

A miracle of the living world: Communication and signaling in the language of birds

Scientific research has revealed that throughout the living world, communication is just as important as it is to human beings. Countless living things lack the capacity for human speech, yet they employ entirely different methods in order to communicate with each other—and even with other species. Some of the most dramatic examples of this is displayed by birds. The astonishing behavior and ability to communicate that birds exhibit also totally invalidates the claims of the theory of evolution.

All forms of life on Earth have been created with miraculous properties and astonishing abilities. The examination of just one single species is enough to reveal hundreds of proofs of God's magnificent creation.

In one verse of the Qur'an, Allah reveals that:

There is no creature crawling on the earth or flying creature, flying on its wings, who are not communities just like yourselves—We have not omitted anything from the Book—then they will be gathered to their Lord. (Qur'an, 6: 38)

The birds to which this verse draws our attention notice are one of the living communities that we need to examine and reflect upon.

There are roughly some 10,000 species of bird in the world, each of which possesses its own miraculous features. Wherever you may live, you can see a great number of these feathered creatures and can observe different and extraordinary properties in each and every one. With their attractive appearances, flawless flight mechanisms, expertise on the routes and timing of migrations, ability to build nests and altruistic behavior toward their young and to one another, birds possess countless proofs of the fact of creation. Their ability to communicate is another of these.

Birds' Sense of Hearing

For birds to display their talents in communicating by sound, song—and in the case of some birds, words—they require excellent hearing. At critical times in their lives, their sense of hearing becomes particularly important. Experiments have shown that in order for birds to learn the distinctive song of their own species, they need an auditory feedback system. Thanks to this system, young birds learn to compare the sounds they produce themselves with the patterns of a song they have memorized. If they were deaf, it wouldn't normally be possible for them to sing recognizable songs. (1)

Birds' ears are well equipped for hearing, but they hear in a different way from us. For them to recognize a tune, they have to hear it in always the same octave (a series of seven notes), whereas we humans can recognize a tune even if we hear it in a different octave. Birds cannot, but can instead recognize *timbre*—a fundamental note combined with harmonies. The ability to recognize timbre and harmonic variations lets birds hear and reply to many diverse sounds, and sometimes even reproduce them.

Birds can also hear shorter notes than we can. Humans process sounds in bytes in about 1/20th of a second (2), whereas birds can distinguish these sounds in 1/200th of a second (3). This means that birds are superior at differentiating sounds that arrive in very rapid succession.(4) In other words, a bird's capacity to perceive sound is approximately ten times greater than ours; and in every note heard by a human, it can hear ten.(5) Moreover, some birds are also able to hear lower-frequency sounds than we are. Their hearing sensitivity is so finely tuned that they can even tell the difference between pieces by such famous composers as Bach and Stravinsky.

Birds' extremely sensitive hearing functions perfectly. Clearly, each of this sense's components is created by special design, for if any one failed to work properly, the bird would not be able to hear any sounds at all.

This point also disproves the theory that hearing evolved or emerged gradually, as a result of coincidental influences.

Communication and Signaling in Birds

Birds produce meaningful communications by their facial expressions, beak movements, feather ruffling, elongating their necks, crouching, bouncing, and flapping their wings. Although each species has its own body language, many different species interpret movements in the same way. For example, various species interpret an upward thrust of the beak as expressing the intention to fly, and the lowering of the breast as a warning of danger. Also, several species perceive raising the tail feathers as a threat, or displaying bright colors atop of the head as a declaration of the intent to attack. Via facial expression, birds can convey a variety of messages to those around them-negative feelings such as dislike and resentment, as well as positive ones like pleasure, enthusiasm and curiosity. (6)

Bird's Facial Expressions

Birds produce different facial expressions by movements of the beak, or by positioning the feathers above the beak, on the chin, or atop the head. In some species, the feathers above the eye can also move independently. Moreover, many species make a display by opening their beaks. For example, the tawny frogmouth opens its beak to reveal its large, bright green oral cavity, emphasizing the size of its beak and making it appear more intimidating. Some other species open their beaks as a form of threatening behavior, usually silently, but sometimes enhance the performance with hissing or loud breathing. (7)

Besides communicating by means of body language, birds produce a great variety of sounds to communicate with other members of their flock, neighbors, or family members. These range from short, simple calls to songs that are surprisingly long and complex. Sometimes birds such as the green woodpecker use different instruments or, like the American woodpecker, use special feathers to produce sound.

