

Animal Experience

edited by [Leon Niemoczynski](#) and [Stephanie Theodorou](#)

Introduction: Consciousness and Emotions in the Natural World

This "living" book about life explores the nature and meaning of the emotional lives of nonhuman animals, focusing on how those lives are communicated to other living creatures (such as human beings) via affective states. By examining the emotional lives of animals and how they are communicated, we hope to re-examine how human beings interact with, and relate to, other living creatures that are capable of experiencing emotional lives.

The property of emotion, in both human and nonhuman species, implies a level of internal conscious experience which supports and includes related cognitive activity. Insight into animal emotion can be useful for understanding the evolutionary development we share with animals in terms of the common "brain-mind." This locus of cognitive activity in centralized nervous systems reveals to us that changes in affect accompany and enable communication and expression, facial and voice recognition of other individuals, and decision-making. These traits, in turn, suggest that most philosophically (and perhaps scientifically) traditional

moral boundaries between humans and nonhuman animals may require serious rethinking. We therefore hope to address what impact a better understanding of the emotional lives of animals might have upon animal welfare and our deeply embedded beliefs concerning the nature of animal minds in general.

A dominant component of this book is the presentation of scientific data which suggests that emotional communicative practices are fundamental and crucial modes of animal living. We chose to specifically focus on those communicative practices that serve as representational “broadcasts” of self-awareness, that is, of internal emotional experience in its cognitive dimensions. As such, our stance is framed by a phenomenalist theory of nonhuman awareness in which affective states point to the existence of animal “identity” or subjectivity. We refer to this internal realm of self-awareness and its communication as “animal experience.” This at once distances this volume from others in the Living Books about Life series in that no other volume addresses the emotional lives of animals specifically (or emotional life as it is found in biological life generally), or the broadcasting of that life to other creatures. However, discussing animal experience and the emotions does place this volume neatly within the scope of the series given that understanding the broadcasting of emotional life may be a key for understanding what “life” (in part) means. If we are to explore the nature of life then asking whether there is some core emotional aspect of living is paramount. If such a core exists, we may be compelled to further reflect on our ethical responses to animals in natural, scientific, and domestic habitats.

Our approach to the emotional lives of animals is

scientifically and philosophically pluralistic. In our book we are presenting research from various scientific disciplines concerned with exploring the nature of nonhuman animal life (the biomedical sciences, pharmacological studies, neuroscience, zoology, etc.) but also from human and animal sciences with regard to human and animal interaction (animal science and farming production, animal psychology, animal welfare studies, and ecological niche modeling). Philosophical analysis which speaks directly to questions about the nature of animal minds and experience (including historical texts by Darwin, Schopenhauer, Descartes, Aquinas, etc.) have been placed at the end of the book. There we have included references to primary and secondary source materials, ranging from ancient through modern and contemporary periods in the history of Western thought. This placement of historical, modern, and contemporary philosophical texts vis-à-vis scientific research serves to frame possible ontological frameworks for interpreting the research found in the earlier sections of the book. For example, Darwin theorized animal emotion and expression in his *The Expression of Emotion in Man and Animals* (1852) a long time ago. That particular entry may offer a theoretical direction for interpreting statistical data involving animal communication as a form of emotional expression (for example, “A Note on Acoustic Analysis of Dairy Calves Vocalizations at Day 1 After Separation” *Italian Journal of Animal Science* vol. 8, no. 33, 113-19, 2009). Even as early as the Presocratic Pythagoras, a strong defense of the ontological value of animal experience and its ontological implications could be noticed. Various permutations of this thesis are therefore subsequently taken up in critical examination – denied, debated, or reformulated in subsequent thinkers ranging from

Hegel to Locke, Whitehead and, currently, Nussbaum and Cobb.

