groups, and other not-for-profit volunteer organisations, in providing appropriate education and support for members. Social learning theory is a key element of communities of practice. This research identified some social learning components of education by wildlife carers when interacting with the public. Further research into how wildlife carers teach and learn would add depth to the knowledge gained from this research. It would also be appropriate to explore social learning across a range of not-for-profit volunteer environmental care organisations.

This research successfully employed interpretive qualitative inquiry as a research method. It is reasonable to suggest that this type inquiry would be a suitable method for researching different aspects of different volunteer groups. Interpretive qualitative inquiry respects the views of volunteers when they feel they may not otherwise have a voice on a particular topic. It is an interactive style of research that listens to, and provides feedback to, individuals who have something to say that they feel is important, but that is not acknowledged by others.

Practice

The identification of wildlife caring as a community of practice was incidental to this research, however it is an important outcome. A community of practice defines an activity socially and according to the practices of the community. It formalises an implicit structure. This could have positive implications for uniting a group of people that can sometimes appear somewhat disparate. By recognising themselves as legitimate members of a clearly identified community of practice with a clearly defined role within the community, individual wildlife carers can see and value their place in the bigger picture of wildlife rehabilitation and conservation. It may also allow individuals

to see a way of working more collaboratively with other carers and wildlife organisations. Viewing wildlife carers and veterinarians as belonging to discrete but overlapping communities of practice may help build stronger networks between the two groups. The same could be said for a range of other organisations that interact with wildlife carers.

In its current form, community wildlife care education is carried out intuitively by wildlife carers who simply want people to care more about wildlife. This study has shown that wildlife carers are keen to share their knowledge and passion for wildlife with anyone who will listen. This study and current research do not provide evidence of the effectiveness of community wildlife care education, however, it could be assumed that a more focussed approach would lead to more effective education. To this end, it is important for this research to be shared with wildlife carers in a practical form that is easily applied by them. It is anticipated that this thesis will be collaboratively rewritten in book form for a wildlife carer audience.

Appendix A

Interview guide

<table>
<tr><td colspan="3">date: ….. / ….. / ….. start time: …… finish time: ……..
interviewee: …….</td></tr>
<tr><td colspan="2">Introduction: My study is looking at just one aspect of wildlife caring – the interactions between carers and the general public. In particular, I want to learn more about what carers say and do when they meet with the general public in their 'carer' role. I am interested in your thoughts on what might be called the role of the carer in environmental education.</td><td>Am I asking HOW and WHY questions?</td></tr>
<tr><th>Key questions</th><th>Search questions</th><th>Notes</th></tr>
<tr><td>K1. What do you think about wildlife carers being seen as environmental educators?</td><td>S1. What about their own interactions with carers prior to becoming carers themselves?</td><td></td></tr>
<tr><td rowspan="4">K2. Tell me about some situations - as a carer - where you might have educated someone on anything to do with wildlife or the environment. These could be fairly typical situations or unique situations that really stick in your mind.</td><td>S1. Is the carer engaged in a problem-solving process with the person?</td><td rowspan="4"></td></tr>
<tr><td>S2. Has the carer described the context sufficiently?</td></tr>
<tr><td>S3. Who generally initiates the conversation – carer or person?</td></tr>
<tr><td>S4. Is the conversation driven by one party (either carer or person), or is it equal and interactive?</td></tr>
<tr><td>K3. How do you go about passing your knowledge on to others? (e.g. Do you talk with people, tell them your own stories, show animals to them, refer to other information sources etc)</td><td>S1. Are they trying to communicate skills, knowledge or attitudes?</td><td></td></tr>
<tr><td rowspan="3">Return to K1. What do you think about wildlife carers being seen as environmental educators?</td><td>S1. Should carers be encouraged to do more/less of this type of thing?</td><td rowspan="3"></td></tr>
<tr><td>S2. Do you think carers have the skills or knowledge to do this?</td></tr>
<tr><td>S3. Are there any aspects of environmental education that carers should not deal with – e.g. moral and ethical issues, animal welfare, conservation.</td></tr>
</table>

Appendix B

Questionnaire cover letters

Information sheet

Volunteer wildlife carers as environmental educators
INFORMATION SHEET

Who is conducting the research?
Deborah Turnbull
Australian School of Environmental Studies
Phone: 32661323
e-mail: d.turnbull@griffith.edu.au

Reason for conducting the research.
Some researchers suggest (for example Tribe and Brown, 2001) that wildlife carers play an important role in public education. There is little research to support this, and there appears to be no training for carers in the skills of educating the general public about wildlife and wildlife related issues. The broad aim of this project is to examine the role of wildlife carers as environmental educators from the point of view of wildlife carers themselves.

