

Copy to Mr. Errington

Information Needed on Nesting Requirements of Iowa Waterfowl

Aldo Leopold

Background. The Iowa Conservation Plan contemplates public acquisition and restoration of a large number of lakes and marshes, and the improvement of all public lakes and marshes, including those still in existence.

Maps, descriptions, and cost estimates are being prepared during the course of the Game Survey, and special officers are being trained to take over and execute the restoration program.

Objects. One of the objects of the program is to increase the annual crop of waterfowl produced within the state. This can be done by:

1. Enlarging the area of marshland offering suitable breeding habitats.
2. Manipulating feed, vegetation, and water so that it will attract the maximum number of breeders per acre, and so that the breeders can mature the maximum number of young.

To do either implies pre-existing knowledge of what species breed, or can be induced to breed, in each lake, and the nesting requirements and characteristics of each species.

Local observers usually know what species breed.

The purpose of this memo is to set forth what Iowa needs to know about their breeding requirements, so that the various cooperators can help assemble what they know.

The technique of manipulating the breeding environment to make it even more "suitable" must be developed by research. The be-

ginnings of a research machinery have been set up at the Agricultural College.

Breeding Species. As nearly as is now known, the breeding species are, in order of abundance:

1. Mallard
2. Bluewing Teal
3. Pintail
4. Wood duck
5. Shoveller ?
6. Gadwall ?

Breeding Requirements and Characteristics. It is desired to know for each species:

- a. What is the physical nature of the nesting site with respect to
 1. Topography
 2. Kind and amount of vegetation
 3. Distance inland
- b. Is the season of earliest nesting such as to require
 4. Vegetation of preceding year, or can the requirements be met by
 5. New vegetation
- c. What water conditions are needed by the young with respect to
 6. Open water
 7. Cover
 8. Food

Does interspersion of these types enhance carrying capacity, as in gallinaceous game?

- d. Are there any limits, other than the above, governing the density of possible breeding populations?
- e. Under what conditions or within what limits is unstable water-level serious?
- f. Is the season and site of nesting such as to indicate risk of loss from
 - 9. Hay mowers or other agricultural machinery?
 - 10. Cattle?
 - 11. Fisherman?
- g. Is there any known antagonism during the breeding season
 - 12. Between species of ducks?
 - 13. Between ducks and pheasants?
 - 14. Between ducks and muskrats?
- h. What is the probable seriousness of depredations on eggs or young by
 - 15. Crows?
 - 16. Turtles?
 - 17. Fish (what species)?
 - 18. Pheasants?
- i. Does re-nesting follow the destruction of early attempts, as in gallinaceous birds?

Advice Wanted. It is realized, of course, that nobody can come anywhere near answering half of these questions until research has collected a large mass of evidence as yet lacking, similar, for instance, to the evidence Stoddard collected on the nesting requirements of bobwhite.

Probably our existing knowledge can be better expressed in simpler terms, such as:

1. What may we infer from the existing literature, or from general field observations on any of these criteria for any of these species?
2. What general types of lakes shall Iowa seek as breeders, or what types should be avoided for breeding any of these species?
3. What kind of shore property represents the greatest potential breeding capacity per acre for each species: marsh, haymeadow, former pasture fenced against grazing, or relatively steep bank-lands.
4. Should it be bought in long narrow strips paralleling the shore, or in deep solid blocks? How do the various species differ in this respect?

This outline is being sent to the following men who are believed to have information:

Frederic C. Lincoln

W. L. McAtee

W. B. Kubichek

T. C. Stephens

R. M. Anderson

Paul L. Errington

If you can contribute anything tangible and specific, even though it be only fragmentary, it will be much appreciated.