Note on Pine Weevil Control

By S. CAMPBELL

IN the replanting of felled coniferous areas, one of the main causes of the disappointment sometimes experienced is the damage caused by the Pine Weevil. On private estates in this country there have been cases of complete loss of newly planted stock in heavily infested areas and in general, where weevils occur, the already high costs of establishment associated with the replanting of old woodland, are added to considerably. These costs are occasioned by the necessity for constant and frequent inspection of the newly planted areas, as early detection of weevil infestation is of great importance, if trapping is to be effective. When an outbreak occurs continuous manual trapping has to be resorted to with varying degrees of success, often followed by considerable beating-up costs in the second year.

One of the discouraging features of weevil control is the unpredictable cost of the operation. The duration and intensity of the attacks vary from place to place and from season to season. In certain cases attacks have been known to last for a number of seasons and costly intensive trapping has been known to give disappointing results.

On the Pakenham Hall estate in Co. Westmeath, a large scale rehabilitation of old woodland was commenced in 1950. The first plantings were concentrated on areas clear-felled several years previously and little or no pine-weevil damage occurred. From 1952 onward, however, recently felled areas were replanted and pine-weevil attacks assumed greater and greater proportions as the years passed. This growing menace was not unexpected as it was anticipated that the better breeding conditions provided by a concentration of fresh stumps would result in larger weevil populations. There was a routine programme of inspection and trapping each spring and summer, and the cost of weevil control figured more and more on the costing sheets and weekly returns.

Although some trials with insecticide were carried out in 1953, the method of control relied on was that generally in use in the country. During spring and summer, strips of freshly-peeled scots pine bark were laid in shallow pits distributed throughout the threatened area. The strips, which usually enfolded a fresh spray of pine foliage, were examined daily and the trapped weevils destroyed.

The high cost of this trapping was a matter of growing concern to all those responsible for the Pakenham Hall project. The implication of weevil damage on private estates was fully appreciated by the contractors who were responsible for the replanting and general maintenance of the woods at Pakenham Hall. In 1955 it was agreed, with the Pakenham Estate Co. after consultation with Mr. T. Clear, Lecturer in Forestry at the Albert College, Dublin, that chemical control methods should be tried. As a result of information kindly supplied by the

Entomologist of the British Forestry Commission, it was decided to use the following treatment :—

Using a 25% D.D.T. solution in oil (Didimac—marketed by Plant Protection Ltd.) make up a dip containing 5% of the active ingredient i.e. one part concentrate to 4 parts water. In this mixture dip the planting stock loosely tied in bundles of 50 plants for 10 seconds to about 1" below collar. Do not immerse the fibrous roots.

During the past 2 years Didimac and D.D.T. have been used at Pakenham Hall for the control of pine weevil in the following three different ways :

A. As a preventive prior to planting as set out above.

B. In the form of spray on plantations established between 1952 and 1955.

C. The setting of Bark traps dusted with D.D.T. in areas established between 1952 and 1955.

The following are details of use and results under each of the above headings.

A. Compartment XVb—5¾ acres—which in 1955 carried a stocking of mature timber consisting of approximately 50% scots pine and 50% norway spruce, was clear-felled in the autumn and winter of that year. This area was replanted with sitka and norway spruces in the early spring of 1956 and, prior to planting, the 9,800 transplants required were dipped in Didimac solution. The cost of the Didimac was 30/6d. per gallon, and 2 gallons were required to make up the amount of dip necessary. The cost of treating 1,000 transplants (Didimac plus labour) was approximately 8/-, or 13/6d. per acre. A close watch for pine weevil activity in this compartment was maintained during spring and summer, 1956, and the following report, dated 16/5/56, appears in the Management Records.

> "Compartment XVb : There is evidence of weevil activity on the trees treated with Didimac, but only very slight damage is being caused."

Continuous observation was maintained until cessation of weevil activity in late summer. No trapping was required and very little damage was caused to the transplants. In this compartment in 1957 (the second year after planting) when it was expected that there would be a very large population of weevil present, there had been up to the time of writing (July 1957), very little damage. It would appear therefore, that the dipping of plants in Didimac solution had shown good results. It may be relevant to mention that Compartment XVb was a low-lying area with a resultant high water-table and this in itself may have contributed somewhat to a lessening of weevil activity.

Compartments XVa—6½ acres—which in 1956 carried a stocking of mature timber consisting of 50% norway spruce, 20% scots pine, 20% hardwoods and 10% european larch, was clear-felled in the

autumn and winter of that year. Sitka and norway spruces were the species used for replanting and, as in the case of Compartment XVb, the plants were dipped in Didimac solution prior to planting. At the time of writing very little damage to the transplants had been caused. The water-table in this compartment was considerably lower than that in compartment XVb.

B. Compartment XVI—11¾ acres—which in 1953 carried a stocking of mature conifers, was clear-felled in 1953 and replanted in spring, 1954. The main species used was sitka spruce. In each year subsequent to replanting, widespread weevil activity resulting in numerous plant failures occurred in this compartment. Up to 1956, the method of control used was trapping by means of bark traps. The following report dated 25/4/56, appears in the Management Records :—

> "Compartment XVI : Forester stated that there was considerable weevil activity in this compartment. Trapping operations were immediately commenced and in the course of a couple of days 1,000 weevil were destroyed."

On the 20th July, 1957, as a result of an inspection of the area, the following was reported :—

> "Pine weevil are present in this compartment in very large numbers and are attacking the young trees in a fierce fashion. The present attack, if not controlled, together with the damage caused by weevil in previous years, will result in a total failure of the trees in this compartment."

As a result of the latter report it was decided to spray each tree with a solution of Didimac—the strength of which was somewhat the same as that used for dipping. Five gallons of Didimac were required to spray the total number of plants in the area and the cost of spraying (Didimac plus labour) was approximately 17/- per acre. A very fine nozzle was used to avoid wastage of spray. The effect of spraying was immediate and appeared to have been successful in controlling weevil damage in this area.

C. During the current season it was decided that on any recently planted areas, not previously treated with Didimac, bark traps with a light dusting of D.D.T. powder on the inner side of the back strip should be distributed over any areas threatened with weevil damage. The purpose of this was to render unnecessary the need for collecting the weevils that made their way into the traps. This method of control is widely used in continental Europe. As, at time of writing, there is not sufficient data to hand on the results obtained during the season with this particular method, no definite conclusions as to its effectiveness are yet possible but results to date appear promising.

Therefore, to judge from the experiences gained at Pakenham Hall Estate it would appear that control of pine weevil, using chemicals such as Didimac and D.D.T., is quite successful and is also much less costly

than normal trapping methods and that when replanting of felled coniferous areas is carried out immediately after clear-felling, the dipping of the transplants in Didimac solution, prior to planting, is to be recommended wherever pine weevil damage is anticipated.