

GIS techniques and other activity recording instruments

Transmitters:

Each rate transmitter consists of electronic parts and circuitry,

Shock-resistance, and for animals such as wolves they lead aggressive lifestyles. Shock resistant orvatale are regularly used. Signals can be either continuous which sounds through a npeekar a high-pitched whine or pulsad, which have the series of "beeps Pulsed signals are usually used at rates of 30-120 minute. Lower pulse rates yield longer transmitter life, Pulse width can also vary

18 milliseconds being the minimum that in easily tracked. The smaller pulse, the longer the frequency. quartz crystal tuned to a speolfe frequency Crystale come in different degrees of

One-stage and Two-stage Transmitters

Transmitters are available as one or two-stage circuits. One-stage transmitters are useful for many applications due to their simple design and consequent low weight (as low as 0.5 g or less. Two-stage transmitters consist of a basic oscillator plus an amplifier, and powered by a minimum of 24 volts. Two-stage transmitters are

larger, more complex and often more powerful than single-stage units.

Generally speaking, two-stage radio transmitters are best suited for wide-ranging mammals, including birds, which are large enough to carry them. Animals which are too small to carry a two-stage transmitter, or have localized, relatively short movement patterns, can carry one-stage transmitters

Types of Transmitter Activation

Positive Magnetism
Shut-off Switches: A magnet is taped to the outside of the transmitter to prevent it from activating. The magnet is removed

when the transfer is deployed and transmission begins.

Pros/Cons: Simple activation. Not suitable for very small transmitters. More expensive than an unfused connection.

Unfused Battery Connection

Use: Unfused connection must be soldered closed to activate transmitter.

Pros/Cons: Light weight- often used with very small transmitters (e.g., 0.5 g) to keep weight down. Requires practice to activate quickly. Increased time required by activation. Soldering and epoxying can be difficult in the field. Cannot be detected if research animals are

not successfully captured.

Mechanism:

Radio telemetry, regardless of method works on the same principle.

Transmitter on the radio collar sends a pure signal to a free caller, which then can be used to calculate the distance to the collar (from animal) using a sense of Accumulation.

This process is known as "triangulation" the process of painting. Transmitter by determining a bearing of the transmitter from two or more fixed points. When the bearings are drawn on a map the point of Intersection is the exact position of the transmitter. The

only difference between VHF and GPS radio collars is with VHF humans are doing the tracking either on foot, by truck, or by airplane (other similar method) while with GPS units satellites that orbit the earth are doing their Tracking for us

VHF Radio Collars

GPS Radio Collars

The locations of animals are determined through the process of triangulation. whereby the bearing from two or more fixed points are used to determine the animal's location. attached to the station for Interpretation.

Platform Terminal Transmitters

(PTTS) ARGOS Platform Terminal Transmitters

KPTTs differ from conventional VHF transmitters in that they are complex and target transmission which is repeated at longer intervals and received satellite telemetry

Scan transmit diverse data such as temperature, activity. Counter time spent out of water, etc. Transmitters may be programmed to collect and compile data and then transmit. It at specified satellite's orbit take over head. PTTE do not transmit the animal "location" this is calculated by the satellite or on Earth station from two or more up to 20

locations per day (depend on the transmitter's geographical position) with accuracies from 150 to 1000. Present PTT transmitters are available in weights as low as 25 g. A global position system (GPS) radio collared used on equipped with a pre programmed release mechanism that pops the collars off the animals at a predetermined frame.

The data can be retrieved from the collar.

Global Positioning System

Transmitters: A GPS (Global Positioning System) transmitter locates itself by receiving end triangulating signals from at

least 3 of 26 possible satellites then transmits its position (the animal's position) to the user. The accuracy of GPS location systems may vary with the density of the forest canopy.

GPS transmitters can also be programmed to compile location data for a specified

length of time, then transmit all of the data at once when contacted by a special receiver operated by the user. In this way, several weeks of location data can be recovered during a single relocation flight. GPS transmitters can also be combined with the ARGOS system to download their data via

satellite. The larger size of transmitters (1800 g) limits their use to larger animals.