Observation on the movement of the New Zealand flatworm under field conditions

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The New Zealand flatworm is an obligate predator of native earthworms in the British Isles and is associated with detrimental impact on earthworm numbers and possible degradation of the biodiversity of above and below ground faunal biodiversity (Boag. 2000, Jones *et al.* 2001). Although the "macro" spread of the New Zealand flatworm throughout the British Isles has been probably been due to mans activities there has been little research into its localised spread and movement.





Materials and Methods

New Zealand flatworms were released (in a field which already had flatworms present around the periphery but in an area where no flatworms were present) in the centre of a square of traps placed at 3 m intervals in October and repeated in May. Flatworms and earthworms from under the traps were counted and weighed weekly for c. 6 weeks.

Results

Flatworms put out in October travelled up to 24 m in 26 days (0.92m per day, mean c.0.25m) (table 1) while the comparable figure for flatworms (to travel 24 m) released in May was 21 days (1.14m per day, mean c.0.25m) (table 2).

The impact of the release of flatworms in October on earthworm numbers showed that earthworm numbers were reduced near to where the flatworms had been released (tables 3 & 4).

Table 1 Migration - May

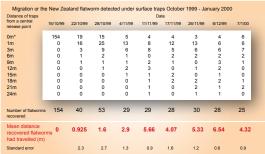


Table 3 Earthworm distribution - May

28/10/99

22/10/99

16/10/99

0m* 1m 3m 6m 9m 12m 15m 15m 21m 24m of earthworms detected under surface traps October 1999 - January 2000

4/11/99 11/11/99

17/11/99

26/11/99 6/12/99 7/1/00

215

m is from one trap while that for the distances 1-24m are from fou

Table 4 Earthworm distribution - October

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Table 2 Migration - October

11 4 35 17 23 13

80

2.65 4.75 6.33 5.85 6.68 8.59 11.11

231 0 0

Migration

0m* 1m 3m 6m 9m 12m 15m 18m 21m

Distance of traps from a central			Date					
release point	9/5/00	16/5/00	22/5/00	23/5/00	30/5/00	7/6/00	13/6/00	14/7/0
0m*	6	1	0	1	1	1	7	1
1m	23	2	6	4	8	5	10	1
3m	24	4	13	15	17	9	17	5
6m	22	19	17	13	19	18	22	11
9m	23	15	18	27	27	23	20	8
12m	37	20	27	25	29	18	24	8
15m	28	15	31	18	36	21	20	16
18m	25	25	29	33	34	29	23	10
21m	29	29	31	29	36	27	35	14
24m	24	27	26	22	26	29	26	9

Discussion

These results have shown that the New Zealand flatworm can, under field conditions, move approximately 1m per day and that where present have a marked detrimental impact on earthworm numbers. This would suggest that the flatworm once it had been introduced and become established in an area would within a number of years be capable of infesting large areas of farmland. Therefore every effort should be made to stop its spread by mans activities e.g. on the transfer of bales of hay/silage from farm to farm.

Boag B. (2000) The impact of the New Zealand flatworm on earthworms and moles in agricultural land in western Scotland. Aspects of Applied Biology 62: 79-84. Jones HD; Santoro G; Boag B; Neilson R. (2001) The diversity of earthworms in 200 Scottish fields and the possible effects of the New Zealand flatworms (*Arthurdendyus triangulatus*) on earthworm populations. Annals of Applied Biology 139: 75-92.

References

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