

## **Animal Vocal Communication**

### **Assessment and Management Roles**

#### *Second Edition*

How do animals communicate using sounds? How did animal vocal communication arise and evolve? Exploring a new way to conceptualize animal communication, this new edition moves beyond an earlier emphasis on the role of senders in managing receiver behavior, to examine how receivers' responses influence signaling. It demonstrates the importance of the perceiver role in driving the evolution of communication, for instance in mimicry, and thus shifts the emphasis from a linguistic to a form/function approach to communication.

Covering a wide range of animals from frogs to humans, this new edition includes new sections on human prosodic elements in speech, the vocal origins of smiles and laughter, and deliberately irritating sounds, and is ideal for researchers and students of animal behavior and in fields such as sensory biology, neuroscience, and evolutionary biology.

**Eugene S. Morton** is a senior scientist emeritus at the Smithsonian Institution and an adjunct professor emeritus at York University in Toronto. He specializes in migratory bird behavioral ecology, mating systems in birds and saturniid moths, animal communication, and avian/plant coevolution. He received the William Brewster Award from the American Ornithologists' Union in 1995 for his ornithological research.

# Animal Vocal Communication

## Assessment and Management Roles

Second Edition

EUGENE S. MORTON

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**Dedicated to the memory of  
Donald H. Owings  
1943–2011**

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## Preface

In this second edition of *Animal Vocal Communication: A New Approach* (Cambridge University Press, 1998) Donald Owings (b.1943–d.2011) and I cultivate our new approach to communication and promote doing away with the pervasive backbone of most discussions of animal communication—telecommunications, information theory, and linguistics. The new approach focuses on the roles communicants play and the evolutionary conflicts these generate.

Communication is the substitution of physical force or effort with signals. If communicants resort to physical efforts like pushing, they are no longer communicating. This edition is largely concerned with how signals, especially vocal signals, are able to substitute for physical force and work to the advantage of the signaler. First and foremost of the reasons signals “work” is the roles played out by communicants. The role of a signal producer is to manage the behavior of a signal perceiver and the role of a signal perceiver is to assess signals. In the first edition we renamed signal producers *managers* and those that hear them *perceivers* to emphasize these roles. Of course, each individual plays both roles, but not simultaneously, and how they establish and manage social relationships to one’s own benefit is what makes communication so fascinating to study.

Are these roles more or less equivalent? In this edition, we develop the idea that they are not equal, in an evolutionary sense, using the following logic: Perceivers play an active role in communication, not a passive one implied by the common view that they receive information sent by senders to influence their behavior. They don’t *receive* information – they *assess* signals. Signals are not generated by a sender to contain information to be decoded by a receiver but, rather, signals are *acts deployed to capitalize on assessment systems*. Perceivers control managers because managers are helpless to make perceivers respond the way they want them to via signals alone. Managers can control perceivers only when they physically force the perceiver to do something, like chasing it off a territory rather than persuading it to stay out. Perceivers, on the other hand, are able to respond to signals in different ways or even to ignore them altogether and still be participating in communication. In sum, their roles are not equivalent because perceivers are independent of manager control but managers are not free from perceiver choice. How this magnificent dichotomy plays out is what this book is about and is what makes communication so fascinating.

We hope this realignment among the participants will provide a basis for producing testable hypotheses and better description of communication. But our second main point

is to get information out of the definition and operational dynamics of communication and its study. It has long been incompatible with a sound evolutionary basis for studying communication. Its endurance is annoying.

So managers and perceivers are not equal in the evolution of communication and informationizing communication misses the boat. We begin the discussion of these two themes with a few examples of vocal communication.



## Acknowledgments

Don Owings checked me off his “must meet” checklist at an Animal Behaviour Society meeting where we became instant friends with an interest in concepts underlying animal vocal communication research. We felt senders did not send information to receivers, in effect controlling communication, but that senders and receivers were equal partners due to their selfish interests. We introduced the roles that senders (as managers) and receivers (as active perceivers) play in the first edition, *Animal Vocal Communication: A New Approach*, in 1998.

We were planning to update this book when Don died of cancer in 2011. My talk at the Animal Behaviour Society meeting that year, “Metagenetic Rays and the Transmitted Information Metaphor,” was dedicated to his memory and our shared view of communication. Don’s colleague at University of California, Davis, Dick Coss and I co-authored a book chapter on this theme for Ulrich Stegmann’s *Animal Communication Theory, Information and Influence* published in 2013. I replaced Ulrich at the meeting when he was unable to attend and was fortunate to meet Martin Griffiths, then the commissioning editor for Cambridge University Press, and he encouraged me to plan a second edition, resulting in *Animal Vocal Communication: Assessment and Management Roles*.

I am very pleased to acknowledge the help, encouragement, and review of this effort by Kirsten Bot, Megan Keirnan, and Sarah Payne for Cambridge University Press. Iswaria Ravindran was instrumental at the editing and typesetting stage and Kevin Hughes did a magnificent copyediting effort. With their help, and the support of my wife, Bridget Stutchbury, I hope this expansion of the role of assessment and de-emphasis of informationizing views will reinvigorate the field of animal communication to Don’s liking.