Institute of Freshwater Ecology

EVALUATION OF THE EFFECT OF *Bti* ON *SIMULIUM POSTICATUM* AND OTHER ORGANISMS IN THE RIVER STOUR, 1991

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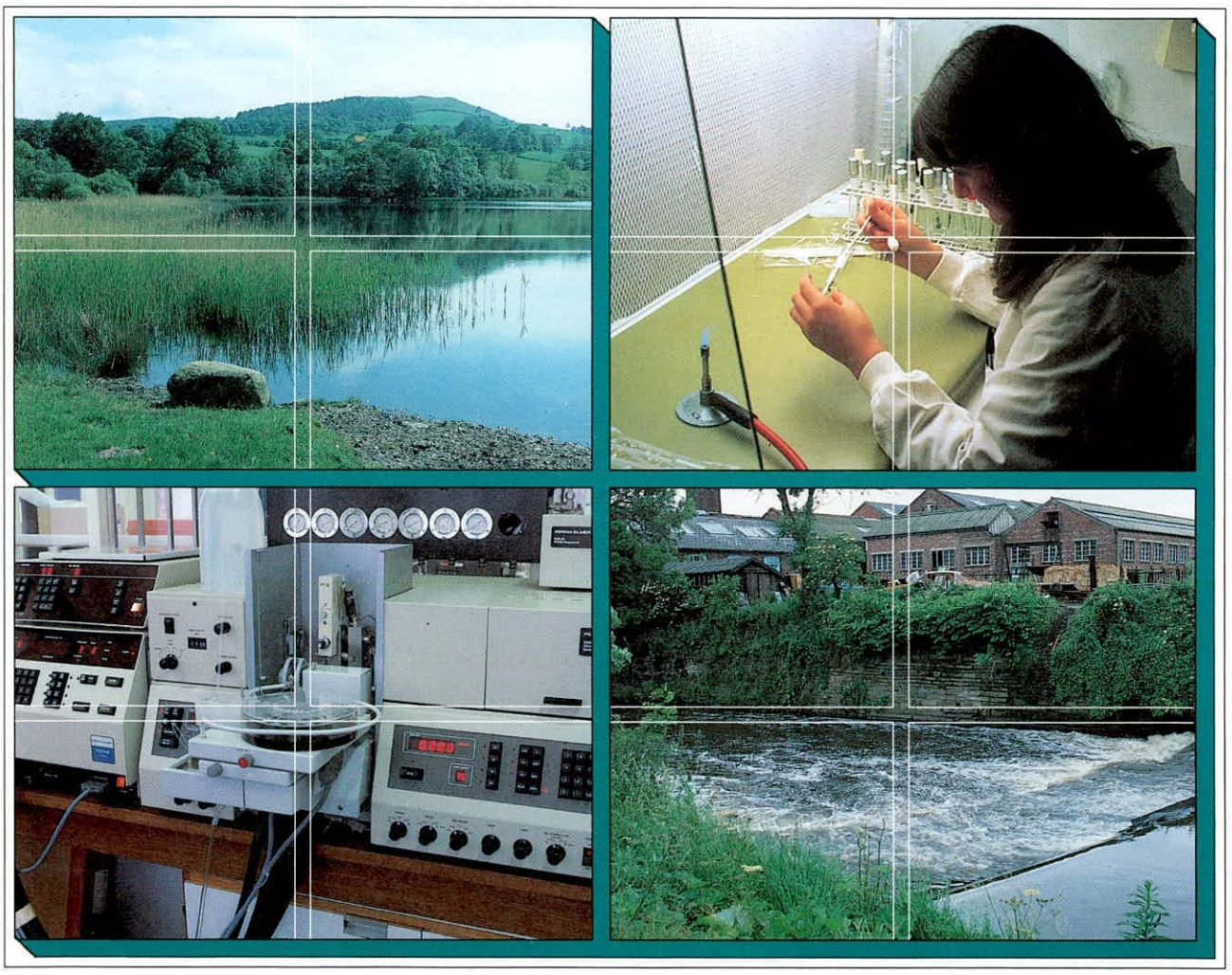

Natural Environment Research Council

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Evaluation of the effect of *Bti* on *Simulium posticatum* and other organisms in the River Stour, 1991

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CONTENTS

CONCLUSIONS

1. As in 1989 TEKNAR HP-D was found to be an effective simuliicide when used against the larvae of *Simulium posticatum* under the conditions prevailing in the River Stour.

2. Following preliminary surveys four sites on the main river were selected for treatment and the furthest upstream and downstream of these were used for monitoring.

3. It should be noted that future applications of *Bti* could easily be made from a small boat at any point on the river, even though relatively few access points were suitable for the present treatment and monitoring exercise.

4. It was not possible to interpolate flows accurately between NRA gauging stations.

5. Salt dilution provided confirmation of discharge values and indicated the appropriate times to take water samples for *Bti* assays.

6. Current meter measurements were used to calculate discharges and to permit accurate dilutions of *Bti* to be achieved.

7. Application of a mathematical hydraulic model provided estimates of carry times and distances. The presence of long, slow flowing stretches potentially isolates each region of infestation.

8. Mosquito larvae assay detected the presence of *Bti* in those samples where it was predicted to be present although the estimated concentrations were much less than the calculated values based on the amounts injected. The few positive samples at Longham gave values less than that in the upstream control at Blandford.

9. Microbiological assay of river water samples gave contradictory results. Some samples which were expected to be positive and indeed tested positive by mosquito larvae assay, gave negative results. A number of positive results obtained from samples at Longham could not have contained *Bti* from the present treatments. It is possible that there was an extraneous source of *Bt* which did not test positive with the mosquito larvae method.

10. It must be concluded that, of the two methods, only the mosquito larvae assay was valid and then only for relatively high concentrations of *Bti*.

11. An **eighty four percent** reduction in density of larvae was recorded over all monitored treated sites during the first seven days following treatment. Over the same period the densities at control sites increased.

12. Towards the end of the study new generations of other *Simulium* species colonised the sampling sites at high densities. There was no evidence of residual *Bti* activity.

13. High proportions of dead larvae were observed on weed at monitored treated sites one day after treatment. Subsequently and prior to treatment very few dead simuliids were seen.

14. There was no indication of any mortality of chironomid larvae due to *Bti* treatment.

15. There was no deterioration of ASPT scores during the study showing that *Bti* treatment had no effect on benthic faunal communities.

16. Although there were changes in drifting fauna due to seasonal, diel and discharge variations there was no detectable influence of *Bti* treatment.

17. Dixidae are not normally found in the spring or in rivers of the size of the Stour. None was found at any time during the study.

1. INTRODUCTION

Following the successful trial in 1989, HSE gave the North Dorset District Council permission to experimentally treat eight sites on the River Stour in 1991 with a *Bti* preparation (TEKNAR HP-D). This was the latest phase in the attempted control of the biting pest *Simulium posticatum*. The treatment was to be restricted to the area of the main river downstream of Blandford but no less than 7 km upstream of the Longham intake of Bournemouth Water Co. (Fig. 1). It should be noted that large populations of *Simulium posticatum* occur in the river downstream of this obligatory cut off point.

The conduct of the present treatment took into account the "Guidelines for Biological Monitoring" put forward by the Pesticides Registration Section, 28 February 1990.

2. PRELIMINARY SURVEYS

2.1 Methods

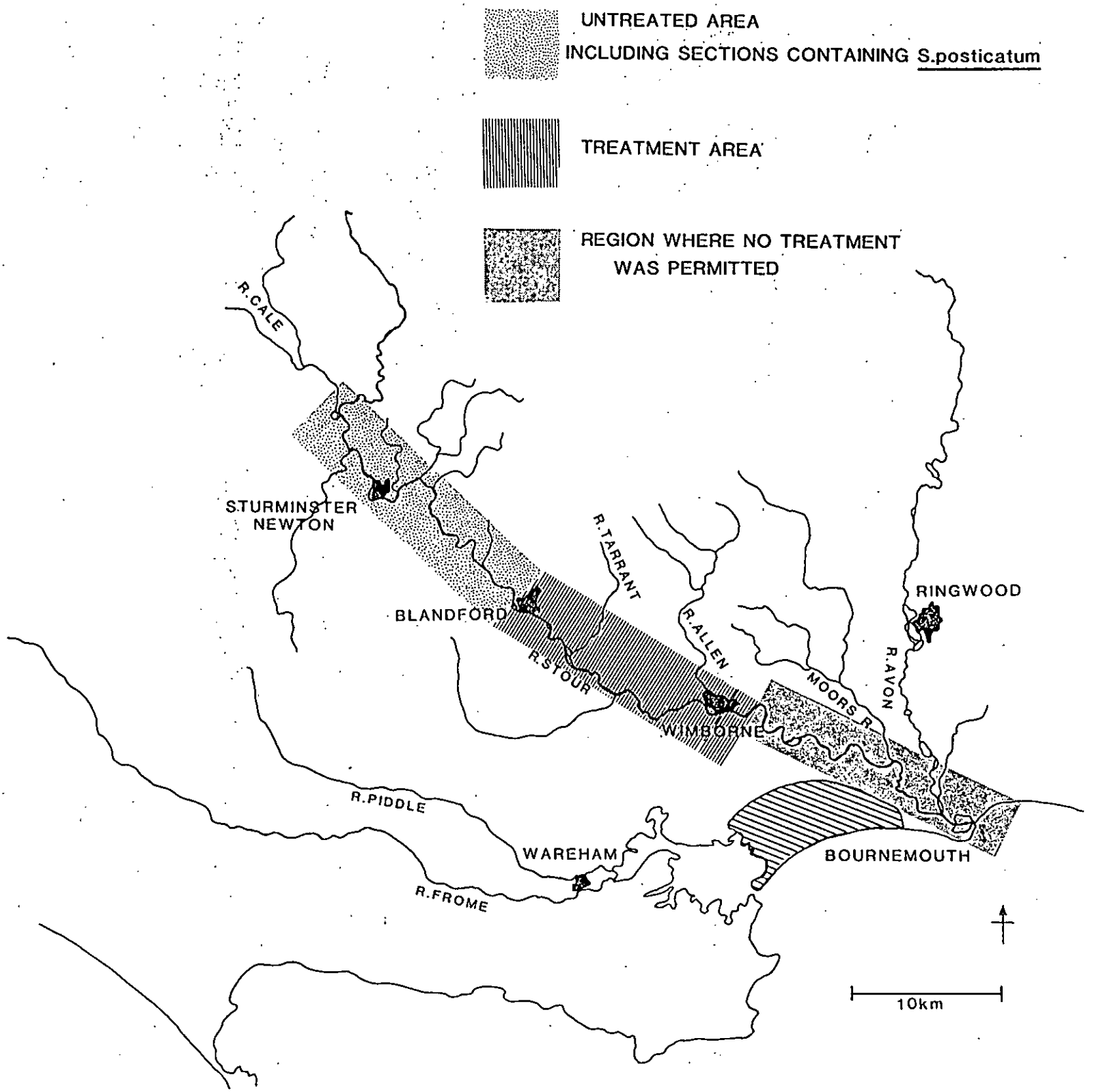
Walkover surveys were conducted in February and March 1991 to determine accessibility, larval presence and the state of the simuliid populations. Samples of weed were taken from various sites on the main river starting in March 1991. The approximate number of larvae per gram of weed, which gives an indication of the population density, was calculated at various points. These surveys identified the main areas of infestation and were ultimately used to locate precisely the treatment points.

2.2 Results

In the walkover survey on 14 February 1991 an initial assessment of the presence of the larvae of *S. posticatum* was made. At the same time access points for treatment and subsequent monitoring were noted. Within the permitted stretch from Blandford to a point 7 km upstream of Longham there proved to be relatively few sites having adequate access for the purpose of the study. The furthest downstream site permissible, in the grounds of Canford School, although it held a substantial population of fly larvae, was of uneven depth, fast flowing and dangerous to sample. At that time, although there were numbers of simuliid larvae present throughout the river, these were almost without exception large larvae of species other than *S. posticatum,* (having "positive" head capsule markings). A single, medium sized larva of *S. posticatum* was recorded at Wimborne downstream of Julians bridge.

A second survey on 4 March 1991 recorded the presence of some large larvae of non-*posticatum* species at all sites examined (hence precluding treatment because of potential mortality of other simuliids). At this time very high densities of juvenile *S. posticatum* larvae were also present at all sites. Most *S.*

Fig. 1 Map of the River Stour showing treatment area



posticatum larvae were, on this occasion, in the first instar with lesser numbers of second instars (densities of 100 to 1500 g^{-1} of weed). The presence of many first instar larvae precluded treatment in mid-March (which was the original target date) because, although the younger larvae are most susceptible to *Bti*, the presence of first instars indicated that they were still hatching from eggs (which would, of course, be unaffected by treatment).

On 25 March 1991 qualitative observations showed that larvae had advanced beyond the first instar and that almost no larvae of other species were present at any site examined. Most larvae were, at this time, in the second, third and fourth instars (simuliids have five or six instars) - an ideal stage for effective application of *Bti*. Population densities were mostly high. Additional weed samples were taken at Longham, downstream of the water company's abstraction point. This established the presence of *S. posticatum* well downstream of the likely effect of permitted applications. A population density of 862 larvae g^{-1} of weed (SE of mean 124 g^{-1}) was recorded at Longham.

