ECONOMIC RELATIONSHIP OF BIRDS, INSECTS, AND FISHES IN OKLAHOMA

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(Abstract)

The annual loss as occsioned by insects in the United States is computed at $1,272,000,000.00, one forty-eighth of which is over $20,000,000.00 per yer.

In the consideration of the birds from the standpoint of food habits, I will place them in three groups,—the aquatic, the non-aquatic migrants, and the residents. There are no aquatic birds that are of very much economical importance in this state from the standpoint of insect control. They arrive too late in the fall and leave too early in the spring.

Migratory birds other than the aquatic birds are of more beneficial importance economically from the standpoint of insect control than all other (excepting perhaps the meadow lark) combined. Specific mention of these include the blue bird, the wren,

the orioles, the robin, brown thrasher, catbird, mocking bird, white-rumped shrike, barn swallow, purple martin, kingbird, night hawk, yellow billed cuckoo, and others.

The other terrestial migrants have voracious appetites for insects. Unfortunately Oklahoma insects are largely exempt by them on account of a lack of trees for perching and nesting purposes. The economics avantages to be derived by inducing these birds to select nesting places and rear their young in Oklahoma is enormous from the standpoint of insect control. This is a very important problem and the best method for its solution lies in the conservation of more water. This is one of the first steps in the developments of trees for shade and nesting purposes. These birds in their spring quests for summer homes fly over Oklahoma by the thousands. A matter of intelligent cooperation on our part would cause more of them to select their summer homes here and feed on our bugs.

Those species of birds which remain throughout the year, known as residents, are not particularly numerous in this state.

Our chief game bird is insectivorous during the summer time. During other seasons of the year, however, the quail depends mostly upon waste grains such as wheat, the sorghums, and Indian corn. It also feeds on weed seeds of various kinds. Although it can develop without access to stored bodies of water, it prefers an environment in proximity to water.

Perhaps our best resident from the standpoint of insect control is the meadow lark. It does not frequent bodies of water at all and does not feed much on grains. It has the habit of feeding on hibernating insects during the winter time and on developing forms during the remainder of the year.

The topography of Oklahoma in general is quite ideal for conserving water. There is much land at present which supports scarcely enough vegetation for bug feed that would support a nice body of water in which fishes could thrive and develop in abundance. Practically the only impediment of fish culture here is a sort of bacterial growth which causes the water to appear murky or muddy. This can be easily eliminated by an application of about twenty-five pounds of copper sulphate to the acre of water, without dangerously interfering with any animal life accociated with the water.

Fishes do not require a constant or very large amount of feed. The acquatic insects such as May flies, dragon flies, mosquitos, and Dobson flies together augmented by such land inhabit-

ing forms as butterflies, moths, crickets, and grasshoppers furnish sufficient food for an ordinarily well-stocked body of water. Scale fish such as bass, croppie, and sunfish are the most diligent varieties in Oklahoma in catching the above mentioned insects on the wing.

The relationship of our insects, fishes, and birds, therefore, is to a marked extent independent. Economically it is of far-reaching importance. While we do not use insects as food, we do use honey which is an insect food. We also use fish as a food which in turn use insects as a food; and many of the insects they use as food, use our food, such as growing cereals. Our migratory and terrestial birds do not use much of our food, but they do use insects, which do use it, and which are of a kind that the fish are not able to catch and use as a food. The connecting link in this chain of food conservation is more water in a conserved form. The topography of Oklahoma is well adapted for this kind of conservation.