The question as to whether animals experience emotional lives in such a way that a unified subject of a life – a “personality” or mind – is constituted is important not only for the sciences but for the humanities as well, particularly within the domains of animal ethics and political ecology. Assessing the emotional lives of animals, and the cognitive expression of such lives, may be useful for improving human and nonhuman animal relations if it can be established that the personality and agency of animals (presented through the exterior expression of interior “animal experience”) warrants a more ethical, or even political, obligation on the part of human beings. This volume pushes these questions to their limits in that we are not only just interested to know whether animals can “think” (an issue covered in the *Cognition and Decision* volume of this series) but also whether the communication of animal experience can in turn help humans to measure whether human and nonhuman interactions are to benefit more than one species only.

By exploring these questions within the domain of scientific research, or by drawing on scientific research in order to assess the validity of such questions, one may better understand how humans relate to other forms of life with substantive empirical data to corroborate practical ethical, political, and value claims of philosophical interest. What evidence do we have that suggests animals actually experience similar emotions to humans? Does this affect how we perceive animal welfare? How are we to best interpret this data in light of the current treatment of animals? The results of exploring such questions are of tremendous

importance not only for human beings, but also for those creatures who are fellow stakeholders in the global environment.

In what follows we would like to look briefly at the research presented in this volume and consider some of its implications.

1. The Emotional Lives of Animals

Do elephants feel joy, chimpanzees grief and depression, or dogs happiness and rejection? "When we start to think of animals as individuals with personalities, with minds we also begin to think of them as feeling, sentient beings who experience a whole array of emotions ranging from joy to grief, embarrassment, jealousy, anger, resentment" states Marc Bekoff in an opening podcast interview which sets the stage of this living book about life. The interview is with leading cognitive ethologist Marc Bekoff, author of many books, including *Minding Animals: Awareness, Emotions and Heart*. During the interview Bekoff provides insight into the principal concerns of this book: animal emotions, experience, and mind. Bekoff sees nonhuman (or "animal") emotion and human emotion forming a continuum rather than being separated by an unbridgeable rift. As he says, "A Darwinian would say 'Well of course they have feelings, humans can't be the only species which emotions have evolved but that's not to say that animal emotions are the same as ours.' Your emotions aren't the same as mine. But I *wouldn't* say, "Well since they're not the same I have them and you don't."

In a review article of Bekoff's *Minding Animals: Awareness, Emotions and Heart*, we are told how it is

Bekoff's principal aim to explore the expression of emotions in animals, the meaning of emotion in animals, and how emotion relates to cognitive mind. Bekoff's interdisciplinary research suggests that animals experience joy and happiness through play, and grief over loss or absence of loved ones. It is also possible, Bekoff's research suggests, that animals feel shame or embarrassment. While not exclusively speculative, Bekoff's research concludes that the best scientific way to study animal emotion is to spend considerable time with animals. He postulates that nonhuman animals ought to be allowed to "speak" for themselves, specifically through the expressions of their emotions, and that human beings should be wary of importing anthropomorphic projections of human emotions to the beings they study.

Jaak Panksepp in "Affective Consciousness: Core Emotional Feelings in Animals and Humans" shows that, when it comes to animal emotions, for all mammalian brains there is a bedrock of emotional feelings. These feelings are contained within the "evolved emotion action" apparatus of the brain. Emotional feelings and instinctual emotional behaviors thus form primary processes of a "core affective consciousness." Panksepp states that for several reasons affective consciousness is "an intrinsic function of the brain, shared homologously by all mammalian species." Core emotional feelings such as seeking, fear, rage, lust, care, panic and play are not only intrinsic but may be experientially refined through the interaction with other animals. Further, Panksepp believes it is not the case that secondary processes (e.g. awareness of feelings in the generation of behavioral choices) cannot be studied neuroscientifically.