On 27 March a final qualitative survey was carried out by boat, between Blandford weir and Wimborne, to check on the possibility of large, as yet undiscovered, concentrations of *S. posticatum* on stretches of river which were otherwise inaccessible (Fig. 2, Maps 1-11 {maps see page 36}). This survey was also intended to locate sites at which it might be necessary to apply *Bti* treatment in future years. In general it was established that the chosen treatment sites were the main centres of infestation although a number of other locations were suitable for simuliid larvae and indeed some were present. In future, in the absence of any need for further detailed monitoring, the ideal strategy would seem to be to apply the insecticide at the head of all shallows and weedy areas suitable for colonisation by larvae. This could best be achieved by boat to provide maximum control. It should be noted that application of bti can easily be made from a small boat at any point on the river, even though relatively few access points were suitable for the present treatment and monitoring exercise.

2.3 Treatment Sites

Sites T1, T2, T3 and T4 (Fig. 2) were selected for treatment. Other intermediate sites were not treated as significant populations of *S. posticatum* were not found in the preliminary surveys and access overland was often very difficult. In addition it was felt that the complication of treating further sites would render monitoring of the treatments less effective. Only sites 1 (Blandford) and 4 (Wimborne) were selected for monitoring, these being the most upstream and downstream of the sites treated (Fig. 3). Water samples for *Bti* assay were also taken from the vicinity of the Longham intake of Bournemouth Water Company's treatment plant.

Fig. 2 Detailed map of the treatment area

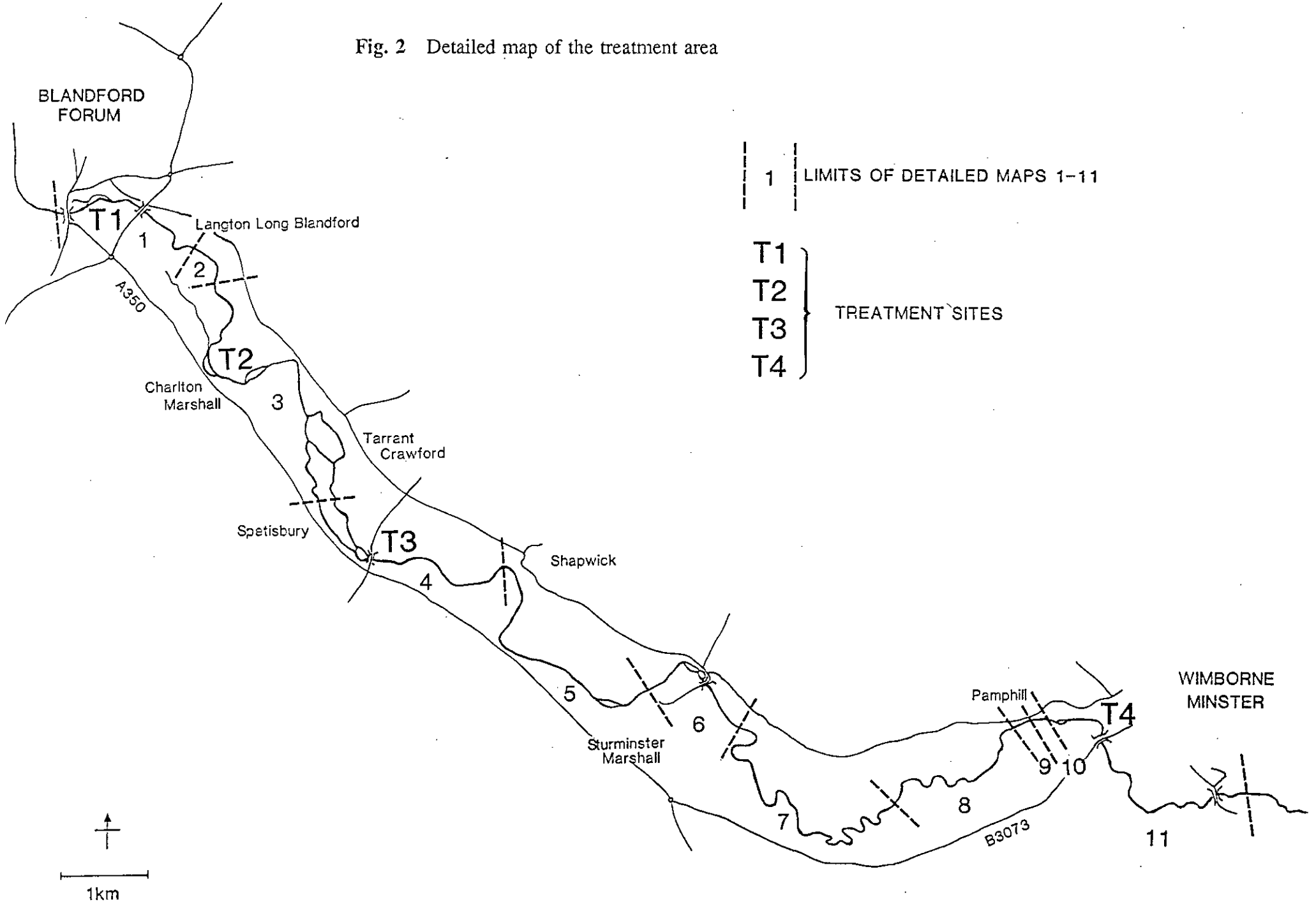
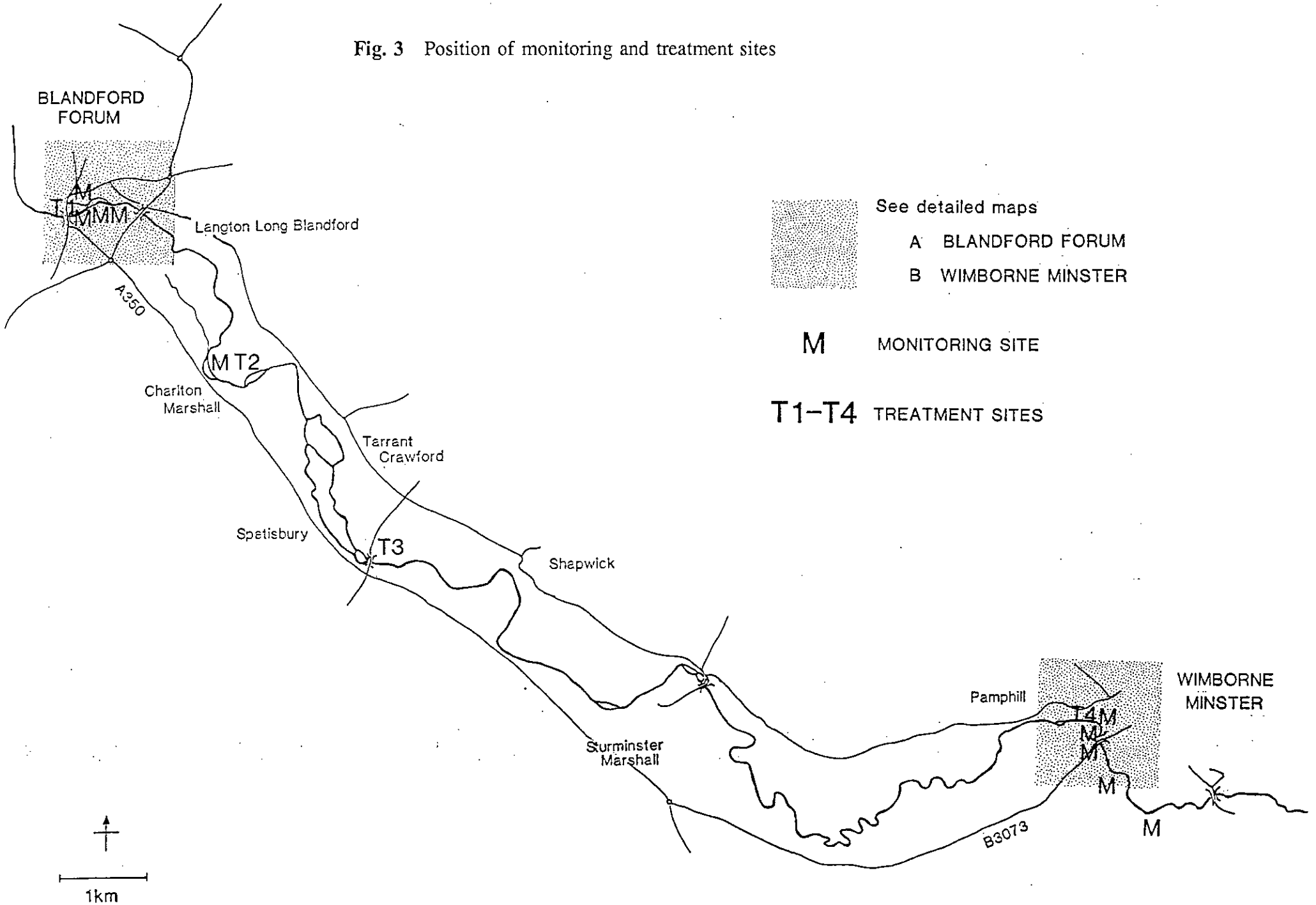


Fig. 3 Position of monitoring and treatment sites



3. DISCHARGE AND VELOCITIES

Three items of information were to be obtained from discharge criteria:-

(a) The velocity of the river and some values of channel dimensions to be used in the Hydraulic Model.

(b) Times of passage of water from application points to sampling points.

(c) Most importantly, discharge values were necessary for calculation of *Bti* dilution factors.

3.1 Methods

Firstly the Wessex region of the National Rivers Authority were asked whether it was possible to provide discharge values at the prescribed sampling/application points. They were unable to do this as there are only two continuous gauging stations on the Stour, one at Hammoon a considerable distance upstream of Blandford and a second at Throop many kilometres downstream of Wimborne. The NRA were, however, extremely helpful and supplied maps and graphs which established that **approximate** interpolation between gauging stations is reasonable (Appendix 1) despite the three to four fold difference in discharge at any given time.

It was felt that more precise information was required and flow measurements were therefore undertaken using both physical and chemical techniques. For precise flow estimation measurements of width and depth were made at level cross sections clear of weed and major obstructions. These were combined with velocity determinations at a number of points on each cross section to give discharge values. The chemical technique involved addition of a known quantity of sodium chloride and frequent measurements at downstream positions to give duration, elevation and timing of the passage of the sodium chloride plateau. When using the latter technique oranges were thrown into the river to give an easy visual indication of the approach of the sodium slug.

The accurate distances of monitoring sites (Figs 4A & 4B) are indicated in Table 1. These were selected to give a spread which would register impacts up to a distance of 1 km from the points selected for application of *Bti*.

The discrepancies between nominal and true distances are due to problems of access and to safety considerations.

