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GAME SURVEY CENSUS METHODS, AIMS, AND OBJECTIVES
-- H. D. Ruhl

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In the Upper Peninsula of Michigan the upland game seasons begin October 1. Hunting licenses and digest explaining the regulations should be available to the hunters not later than September 15. It usually takes two weeks to distribute the licenses and digests to the dealers after they are printed so that the digests should be received from the printer before September 1. The printing takes about three weeks. The deliberations of the commission, setting up of the digest in legal form for the printer and proofing takes almost two weeks. In order to work up the compilations received from observers and field men, data or reports should be presented before the middle of July and it is better if they are available by the first of July.

Since the determination of surpluses available for hunting depends in part on the breeding stock surviving the winter, the surveys can hardly begin before April 1. The number of young of the year cannot be sampled readily until well along in June, and July is really too early, so the time for this work is very short and the season of year when it must be done is unsatisfactory.

In Michigan there are three upland, forest game birds and 14 protected mammals in the wooded area on about 19,000,000 acres. In the farm game belt there are 4 species of upland, protected game birds and 9 protected mammals to be considered on something like 17,000,000 acres of farm lands and wood lots imbedded in the farm country. In addition, some 20 species of ducks, several species of shore birds and rails, scores of protected non-game birds and more than a dozen groups of unprotected predatory species, each present population problems.

Even if it were practicable to wish all the burden of migratory waterfowl and shore birds on to the Biological Survey, to forget about the predators and other species which are not protected, and to let the Audubon Society worry

about the protected non-game or song birds, there would still be more than a score of species to be judged each year on a 57,000 square mile area running something like 475 miles from Isle Royale at the north to Ohio on the south, crossing 3 biotic provinces, and extending 500 miles from Ironwood on the west to Port Huron on the east.

Those who try to apply even the roughest principle of crop-wise management of wildlife by adjusting the open seasons to the actual surpluses are in a difficult predicament. Within a few weeks their staff of a few men (if they can keep any experienced and trained men at all) must decide questions regarding the taking of more than twenty species, affecting millions of acres of land of varying character, questions of interest to hundreds or thousands of hunters and millions of citizens and affecting commercial business in furs, hunting equipment, automobiles, restaurants, clubs, cabins, etc., running into millions of dollars.

But for the most part, little or nothing is known about the numbers of each species which come through the winter, let alone the number of young being produced. There is no control as to the number of persons who may buy licenses any one year. There is no way to control the number of hunters who will go into any particular area. There is little information as to how many of each species are likely to be killed by a given number of hunters in a given period. There is little evidence to show how weather, time of year set for hunting, restrictions as to methods or economic conditions will affect the number of hunters or the kill that can be expected.

And if these things were all known and nicely sorted out, who could allot given percentages of the populations of each species for anticipated predatory losses under given predator densities of given predator species, and the percent to be taken by accidents, disease, poaching and the like? And how many is adequate breeding stock of any species for any given unit area as determined by the food supplies, territorial requirements of the species, number of home sites, and/or other limiting factors?

Even if the practical game manager hasn't time or energies to attempt to control or to modify the environment to increase carrying capacities through manipulation of food supplies, protective cover, etc., there is still much to do if legal hunting is to use all of the actual surpluses of each species without seriously eating into the essential capital breeding stock.

Just what kind of game surveys and censuses can reasonably be expected to translate readily into administrative action? What are the aims and objectives or what should they be?

Among the specifications for censuses of this kind are the following:

1. Such censuses must be adjusted to each of many species over a large diversified area.
2. They must be cheap and quick.
3. They must be subject to rapid compilation and interpretation.
4. They must be of such character that the available man-power can use them--for the most part voluntary observers, conservation officers, hunters, and others who are not trained biologists.
5. They must be adapted to mid-summer conditions.

These censuses must be supplemented by formulae which can be readily applied and based on adequate surveys and studies so as to cover the following:

1. Numbers of essential breeding stock needed for full carrying capacities on each type area as modified by such factors as cycles, predatory losses, accidents, disease and parasites, and poaching.
2. Numbers of hunters to be expected.
3. Machinery for proper distribution of hunters.
4. Length of season which will permit approximate kill equal to surpluses.

After that has been done for each species, it will then be necessary to simplify and compromise the restrictions because the hunting is rarely limited to one species on an area at a time. For example, ruffed grouse might justify 2 weeks open season generally, prairie chicken 6 weeks and sharptail grouse 5.

Hunters, however, would find it confusing to have such a variety of regulations to remember on the same area.

What additional adjustments should be made because hunters are not trained field men and because too complicated regulations destroy the enjoyment of the hunting?

While nothing really satisfactory has been developed, some starts have been made. We can tell to some degree of accuracy as to the numbers of deer, grouse, pheasants killed by counties for a few years past. We can predict something as to the average kill to be expected under given conditions and seasons through compilation of hunters' reports as to hours hunted each day and the average kill for each day of the season.

We can anticipate the number of hunters with some degree of assurance. Some progress has been made to get adequate census of a few species on sample areas through such methods as track counts on firelines, strip tallies, and drives by CCC. Some conception as to the percent of forest lands hunted is available through checking of hunters on definite areas for the entire season, but this is not complete or an adequate sampling.

The actual role of predators, disease, poaching, is still a mystery. Carrying capacity of most species is still a vague concept and complete utilization of the surpluses only is still a dream.

Must conservation officials continue to haggle with the barber shops and sportsmens clubs about their cure-all panaceas, and negotiate with the legislative lobby in order to settle the questions as to when, where, how long, and how to harvest the game crop; or can and will the biologist devise methods which can be applied?

Must the Director of Conservation gather his "best guessers" around him and reverently gaze into the "crystal ball of public opinion and public relations" and there hope to see "the solution", or can they depend on science?

If science is to do the job, it must not be pickyuns science--a knat trying to control an elephant--it must be big enough, fast enough, cheap enough, and good enough to do the job better than the "crystal gazers".

Until adequate methods are available and standards of application developed by the trained biologists, game management on an effective scale will be an uphill fight.

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H. D. Ruhl
In Charge, Game Division
Michigan Department of Conservation