In “Attention in Emotion” Ram Vimal reports that the refinement of emotional experience is certainly “other directed”. His research on emotional recognition in the face of the other augments the idea that emotional life is thoroughly ecological – that is, situated within the environmental processes of creaturely relations. For as important as visual attention and its corresponding neural signals are for enhancing creaturely experience, emotion equally comes to factor into the “feedback” of experience, including where attention is initially directed (even beyond systems of reward). So-called targets of attention in brain regions such as the amygdala and hypothalamus are associated and selectively ranked according to the recognition of a) facial emotion in other individuals and b) the attentional signals feedback created by modulated neuronal mechanisms that are associated with affective states, notably those related to the "subjective experience" of others' emotions. In fact, the experience of and reaction to the facial emotion of others means that, at a very primal core level, creatures with the appropriate neural physiology link attention directly to the subjective experience of others' emotions. Indeed, philosophically it would appear that phenomenological intentionality is guided by a more basic affective structure which is other-directed, most acutely through recognition of the affective state present in another's facial expressions.

The problem of measuring, or knowing, qualitatively different phenomenal experience from another species (for example, as outlined in Nagel's “What is it Like to Be a Bat?”) is comprehensively dealt with from a scientific viewpoint in the article “An Integrative and Functional Framework for the Study of Animal Emotion and Mood” by Mendl, Burman, and Paul.

There it is argued that while conscious experience of emotion cannot be accessed directly, “neural, behavioral, and physiological indicators of emotion can be measured.” Dimensional approaches to emotion regarding “core affective characteristics” can provide a framework for meaningful research.

2. Cognition, Emotion, and Motivation: The Mental/Psychological Lives of Animals

subjective experience. Ned Block, a well-known philosopher of mind, agrees that conscious states of mind are characterized by the experience that it is “something like” to be in those states. He distinguishes between phenomenal consciousness and access-consciousness. The former, called “qualia,” exhibit “what it is to be a conscious creature” in that they are experienced as direct, unmediated qualities such as color, form, sensation, emotion, and movement.

Access consciousness, not necessarily qualitative, describes functional states which make sensory information available for verbal expression, the control of behavior, discrimination, etc. Both qualia and access states raise important questions for philosophy of mind: in what ways do these these “qualia” (qualities subjectively experienced), in conjunction with access states, causally effect the brain, or vice versa? Do these states of consciousness “really exist” in either the mental or the physical worlds, and do they offer any insight as to how the physical brain produces subjective experience?

The articles in this chapter explore and offer empirical support for a model of animal consciousness which preserves the phenomenal, lived quality of mental

states. In short, there is evidence for access states that may accompany phenomenal states. Phenomenal states, it is argued, include complex emotional states. Specific emotional states, such as anger, grief, or depression, may be common to human and nonhuman animals. And it also seems that these emotional states may be necessary for animal survival. How could this be so? Jaak Panskepp in "Affective Neuroscience of the Emotional BrainMind: Evolutionary Perspectives and Implications for Understanding Depression," argues that affective neuroscience has shown that animal emotional states are primary processes which have intrinsic states such as rage, fear, play, care, and surprisingly, grief. Such felt qualities provide necessary information about ranges of comfort levels in the "quest for survival."

Rosati and Hare study the role of affective responses in chimps and bonobos in "Chimpanzees and Bonobos Exhibit Emotional Responses to Decision Outcomes," finding a range of "complex emotional expressions" that form inherent links between complex cognitive functions such as decision-making to the experience of value. Certainly affective states and the emotions appear to be part of the decision making process, even for nonhumans.

Thierry Steimer's paper, "Animal Models of Anxiety Disorders in Rats and Mice: Some Conceptual Issues" follows with the call for exploring models of anxiety that yield deeper knowledge of underlying emotional pathologies. In addition to nonhuman primates, rats and mice show distinct behavioral responses (in coping strategies) linked to brain activity associated with experiencing states of danger and the threat to survival. The problem, pace Nagel's "What is it Like to

Be a Bat?" is, "What is it like to think like a rat?" Are nonhuman models of anxiety comparable to human ones? Study of nonhuman phenomenal experience seems to suggest that nonhuman animals have complex psychological mental lives, including common states of anxiety. Those lives are motivated, entail decision making, and are of complex emotional values, values that stem from basic "core" emotional values (grief, panic, joy, fear. etc.) that human beings also share.