Fig. 4a Detailed map of Blandford monitoring sites

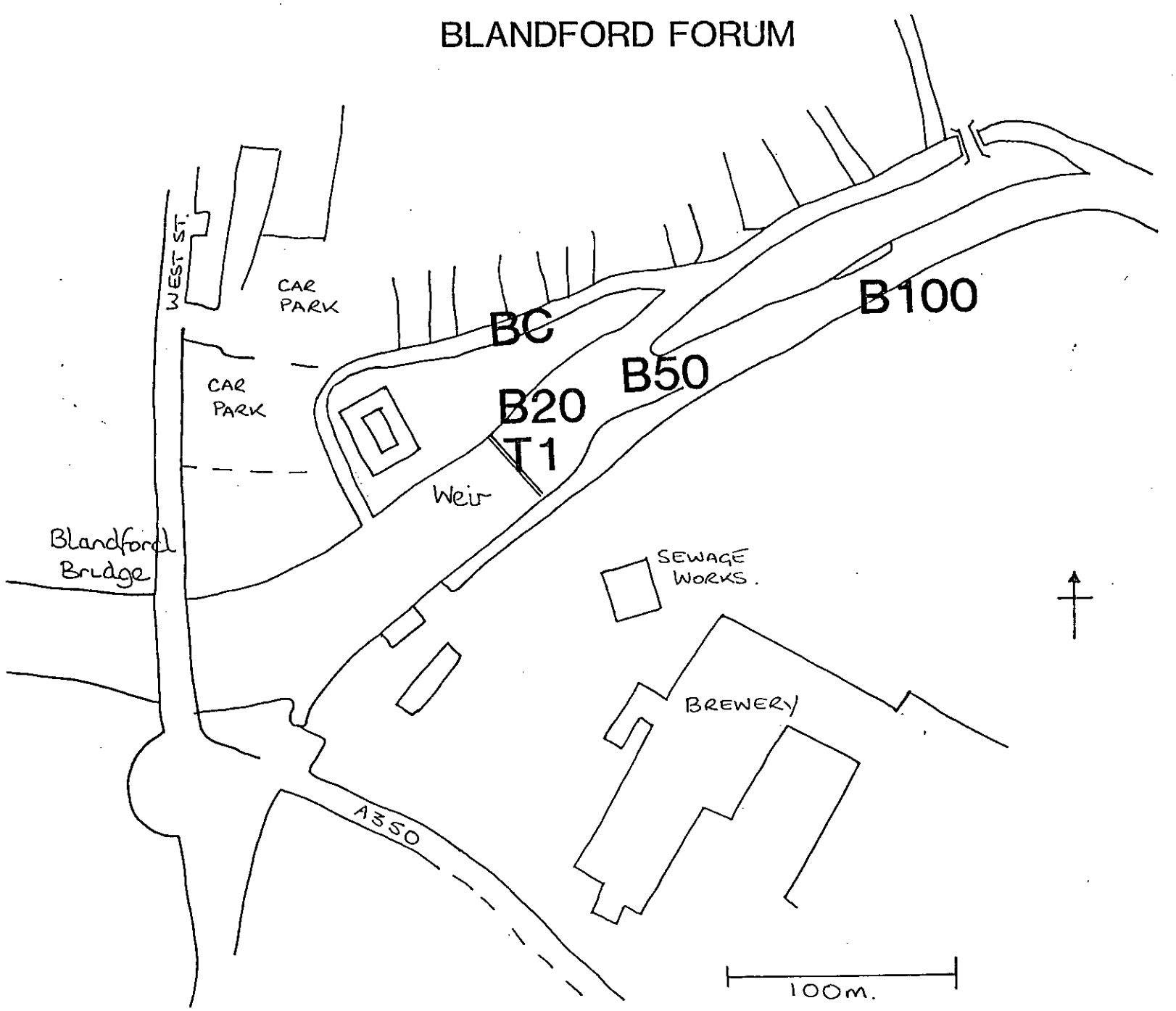


Fig. 4b Detailed map of Wimborne monitoring sites

B

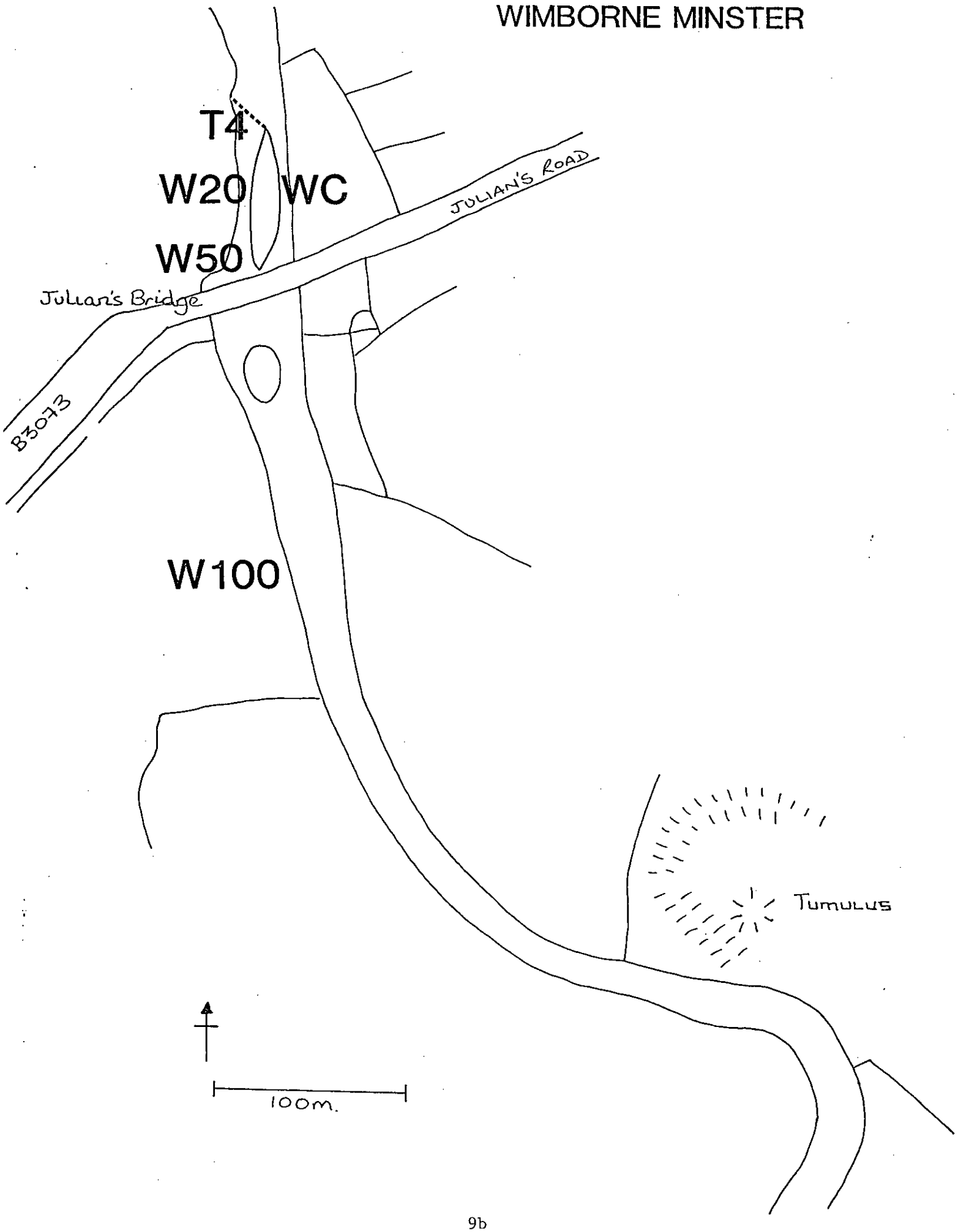


Table 1. Site designations and distances from *Bti* application points at Blandford and Wimborne.

	Site Designation	Distance
Blandford	Control	-
	20 m	20 m
	50 m	50 m
	100 m	150 m
	1000 m	1300 m
Wimborne	Control	-
	20 m	20 m
	50 m	50 m
	100 m	190 m
	1000 m	880 m
	Water sample (25 min)	600 m

An initial current meter measurement of discharge at Wimborne on 13 February 1991 indicated a discharge of about 8 $m^3 s^{-1}$. Subsequent heavy rainfall caused marked rises and falls in discharge. On 26 February 1991, for which date a salt dilution experiment had been arranged, it was not possible because of high turbid flows, to repeat the current metering. Consequently, it was necessary to make a speculative estimate of the amount of sodium chloride required. A total of 96 kg of NaCl was added at Julians bridge, starting at 11.10 hrs, 50 m downstream of the proposed Wimborne application point. Samples were taken at points 140 m and 550 m downstream of the salt injection point over periods of 45 minutes and two hours respectively. Ten oranges were thrown in with the initial salt addition to provide guidance for the timing of samples. Samples were taken at intervals of 1 minute starting at time 0, the time at which the first salt solution was poured into the river. An automatic sampler was used to take samples at Longham and further samples were taken by hand to complete the series.

3.2 Results

Five oranges were observed 140 m downstream of the salt injection point between 5 and 13 minutes from time 0. An increase above the background sodium level was noted between 6 and 19 minutes from time 0 with a mode at 14-15 minutes giving a mean velocity of 0.16 m s^{-1} (Fig. 5a). No oranges were observed at 550 m but a sodium increase occurred between 14 minutes and 31 minutes with a peak at 24 minutes giving a modal velocity of 0.38 m s^{-1} (Fig 5b). The lower figure is certainly the more realistic, since it was measured over a reach which was more representative of the river in general, having a greater proportion of slow flowing stretches. The calculated arrival times of the *Bti* peak at Longham, from the Wimborne treatment, on the basis of these measured velocities would be 17.4 hr for the slower flow and 7.3 hr for the faster flow.

The corresponding calculated discharge value based on salt dilution was 11.10 m^3 s^{-1}. This figure provided confirmation of the flows interpolated from NRA gauges and those determined by current metering.

Clearly, with the possibility of large, rapid changes in flow prior to treatment it was essential to determine discharges at each treatment point as close to the actual treatment day as possible. For this purpose current metering of discharge was carried out on 31 March 1991 at Blandford, Charlton Marshall, Spetisbury and Wimborne. During this period the flows in the Stour were at a more or less constant level (Table 2) and there was no appreciable change up to treatment day.

Table 2. NRA gauged flows (cumecs) prior to treatment on 2 April 1991

Date	Hammoon	Throop
25.3.91	5.31	15.95
26.3.91	4.42	15.17
27.3.91	3.96	14.76
28.3.91	3.48	14.15
29.3.91	3.16	13.34
30.3.91	2.95	12.85
31.3.91	2.85	13.17
1.4.91	2.82	13.23

Fig. 5a Concentration of sodium at 140 m downstream of salt injection point at Wimborne

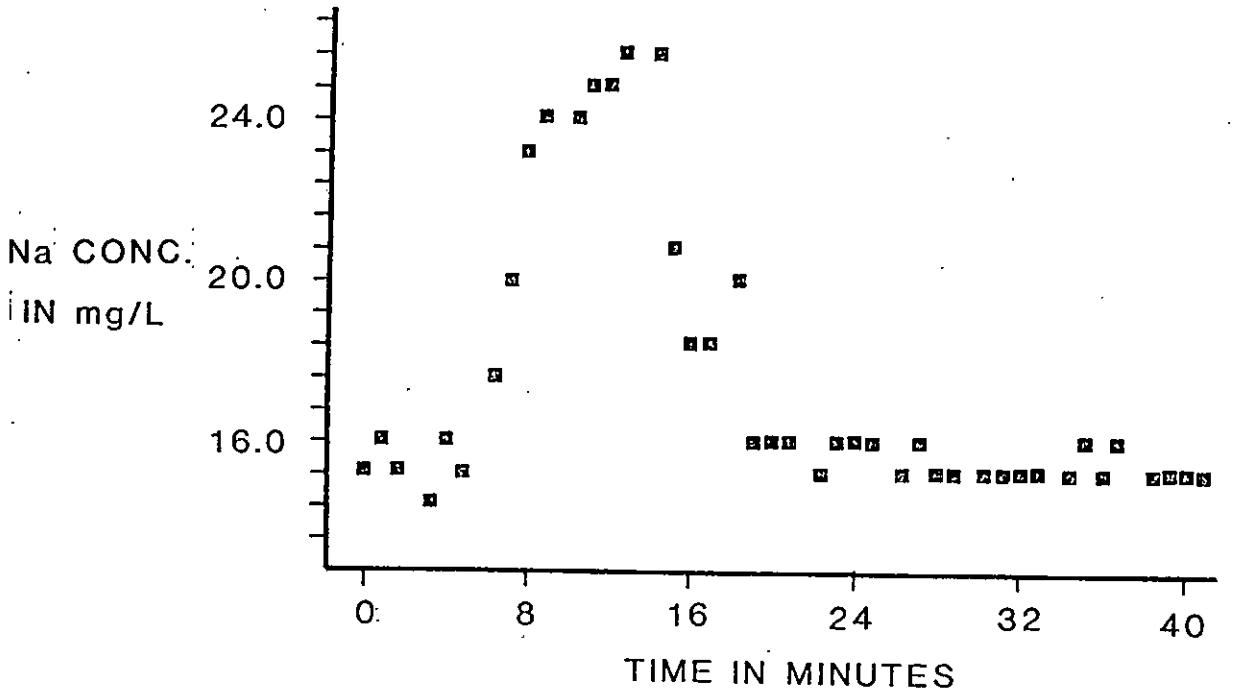
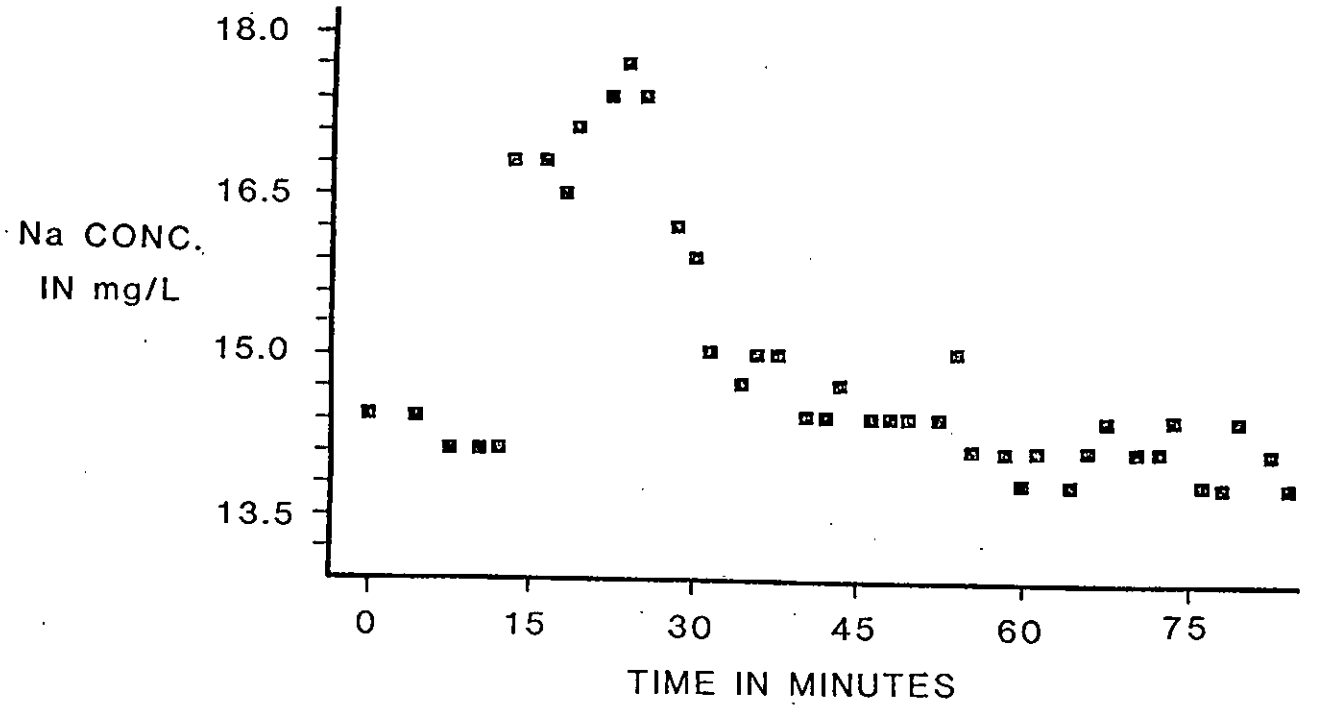


Fig. 5b Concentration of sodium at 550 m downstream of salt injection point at Wimborne



The flows (cumecs) determined by width/depth measurements and current metering on 31 March 1991, which were used to calculate dilutions of *Bti*, were as follows -

Blandford	5.4 $m^3 s^{-1}$
Charlton Marshall	5.5 $m^3 s^{-1}$
Spetisbury	8.0 $m^3 s^{-1}$
Wimborne	8.3 $m^3 s^{-1}$

Clearly the discharge values were of the correct order and were undoubtedly better than any values interpolated from NRA gauging. Indeed the NRA's principal engineer comments - "... any estimate based on these (gauged flows) will be unreliable, and it would be better if you could arrange for current meter gauging at appropriate times and sites."

