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Top 7 Ultrasound Emitting Animals

From dolphins to moths

Human ear cannot detect sounds that have frequencies lower than 20 Hz (infrasounds) or over 20 kHz (called ultrasounds). That's why some species may appear quite silent for us, while in fact they are very noisy... We only lack their hearing to figure this out.1.Dolphins and toothed whales are famous for their sonar, so that they can make acoustic mental "images" of the environment. This way they can detect in murky waters fish shoals located hundreds of meters away. The sonar employs sounds from 250 Hz to 220 kHz. Sounds under 20 kHz can be heard by humans, the others are ultrasounds. The basal frequency is emitted by melon (the swollen front) localizing remote objects, while high frequencies locate close objects. The echoes are captured not only by the ears, but also by the fatty sinuses of the lower jaw and carried to the auditory bulla. When the sonar is impaired by parasites (like the Nasitrema, a parasite trematode worm, affecting the brain and inner ear, so that the animal cannot avoid obstacles) or toxins eliminated by microorganisms during red tides or electromagnetic interferences, the dolphins can strand. In the case of pilot whale (a large dolphin), if the dominant individual strands, the other members of the group will follow it. 2.Bats are the so-called Megachiroptera ("big bats", flying foxes and relatives) and Microchiroptera ("small bats", typical bats - do not be fooled, some flying foxes also can be small, while some "small bats" can be quite goodly). Microchiroptera are much more diverse and diversified, and their echolocation apparatus is much more sophisticated and complex, while amongst Megachiroptera only some species of the Rousettus genus can emit in a rudimentary fashion ultrasounds. From roughly 1,100 bat species, most emit ultrasounds through their mouths, but about 300 species do it through their noses. The last ones have smaller and less sophisticated ears than the former ones. Ghost faced bats (Mormoops) use their lips like speaking-tube for emitting the ultrasounds. Nose ultrasound emitting bats are two evolutionary groups, the leaf nosed (including the infamous vampire bats) and the horseshoe bats, that possess extremely complicated patterns of creases, flaps, wrinkles and grooves around the nostrils dubbed "noseleaves" or "horseshoe". These complex facial masks make bats famous in the gallery of ugliness! The microbat calls vary from 14 to over 100 kHz, well beyond our ear's range. Swallowing the prey does not perturb the ultrasound emission, as there is a passage reserved for the food. One click lasts 0.002 seconds and the bats emit 10-20 clicks per second. When they detect an insect, the click frequency goes to 250 per second. 3.To get a sex partner, the male mouse sings, and his song is as complex as a bird trill. Only that we cannot hear this song. Researches showed that rats also emit ultrasounds, which were connected to aggressive and submissive behavior. They produce a large array of squeaks, clicks, and whines. If stressed, rats emit long 20 kHz calls. These calls are also emitted when a rat loses a fight, sees a predator, experiences pain or when an untamed rat is handled. Infant rats make very high pitched distress calls, 30 to 50 kHz, which elicit maternal care such as retrieving the infants to the nest.4.Frogs living near flowing water in most cases have quiet croaks, and lack vocal sacks, due to the noise of flowing water covering any emitted sound. The solution? Ultrasound croaks! This is what researchers encountered in the concave-eared torrent frog (Amolops tormotus) from eastern China which thus overcomes the noise of the waterfalls it lives in.These frogs emit ultrasounds of over 128 kHz and do not possess visible external eardrums. Recessed ears shorten the length between the eardrums and the ear, favoring the transmission of ultrasound to the ear.Some frogs from tropical America can detect ultrasounds emitted by bats and shut up when perceiving them (they are preyed on by bats), but it has not been proven yet if they also emit ultrasounds. Moreover, their croaks are clearly audible by

humans. 5.Sloths can be very vocal. The calls "ai-ai" are also employed for defending the territory, attract a sex partner and are made by blowing air through the nostrils. The young emit sounds with frequencies of 1.9-2.6 kHz, the adults of 2-8 kHz. They also emit for communication ultrasounds for signaling danger to other sloths. 6.In temperate zones, we are pleased in the quiet summer nights by the chorus of night insects, most of the songs belonging to cricket and grasshoppers.Well, in a tropical environment you won't be pleased anyway by the crowds of the creepy and often venomous insects. Moreover, you won't hear the crickets. Because they may produce ultrasounds, which human ears cannot detect. One of the crickets inhabiting tropical rainforests can actually produce the highest-frequency ultrasound of any known insect. These extraordinary sounds are emitted by the lonely male Arachnoscelis from the Katydidae family, which makes its presence known with a burst of intense sounds. In fact, Members of Orthoptera Order (cricket, grasshopper and locusts) are famous for their ability to sing, and most emit chirps at frequencies humans can hear. Some katydid species produce ultrasonic chirps by rubbing their fore wings together, pushing a scraper on one wing across a series of pegs on the other, but Arachnoscelis can chirp at 130 kilohertz, which is too high a frequency to be generated by merely rubbing the wings together.The wings are rubbed against each other and the scraper wedges itself behind one of the pegs, provoking a distortion. When the scraper is freed, it springs back into shape, emitting an ultrasound. By using elastic energy, the animal saves metabolic energy, as the muscles do not contract at an almost impossible speed. 7.Poisonous or distasteful animals are more efficient in defending themselves with their chemical weaponry but they can also warn of this. That's why many insects, poisonous frogs or coral snakes, for example, display their vivid colors. But the method is so efficient with the predators, that many defenseless and tasty species mimic the color pattern of dangerous/distasteful animals. Over 20 genera of non-venomous snakes mimic the extremely poisonous coral snakes. Many butterflies mimic the highly toxic Monarch and are left alone by insectivorous birds. But tiger moths can respond to the ultrasound sonar that bats use to locate prey with ultrasound clicks of their own, emitted by a pair of organs named "tymbals". The tiger moths warn with their ultrasounds the bats about their bad taste. But other moth species were found to mimic the ultrasounds of the toxic moths. Studies showed that bats were fooled by the "false toxic" moth.