3. Broadcasting Consciousness in Animals: Cognition and Communication

Recent research into the nature of animal consciousness has tended towards either investigating animal species (notably nonhuman primates) as models for human consciousness, or investigating whether particular species have conscious experiences that can be characterized as subjective and intentional. The articles included in the section discussing these issues draw upon a more general principle in the study of consciousness - the "global workspace" approach first developed by Bernard Baars to explain consciousness in humans. Recent animal studies suggest that animal brains exhibit the abilities to relate specific sets of conscious and unconscious processes in encoding and distributing information matching psychological and neural phenomena. This body of research may shed light on specific ways in which access-consciousness not only conveys sensory information, but also contains within itself or supports the qualitative properties of consciousness in general. These particular studies shed light on how the neural architectures of various nonhuman species allow for degrees of social experience in facial recognition, expression, vocal identity, pleasure, and pain. In doing so, they underscore

Darwin's intuition that due to a common early ancestor we might understand emotions in man as analogous to that in animals.

Marian Dawkins argues in "Animal Minds and Animal Emotion" that our understanding need not be restricted, as it usually has been, to the search for higher cognitive abilities in animals. It could well be the case that research into how animals experience basic affective states, including the "negative and persistent" emotions associated with suffering, will support the thesis that animals indeed have conscious experience.

et al., and Tate and Fischer, *et al.* respectively, explore the experience of a sense of identity in animal minds. In both studies, the vocal correlates of sender-identity in kittens and the processing of facial identity and facial expression in primates and ungulate species show strong correlations between specialized brain functions and various levels of subjective experience. Specifically, both studies have shown that vocalization between species can serve as a communicative "affect-intensity" where certain acoustic parameters encode indexical cues (arousal, etc.). Even monkeys and sheep have shown that facial cues can serve as emotional communicative cues, important in social formation. More importantly, these cues serve to indicate that deep emotional and complex cognitive work is occurring within nonhuman species. Interestingly, Tate and Fischer, *et al.* reveal that there could be "remarkable similarities in the ways that faces are processed by the brain in humans and other mammalian species."

4. The Impact of Animal Psychology on Our Understanding of Animal Welfare

Understanding the emotional lives of animals requires that one take into account the rich and complex nature of experience had by a diverse range of species. Part of this complex range of experience is “negative” emotional response and corresponding psychological stress. As Galhardo and Oliveira tell us in "Psychological Stress and Welfare in Fish," “The ability to respond to stress is vital to the survival to any living organism, though sustained reactions can become detrimental to the health and welfare of animals.” Stress responses of vertebrates are known and generally accepted as contributing to detrimental psychological impact over sustained periods of time. In fish, physiological and psychological components of stress are just as apparent as they are in mammals; however, the psychological component of fish experience is not well studied. While it is true that some researchers deny complex mental experiences to fish on the basis that they lack a neocortex, recent studies have shown “neuroendocrine, cognitive and emotional processes in fish that are not only equivalent to other vertebrates, but allow the inferring of some forms of mental representation." Thus, given that fish do possess emotional processes of some basic kind - evidenced by neuroendocrinal activity - a rethinking of the place of fish within the domain of animal ethics may be needed. (In other experiments it has been recently revealed that crabs and lobsters, denied mental representation on the same basis that fish have been, do feel pain and are capable of remembering and learning. See: Magee and Elwood, "Shock Avoidance by Discrimination Learning in the Shore Crab ('Carcinus maenas') Is Consistent with a Key Criterion for Pain" in *The Journal for Experimental Biology* Vol. 216 (Feb. 2013): 353-58.)