4. *Bti* APPLICATION

4.1 Methods and quantities

The quantities of TEKNAR HP-D in litres required to achieve concentrations of 0.8 mg l^{-1} over ten minutes was calculated from the manufacturer's formula Volume (litres) = 0.48*Flow (cumec) and was as follows -

Blandford	2.59 l
Charlton Marshall	2.64 l
Spetisbury	3.84 l
Wimborne	3.98 l

A total of 13.05 litres of suspension.

The TEKNAR was carried to the sites as measured doses in closed containers and mixed in 20 l knapsack sprayers with sieved river water. The material was sprayed, by a qualified operative, who traversed the river approximately ten times during the application period. The jet of the spraying equipment was totally submerged beneath the water surface to avoid spray drift or loss. The sites were treated sequentially starting at Blandford, the furthest upstream at 0900 hr and ultimately treating the Wimborne site at 1100 hr.

5. HYDRAULIC MODEL

5.1 Introduction

No hydraulic model of *Bti* dispersal in the River Stour is available but Reynolds *et al.* (1990) have produced such a model which relates carry distances of particles having a known sinking rate to water depth and velocity of a river. Sinking rates of *Bti (TEKNAR H-PD)* particles were determined using a photosensitive detection system and the modal value obtained in this way was 235 minutes per metre depth of water. This result was applied in the Reynolds model as follows:-

$t = h(\log_n 0.05)\text{-}Ws^{-1}$
$D = ut*10^{-3}$

D = Distance carried in km
u = mean velocity in m s^{-1} (range 0.1-0.4m s^{-1})
Ws = sinking rate of particle in m s^{-1} ($7.1*10^{-5}$)
h = Depth m (0.1-2.0)
t = time of travel s

A modal velocity of 0.38 m s^{-1}, based on the salt dilution maximum, is certainly an overestimate for the mean velocity of the river between Blandford and Wimborne since the 550 m reach of river over which velocity was calculated is mainly a typical, fast flowing,"simuliid" area. However, by applying this value and a mean depth of 1.5 metres (based on the boat survey of the entire study reach) it is calculated that the time of travel, before settlement, of *Bti* particles would be 63,290 seconds (17.58 hours) and the corresponding carry distance would be 22.8 km.

On the basis of observed discharge values, width measurements at Blandford, Spetisbury and Wimborne and depth observations made on the longitudinal survey the mean velocity of the river is calculated to be 0.16 m s^{-1} and the carry distance on this basis would be about 10 km, approximately the distance from Wimborne to Longham. An additional factor which should be considered is heavy weed growth, which retards flow and would reduce carry distances. There are many stretches of the river which are much slower flowing than the average so it is probable that carry distances are substantially less than those calculated above - possibly in the order of 5 km only. In fact the interposition of deep, slow flowing stretches between the fast flowing treatment sections probably means that many of these stretches are effectively isolated from those next in downstream succession.

6. *Bti* ASSAY

6.1 Introduction

The presence of *Bti* in the river water can best be determined by a mosquito larvae assay or by microbiological culture techniques. Only the former method has been used previously.

Mosquito larvae assays of sequential water samples were organised by Dr Lehane on behalf of NDDC (as requested by HSE) (Appendix 2). Samples for assay were collected by IFE staff, at frequent intervals, within the water column, over the peak period of *Bti* passage as determined by prior salt dilution peaks (Figs 1a & b).

At the request of NDDC, on the instruction of HSE, the Public Health Laboratory Service of West Dorset Hospital carried out direct microbiological examination of water samples in an attempt to isolate *Bti*. The comments of the Head Medical Laboratory Scientific Officer are summarised as follows:- The term used to describe the organism monitored was *Bacillus cereus/thuringiensis*. This is because the biochemical reactions of the two organisms are said to be identical and the only means of differentiation is microscopic examination for parasporal crystals which can be transferred from *B. thuringiensis* to *B. cereus* by plasmid transfer "changing it into *B. thuringiensis*". Initial work using TEKNAR HP-D showed that it was possible to isolate the organism and to differentiate the two bacilli on the basis of the parasporal crystal formation.

6.2 Methods

Samples were taken -

1. At an absolute control point upstream of the Blandford *Bti* application point (Blandford control)

2. Immediately (50 m) downstream of the Blandford application point at mid-application time (5 minutes after commencement) (Blandford +5 mins)

3. At Wimborne at a point 190 m downstream of the Wimborne application point five minutes after commencement of application but two minutes before the *Bti* slug was anticipated to reach the sampling point (as a local control and a check on the salt dilution results) (Wimborne +5 mins)

4. At Wimborne at a point 600 m downstream of the Wimborne application point in mid-passage of the *Bti* slug as indicated by salt dilution results (25 minutes after commencement of application) (Wimborne +25 mins)

5. At Longham from the filtered, unchlorinated product at 0830 hr on treatment day (before there was ANY possibility of applied *Bti* being present).

6. At Longham (immediately upstream of the water abstraction point) at times of +3 hr from the initial application (well before the anticipated arrival of the *Bti*) and subsequently at half-hourly intervals until +10 hr. Further samples were taken on 4 April at 0010 hr, 0400 hr and then at 4 hourly intervals until 1600 hr on the following day (5 April 1991).

6.3 Results

6.3.1 Microbiological Examination

Two samples of the TEKNAR HP-D used for treatment of the river Stour gave viable counts of $1.3 * 10^4$ organisms per gram and $1.0 * 10^5$ organisms per gram. Dilution experiments suggested that it would be possible to isolate *Bti* in relatively low concentrations. A sample of water taken in March from the prospective application point below Blandford town bridge gave a negative result.

Nine of the thirteen water sample examined tested positive for *Bti* (Appendix 3). Because of the overgrowth of other bacteria it was impossible to quantify the number of target organisms present. All strains isolated produced crystals which conformed in appearance to that of the control organism *B. thuringiensis*.

It was stated that " Although there appears to be a pattern to the recovery of the organism from the water samples, we cannot account for why we did not isolate the organism from the point of initial treatment or why it should be in the water company's sample, if they were not abstracting water at any time -----." The appended letter (Appendix 4) shows that no water was abstracted during or after the time that the river was treated.

Clearly these results can only be explained by either (1) the fact that the test was isolating an organism other than *Bti*, or (2) the *Bt* organism was already present in the river water, possibly due to agricultural or horticultural use in the Stour catchment (this scenario does not, however, account for failure to isolate the organism from sample Blandford +5 minutes in which it was known to be present at high concentration *c.* 0.8 mg l^{-1}). According to the Ministry of Agriculture, Fisheries and Food the organism is already in widespread use on crops such as strawberries and brassicas and in horticulture.

A series of follow up samples on the 7 May, over one month after treatment, from Blandford control site, from the Stour at the Longham abstraction point and from the water company before chlorination, were all negative.

6.3.2 Mosquito Larvae Assay

Distilled water controls gave negative results. The small positive results in Blandford control samples and in a small proportion of the Longham samples can presumably be regarded as due to the innate error in sampling and/or assay (Table 3). The two strong positive results at Blandford +5 minutes and at Wimborne +25 minutes were both anticipated, as the samples were taken during the calculated passage of the *Bti* slug. The positive results at Longham at +5 hr, +9 hr, +9.5 hr and at +49 hr cannot be given any credence in view of the similar result in Blandford control. It must be concluded that it had settled out before it reached Longham or that the concentrations present were generally too low for detection.

Table 3. Mortality of mosquito larvae used to assay water samples taken from the River Stour. Positive results are highlighted.

Location	Mean %mort	S.E.	µg l^{-1}	+95%	-95%
Blandford Control	1.56	1.07	5.08	8.62	0.00
Blandford +5mins	40.84	11.69	91.0	154.52	27.48
Wimborne +5mins	0.00	0.00	0.00	0.00	0.00
Wimborne +25mins	49.55	11.65	26.97	46.53	15.51
Longham +3hrs	0.00	0.00	0.00	0.00	0.00
Longham +3.5hrs	0.00	0.00	0.00	0.00	0.00
Longham +4 hrs	0.00	0.00	0.00	0.00	0.00
Longham +4.5hrs	0.00	0.00	0.00	0.00	0.00
Longham +5hrs	0.31	0.29	1.06	3.37	0.00
Longham +5.5hrs	0.00	0.00	0.00	0.00	0.00
Longham +6hrs	0.00	0.00	0.00	0.00	0.00
Longham +6.5hrs	0.00	0.00	0.00	0.00	0.00
Longham +7hrs	0.00	0.00	0.00	0.00	0.00
Longham +7.5hrs	0.00	0.00	0.00	0.00	0.00
Longham +8hrs	0.00	0.00	0.00	0.00	0.00
Longham +8.5hrs	0.00	0.00	0.00	0.00	0.00
Longham +9hrs	0.38	0.36	1.33	4.59	0.00
Longham +9.5hrs	1.39	1.13	4.77	6.81	0.00

Location	Mean %mort	S.E.	µg l^{-1}	+95%	-95%
Longham +10hrs Longham 2100	0.00	0.00	0.00	0.00	0.00
Longham +14hrs Longham 0100	0.00	0.00	0.00	0.00	0.00
Longham +17hrs Longham 0400	0.00	0.00	0.00	0.00	0.00
Longham +21hrs Longham 0800	0.00	0.00	0.00	0.00	0.00
Longham +25hrs Longham 1200	0.00	0.00	0.00	0.00	0.00
Longham +29hrs Longham 1600	0.00	0.00	0.00	0.00	0.00
Longham +33hrs Longham 2000	0.00	0.00	0.00	0.00	0.00
Longham +37hrs Longham 0000	0.00	0.00	0.00	0.00	0.00
Longham +41hrs Longham 0400hrs	0.00	0.00	0.00	0.00	0.00
Longham +45hrs Longham 0800hrs	0.00	0.00	0.00	0.00	0.00
Longham +49hrs Longham 1200hrs	0.44	0.70	1.41	5.36	0.00
Longham +53hrs Longham 1600hrs	0.00	0.00	0.00	0.00	0.00
Water Co 0830hrs on treatment day +1	0.00	0.00	0.00	0.00	0.00

Perhaps the most interesting feature of these results is the contrast of the bioassay results with the microbiological analysis of samples taken simultaneously. The only samples in which both techniques gave positive results were Wimborne +25 minutes and Longham +9 hours. Even the Blandford +5 minute sample which was the strongest positive result for mosquito larvae assay was negative in the microbiological test.

7. MONITORING THE EFFECTS OF *Bti* ON RIVER FAUNA

7.1 Effect of treatment on *Simulium posticatum* larvae

7.1.1 Methods

Thirty weed samples were taken at each control section (upstream of or isolated from the application point) and four treatment sections at approximately 20, 50, 100 and 1000 m below the application point. The exact distances were dependent on the depth and velocity of the river and the availability of significant numbers of larvae before treatment. Samples were taken on days -1, 0, +1, 7 days, 14 days, 42 days and 84 days. Counts were made and the population density was assessed. The ratio of living to dead animals was determined.

It was felt that samples taken after 42 and 84 days were unlikely to contain *Simulium posticatum* larvae but other *Simulium* species would be present which could be used to monitor any residual effects of *Bti*. The alternative suggestion (of the committee) of experimentally testing the residual toxicity of *Bti* on weed samples taken three months after treatment was not considered practicable. Weed beds changed extensively over the period following treatment and it was not possible to obtain suitable samples, which were from identified plants, to test. It was also felt that any residual toxicity would be apparent from its effects (if any) on simuliid samples.

7.1.2 Results

7.1.2.1 Blandford

The results of weed sampling at control and treatment sites, during and following treatment with *Bti* at Blandford are detailed in Appendix 5.

Living Larvae

Between days -1 and 7 the control site showed an **increase** in population density (probably due to drift and redistribution) of **568%** while the treatment sites showed an overall **84% decrease** in density at all sites in the same period (Table 4). Animals present on days 42 and 84 are mostly other species of *Simulium*.

Table 4. Mean densities of living *S. posticatum* (plus or minus the standard error of the mean) per gram of weed at Blandford.

