

Radio Telemetry and Conservation: Why We Put Trackers on Wildlife

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Radio telemetry has been used by wildlife conservationists for many years to track the movements and behaviors of wildlife from a distance. The most common radio telemetry systems involve the use of a transmitter, an antenna, and a receiver. Radio signals are given off by the transmitter, which are picked up by the antenna, and are then sent to the receiver. The receiver translates the signal as a beeping sound.

The right transmitter must be chosen for the right animal and, in addition to transmitter attachment type, the weight of the transmitter has to be considered. Ideally, radio transmitters should be less than 3% of an animal's body mass. The biggest source of weight in a transmitter is the battery, which requires a careful balance between research objectives and constraints. Researchers do this under federal and state permits with the animal's safety in mind.

There are many types of transmitter attachment styles, all of which are usually species-specific. Collars are made of neoprene or nylon, and can be designed to breakaway as the animal grows. They are most often used on mammals and larger birds. Collars should be large enough for comfort and growth, but small enough to prevent chafing and loss of the collar. Leg tags are commonly used on birds, and have a wide variety of styles depending on the species of bird in question.

Again, the tags should be large enough for comfort, but small enough to avoid slippage. Sometimes, transmitters may be attached to the animal using glue. Glue is typically used on birds, bats, and marine animals. It may sound odd, but sometimes glue is the only way to attach a transmitter, especially in the case of marine mammals. Surgical glues and epoxies are used to attach the transmitter to the animal, and special consideration should be used to ensure there is no skin irritation.

Transmitter receivers are designed to pick up the signals from radio marked birds either as they travel or once they have returned to a given location near a receiver, giving information on movement, behavior, and ecology. GCBO has placed nanotags, which are small radio transmitters, on American Oystercatchers. A leg-loop harness goes around each of the bird's legs and the transmitter is nestled where the tail and back meet.

The transmitters are used to monitor the movement of American Oystercatchers along the coast of Texas since not much is known about where they inhabit the coast before they begin to breed. Over time, GCBO hopes to gain more information on the whereabouts of these birds in order to further conservation efforts.

What does radio telemetry have to do with wildlife conservation? Well, the information gathered from radio telemetry can be used to determine where in a habitat an animal is spending most of its time. This can help to define the animal's home range, which is important

for the animal's survival. Additionally, radio telemetry can tell us the survival rate of an animal, and, if the animal perishes, it can sometimes give insight into the cause of death.

Radio telemetry can also gather presence or absence data. This simply tells the researcher if an animal is within the reception range. For example, it could help define migration pathways for pronghorn by determining which routes they are present or absent in.

Over all, radio telemetry is used to monitor wildlife populations and to analyze trends within those populations. Radio telemetry plays an important role in wildlife conservation, from tracking cryptic animals to monitoring survival rates. Additionally, advancements are constantly being made in the world of radio telemetry, so keep an eye out for new technology, applications, and projects!

Photo: An American Oystercatcher outfitted with a nanotag by Gulf Coast Bird Observatory

Photo credit: Alan Wilde