

## Protection of Migratory Game

Recent Legislation of United States  
Congress—Ontario Law—Need  
of Action by Dominion

Migratory game birds have, particularly during the last half century, been slaughtered in great numbers in both Canada and the United States. To such an extent has this gone on that some species, notably wild pigeons and some of the cranes, have been exterminated. The countless thousands of pigeons, which even 50 years ago darkened the sky while making their migratory flights, have entirely disappeared. The great railway lines across the prairies have opened up for settlement the finest duck-breeding grounds on the continent, and the result has been their practical extermination in certain sections.

Aside from their value for sport, a large number of species of migratory birds prey upon injurious insects and are, therefore, of great economic importance. That this constitutes sufficient reason for their preservation goes without saying.

Last March, the Department of Agriculture at Washington was given authority by the Senate and House of Representatives of the United States, to formulate regulations prescribing and fixing closed seasons for game birds, which do not remain permanently in any of the States. These regulations were prepared and became law on October 1st. By this law the protection of migratory game birds in the United States is made a federal question, and specific provision is made, for co-operation with any of the States that may enact legislation along similar lines. The regulations provide for a division of the country into zones with special restrictions applied to each. Provision is made for a general five-year closed season for certain species such as the sandhill and whooping cranes, curlew, and a number of shore birds, and, in general, the closed seasons have been carefully defined.

However, it is recognized that the problem is an international one, and the American Game Protective and Propagation Association is actively engaged in an effort to interest Canadian authorities in this very important matter. Protective legislation in either country is of little use unless corresponding protection is provided in the other. The willingness of Ontario to co-operate with the United States in this matter is shown by the fact that, for years, it has had on its statute books a law giving the Lieutenant Governor in Council power to forbid the "hunting, shooting or sale of any migratory game which may at any time be in danger of extinction, for the same period and in the same manner as the same is at any time forbidden

(Continued on p. 4.)

## Recommendations of Forester re Brush Disposal

Twelve Practical Suggestions for Dealing with Serious  
Problem—Experience of New York may be Applied  
to Canadian Conditions—Top-Lopping Advisable  
where Burning is Impracticable.

The following is a summary of the conclusions reached in a report to the Commission of Conservation by Clyde Leavitt, Forester to the Commission. The conclusions apply to conditions in Canada the results of an investigation into the brush disposal situation in the Adirondack region of New York, where conditions are closely similar to those in a large portion of Eastern Canada. The conclusions are as follows:

1. Increasing stumpage values render fire prevention and control essential from the point of view of the timber owner. Decrease in wood supplies renders it still more essential from the point of view of the general public, and, in particular, of the communities and business interests directly dependent upon the manufacture of forest products.

2. Logging slash constitutes the most serious fire menace in existence.

3. Brush disposal is a practicable and feasible method of minimizing fire danger, though secondary to patrol.

4. The method of brush disposal to be adopted in any particular case can be determined only by careful consideration of all the surrounding conditions. It is desirable that the administrative officer have a reasonable degree of discretionary authority.

5. Where brush-burning is practicable both financially and silviculturally, this is the most efficient means of reducing the slash menace.

6. Where brush burning is not practicable for any reason, the lopping of tops may be advisable. In case tops are lopped, financial and silvicultural considerations will determine whether the material should be piled or scattered or left without further attention. The necessity for lopping may under some circumstances be obviated by some other fire-protective measure, such as the construction of fire-lines, etc.

7. The lopping of tops does materially increase the amount of debris which reaches the ground or forms piles resting on the ground in sufficiently compact form to absorb and return moisture; the time required for decay is thus lessened by one half to two thirds. The slash menace as an element of fire danger disappears in direct pro-

Paraguay has valuable forest resources, the most important of which is quebracho, particularly rich in tannin.

portion to the rapidity and completeness of this process of decay. Piling or scattering, following lopping, is desirable, but is generally considered to be impracticable in the Adirondacks on account of expense. This would apply also to a large section of Eastern Canada, unless such disposal is required under a Government license, and allowance is made for the added cost in the dues to be paid.

8. With closer utilization, the relative efficiency of top-logging as a fire protective measure decreases. In other words, lopping is much more necessary in an old-time lumbering operation and will have a greater relative effect in decreasing the fire danger, than in the case of a pulp operation, where a far larger percentage of the branches will in any event be brought into contact with the ground, as a necessary part of the operation.

9. The beneficial effects of top-logging far outweigh the disadvantages due to any possible injury to soil, reproduction or old growth.

10. Lopping to only a 3-inch diameter limit in the top materially decreases the cost of the operation. The law has recently been changed to require lopping only to a 3-inch diameter limit. This is a result of the report of the State Forester, following the field investigation of last fall. The general consensus of opinion is that the average cost of lopping under the original law was approximately 15 cents per cord for pulpwood or 30 cents per cord for saw timber. Under the law as it now exists, the cost should be very materially less than this.

11. The question of brush disposal and of fire prevention in general should be given much more careful attention in Canada by all concerned than has been the case in the past. This is entirely practicable in the case of issuance of new licenses by Dominion or Provincial Governments, as well as in the case of renewals of existing licenses.

12. Patrol is the most important and the most essential element in any plan of fire protection. This must be provided, regardless of what other methods are adopted. The construction of roads, trails, telephones, lookout stations, and other permanent improvements of a similar character is essential to an efficient patrol system.

Much of the cork used throughout the world comes from Portugal, which harvests about 50,000 tons a year.

## Beetles Ravage Oregon Forests

Bureau of Entomology Recommends  
Remedial Measures—Scourge  
Apparently Now Checked

By a prompt campaign against a flourishing colony of bark beetles on the Okechona national forest in central Oregon, the government is eliminating a danger which threatened to destroy millions of feet of timber.

Some authorities claim that the amount of timber killed each year by insects is equalled only by the annual loss from forest fires. Among the most destructive of these insect enemies are the bark beetles, one of which, the mountain pine beetle, is responsible for most of the damage in the Okechona forest. This deadly insect is less than a quarter of an inch in length, but bears the ponderous scientific name of *Dendroctonus monticolus* which, being interpreted, signifies "killer of the mountain pine."

Its methods of operation are interesting. The mature beetle bores through the bark of the tree and excavates a gallery in the inner living bark and in the outer surface of the wood, in which it lays its eggs. When hatched, each young larva, or beetle-grub, makes channels into this growing portion of the trunk, feeding up on the inner bark. When full grown the larva, after passing through a dormant, or pupal stage, becomes a beetle. This beetle then drills out through the bark in July, and, emerging into the world, seeks a fresh tree and starts a new generation. With this "chain-letter" method, it soon infests a large area. The galleries or channels of the larvae girdle the tree and kill it, and the beetle's presence is usually discovered, as it was in the Okechona forest, by a patch of red-brown, dead pine-trees in the midst of a mountain-side of green.

In fighting this forest scourge, the method recommended by the Bureau of Entomology is followed. The simple removal of the bark of infested trees between October and July, while the larvae are still in the tree, is sufficient to kill them. The lumber may then be sold while it is yet sound. On the Okechona forest, however, there was no market, and the forest officer<sup>2</sup> found that the cheaper and more effective method of control was to cut the trees and burn them before the new broods of beetles could emerge. In 1912 the infestation was given a decided check by the cutting of 3,500 trees. This summer the attack on the insects was resumed with renewed vigor, and 42 laborers, in charge of a forest officer, cut more than 40,000 trees. As a result of these vigorous measures, the government apparently has the beetles under control.—Ex.