Days after Treatment	Control	20 m	50 m	100 m	1000 m
-1	81±16	919±130	71±14	512±95	442±104
0	279±69	62±29	37±13	107±22	23±9
1	345±95	15±5	4±2	27±9	143±27
7	460±74	224±70	9±3	26±8	59±14
14	276±46	69±16	19±5	59±14	110±48
42	15±3	14±7	8±3	57±11	21±6
84	256±39	892±106	425±27	338±27	500±39

Dead Larvae

The results in Table 5 are not a true reflection of mortality and are only meaningful for up to 1 day post treatment. Presumably most of the dead larvae had subsequently fallen off the weed. In the **control samples** the ratio of dead to living larvae changed little over the period from pre-treatment day to post-treatment day from **0.098:1 to 0.06:1** and in the **treated sites** it increased a great deal from **0.049:1 to 1.85:1.**

Table 5. Mean densities of dead *S. posticatum* (plus or minus the standard error of the mean) per gram of weed at Blandford. Zero figures indicate less than 1 dead animal per gram of weed.

Days from treatment	Control	20 m	50 m	100 m	1000 m
-1	8±3	31±9	1±1	35±9	29±7
0	11±5	111±49	18±9	181±31	37±14
1	20±6	73±22	1±1	34±12	241±50
7	6±4	6±3	0±0	0±0	4±2
14	0±0	0±0	0±0	0±0	0±0
42	0±0	0±0	0±0	0±0	0±0
84	2±1	1±1	1±0	0±0	2±1

7.1.2.2 Wimborne

The results of weed sampling at control and treatment sites, during and following treatment with *Bti* at Wimborne are detailed in Appendix 6.

Living Larvae

Between days -1 and 7 the control site showed an **increase** in population density (probably due to drift and redistribution) of **102%** while the treatment sites showed an overall **84% decrease** in density at all sites in the same period (Table 6). Animals present on days 42 and 84 are mostly other species of *Simulium*.

Table 6. Mean densities of living *S. posticatum* (plus or minus the standard error of the mean) per gram of weed at Wimborne.

Days from treatment	Control	20m	50m	100m	1000m
-1	128±19	153±17	478±74	302±53	1116±156
0	189±51	64±7	75±11	28±7	328±40
1	84±21	27±7	24±5	13±3	190±27
7	258±38	52±7	60±10	40±6	170±43
14	870±122	53±11	139±19	102±12	221±35
42	17±4	6±3	47±10	16±4	6±2
84	447±73	361±36	247±33	220±32	143±22

Dead Larvae

The results in Table 7 are not a true reflection of mortality and are only meaningful for up to 1 day post treatment. Presumably most of the dead larvae had subsequently fallen off the weed. In the **control samples** the ratio of dead to living larvae changed over the period from pre-treatment day to post-treatment day from **0.002:1 to 0.14:1** and in the **treated sites** it increased a great deal from **0.008:1 to 0.96:1.** The proportion of dead animals (0.14) at the control site on the day following treatment perhaps suggests that there had been some carry of *Bti* from the upstream sites, a minimum distance of about 10km. There was no apparent residual effect in samples taken after that day.

Table 7. Mean densities of dead *S. posticatum* (plus or minus the standard error of the mean) per gram of weed at Wimborne. Zero figures indicate less than 1 dead animal per gram of weed.

Days from treatment	Control	20 m	50 m	100 m	1000 m
-1	0±0	3±1	2±1	4±3	7±4
0	5±4	262±29	372±62	673±96	190±23
1	12±4	68±19	19±6	23±4	134±22
7	3±3	1±1	5±3	2±1	21±11
14	11±5	3±2	1±1	9±3	3±2
42	0±0	0±0	0±0	0±0	0±0
84	3±2	0±0	1±1	0±0	2±1

7.2 Effect on Chironomid Larvae

7.2.1 Methods

Weed samples taken as reported in 7.1.1 (thirty per site) were examined for the presence of living and dead chironomid larvae on days -1, 0, +1, 7 days, 14 days, 42 days and 84 days (Appendices 5 & 6).

Thirty, 10-second kick samples were taken from control and monitoring points at the Blandford and Wimborne application site to assess proportions of living and dead chironomid larvae and abundance of Chironomidae (Appendices 7 & 8). Samples were taken on days -1, +1, 4 days, 7 days, 14 days, 28 days, 42 days, 56 days, 70 days, 84 days. It was considered, *a priori*, that the natural rapid fluctuations in chironomid populations would not permit detection of even major long term changes in densities of larvae whatever level of sampling was carried out.

7.2.2 Results

7.2.2.1 Weed Samples

The numbers of chironomid larvae on weed samples were very small (Tables 8 to 11). Standardisation in terms of numbers per gram of weed would not be meaningful so the total numbers of live and dead larvae in each set of thirty samples are presented.

The percentages of dead chironomid larvae in control samples were as follows -

Blandford pre-treatment 0% Wimborne pre-treatment 0%
Blandford post-treatment 0% Wimborne post-treatment 0%

The equivalent percentages for all treatment site samples were -

Blandford pre-treatment 100% Wimborne pre-treatment 6.4%
Blandford post-treatment 0% Wimborne post-treatment 1.8%

Clearly there is no significant mortality in any samples following treatment. The 100% mortality figure for Blandford, treatment site, pre-treatment samples represented the fact that the only animal present in 120 samples was dead.

Table 8. Numbers of living Chironomidae per thirty samples of weed at Blandford.

Days from treatment	Control	20 m	50 m	100 m	1000 m
-1	0	0	0	0	0
0	0	0	0	0	0
+1	0	1	0	0	0
7	2	4	0	0	0
14	0	0	0	0	0
42	1	0	1	0	0
84	1	0	0	0	0

Table 9. Numbers of dead Chironomidae per thirty samples of weed at Blandford.

Days from treatment	Control	20 m	50 m	100 m	1000 m
-1	0	0	0	1	0
0	0	0	0	0	0
+1	0	0	0	0	0
7	0	0	0	0	0
14	0	0	0	0	0
42	0	0	0	0	0
84	0	0	0	0	0

Table 10. Numbers of living Chironomidae per thirty samples of weed at Wimborne.

Days from treatment	Control	20 m	50 m	100 m	1000 m
-1	5	23	4	2	15
0	0	7	1	11	18
+1	0	4	3	2	8
7	3	3	4	3	11
14	2	4	0	0	26
42	1	0	3	0	150
84	8	13	7	3	46

Table 11. Numbers of dead Chironomidae per thirty samples of weed at Wimborne.

Days from treatment	Control	20 m	50 m	100 m	1000 m
-1	0	1	1	0	1
0	0	0	0	4	0
+1	0	0	0	0	0
7	0	0	0	0	0
14	0	0	0	0	0
42	0	0	0	0	1
84	0	0	0	0	1

7.2.2.2 Kick Samples

As anticipated the results of chironomid densities are very variable with no systematic increase or decline apparent (Appendices 7 & 8, Tables 12 & 13). At both Blandford and Wimborne treatment sites, day 56 showed a sharp population increase which was related to the presence of a diatom bloom on the river bed (Tables 12 & 13). Chironomidae are opportunist colonisers of such bloom situations and some are capable of completing a generation in as little as two weeks, thus accounting for the rapid fluctuations observed. Such variation is normal in this family of insects. There was no indication of any mortality due to *Bti* treatment of these potentially sensitive insects.

Table 12. The results of ten second kick samples taken to assess chironomid populations at Blandford. Figures are mean numbers of 30 samples plus or minus the standard error of the mean.

Days from treatment	Control	20 m	50 m	100 m	1000 m
-1	5±1	9±1	15±2	6±1	5±1
1	1±0	17±2	9±1	9±1	2±0
7	2±0	14±1	29±5	9±1	3±0
14	3±0	33±3	40±3	16±2	6±1
28	4±1	18±2	12±2	9±1	3±1
42	4±1	25±3	35±5	21±5	4±1
56	32±4	244±18	91±5	250±18	84±6
70	8±1	15±2	13±2	4±1	15±4
84	22±2	132±7	105±6	32±2	8±1

Table 13. The results of ten second kick samples taken to assess chironomid populations at Wimborne. Figures are mean numbers of 30 samples plus or minus the standard error of the mean.

Days from treatment	Control	20 m	50 m	100 m	1000 m
-1	19±3	9±1	16±2	68±9	9±1
1	9±1	14±2	13±1	14±1	32±6
7	21±3	8±1	10±1	46±6	23±4
14	24±3	8±1	12±1	54±3	28±2
28	36±4	14±2	18±3	23±2	72±4
42	70±7	18±3	23±3	33±4	24±3
56	371±27	186±11	261±17	348±20	170±9
70	58±4	56±5	40±3	68±6	58±4
84	68±6	50±4	72±9	256±26	62±4

7.3 Effect on Benthic Fauna

The BMWP and ASPT scores were used to ascertain whether there were any changes in the benthic invertebrate fauna following application of *Bti* (Tables 14-17). These two scores are widely used in analyses of invertebrate community responses to pollution etc. Values for BMWP depend on the number of taxa recorded but ASPT is a more useful index, being largely independent of sampling times. ASPT scores greater than 5 indicate good water quality with no marked perturbations of the fauna.

7.3.1 Methods

Triplicate, three minute kick samples were taken at each control site and four treatment sites, 20 m, 50 m, 100 m and 1000 m below the application site of *Bti* on days -1, +1, 14 days, 42 days and 84 days. Samples were sorted, identified and analysed at family level to assess any changes taking place in the fauna. This analysis is more informative than simple diversity indices.

7.3.2 Results

All families of animals recorded in three minute kick samples from Blandford and Wimborne are recorded in Appendices 9 and 10. These were used to calculate BMWP and ASPT values.

BMWP scores (Tables 14 & 16) are generally less informative than ASPT because they are more susceptible to variations in sampling efficiency. None of the results suggested any effect of *Bti* treatment.

At Blandford the ASPT values ranged from 4.8 to 6.1 and the great majority were well in excess of 5 (Table 15). These scores indicate water of high quality with no indication of perturbation effects due to *Bti* treatment or indeed any other cause. At Wimborne the results are similar with ASPT's ranging from 4.7 to 5.8 (Table 17). Only six values were less than 5 and five of these were recorded from either control or pre-treatment samples.

Table 14. BMWP scores derived from triplicate three minute kick samples taken at Blandford sites.

Days from treatment	Site	BMWP	Mean ± SD
-1	BC	54, 64, 67	61.7 ± 6.8
1	BC	104, 86, 85	91.7 ± 10.7
14	BC	120, 117, 76	104.3 ± 24.6
42	BC	109, 112, 110	110.3 ± 1.5
84	BC	137, 120, 127	128.0 ± 8.5
-1	B20	98, 92, 83	91.0 ± 7.5
1	B20	119, 105, 129	117.7 ± 12.1
14	B20	100, 87, 91	92.7 ± 6.7
42	B20	109, 104, 110	107.7 ± 3.2
84	B20	144, 132, 132	136.0 ± 6.9
-1	B50	92, 81, 95	89.3 ± 7.4
1	B50	102, 82, 92	92.0 ± 10.0
14	B50	117, 135, 78	110.0 ± 29.1
42	B50	108, 108, 115	110.3 ± 4.0
84	B50	143, 137, 137	139.0 ± 3.5
-1	B100	130, 135, 135	133.3 ± 2.9
1	B100	129, 98, 121	116.0 ± 16.1
14	B100	141, 124, 120	128.3 ± 11.2
42	B100	140, 148, 124	137.3 ± 12.2
84	B100	156, 146, 140	147.3 ± 8.1
-1	B1000	100, 94, 103	99.0 ± 4.6
1	B1000	127, 123, 120	123.3 ± 3.5
14	B1000	128, 135, 136	133.0 ± 4.4
42	B1000	134, 145, 128	135.6 ± 8.6
84	B1000	148, 115, 103	128.8 ± 17.4

Table 15. ASPT scores derived from triplicate three minute kick samples taken at Blandford sites.

Days from treatment	Site	ASPT	Mean ± SD
-1	BC	5.40, 5.33, 5.58	5.44 ± 0.13
1	BC	5.20, 5.38, 5.31	5.28 ± 0.07
14	BC	5.71, 5.09, 5.43	5.41 ± 0.31
42	BC	5.45, 5.60, 5.24	5.433 ± 0.18
84	BC	6.23, 6.00, 6.05	6.09 ± 0.12
-1	B20	4.90, 5.11, 4.88	4.96 ± 0.13
1	B20	5.17, 5.25, 5.16	5.19 ± 0.05
14	B20	5.00, 4.83, 4.55	4.79 ± 0.23
42	B20	5.19, 5.20, 5.24	5.21 ± 0.03
84	B20	5.33, 5.50, 5.50	5.44 ± 0.10
-1	B50	5.41, 5.06, 5.28	5.25 ± 0.18
1	B50	5.37, 5.13, 5.11	5.20 ± 0.14
14	B50	5.57, 5.87, 4.88	5.44 ± 0.51
42	B50	5.40, 5.40, 5.48	5.43 ± 0.05
84	B50	5.96, 5.48, 5.96	5.80 ± 0.28
-1	B100	5.20, 5.40, 5.16	5.25 ± 0.13
1	B100	6.14, 6.13, 6.05	6.11 ± 0.05
14	B100	5.42, 5.64, 5.45	5.50 ± 0.12
42	B100	6.09, 6.17, 5.90	6.05 ± 0.14
84	B100	5.57, 5.84, 5.38	5.60 ± 0.23
-1	B1000	5.00, 5.22, 5.42	5.21 ± 0.21
1	B1000	5.77, 5.59, 5.71	5.69 ± 0.09
14	B1000	5.57, 5.87, 5.91	5.78 ± 0.19
42	B1000	5.58, 5.80, 5.82	5.73 ± 0.13
84	B1000	5.92, 5.23, 5.42	5.52 ± 0.36

Table 16. BMWP scores derived from triplicate three minute kick samples taken at Wimborne sites.

