



Monitoring Wildlife Populations

PURPOSE:

Population and harvest monitoring are an important component of wildlife management to evaluate the effects of management decisions. Monitoring programs not only give an inventory of wildlife, on your property, but also give indications if your habitat management efforts are producing results. Before beginning any sampling protocol, property managers need to first identify what their goals are for the property, what their abilities are, and what resources they have at their disposal. These are all key in identifying the appropriate survey.

POPULATION MONITORING:

There are two types of population assessments: population estimation methods, where systematic sampling or censuses are conducted to estimate a population; and indices, which rely on indirect signs that are assumed to correlate with density. Population estimation methods are difficult and expensive and as such wildlife and property managers rely heavily on indices for monitoring population trends. When performing any survey, locations and methods need to be consistent each year in order to make any conclusions about changes in the population index.



AVIAN POINT COUNTS:

Many bird species vocalize to establish territories or otherwise communicate throughout the year. By exploiting these vocalizations we can create an index of density. Given this method relies on the observers ability to hear, surveys should be completed by the same observer annually and on calm mornings (wind <10mph, no precipitation). To evaluate the effect of management on localized population's, additional survey points can be used within a few miles of the project that contains similar land cover. Given that uncontrollable variables such as weather can impact populations, annual changes in the local index can be compared to state surveys to evaluate changes relative to regional population trends. Noise disturbances (vehicle passing, etc.) should be avoided and if they occur unexpectedly, pause until it has passed. In any listening survey the observer should shut off and move away from vehicles.

Ring-Necked Pheasant: Spring Crow count

Crow counts should be conducted between April 25 and May 15. Counts should be made between 45 minutes before sunrise and 1 hour after sunrise. Include all two syllable crows (not including cackles) heard in 2 minutes. Listening points should be separated by ≥ 2 miles. In areas of high pheasant density a baseball pitch counter may be necessary to aid counting.

Bobwhite Quail: Spring Whistle count

Whistle counts should be conducted between June 1-16 between sunrise and 1 hour after sunrise. Observers count all individual males that are heard whistling and the total number of whistles in 5 minutes. Listening points should be separated by $\geq 1/2$ mile.

Bobwhite Quail: Fall covey count

Fall covey counts allow evaluation of nesting and brooding habitat impacts and provide a better predictor of hunting season densities than spring counts. Covey counts should be conducted between Oct. 15 and Nov 7 starting 45 minutes before sunrise and include all coveys heard until sunrise. Covey counts should be separated by no less than 1/2 mile.

Prairie Chicken: Spring Lek Survey

Booming prairie chickens can be heard from long distances (>1 mile) and allows for locating leks. Lek surveys should be conducted between March 20 and April 20 starting 1/2 hour before to 1/2 hour after sunrise. Observers should listen at least 3 minutes per stop, generally 1 mile apart but can be closer to identify all lek locations. If no leks are heard a secondary attempt can be made to ensure displays weren't interrupted by a predator. Once located, birds can be flushed from leks to obtain a count of displaying males. Typically leks occur in the same relative location every year and can be flushed annually to track populations. Listening surveys should be performed each year to identify new or moved leks. Prairie chickens have large space requirements, birds found on leks may not be on the property at all times and likewise absence of leks does not mean absence of birds.

CAMERA TRAP SURVEYS:

Trail cameras can also be useful in documenting presence and establishing an index of wildlife populations. To be used as an index the cameras must be deployed at the same time and place each year. Techniques include ones designed to detect animals along their natural travel corridors or designed to attract animals to bait or scents. For example a skunk essence-based lure will attract most terrestrial furbearers. This method can be used for a variety of species including deer, turkeys, furbearers etc. Estimates of abundance of deer may be possible, with appropriate sampling effort, and individual bucks may be identified. Detailed procedures are available on request.

DEER HUNTER INDEX:

Deer hunters often have the opportunity to observe many animals while sitting quietly in the field. These observations can be useful in creating an index of animal encounter rates by maintaining detailed notes of observations and time spent hunting. Using this data, an index is created by dividing the number of animals observed by the number of hours hunting. This can be useful for creating an index for abundance of deer, turkey, and many other species including furbearers (coyote, bobcat, raccoon, etc.) However, the usefulness for some species may be limited by low numbers of observations. Having multiple hunters participate in this effort increases sample size and improves the reliability of the data.

CITIZEN SCIENCE:

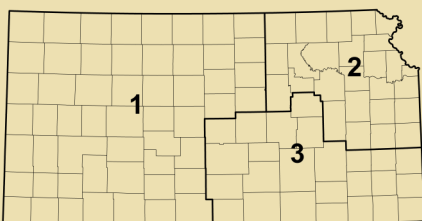
Coordinated citizen science based programs are not only another means of tracking progress of management activities, but also contributing to broader landscape and population knowledge. Programs like Wildlife Watch, Christmas Bird Count, Monarch Watch, Frog Watch are just a few examples of the many programs that utilize public observations to increase available environmental data. There's a variety of online programs and apps available to track wildlife observations on your area. One notable program is e-bird, which collects and stores bird observations over time. If sampling is somewhat standardized (i.e. weekly or bi-weekly, with similar effort) property managers can begin determining patterns of what species are occurring and when to expect species of interest.

HARVEST MONITORING:

Animals harvested off a property can also provide important insight into managing habitat and harvest pressure. Evaluating body condition can indicate the quality of habitat and may also uncover disease concerns. Investigations of crop/stomach contents may provide insight into what resources they are using. Overharvesting or too much harvest pressure has the potential to be detrimental to management objectives. Keeping records of animals observed while hunting, such as number of quail coveys seen, can help indicate if you are putting too much pressure on the resource.

There are many considerations when developing a monitoring plan. The above is a description of some basic techniques that can be used to follow trends over time. All have potential biases and assumptions that must be taken into account when interpreting your results. More extensive and scientifically accurate methods exist for those willing to devote the necessary effort. If you have an interest in a monitoring program for your property you should work with your local biologist for detailed information about a design to meet your goals.

January 2016



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