

Noise Matters

The Evolution of Communication

R. Haven Wiley

Noise, as we usually think of it, is background sound that interferes with our ability to hear more interesting sounds. In general terms, though, it is anything that interferes with the reception of signals of any sort. It includes extraneous energy in the environment, degradation of signals in transit, and spontaneous random activity in receivers and signalers. Whatever the cause, the consequence of noise is error by receivers, and these errors are the key to understanding how noise shapes the evolution of communication.

Noise Matters breaks new ground in the scientific understanding of how communication evolves in the presence of noise. Combining insights of signal detection theory with evidence from decades of his own original research, Haven Wiley explains the profound effects of noise on the evolution of communication. The coevolution of signalers and receivers does not result in ideal, noise-free communication, Wiley finds. Instead, signalers and receivers evolve to a joint equilibrium in which communication is effective but never error-free. Noise is inescapable in the evolution of communication.

Wiley's comprehensive approach considers communication on many different levels of biological organization, from cells to individual organisms, including humans. Social interactions, such as honesty, mate choice, and cooperation, are reassessed in the light of noisy communication. The final sections demonstrate that noise even affects how we think about human language, science, subjectivity, and freedom. *Noise Matters* thus contributes to understanding the behavior of animals, including ourselves.

R. Haven Wiley is Professor of Biology and Ecology Emeritus at the University of North Carolina at Chapel Hill.

June 460 pp. cloth \$45.00x | £33.95 9780674744127 6 1/8 x 9 1/4
17 halftones, 30 line illus., 1 table Science