Days from treatment	Site	BMWP	Mean ± SD
-1	WC	125, 122, 130	125.7 ± 4.0
1	WC	75, 91, 87	84.3 ± 8.3
14	WC	116, 119, 91	108.7 ± 15.4
42	WC	110, 118, 114	114.0 ± 4.0
84	WC	131, 132, 144	135.6 ± 7.2
-1	W20	121, 131, 141	131.9 ± 10.0
1	W20	132, 126, 117	125.0 ± 7.5
14	W20	140, 134, 114	129.3 ± 13.6
42	W20	152, 139, 137	142.7 ± 8.1
84	W20	129, 139, 127	131.7 ± 6.4
-1	W50	94, 87, 73	84.7 ± 10.7
1	W50	115, 110, 115	113.3 ± 2.9
14	W50	116, 103, 115	111.3 ± 7.2
42	W50	95, 96, 101	97.3 ± 3.2
84	W50	134, 109, 92	116.7 ± 21.1
-1	W100	86, 110, 94	96.7 ± 12.2
1	W100	111, 123, 100	111.3 ± 11.5
14	W100	105, 114, 101	106.7 ± 6.7
42	W100	117, 110, 112	113.0 ± 3.6
84	W100	129, 116, 107	117.3 ± 11.1
-1	W1000	101, 103, 86	96.7 ± 9.3
1	W1000	100, 112, 79	97.0 ± 16.7
14	W1000	118, 112, 97	109.0 ± 10.8
42	W1000	90, 92, 97	93.0 ± 3.6
84	W1000	145, 130, 140	138.3 ± 7.6

Table 17. ASPT scores derived from triplicate three minute kick samples taken at Wimborne sites.

Days from treatment	Site	ASPT	Mean ± SD
-1	WC	5.00, 5.08, 5.00	5.03 ± 0.05
1	WC	4.41, 5.06, 4.83	4.77 ± 0.33
14	WC	4.83, 5.17. 4.55	4.85 ± 0.31
42	WC	5.24, 5.13, 5.43	5.27 ± 0.15
84	WC	5.04, 5.28, 5.33	5.22 ± 0.16
-1	W20	5.50, 5.70, 5.64	5.61 ± 0.10
1	W20	5.50, 5.25, 5.32	5.35 ± 0.13
14	W20	5.36, 5.18, 5.85	5.46 ± 0.35
42	W20	5.85, 5.56, 5.48	5.63 ± 0.19
84	W20	5.86, 5.79, 5,52	5.72 ± 0.18
-1	W50	5.22, 5.12, 4.56	4.97 ± 0.36
1	W50	5.23, 5.00, 5.23	5.15 ± 0.13
14	W50	5.27, 5.15, 5.48	5.30 ± 0.17
42	W50	5.28, 5.05, 5.32	5.22 ± 0.15
84	W50	5.83, 5.19, 5.11	5.83 ± 0.39
-1	W100	4.53, 4.78, 4.95	4.75 ± 0.21
1	W100	5.29, 5.35, 5.00	5.21 ± 0.19
14	W100	5.00, 5.18, 5.05	5.08 ± 0.09
42	W100	5.57, 5.50, 5.09	5.39 ± 0.26
84	W100	5.16, 5.27, 5.10	5.18 ± 0.09
-1	W1000	5.32, 5.42, 5.38	5.37 ± 0.05
1	W1000	5.56, 5.89, 5.27	5.57 ± 0.31
14	W1000	5.36, 5.60, 5.39	5.45 ± 0.13
42	W1000	5.00, 5.41, 5.11	5.17 ± 0.21
84	W1000	5.80, 5.65, 5.83	5.76 ± 0.10

7.4. Drift Sampling

7.4.1 Methods

Drift samples were taken from a control area and four treatment areas, at each treatment site, on three occasions during the hours of daylight on days -1, 0, +1, 28 and 70. Samples were sorted and counted for drifting fauna and to assess the proportions of living and dead Simuliidae and Chironomidae. Samples were also examined for other taxa of invertebrates which might be in a dead or distressed condition. Nocturnal drift samples were taken on days -1, 0 and +1 from control and four treatment sites at Blandford and at Wimborne.

Drift samples were due to be taken on day 4 but this was impossible as water levels were too high following heavy rain.

7.4.2 Results

7.4.2.1 All Fauna except Simuliidae and Chironomidae

Tables 18 and 19 summarise the results of drift samples presented in Appendix 11. The pattern of drift was affected by a number of factors other than treatment with *Bti*, notably the time of year, the time of day and changes in river discharge.

The large increase in numbers of drifting *Ephemera danica* in the Blandford, nocturnal samples on day 1 at the 20m and 50m monitoring sites (Appendix 11) was due to flood disturbance of the bed of the weirpool immediately upstream. The 10 m^2 area of river bed immediately upstream of and subtended by the drift net could not generate such large numbers. This is supported by the facts that the animals were all alive and healthy and there was no evidence of increased drifting in the hours of daylight as might be expected in response to a pollutant or irritant. The fact that no similar increase was observed at Wimborne (where there is no weir pool) confirms this.

At both Blandford and Wimborne there was a tendency for the numbers of diurnally drifting invertebrates (excluding simuliids and chironomids) to increase throughout the study period (Tables 18 & 19). At Blandford the number in controls increased from 2.00 ± 2.28 per sample on pre-treatment day to 33.83 ± 14.05 per sample on day 70. The equivalent numbers, averaged at all four monitoring sites, were 2.04 ± 0.68 on pre-treatment day and 22.8 ± 8.4 on day 70. At Wimborne the numbers were, for the control site, 1.00 ± 0.98 on pre-treatment day and 26.00 ± 23.14 on day 70 and, for the monitoring sites, 1.62 ± 0.36 on pre treatment day and 37.00 ± 11.1 on day 70.

The influence of sampling diurnal and nocturnal drift is equally apparent. On the three occasions on which this comparison could be made (days -1, 0 and +1) the results were as follows. Blandford control averaged 3.44 ± 1.96 per sample in daytime and 10.39 ± 4.38 at night. The Blandford monitoring sites averaged 3.13 ± 0.50 in the daytime and 16.76 ± 5.23 at night. Wimborne control averaged

1.22 ± 0.31 animals per sample in daylight and 6.17 ± 2.37 per sample at night, the monitoring sites averaged 1.57 ± 0.25 per sample in daytime and 4.92 ± 1.39 per sample at night. The differences simply reflect the innate variability of drift between day and night.

Appendix 1 indicates that there was a slight increase in mean discharge of the river on treatment day over pre-treatment day (10% at Throop, 36% at Hammoon) and a continued increase on day 1 (25% at Throop and 257% at Hammoon). In practice, rising water levels on day 1 made it extremely dangerous to take drift samples at night on that date and it was only the high level of skill and dedication shown by the scientists involved that made it possible. The relevant control samples at Blandford contained 1.91 ± 0.08 (day -1), 11.83 ± 4.5 (day 0) and 7.00 ± 6.00 (day 1) animals while the equivalent monitoring site samples contained 3.06 ± 0.96 (day -1), 9.12 ± 3.30 (day 0) and 17.96 ± 9.10 (day 1) animals. The corresponding samples at Wimborne contained (control site) 1.41 ± 0.41 (day -1), 5.91 ± 4.09 (day 0) and 3.75 ± 2.92 (day 1); (monitoring site) 1.81 ± 0.45 (day -1), 4.44 ± 1.63 (day 0) and 3.52 ± 1.64 (day 1). The pattern of changes in drift due to discharge variations can be seen at both control and treatment sites.

The above results show that there were no differences in drift between control and treatment sites on any of the three days, indicating that the effect of *Bti* was negligible.

Table 18. Total number of drifting animals per sample ± s.d. on each sampling occasion at Blandford (excluding Chironomidae and Simuliidae).

		Distance downstream				
Days from treatment	Time	Control	20 m	50 m	100 m	1000 m
-1	Diurnal	2.00±2.28	1.17±0.75	3.83±3.12	2.33±1.97	0.83±1.17
-1	Nocturnal	1.83±1.47	1.33±1.03	6.17±7.00	8.00±7.92	0.83±1.17
0	Diurnal	7.33±2.58	3.50±1.64	4.83±2.31	1.67±0.82	4.50±5.68
0	Nocturnal	16.33±2.58	15.17±7.14	27.83±15.68	14.50±6.80	1.00±1.26
1	Diurnal	1.00±0.89	3.33±4.93	3.00±1.10	5.00±3.63	1.50±1.52
1	Nocturnal	13.00±4.98	59.67±10.20	59.00±14.55	11.33±7.42	0.83±0.98
28	Diurnal	16.33±9.85	0.00±0.00	12.33±7.00	2.83±2.56	2.00±2.76
70	Diurnal	33.83±14.05	3.50±2.95	36.50±27.39	37.50±17.81	14.00±8.46

Table 19. Total number of drifting animals per sample ± s.d. on each sampling occasion at Wimborne (excluding Chironomidae and Simuliidae).

		Distance downstream				
Days from treatment	Time	Control	20 m	50 m	100 m	1000 m
-1	Diurnal	1.00±0.89	1.50±1.52	2.67±1.37	1.33±2.34	1.00±0.63
-1	Nocturnal	1.83±1.47	2.67±3.50	4.17±3.54	1.00±1.10	0.17±0.41
0	Diurnal	1.83±1.17	3.33±1.03	2.50±0.84	1.00±1.26	1.33±1.51
0	Nocturnal	10.00±4.70	10.50±3.67	12.83±3.49	3.17±2.64	0.83±0.41
1	Diurnal	0.83±0.75	0.50±0.84	2.00±0.89	0.83±0.41	0.83±0.98
1	Nocturnal	6.67±3.67	10.33±5.01	11.50±4.09	2.33±1.63	0.00±0.00
28	Diurnal	32.00±33.57	68.67±67.76	34.00±25.16	12.00±14.91	22.00±8.15
70	Diurnal	26.00±23.14	66.00±29.55	40.17±24.96	14.00±6.54	27.67±16.03

Dead:Live ratios

The number of dead or distressed animals (excluding simuliids and chironomids) in drift samples was generally very small (Appendix 11). High mortalities of Ephemerellidae and Caenidae at Blandford in the diurnal drift on day 70 days were due to accidental overheating of samples placed in the back of a Land Rover.

7.4.2.2 Simuliidae and Chironomidae

With regard to the simuliids and chironomids the numbers drifting were small on most occasions. There is always a possibility of a small pieces of detached weed, bearing large numbers of larvae, entering nets and thus distorting the pattern of drifting activity. This is likely to be the explanation of the apparent increase in numbers of live simuliids at Blandford in diurnal drift at the control site on treatment day and on day 28.

Other than the above anomalies and occasional high counts of living chironomids which may be explained by similar events, the only consistent changes in drift were in the numbers of dead simuliids, particularly on day 1, at both Blandford and Wimborne. No quantitative significance can be attached to these observations but they are clearly an indication of the downstream translocation of larvae which detached following *Bti* induced mortality (Appendix 12).

7.5 Effect on Dixidae

It was known from the literature that *Bti* may be slightly toxic to Dixidae. For this reason, sampling of this group was undertaken separately.

7.5.1 Methods

The surface film of the water along the river margins was sampled at all sites with a pond-net on pre-treatment day and at the end of the monitoring period after 84 days. All samples were examined for the presence of Dixidae. In addition, all 3 minute kicks taken during the monitoring period were also examined for individuals of this family.

7.5.2 Results

No Dixidae were found at any time or at any site.

The IFE has an extensive data base of invertebrates collected from 273 river systems in England and Wales (Table 21). Only one species of Dixidae (*Dixa puberula*) was found in the spring and this only occurred at three sites. The data also show that Dixidae live mainly in headwater streams and are virtually absent further than 10-20Km from the source. The data also show their association with first and second order streams. The Stour at the monitoring sites is fifth or sixth order.

Clearly the season of the year and the size of the Stour between Blandford and Wimborne made it unlikely that dixids would be found although they do occur in the Stour catchment mainly in the tributaries of the Moors river (Birches Copse, Mannington Brook, R.Crane and R. Ed).

Treatment with *Bti* at the appropriate season (early spring) will have no effect on this family of insects.