It may seem fantastic that it is possible to determine the psychological states of animals, particularly with a focus on how disease, stress, and pain affect animal emotional states. However, as Brydges and Braithwaite tell us in "Measuring Animal Welfare: What Can Cognition Contribute?", through studies in the biological function and physiology of animals that correspond to the activity of cognitive states, as well as through new methods in discerning what animals want or prefer within specific cognitive states, it is possible to "discover the mental or affective state of an animal (i.e. positive or negative affective states)" that reveal how negative impacts upon animal wellbeing cause distress to the emotional life of the animal. They argue that, indeed, there is such a thing as "animal mental welfare," and that studies in animal psychology can actually help to determine how an understanding of animal emotions can improve human and nonhuman animal interactions in the context of welfare. An excellent example of such research is found in Jeon, Song, and Kim's "A Note on Acoustic Analysis of Dairy Calves at 1 Day of Separation", where it is shown through vocalization analysis that dairy calves suffer measurable states of anxiety due to premature separation stress.

In David Fraser's article, "Understanding Animal Welfare," we learn about the impact of animal psychology on our understanding of animal welfare. Beyond freedom from disease and injury, Fraser emphasizes that part of the basic health of an animal is freedom from prolonged stress and negative affective states, such as pain or distress. Emotional health should contribute to what human beings perceive as living a reasonably "natural life." The positive

emotional health of animals may require a mandate, much like the sciences mandate food safety or environmental sustainability. In this way science can further proceed within a framework of values which recognizes not only the reality of animal emotional lives, but that prolonged negative affect upon the emotional lives of animals, including their corresponding psychological states, may cause undue harm.

5. The Ethics of Human Interrelations with Animals: What Do We Know Now and How Does it Affect Our Interactions with Animals?

Considering the emotional lives of animals certainly involves considering how human emotion figures into the treatment of animals, ethically. Whether to laboratories or zoos, or free range environments, human beings react to the environments of animals (and the lives animals had in those environments) with differing emotional responses. In this section the authors urge us to examine more closely our own emotional and ethical responses. Their work grounds the notion that we can move beyond the minimal level of welfare because we are compelled to do so through our own direct reactions, in real time, to animal emotion and sentience. As more humans witness animal suffering and experience companionship, the resulting emotional involvement points to replacing utilitarian and other ethical theories with a more appropriate ethics of emotion or care. Thus, the authors would like to think that the generally positive (or at least ambivalent) human emotional response to the treatment of animals indicates that, in fact, animal welfare and corresponding animal emotional experience, is largely positive and "good."

This section begins with Bekoff's "Good Welfare' Isn't 'Good Enough", where Bekoff – a leading expert in animal emotion and intelligence - explores what we might mean by the phrase "animal welfare" in a broad and constructive sense. This involves "asking difficult questions about who we think we are, who we think 'they' are, what we think we know, and what we actually know." For Bekoff, "good welfare" is not enough because existing laws still permit the pain, suffering, and death of billions of animals for research, education, and amusement, let alone for food or for clothing. He states that "the emotional lives are not at all that private, hidden, or secret and animal emotions and sentience force us to care for them and to protect them from pain, suffering, and death." Further, not enough human beings are affected enough to be disturbed by that pain, suffering, and death. We simply do not voice our emotional responses to the current treatment of animals in a constructive enough way .

Mikaela Ciprian et al. identifies emotional ethics as the prevalent ethical framework when compared with utilitarianism, deontology, or relativism. Specifically, Ciprian analyzes which frameworks were most prevalent in discourse targeted at animal ethics, finding emotional language to be the most common. Likewise, Thomas Kelch in "The Role of the Rational and the Emotive in a Theory of Animal Rights" analyzes the way in which we look at animal rights issues, revealing that rights should be supported by a consideration of the emotions, especially where emotions are "essential aspects of our nature and of our moral lives." As he writes, "emotions are of relevance in determining who should be rightsholders," as "our sense of compassion should count as a reason for

granting rights to animals.”

