

STUDY REPORTS

5. Title : Tracking gibbons in forests using radio-telemetry

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In doing behavioral observations of primates who live in forests, one is faced with the facts that many types are timid, some are nocturnal and some typically have extensive home ranges. The result is that it is often difficult to initiate and maintain contact with groups. Two techniques are generally used to locate gibbon groups, but neither is convenient. The first is to listen for the loud calls that most groups emit during the morning and then follow the source of the sound until one comes upon the animals. The drawbacks of this procedure are that gibbons do not call every morning, their call does not necessarily occur when the investigator is ready for it and it often is not of sufficient duration to permit location of the group.

A second method of finding a group at the beginning of the day is to follow it to its sleeping location the afternoon before and then come to that place prior to sunrise. This is feasible since groups do not ordinarily move during the night. However, it does depend on being with the group the day before.

Neither of these techniques serves efficiently if the investigator becomes separated from the group or if he wishes only to make a quick check of its location.

A technique was therefore needed to supplement the more traditional methods in order to permit efficient location of forest primates at any hour of the day. Radio-telemetry techniques for tracking mammals have been developed during the past ten years to a point where they are in fairly wide use. This project represented an application of these techniques to gibbons and is apparently their first use with forest primates.

Description The radio transmitters were designed in the form of a collar. The device was embedded in acrylic with the antenna forming a circle around the animal's neck. It weighed 180 g. The output frequencies of four transmitters were in the 26 mc. range, and with the receiver used, 20 kc. intervals successfully differentiated them. Output power was 0.25 mw, and one device has been emitting a steady signal for two months at this writing.

The receiver employed a directional loop antenna, 12 inches in diameter, tuned to the 26-27 mc. range. The signal heard by the observer was minimal when the antenna was perpendicular to the source (i.e., a null point was used for the most exact location of the signal).

Progress One receiver was used in this application, repeated readings taken as the observer approached the transmitter. Using the device, 200 m. was the maximum range in an open field and 100 m. in the forest at Ko Klet Kaeo. These ranges were satisfactory for our purposes but probably would not be adequate for studies of large primates in natural habitats. A larger antenna would undoubtedly increase the range.

The error of the device was tested by measuring the deviation in degrees between the actual and the indicated locations as measured at 10 meter intervals from the source to the outer range. The error averaged 4.8 degrees (range = 0 to 10) in an open field and 3.4 degrees (range = 0 to 8) in a second-growth forest. Steep slopes do affect the signal. Along the base of a hill with a 15 degree slope, the signal was deflected to give a constant error of 15 degrees indicating that the transmitter was closer to the slope than it actually was.

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One animal has worn a transmitter for four months in a laboratory cage and at Ko Klet Kaeo with no ill effects apparent. One of the three animals on which collar has been placed tried to pull it off. However, his attempts were not very vigorous, and after a few hours he was no longer seen to do so.

At Ko Klet Kaeo, the method used for finding an animals involved walking along the ridge trail until the signal was heard and then moving in the direction of the source. This generally brought the observer within 10 m. of where the gibbon was. If the animal was in plain sight, he was spotted immediately; if it was hidden in the foliage, the observer walked around the area until the animal made a sound in the branches by moving. The animal with which the device was tested had previously been almost impossible to find even though the diameter of his home range did not exceed 200 m. Use of the transmitter permitted locating him within 30 min. and more usually only in the time it took to get to his area.

Two animals placed in a small patch of forest at Khao Yai National Park could be located within 15 min. by establishing the area in which they were located from the field outside the forest and then moving in the direction of the signal.

Four more transmitters have been ordered for use in a study of the size of home ranges inhabited by the slow loris, a nocturnal primate.