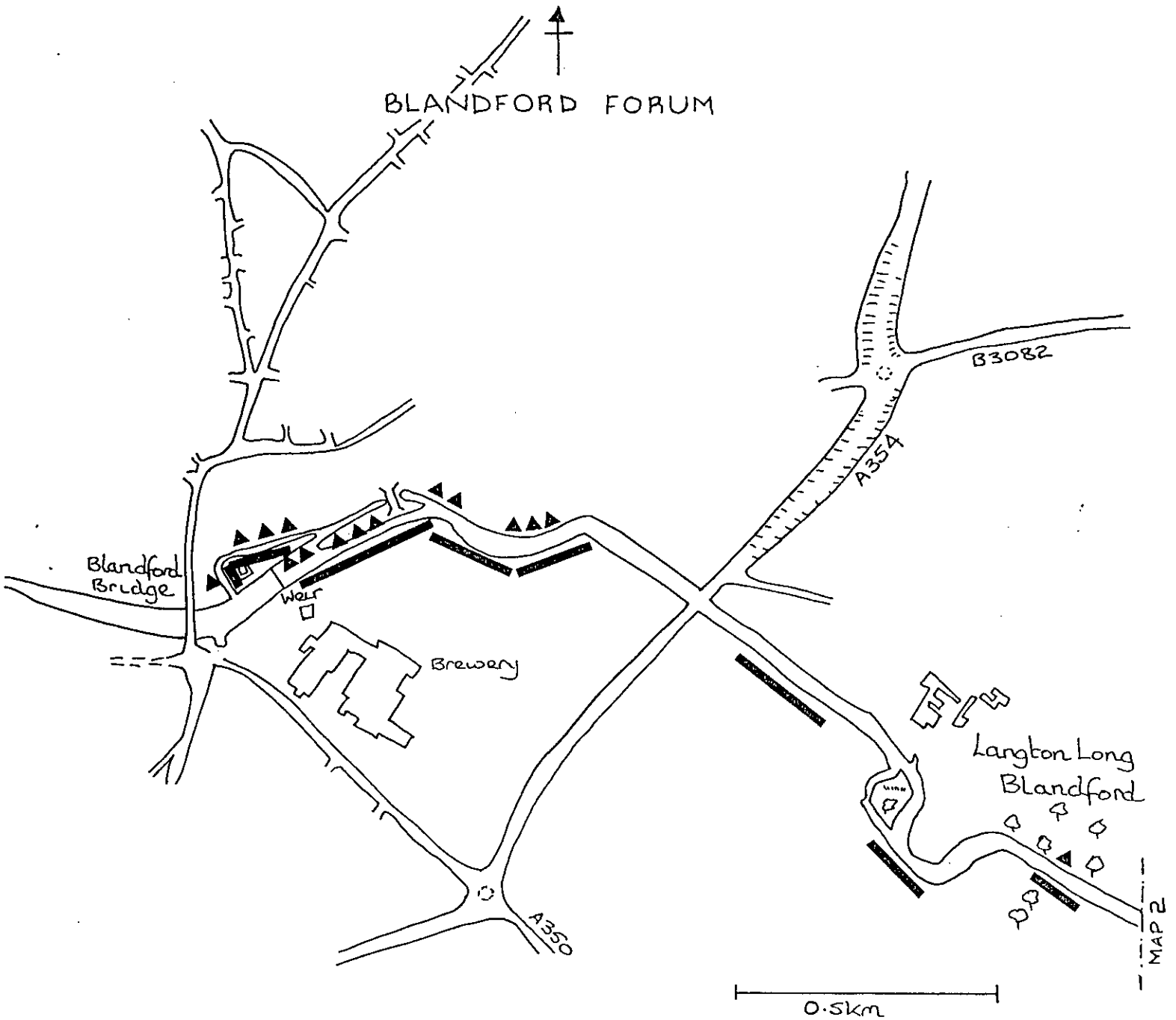
Table 21. Occurrence of Dixidae at 273 river sites in Spring, Summer and Autumn.

"Species"	Spring	Summer	Autumn
Dixidae	0	1	0
Dixa sp.	0	1	0
Dixa nebulosa	0	11	7
Dixa maculata gp	0	2	3
Dixa puberula	3	4	2
Dixella autumnalis	0	0	2
TOTAL	3	19	14

MAPS 1-11

Sections of R. Stour showing areas of infestation of *S. posticatum* and areas of shallow water

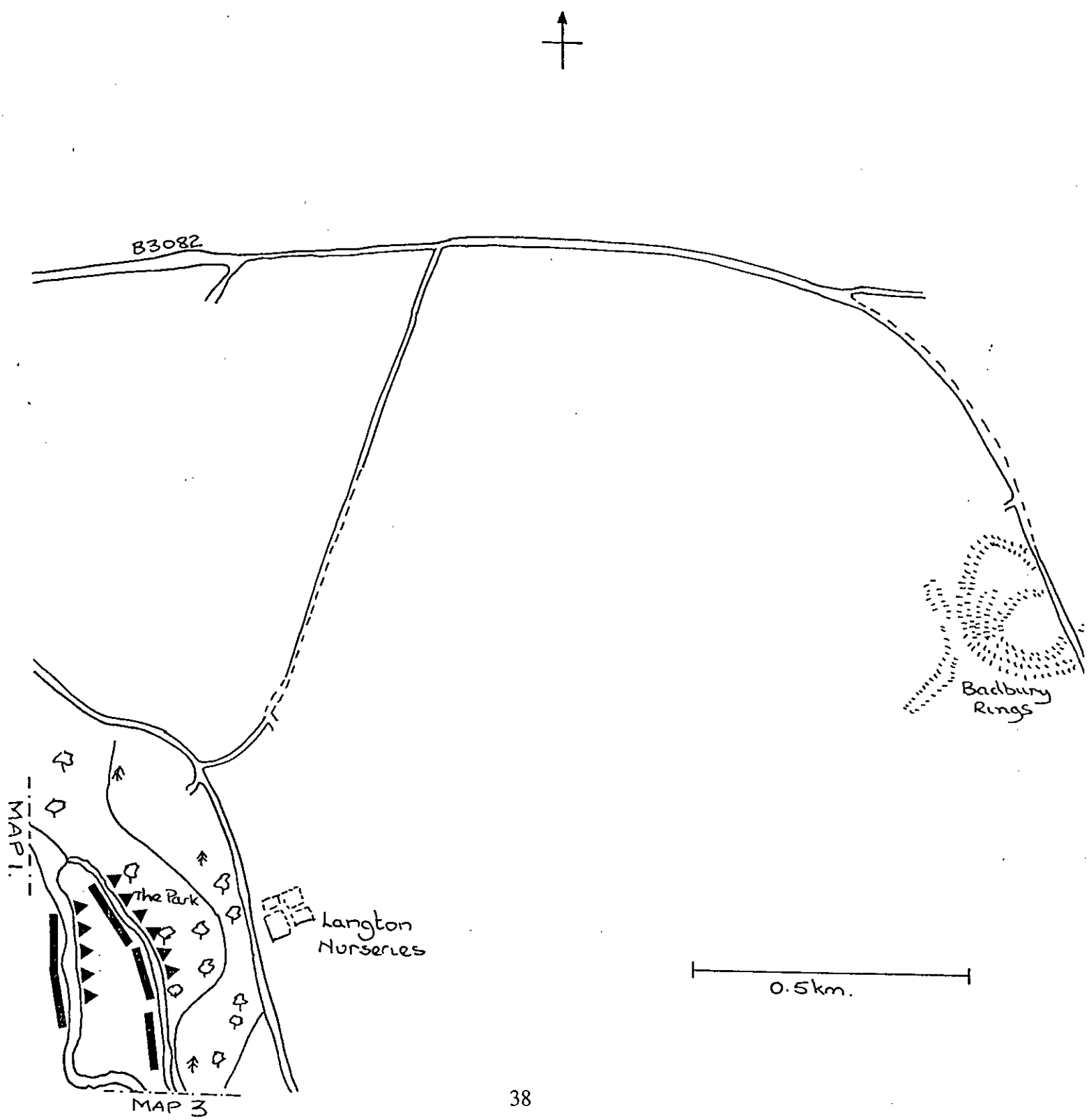
MAP 1



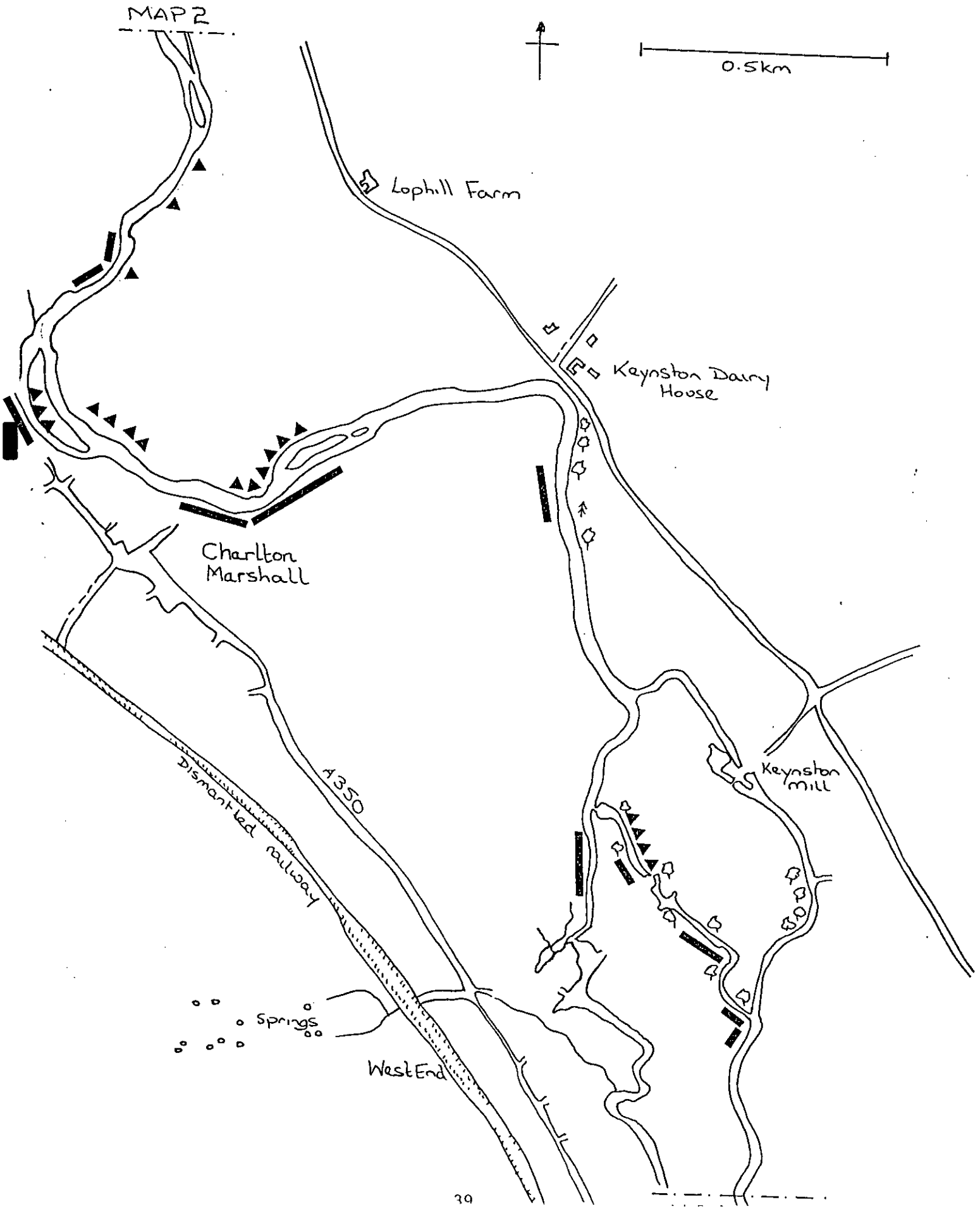
KEY : ▬▬ RIVER DEPTH OF ⩽ 1m

▲▲ SITES WHERE S.posticatum LARVAE WERE FOUND

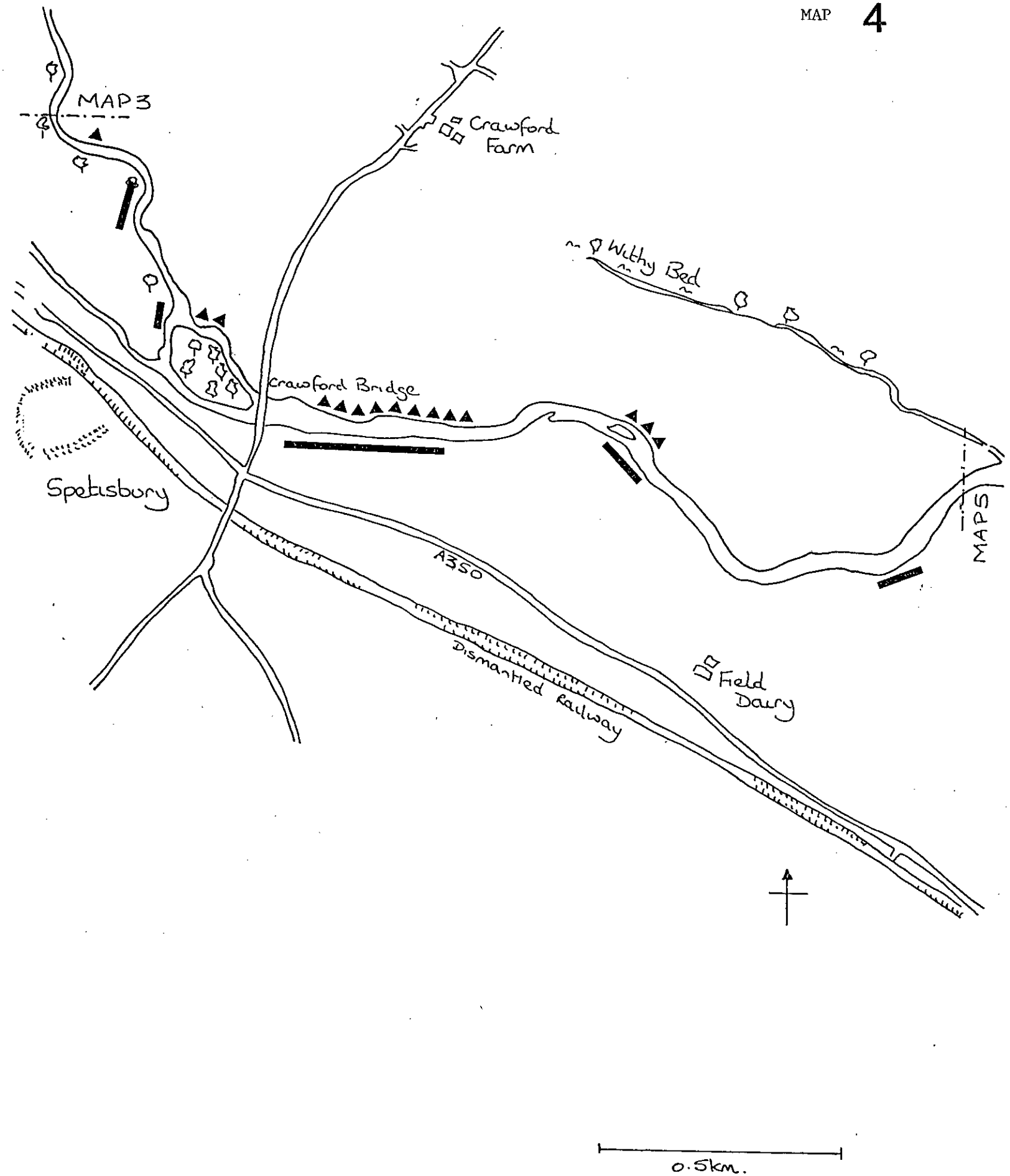
MAP 2


B3082
Badbury Rings
MAP 1
The Park
Langton Nurseries
MAP 3
0.5km.