The last two articles (Kendal Shepherd's "The Role of the Companion Animal Veterinary Surgeon in behavioural Husbandry" and Agostino Sevi et al.'s "Factors of Welfare Reduction in Dairy Sheep and Goats" provide illustrative examples of the above thinking, drawing on compassion by advocating companionship to nonhuman animals in stressful contexts. Specifically, Shepherd believes that human (or nonhuman) animal companionship can maximize the welfare of both humans and animals, especially during stressful times such as surgery, where perhaps each species may need the other. From the approach of a veterinarian, Shepherd theorizes ways in which surgeons can offer companion-like relationships to their animals so as to proactively improve the behavioral, mental, and emotional needs of the animal. He concludes that emotional needs must be nurtured in the same way as physical needs. Along this line of thinking Sevi, Casamassima, Pulina, and Pazzona argue that among other factors causing the reduction in the wellbeing of sheep and goats is the emotional distress caused by lack of companionship. Generally, it is argued that companionship for many species of animals maintains positive mental and emotional health.

6. Animal Emotion and Cognition: Philosophical Considerations

In the preceding sections of this volume, we have presented research from several related disciplines which informs the scientific study of animal emotion and cognition, specifically with respect to topics which support the thesis that animals do indeed, in varying degrees and kinds, have subjective lives which they are

able to express. Taken as a whole, the research suggests that there are enough similarities in the evolutionary paths of human and nonhuman nervous systems to support the notion that animal consciousness ought to be understood in terms of a continuum of subjective experience. This necessitates that we broaden our method of study and turn towards the humanities, serving to deepen our engagement with animals understood as the bearers of emotional lives - lives that are capable of suffering psychological stress as well as the joys of companionship. It is a new way of thinking to consider animals in this way. But this begs the question as to how animal lives, their interior subjective experiences, their emotions, their cognitive abilities, have been understood until now. Therefore, our final chapter offers a comprehensive survey of the major figures in the history of Western philosophy who have impacted our thinking about the epistemological, ontological, and ethical implications of animal consciousness. We have chosen those "classics" which articulate and shape philosophical discourse on the subject. Topics and themes introduced even as early as the Pre-Socratic period continue to resonate and repeat in subsequent medieval, modern, and contemporary modes of thought. The entire discussion can be characterized by variations of two points of view. We align ourselves with those that support the existence of subjective experience, specifically expressed as cognition, emotion, and capabilities in animals. We thus provide a grounding for the call to improve animal welfare. The opposing position, represented by the minority of philosophers in this chapter, denies or at least largely calls into question the existence of truly subjective and irreducible properties of animal minds.

Violin's piece on Pythagoras sets the stage, introducing his defense of "animal psyche" and the "call for the compassion for the suffering of all sentient beings" who function together in a unified and living cosmos. This idea is taken up and further developed in Plato's dialogue *Timaeus*, which at base portrays the cosmos as a "World Animal," enlivened and made intelligent in all aspects by the creative activity of the Demi-Urge. In *De Anima*, Aristotle follows with his own analysis of the basic element which animates organic life, the soul. That which distinguishes living beings from all others is the ability of a body to move itself. In Book II, Aristotle ascribes to animals "the faculties of discrimination," thought and sense, and the origination of local movement.

What follows is Aquinas and the medieval development of Aristotle's conception of the psyche/soul and its role in determining where animals fall in the hierarchy of the Great Chain of Being. Barad, in her article, points out the inconsistencies of Aquinas, who, according to tradition, has been grouped with Descartes in rejecting the felt qualities of animal minds. A more nuanced understanding of medieval ontology reveals that animals had to be "superior to vegetative life" and exhibiting degrees of voluntary action, but Aquinas forgets the ethical dimensions of his own position and ultimately denies freedom and full moral consideration to animals.

In *The Discourse on Method*, Descartes presents his famous denial of animal minds, describing them as automata whose features can be fully explained by the mechanistic theories gaining ground in the scientific outlook of the time. John Locke, however, ascribes individuality to animals in that they are "thinking

substances,” albeit without an immaterial soul.

The selected texts by Hegel examine how we are to understand animals in terms of Hegel’s general orientation to consciousness: consciousness is only truly present in reciprocal relations among self-conscious beings. While this led him to deny status to animals, interpretations of Hegel do not fully support his conclusions.

