Home Ranges of Endangered Snakes and Frogs

Wildlife has basic requirements for survival, including food, water, cover and space. This exercise will demonstrate how the space requirement is studied by biologists. It is not practical to follow an animal around by watching it constantly. And it's difficult to identify individual animals from a distance in most cases. Therefore, special techniques must be used to follow an animal and describe all of the areas it visits.

Radio-telemetry is one method to track wildlife to describe its habitat requirements. Miniature radio transmitters affixed to wildlife can be located using directional antennas. Since each transmitter has its own unique frequency, each animal can be located and tracked independently. Locations are determined by either homing in on a signal by walking towards the strongest signal or by triangulating the location by plotting directional bearings from at least 2 different observation points (Figure 1).This exercise will use both techniques.

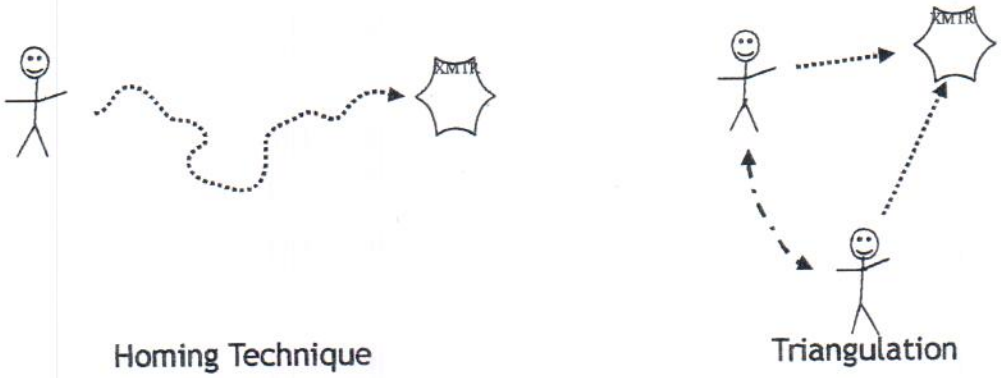

Figure 1. Methods of radio-tracking.

Objectives:

1. Understand the importance of space in providing for an animal's needs.
2. Learn how biologists investigate animal movements and home ranges.
3. Make observations, record data, and plot locations to map a snake's daily home range.
4. Make interpretations of the snake's movements and home range use based on the areas used by the snake.

Procedures:

1. Listen carefully to the instructions on how to use the radio-telemetry receiver and how to plot telemetry bearings.
2. Use the telemetry equipment to triangulate on transmitter #1 by getting bearings on both snakes, Brown and Big, from all observation points. Remember to turn the gain down and the volume up!
3. Record your bearings from each observation point on the data sheet along with other important information.
4. Home in on frog transmitter #2 and use the GPS to describe your location.
5. Use the portable PIT tag reader to find as many tagged critters in the marked area as you can.
6. Return to the classroom and plot your bearings to describe the location of the animals on the map provided.
7. Obtain a location of each transmitter during the evening, morning, and early afternoon.
8. Enter the coordinates of your locations in your group's worksheet on the laptop spreadsheet.
9. Plot your locations on the map provided and draw a convex polygon around them to roughly describe the day's home range. Countthe square blocks to estimate the home range size.
10. Compare your results with classmates' and with the actual locations.
11. Considering the type of habitat the snakes and/or frogs were found in, form a hypothesis on why they were there and propose a study to test the hypothesis.