

COMMUNICATION AND SIGNALLING IN ANIMALS

Summary

Communication involves two individuals, a sender and a receiver. In true communication, transfer of information is beneficial to the sender and access to information is beneficial to the receiver. The information transmitted in this way is the signal. Considering mechanistic limitations, the character of signalling depends on the level of conflict between the sender and receiver (if such conflict occurs) and the mechanism stabilizing the reliability of the signal in evolutionary scale. Communication is stable only if strategies of the sender and receiver reach signaling equilibrium.

Signal reliability limits signal functionality. Such limitations are generally described as costs of signaling and are measured as the decrease in fitness with the increase in signal intensity, assuming that

the quality of the sender and receiver are constant. Costs stabilizing the reliability of signals are strategic costs and they can be divided into two general categories: receiver-dependent and receiver-independent costs. The first are inseparable qualities of signals, the second arise as a consequence of signaling. The cost, which is necessary to convey the information unambiguously, is not a cost of signaling.

The way in which the costs are paid is a function of the form of the signal. There are signals with high strategic cost, which either directly handicap the sender or charge the sender necessarily with the costly consequences of its behavior. Moreover, there are signals with negative strategic cost, i.e. displays that confer some other advantage to the sender, and signals devoid of strategic costs.