

FLOOD DAMAGE AT BALLYHOURA NURSERY

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Much devastation was caused all over Munster by the abnormal floods which occurred on the 11th and 12th August, 1946. These floods caused extensive damage to nursery stock at Ballyhoura State Nursery.

In this paper it is proposed to give a brief account of the extent of this damage.

The Nursery is situated on the southern fringe of that portion of Ballyhoura State Forest at Streamhill. It is bounded on the north and west by young plantations, on the south by a laneway and agricultural land and on the east by a stream and open mountain. Its area is approximately $5\frac{1}{2}$ acres. It is divided into three main sections known as the western, middle and eastern—a road and a shelter belt making the divisions.

A few days previous to the floods I visited the nursery which was then very promising. The seedbeds had got a final weeding and the lines of transplants a final hoeing while paths and roads had been cleaned up and there was every prospect of excellent crops of seedlings and transplants. On my next visit to the nursery immediately after the floods it was an entirely different sight which met my eyes. Transplants and seedlings had either been washed away, partly uprooted or partly covered with silt and everywhere could be seen the ravages of the floods.

The stream which flows along the eastern boundary of nursery and which rises some 3,000 yards further north on the Ballyhoura mountains, became a roaring torrent on the night of the 11th and the morning of the 12th August last as a result of the heavy rains which commenced on the morning of the 11th August and continued well into the following day. As the stream, in full flood, rushed down the mountain side it brought with it uprooted trees and large boulders and as it reached the valley bottom the trees and boulders tended to block it and make it overflow its banks.

At a point 300 yards north of the nursery the rush of water from the overflowing stream swept westward towards the adjoining plantation. It broke down an embankment which was running parallel with the stream on the outskirts of the plantation. Here the flood entered and took a course diagonally across the 14 ft. high Sitka spruce plantation (See Fig. 1 which shows where flood entered the plantation). It thus reached the northern end of the western section of the nursery. On its way it levelled the nursery fence and spread out over the entire western section of the nursery and portion of the middle section bordering on the road dividing them. It swept



Fig.
I.



Fig.
II.



Fig.
III.

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over freshly ploughed in green crop, *Pinus contorta* and Lawson cypress transplants and *Pinus contorta* seedlings. It carried with it much of the soil in the freshly ploughed area—to a depth of one foot in places. The soil was washed away from the transplants and approximately 30,000 *Pinus contorta* and 15,000 Lawson cypress transplants were completely washed away with the soil. The affected transplants remaining fell over. 86,000 *Pinus contorta* and 35,000 Lawson cypress were thus affected. Approximately 1,500 square yards of *Pinus contorta* seedbeds were completely carried away resulting in a total loss of 750,000 seedlings (see Fig. II which shows where seedbeds were washed away). The soil was washed away from a further area of seedlings affecting 340,000 *Pinus contorta*. Here the roots were partly exposed and as in the case of the affected transplants the seedlings fell over.

Much of the soil carried away was deposited at the lower end of the nursery as the flood was temporarily checked here by a sod fence. The flood finally broke through this fence and coursed down the road leading from the nursery to the public road. Here it turned what was once a reasonably sound road into a trench varying in depth from 3 to 5 ft. The road was thus damaged for a length of 800 yds. (see Fig. 3, which shows damaged road).

The task of putting the nursery back in some kind of order was no easy one. All partly uprooted seedlings and transplants had to be lifted and temporarily heeled in. They were bedded out and lined out as soon as nursery was sufficiently dry which was about a fortnight from date of floods. The risk of failures in lifting, bedding out and lining out so early in the season had to be taken as there was a greater risk in allowing the partly uprooted plants to take their chance of surviving as they stood. As much as possible of the soil which was shifted by the floods was collected and carted back to the nursery. The fences and roads had to be repaired, watercourses had to be diverted and embankments had to be built up where there was any danger of the stream again encroaching on the nursery and plantations. Eight months after the occurrence it is possible to report that 90 % of the relined transplants have survived but that close on a 50 % failure is expected in the bedded out seedlings.

Some old residents in the Ballyhoura district say that the river in breaking down the embankment and sweeping through the plantation was taking its original course until it met a sod fence some 50 yards north of the nursery. Had not the sod fence intercepted it and diverted it towards the nursery they contend it would have continued along what is locally known as "The Dry Glen." This glen runs parallel to the nursery and about 200 yards to the west of it. The old people say that the course of the stream was originally along this glen but was changed to its present course by a Mr. Murphy, then residing at Streamhill House away back in 1790.