

## **The Sense of Hearing in Animals**

Our topics for this week are

- **The three aspects of hearing**
- **Hearing range in common species of animals**
- **The effects of noise on handling of animals**

Sounds are an important communication method and stimuli that warn animals of potential danger. Animals are able to differentiate each member of their group's voices. Similarly, they know each of their handlers' voices. They are able to recognize and associate sounds that occur with feeding, distress, and breeding, among others.

There are three aspects to hearing sounds: intensity, frequency, and directional ability. Intensity (amplitude) is measured on a logarithmic scale in units called decibels. Frequency is the number of vibrations per second. Measurement units are Hertz (Hz).

Animals, particularly prey animals, are distressed by suspicious or loud noises. Small animals should be spoken to in a low-pitch, calm voice. Livestock should only be exposed to calm and relatively quiet noise when being handled or moved. Handling facilities require regular maintenance to reduce unnecessary noises. Rubber bumpers should be attached to metal gates. In addition, hinges, fans, and other moving equipment should be lubricated.

### **Intensity**

Low-toned soft sounds are soothing to animals. High-pitched sounds are associated with distress signals and are stressful to prey animals. Conversely, predators (dog, cats) may become more aggressive if exposed to loud noises. Yelling with a high-pitched voice causes prey animals (horses, cattle) to panic and attempt to flee. Soothing background music can calm animals and is often used in kennels, milking parlors, and horse stables. On the other hand, raucous music is not beneficial to animal handling.

Yelling and waving arms should not be used to move animals, especially if they are in confinement. Cattle can be moved more efficiently and quietly by avoiding yelling and instead using canes, whips, or paddles as visual extensions of the handler's body without contacting the animal's body.

Birds have excellent hearing and pitch discrimination which allows them to analyze sound. Their ears are funnel-shaped to concentrate sound waves, and are located behind and below their eyes, covered by soft feathers.

## **Frequency**

All domestic mammalian animals can hear higher frequency sounds than humans. The auditory range of humans is approximately 20 to 20,000 Hz, while dogs have a range to around 45,000 Hz, and cats can hear up to 75,000 Hz. Horses and livestock have upper ranges of 35,000 to 40,000 Hz. Rodents have higher upper range of 75,000 to 80,000 Hz similar to that of their chief predator, the domestic cat. Birds range of hearing is similar to humans. Lizards react best to lower frequency sounds below 5,000 Hz. Geckos are the most vocal lizards, using distress calls if threatened.

Snakes have internal ears which detect sounds only if the sound causes low frequency vibrations. They feel the vibrations with their jaw from the surface that they are laying on. The vibrations are then transmitted to their internal ears. Snake charmers with a flute rely on the visual movement of the flute, not the sound of music to mesmerize snakes.

## **Direction**

The ability to hear can be enhanced by moving external ear position in the direction of the sound source. Ear position is an indication of expected behavior. Horses and cats turn their external ears in the direction of their current point of attention. Horses ears moved toward a handler indicates that the handler has their attention. Laid back ears can be an indication of aggressiveness in horses, cats, and llamas. However, horses will lay their ears back when highly focused on any task, including working with great intensity, such as running hard or being intensely serious about wanting to eat grain. Laid back ears in dogs or cats can be an indication of fear.

Erect external ears are best at detecting sound direction and amplifying sound to the ear drum. Dog breeds with erect ears are the most often used as sentry animals to guard property. Some breed standards expect ears to be trimmed so that they can be made erect to assist hearing. Although both have highly movable external ears, predators can locate the direction of sound more accurately than large prey animals.

If you have comments or you're interested in particular animal handling subjects, contact us at [CBC@BetterAnimalHandling.com](mailto:CBC@BetterAnimalHandling.com)

Now let's recap the key points to remember from today's episode:

- 1. Domestic animals can hear higher frequency of sounds than humans can.**
- 2. How an animal positions its ears indicates its current point of concentration.**
- 3. Snakes detect sounds by feeling vibrations to their jaw.**

More information on animal handling can be found in my books, *Animal Handling and Physical Restraint*, *Concise Textbook of Small Animal Handling*, and *Concise Textbook of Large Animal Handling* all published by CRC Press and available on Amazon and from many other fine book supply sources.

Additional information is provided at: [www.betteranimalhandling.com](http://www.betteranimalhandling.com) . This website has more than 350 past podcasts with notes on handling of dogs, cats, other small mammals, birds, reptiles, horses, cattle, small ruminants, swine, and poultry.

Don't forget, serious injury or death can result from handling and restraining some animals. Safe and effective handling and restraint requires experience and continual practice. Acquisition of the needed skills should be under the supervision of an experienced animal handler.