Birds also communicate through scents, although since their sense of smell is poor, their communication is based mainly on sound and sight. At times of poor visibility, as at night or in dense foliage, sound is most advantageous, and is also the ideal method for long-distance communication. If conditions are right, birdsong can be heard for up to a few kilometers.

In addition to song, birds also have conceptualization and communication skills. In certain circumstances, they demonstrate talents equivalent to those of children of primary-school age, learning series of words and other means of human communication through social interaction.

When alone, these parrots play vocalization games and when in the company of people, they join vocalizations together to produce new assemblages from existing sequences of speech. God, the Creator of everything on Earth and in the skies, equips them with the talents and characteristics that set them apart. Accordingly, our praises for the supreme beauty of our environment is praise that belongs to God.

The Language of Calls and Songs

To call to one another, birds produce sounds of extremely high frequency and strength. Only a few species such as pelicans, storks, and certain vultures are mute and have no call. The acoustic calls used by birds amongst themselves form a language of sorts. Their songs, which are longer and generally related to courtship, consist of a series of notes and usually contain melodies.

Birdsong is usually heard in spring, whereas the calls, much simpler than songs, are used by both sexes and heard throughout the year. Birdcalls allow swift communication via simple messages without a great expenditure of energy. (8) These calls' main functions can be listed as follows:

- To establish a bird's species
- To indicate its bird's gender
- To reveal its location
- To demarcate and defend its territory
- To announce and advertise a source of food
- To let young birds recognize their own parents
- To keep the flock together when traveling
- To warn of the presence of an enemy

- To intimidate an enemy
- For courtship

To mark the changeover of responsibility for nesting duties such as incubating or feeding
To practice and perfect their songs

Bird Sounds Are Not Haphazard

Usually, birdsong is not composed of randomly produced sounds. Songs are exceptionally diverse melodies of specific meaning, sung for a purpose, and are much more complex than the calls used for signaling. They are generally used by males to advertise and defend a territory, or in courtship. It is also believed that songs serve a social function. When a pair is building their nest, they also establish communication by song. Experiments on caged birds have also demonstrated that birds find it easier to learn songs if another bird is present, but out of sight, in another cage. (9).

Male and female songbirds have different brain structures, particularly in the regions related to sound production. With many songbird species, the males can sing, but the females cannot. The males use "song" to call their mates or designate a tree, pole, or electrical cable as a place to perch. Each species sings a song with its own characteristics, but any given species' songs display variations according to age, sex, particular time of year, and geographical location-appropriate for the environment in which they live. For example, birds that live in meadows use "songs of flight." Similarly, ones that live in the dense foliage of rain forests or reed thickets have loud voices to compensate for reduced visibility.

God's Miracle of Inspiration

As we have explained, birds employ the most suitable methods of communication for their habitats and objectives. There is no question of every bird being able to know which song it should sing under which circumstances, or to calculate on its own the meaning and purpose of the song it will sing. According to the Darwinist way of thinking, however, all the birds and other living creatures that we see around us, , all the abilities that they exhibit and all the beauty that they display, are the products of blind chance. Yet obviously, the consciousness and design that pervade life and living things at every moment cannot be explained in terms of a series of mere coincidences.

Living things devoid of reason and judgment can exhibit such behavior because such intelligence and consideration of the future are inspired in them by God. God creates every living thing with the characteristics it requires and inspires its appropriately intelligent behavior. All living things perform only those functions that God inspires in them, serving as a means whereby we are able to witness His might. In one verse of the Qur'an, God reveals:

Do you not see that everyone in the heavens and Earth glorifies God, as do the birds with their outspread wings? Each one knows its prayer and glorification. God knows what they do. (Qur'an, 24:41)

References:

- 1- <http://instruct1.cit.cornell.edu/courses/bionb424/students/mdr17/neurophysiology.htm>
- 2- <http://www.earthlife.net/birds/hearing.html>
- 3- <http://www.earthlife.net/birds/hearing.html>
- 4- Theodore Xenophon Barber, Ph. d., *The Human Nature of Birds*, USA, 1993, p. 36.
- 5- *Ibid.*, p. 37.
- 6- *Ibid.*, , p. 34.
- 7- Lesley J. Rogers & Gisela Kaplan, *Songs, Roars and Rituals: Communication In Birds, Mammals and Other Animals*, USA, 2000, pp. 78-79.
- 8- http://whalonlab.msu.edu/Student_Webpages/Bird_song/page
- 9- http://whalonlab.msu.edu/Student_Webpages/Bird_song/page
<https://www.harunyahya.info/en/articles/a-miracle-of-the-living-world-communication-and-signaling-in-the-language-of-birds>