MICHIGAN DEPARTMENT OF CONSERVATION
Game Division

Area 2 - Special Season Deer Kill - 1956

Regulations for the "concurrent" special season in Area 2 last fall required permittees to register or "validate" any deer lacking legal antlers. Since this system did not account for legal buck kill by permittees or measure hunting pressure, we included Area 2 permittees in our mail survey of special season hunters. Results of this "post card poll" and of the validation system are given below.

1. A total of 2,037 deer were validated in Area 2. Since 9 legal bucks were validated by mistake, a total of 2,028 were "permit" deer.

2. We sent cards asking for hunting and kill information to a sample of 500 out of the 4,500 Area 2 permittees. On the basis of returns from this sample (98 per cent return) we can make the following estimates:

    A. Permittees killed 2,280 deer in Area 2. About 200 of these were legal bucks, so that 2,080 were "permit" deer. (Table 1.)

    B. Difference between the mail survey figure (2,080) and actual validations (2,028) is about 50 deer, which is surprisingly close agreement.

    C. If the difference (50 deer) between validations and post card survey represents "permit" deer that were not registered, then it amounts to 1 in 50 hunters failing to register deer. Conservation officers in District 8 contacted 602 "unsuccessful" permittees after the season and located 16 individuals who admitted failing to register deer, or a ratio of about 1 in 40 (Table 2). However, we should realize that this only demonstrates that people are consistent in their reports; there could well be a sizable number of permittees who failed to register deer and would not admit it on either post cards or personal contact.

    D. Nearly 95 per cent of the Area 2 permittees actually hunted in the area and another 4 per cent hunted some place else in the state. Over-all success of permittees who hunted was about 55 per cent. About 15 per cent of those who did not register a "permit" deer got a legal buck (this also agrees closely with the Conservation Officers' interviews since they found about 17 per cent of those contacted got legal bucks.)

    E. One of the important problems in mail surveys is that many hunters do not correctly identify the kind of deer they shot. We can compensate for this by using checking station records, and in the Area 2 survey we were able to locate most of the "permit" deer on validating records. We found that adult does were listed correctly but about half the buck fawns were reported as "bucks" and about half the doe fawns as "does." (Table 3.)

F. The mail survey figures are based on a sample (500 out of
the 4,500 permittees) so are necessarily subject to sampling
or "chance" errors, i.e., we might get too many (or too few)
successful hunters in the sample. However, these sampling
errors can be evaluated by statistical methods so that we can
be quite certain that the Area 2 kill (estimated at 2,280 deer)
was not less than 2,080 nor more than 2,470 deer.

3. In summary, the mail survey results agree very closely with the vali-
dation records and personal contacts of permittees. Neither method can
be expected to account for hunters who deliberately lie about their
success. In fact, the mail survey results may have been affected by
the compulsory registration system.

TABLE 1

Area 2 Kill Estimates by Mail Survey

Estimated kill in Area 2 by permittees $= \dfrac{249\ (4500)}{492} =$ 2277

Estimated kill out of Area 2 by permittees $= \dfrac{18\ (4500)}{492} =$ 165

Total kill by Area 2 Permittees 2442

Estimated permittees hunting in Area 2 $= \dfrac{467\ (4500)}{492} =$ 4271

Estimated permittees who hunted but not in Area 2 $= \dfrac{18\ (4500)}{492} =$ 164

Total Permittees who did some hunting............. 4435

Success in Area 2 $= \dfrac{2277}{4271} =$ .533 (53.3%)

Over-all success of permittees $= \dfrac{2442}{4435} =$ .551 (55.1%)

TABLE 2

Comparison of Postcard Data with Field Administration

Check of Unsuccessful Permittees

Antlerless deer not validated

(1) Field Administration check
16 unvalidated deer in 602 interviews

$\dfrac{16}{602} = .026$ or about 1 in 40 got a permit deer but did not validate it

(2) Post card survey
48 unvalidated deer in 2463 (4500-2037) unsuccessful permittees

$\dfrac{48}{2463} = .019$ or about 1 in 50 got a permit deer but did not validate it

Legal bucks

(1) Field Administration check
100 legal bucks in 602 interviews

$\dfrac{100}{602} = .166$

(2) Post card survey
366 legal bucks by 2463 unsuccessful permittees

$\dfrac{366}{2463} = .148$

TABLE 3

Area 2 Post Card Reports Compared to Actual Validations

Explanation: A total of 249 deer were reported on post cards as being killed in Area 2. Each of these reports was checked against the validating records to determine whether the kind of deer was reported correctly on the post card. (As an example, 60 bucks were reported on post cards; 16 of these were sub-legal bucks, 1 was actually a doe, 20 were buck fawns, 1 was a doe fawn, and 22 could not be found on validating records).

	Bucks	Does	Fawns	Totals
Total deer reported on post cards	60	150	39	249
Validating records showed that these deer were actually:				
Sub-legal bucks	16			16
Does	1	131		132
Buck fawns	20		21	41
Doe fawns	1	13	16	30
No sex or age recorded		2		2
Not on validating records	22	4	2	35
	60	150	39	249

TABLE 4

Composition of Area 2 Kill from Post Card Reports

Explanation: Since many hunters make mistakes in reporting the kind of deer they killed, we usually determine the composition of special season kills from checking station records. In this case we were able to check each post card report against validating records and thus arrive at corrected figures for kind of deer killed. These figures (as percentages) were then used to break down the total kill estimate (2,277) into various sex and age classes.

Kind of Deer	Number in Postcard Reports	Per cent	Estimate of total Permittee Kill in Area 2
Legal bucks	22	8.84	201
Sub-legal bucks	16	6.42	146
Does	138	55.42	1262
Fawns	73	29.32	668
	249	100.00	2277

TABLE 5

Post Card Estimates of Area 2 Kill Compared to Actual Validations

Kind of Deer	Post Card Estimate of kill in Area 2	Actual Number Validated
Legal bucks	201	*
Sub-legal bucks	146	68
Does	1262	1290**
Fawns	668	670**
	2277	2028

* 9 legal bucks were validated by mistake. This makes total
validations: 2028 + 9 = 2037

** 13 validation records did not give sex and age. These were
added to the doe and fawn classes.

Discussion: The post card estimates fall a little short of actual
validations of does and fawns, but this is not surprising since the
post card survey is based on a sample of permittees and could be "off"
just by chance alone. The interesting thing about this comparison is
that the biggest difference between post card reports and validations
is in sub-legal bucks.

TABLE 6

Confidence Limits on Mail Survey Estimate of Area 2 Kill

Explanation. Since the mail survey ("post card") estimate of the Area 2
kill by permittees was based on a sample, statistical computations of
the limits of chance error or "confidence limits" are useful. These
limits can be expressed as the statement: "We can be quite certain that
the Area 2 kill by permittees was not less than 2,080 deer nor more than
2,470 deer." It should be remembered that these are limits; the best
estimate we have of the Area 2 kill is 2,280 deer.

$$p = \frac{249}{492} = .5061 \qquad\qquad q = 1-p = .4939$$

$$N(N-n) = 4500 \ (4008) = 18,036,000 \qquad \text{(finite population correction)}$$

$$V \text{ (kill estimate)} = \frac{N(N-n)pq}{n} = 9,162$$

Standard Error = 96

95% Confidence limits = 2,080-2,470
(on kill estimate of 2,280 deer)