This project sets out to achieve two goals. First, I wish to explore carers' perceptions of themselves as environmental educators. Then, I will look closely at what carers do that they believe is environmental education. The purpose of this is to develop a theory of the processes of environmental education by wildlife carers and to locate this theory within the existing body of environmental education literature. In a more practical sense, the project aims to enhance skills of the participants through awareness and discussion, and to contribute to the future training of wildlife carers.

What participants will be asked to do
There are three data collection phases and three different groups of participants. Phase one will involve a small number of wildlife carers. The researcher will conduct two one hour interviews with each participant. The interviews will be approximately one month apart. In the first interview I will ask the participants to recount situations involving public education by wildlife carers – preferably first hand experiences. Key words and phrases will be drawn from these stories and developed further in the second interview. In the first interview participants will also be asked to explain what they believe is the role of volunteer wildlife carers in environmental education.

Phase two is the written questionnaire phase of the project. Two or three rounds of response will be required. The first questionnaire asks participants to respond in writing to a series of open-ended questions or statements about the topic. Responses will be collated and a summarised version will be sent back to participants for further comment. In short, participants in this phase will be asked to respond in writing to two or three sets of questions/statements, and to return the responses in the reply paid envelope provided. The use of e-mail instead of regular post will be offered to participants as an alternative. There will be approximately one month between each questionnaire round and participants will have two weeks to respond and return each questionnaire.

The third phase will involve approximately eight participants in at least two locations in a focus group activity. They will be asked to review the final analysis of all responses, making clarifications and comments as necessary. If sufficient clarity and agreement is

achieved through the major questionnaire round, this focus group phase may not be required.

Basis for participant selection
The participants will be volunteer wildlife carers, holding a current Queensland Parks and Wildlife rehabilitation permit. A minimum of two years experience as a wildlife carer is preferred but not mandatory. It would be of particular benefit to the study if the participants are in frequent contact with members of the general public. Experience at dealing with the public would also make completion of the tasks easier and more rewarding for the participants.

Expected benefits
Initially, this research will offer a theory of the process of environmental education by volunteer wildlife carers. Such a theory will promote the role of wildlife carers as environmental educators within the environmental education, wildlife care and public domains.

It is expected that practical benefits such as guidelines for the future improvement of environmental education by wildlife carers will also occur.

Potential risks
There are no perceived risks associated with this research.

Confidentiality of records, privacy and the reporting of results
The conduct of this research does not involve the collection or use of personal information. Consent forms with participants' names will be retained but will not be attached to data sheets. Your name and contact details will not be disclosed to third parties without your consent, except to meet government, legal or other regulatory authority requirements. All data will be reported anonymously.

The initial interviews and focus group activity will be tape-recorded to ensure an accurate account of the interview. The tapes will be transcribed into a text version and labelled with a numerical code. The tapes will then be deleted. Responses to the Delphi phase will be labelled with a similar numerical code.

Voluntary participation
Participation in this research project is voluntary. Participants may withdraw from the project at any time without explanation.

Further questions
If you have any questions regarding this project, please contact Deborah Turnbull (contact details above).

Concerns about ethical conduct
Griffith University conducts research in accordance with the *National Statement on Ethical Conduct in Research Involving Humans.* If you have any concerns or complaints about the ethical conduct of this research project, you should contact The Manager, Research Ethics on 3875 5585 or research-ethics@griffith.edu.au

Feedback to participants
Feedback to both participant groups is an integral part of this study. For those participants in the first phase of the study, feedback will occur during the third and final stage. Feedback to participants in the Delphi phase will be on-going as each questionnaire round is completed, summarised and returned to participants. A further summary of results will be offered for publication in RnR (Rehabilitate and Release) magazine produced by Queensland National Parks Service.

Questionnaire one: Cover letter

Dear ……,

Thank you for taking part in this research that is looking at the role volunteer wildlife carers play in the environmental education of the general public. This questionnaire is in two parts.

Part A includes 10 statements about wildlife carers as environmental educators. These statements were drawn from interviews with a small group of wildlife carers. I want to know what you think about these statements. Do you agree with them or not? Are they true is some situations but not others? Maybe you agree with part of the statement but not all of it. Your response should explain your views about the statement and may include examples from your own experience.