Whitehead’s philosophy, where ultimate value is present in all forms of life, was striking in its time in its rereading of process in Darwinism, specifically with respect to the possible continuities between lower and higher order forms of complexity of animal life. Finally, contemporary thinkers such as Bruno Latour, Isabelle Stengers, and Philippe Descola address ontological and ethical considerations in the treatment of animals in their own unique way, drawing on connections between ontology and social and political philosophy and ecology.

Articles

1. The Emotional Lives of Animals

Duncan Campbell

[Podcast Interview with Marc Bekoff and Jane Goodall –
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Michael Tobias

[A Review of *Animal Minds: Awareness, Emotions and Heart* by Marc Bekoff](#)

Jaak Panksepp

[Affective Consciousness in Animals](#)

Ram Vimal

[Attention and Emotion](#)

Michael Mendl, Oliver H. P. Burman, and Elizabeth S. Paul

[An Integrative and Functional Framework for the Study of
Animal Emotion and Mood](#)

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[Monkey Business: Emotion and Consciousness in Primates](#)

2. Cognition, Emotion, and Motivation: The Mental/Psychological Lives of Animals

Jaak Panksepp

[Affective Neuroscience of the Emotional BrainMind:
Evolutionary Perspectives and Implications for
Understanding Depression](#)

Alexandra G. Rosati and Brian Hare

[Chimpanzees and Bonobos Exhibit Emotional Responses to](#)

Decision Outcomes

Thierry Steimer

Animal Models of Anxiety Disorders in Rats and Mice:
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Joshua M. Plotnik, Frans B. M. de Waal, and Diana Reiss
Self-recognition in an Asian Elephant

Barbara King - How Animals Grieve

[https://www.youtube.com/watch?feature=player_embedded
&v=HCePpwJ4GU0](https://www.youtube.com/watch?feature=player_embedded&v=HCePpwJ4GU0)

3. Broadcasting Consciousness in Animals: Cognition and Communication

Marian Stamp Dawkins

Animal Minds and Animal Emotion

Marina Scheumann, Anna-Elisa Roser, Wiebke Konerding,
Eva Bleich, Hans-Jürgen Hedrich and Elke Zimmermann
Vocal Correlates of Sender-identity and Arousal in the
Isolation Calls of Domestic Kitten (*Felis silvestris catus*)

Andrew J Tate, Hanno Fischer, Andrea E Leigh, and Keith
M Kendrick

Behavioural and Neurophysiological Evidence for Face
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Public Radio International with Carol Hills

Bottlenose Dolphins Whistling On A First Name Basis

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Psychological Stress and Welfare in Fish

Nichola M Brydges and Victoria A Braithwaite
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Jung Hwan Jeon, Jun Ik Song, Doo Hwan Kim
A Note on Acoustic Analysis of Dairy Calves' Vocalizations
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David Fraser
Understanding Animal Welfare

5. The Ethics of Human Interrelations with Animals: What Do We Know Now and How Does it Affect Our Interactions with Animals?

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Mikaela Ciprian, Laura D'Olimpio, Ram Pandit,
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An Analysis of Ethics and Emotion in Written Texts about
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Thomas G. Kelch
The Role of the Rational and the Emotive in a Theory of
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Kendal Shepherd
The Role of the Companion Animal Veterinary Surgeon in
Behavioural Husbandry

Agostino Sevi, Donato Casamassima, Giuseppe Pulina,
Antonio Pazzona
Factors of Welfare Reduction in Dairy Sheep and Goats

6. Animal Emotion and Cognition:

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Mary Ann Violin, "The First Animal Rights Philosopher"

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"Creation of the World Animal" in *The Internet*

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Medieval Approaches

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Edwin McCann, "Locke on Identity: Matter, Life, and

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"Animal Magnetism and Magic" from *On the Will in Nature*

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20th and Early 21st Century Approaches
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Philippe Descola - All Kinds of Animals

[https://www.youtube.com/watch?feature=player_embedded
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