Part B includes 4 questions. The first three ask you to describe some situations in which you were involved that might be termed 'educational'. I want examples of the environmental education you do, or have done. The fourth question gives you the opportunity to say anything else you would like to say about wildlife carers as environmental educators. Your comments can be related to one or more of the questionnaire items or about something totally different.

If you have chosen to complete this questionnaire with 'pen and paper', please return it in the reply paid envelope enclosed. If you have chosen to complete the questionnaire electronically, please return it to d.turnbull@griffith.edu.au Please return both the consent form and the completed questionnaire to me by Friday 17 June.

Regards, Deborah.

Questionnaire two: Cover letter

Dear ……,

There was a mountain of valuable information in your responses to the first questionnaire. There was agreement that public education is very time consuming and that not all carers are suited to this role. In one-on-one situations the compassion and care demonstrated by carers provides a worthwhile model to the public, maybe as valuable as the facts they are passing on. Carers do interact with the public and all interactions have the potential to educate in at least a small way.

The question about the impact of having a live animal produced a resounding yes, IF animal welfare is the first priority. Similarly, most people use story-telling as a way of getting the message across to the public. I will not go into every question in detail. The level of agreement among the 20 respondents was high – some even using almost the same phrasing!

The second questionnaire looks more closely at the actual interactions between carers and a certain section of the public. Using a photographic analogy I am going from wide-angle to close-up.

There are three sections to this questionnaire. In the first section I have provided a brief summary outline of some of your responses to the first questionnaire. This is a broad summary and is not intended to include all the detail you provided. There is a margin down the right hand side for any comments you wish to make. When you are reading this summary, do not look for the exact words you wrote. Instead, ask yourself if you can see where your experiences fit within the larger picture.

If responding electronically, it may be easier to write a number or letter beside the section on which you are commenting and to type your response elsewhere – either at the end of the questionnaire or in a new word processing document. Typing your answer directly into the questionnaire could cause a formatting nightmare, especially if you have a lot to say! Alternatively, I can send you a printed version and a reply paid envelope.

The second section asks you to respond to some specific questions. These reflect gaps in the data or areas where there were conflicting responses.

The final section offers you the opportunity to make further comment about the summary, the project as a whole, the questionnaires, or any other aspect of your participation in this study.

Please return your questionnaire by 2 September, 2005

Thank you,

Deborah

Appendix C

Questionnaire one

PART A

Please comment of the following statements. Your comments should explain why you might agree or disagree with the statement. You can use examples from your own experience to help with your explanation. You may have more to say on some topics than others and that's alright. Write as much, or as little, as you feel you need to write to fully explain your point of view. If you use additional sheets of paper, please number your responses.

Wildlife carers are at the front line and devote a considerable amount of their time to environmental education. Every time carers meet with a member of the public they impart some little piece of information.

The general public, on the whole, know very little about wildlife, even common species.

Wildlife carers are in the perfect position to change people's attitudes and behaviour in relation to issues such as responsible pet ownership, cutting down trees and backyard feeding.

Wildlife carers can help change the way people see the world and their role in it, encouraging tolerance and respect for wildlife, and generally to make people care a bit more about wildlife.

Having a live animal to talk about gets people more interested, particularly if they have just rescued it.

Telling stories about the animals in care is a good educational strategy.

The one-on-one education carers do with people who find injured or orphaned wildlife is really important.

Strong educational links between carers their local neighbourhood or local community are a positive feature of wildlife caring. It would be good if wildlife carers could work more with other groups in their local community, such as catchment groups, Scouts and Guides, and in local schools.

Some carers are excellent educators while others just muddle along doing the best they can. What is it about some carers that make them better at passing knowledge on to others?

An understanding of the broader picture of conservation issues and the environment is really important.

PART B

I want to get some idea of the range of educational experiences that wildlife carers provide. Describe each of these types of educational encounters with the general public.

A typical short contact.

A typical long contact.

An interesting or unusual contact.

Are there any other comments you would like to make about your role as an environmental educator or the strategies you use?

Appendix D

Questionnaire two

SECTION A	your comments

This summary briefly describes the nature of environmental education by wildlife carers. Comments about any aspect of the summary can be made in the right hand column.

About interactions between carers and the public

Most interactions are short. The typical short interaction occurs when an animal is either dropped off at the carer's home, or picked up by the carer from a member of the public. Short contacts can also occur at community information days, during phone calls from members of the public seeking advice about wildlife, some talks (particularly to children), and incidental meetings with the public (e.g. when gathering leaf tip for possums). The member of the public may learn the identity of the animal and some basic facts such as how old it is and what it eats. They may ask about the rehabilitation process. At times the public are not interested in learning, or in co-operating with the carer and such interactions can be quite frustrating.

Longer interactions are much less common. There is no typical long contact but many of them are related to a rescue and then follow-up with the person after the rescue. Other longer interactions include: discussions with vets, neighbours and other carers; talks and community information displays; the rescue of 'special' species such as raptors that fascinate people and grab their interest; media interviews; carer training; and when the member of the public is somehow involved at the release stage. These interactions can be quite rewarding for the carer when they know they are talking with someone who is genuinely interested in what they have to say. Unfortunately though, these interactions are somewhat rare.

There are other interactions that fall in between these extremes. They are mostly long versions of what I described as a short interaction, or a

short variation of the long interaction. That is, the person may ask a few more questions when they ring for advice, attend a community education display or deliver an animal, there may be some limited follow through on the animal's progress, the neighbour down the road might stop the carer for a 'quick chat' about something happening in the local area, or there may be a reasonably easy problem to solve.

Who are the 'general public'?

There is wide variety in the types of people who take wildlife to carers, but the most common meeting seems to be with people who have limited wildlife knowledge some of whom are also quite "ego-centric" in the sense that their main concern is how wildlife impacts upon their life. They are focused primarily on what happens in their own backyard. When they ring a wildlife carer it is to hand the problem to someone else – wildlife is not their problem. They don't want to see the animal suffering, but are not particularly interested in its eventual outcome. Some just want the animal out of their yard, not harmed at all just removed. These interactions can be frustrating for carers.

At the other extreme are the "eco-centric" people whose main concern is for the wildlife. These people are very aware of the impacts of humans on wildlife and are active in minimising their own negative impact of their part of planet Earth. They are more tolerant of 'annoying' wildlife behaviours and seek to understand why the behaviour is occurring. These people are often quite happy to put in whatever effort is necessary to help the animal in need. Unfortunately, wildlife carers do not meet many of these people.

In between the 'un-informed' and the 'knowledgeable' groups are those who have some understanding and are open to learning more. It may be this group that carers can influence most. Some may even change their behaviour in some way that will lessen their impact on

your comments

wildlife. In this 'gaining knowledge' group, there are two special clusters of people who have some wildlife knowledge but are keen to learn more – new carers and vets. New carers generally come to caring with some understanding of wildlife, but without the detailed knowledge of experienced carers. In this context I am referring to general knowledge of wildlife and wildlife behaviour rather than techniques for care and rehabilitation of animals. While all vets have extensive knowledge of cats and dogs, not all have a high level of knowledge of birds and other wildlife. Carers have the time and opportunity to gather a vast amount of observed information that is not available to vets – even those with a keen interest in wildlife. Responses to the first questionnaire seem to suggest that children may also fall into this group.

There is no doubt a large number of other people who never interact with wildlife carers. One group, for example, are the ones who walk past an injured animal without a second thought. Others may routinely take injured wildlife to a vet, but never actually speak to a wildlife carer. In some country areas there simply may be no wildlife carers to ask. And then there are the ones who try to do it themselves – it would be a wonderful experience for the kids to raise a seventy-five gram ringtail possum … So, while I have described the people who interact with wildlife carers, this is just one section of the wider community.

your comments

SECTION B

I have identified a section of the public with some existing knowledge and interest in wildlife as the group that may benefit most from our time (the 'gaining knowledge' group), and would like to explore interactions with this group further.

QUESTION ONE

If you can, I would like you to describe some of the characteristics of this group of people. What is it that they say or do that makes you think, "I am not wasting my time talking to this person.

QUESTION TWO

Is there a pattern to the sorts of things these people want to know? If you could have an information sheet on hand to give people, what would it include? Just focus on the species you care for. If you have a handout or any other printed material that you give people, I would appreciate you including a copy for me.

QUESTION THREE

Very briefly, what are the topics or issues that stand out as ones that new carers and vets ask about most often, or that you think they most need to know?

(a) new carers

(b) vets

QUESTION FOUR

This final question relates to an issue that raised some difference of opinion in the first questionnaire – how honest are we about the prospects for individual animals and wildlife in general. Some people preferred to 'tell it like it is' and others preferred a 'sanitised version' of the truth. There was some mention of protecting people, especially children, from what can sometimes be a gruesome reality. I am not sure this issue is quite that clear-cut. How do you decide just how honest you are going to be with someone?

SECTION C

Do you have any further comments about the role of wildlife carers as environmental educators, or about this research project in general?

Thank you once again for your participation in this study.

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