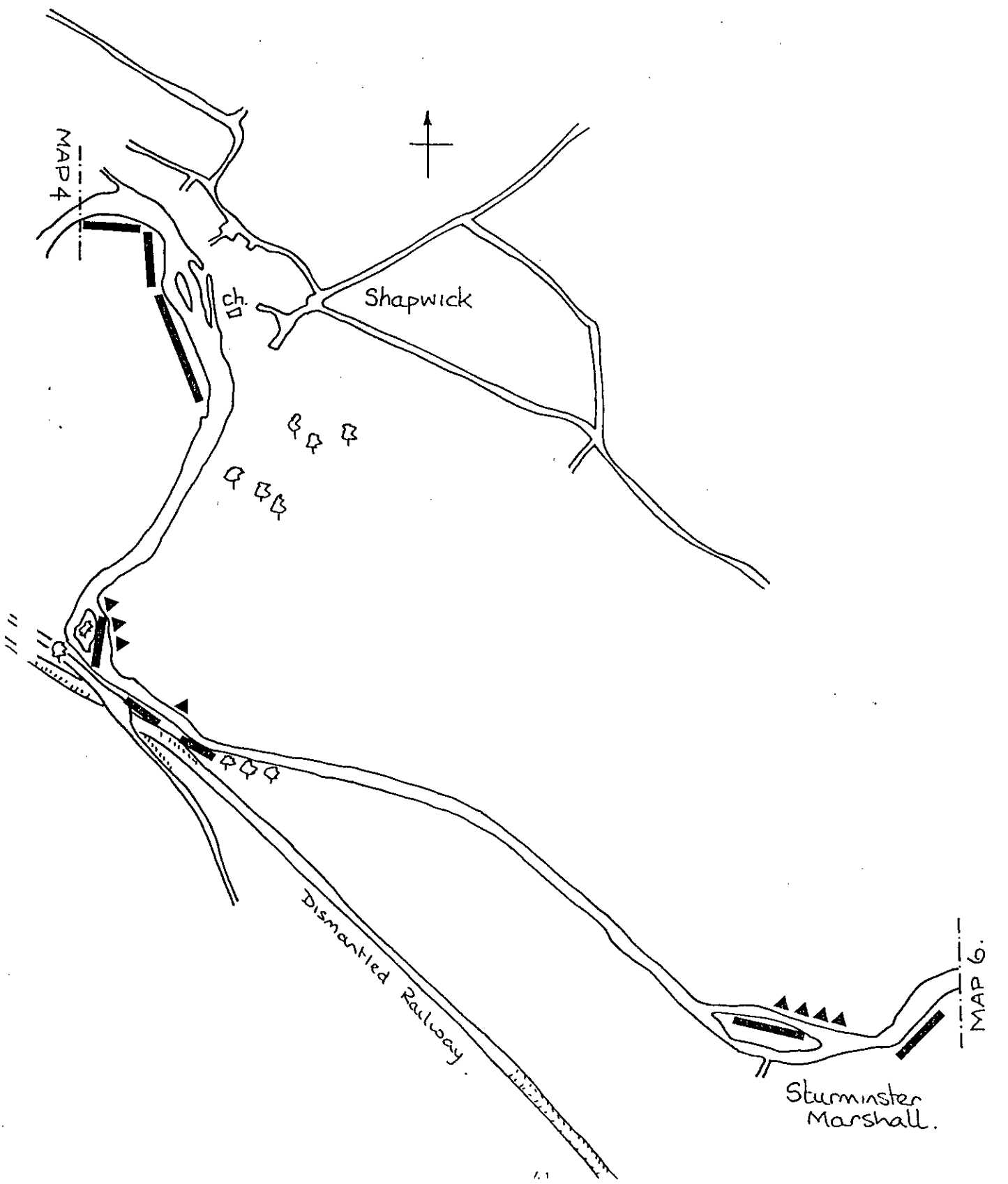
MAP 3

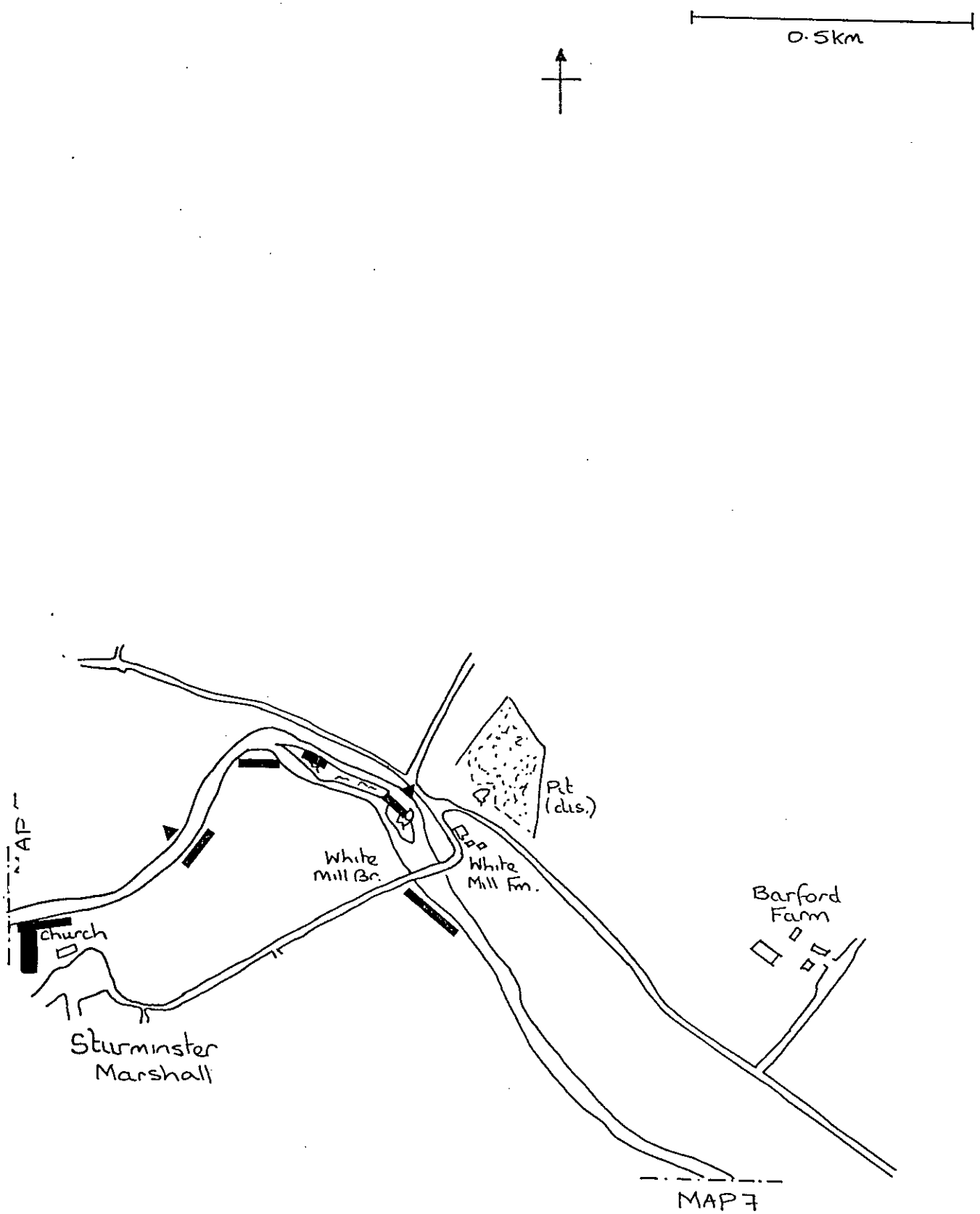

MAP 2
0.5km
Lophill Farm
Keynston Dairy House
Charlton Marshall
A350
Dismantled railway
Springs
West End
Keynston Mill

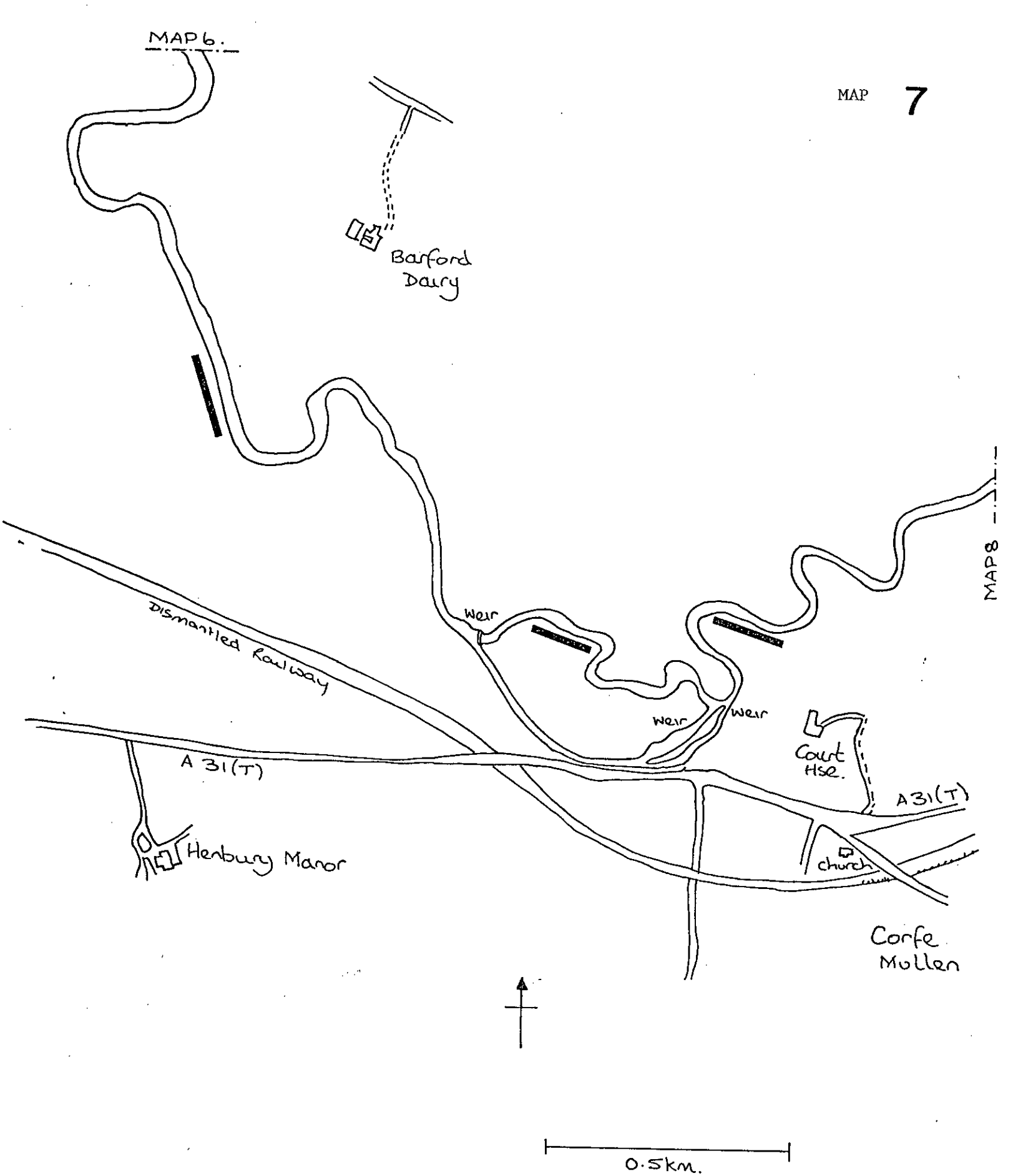
MAP 4

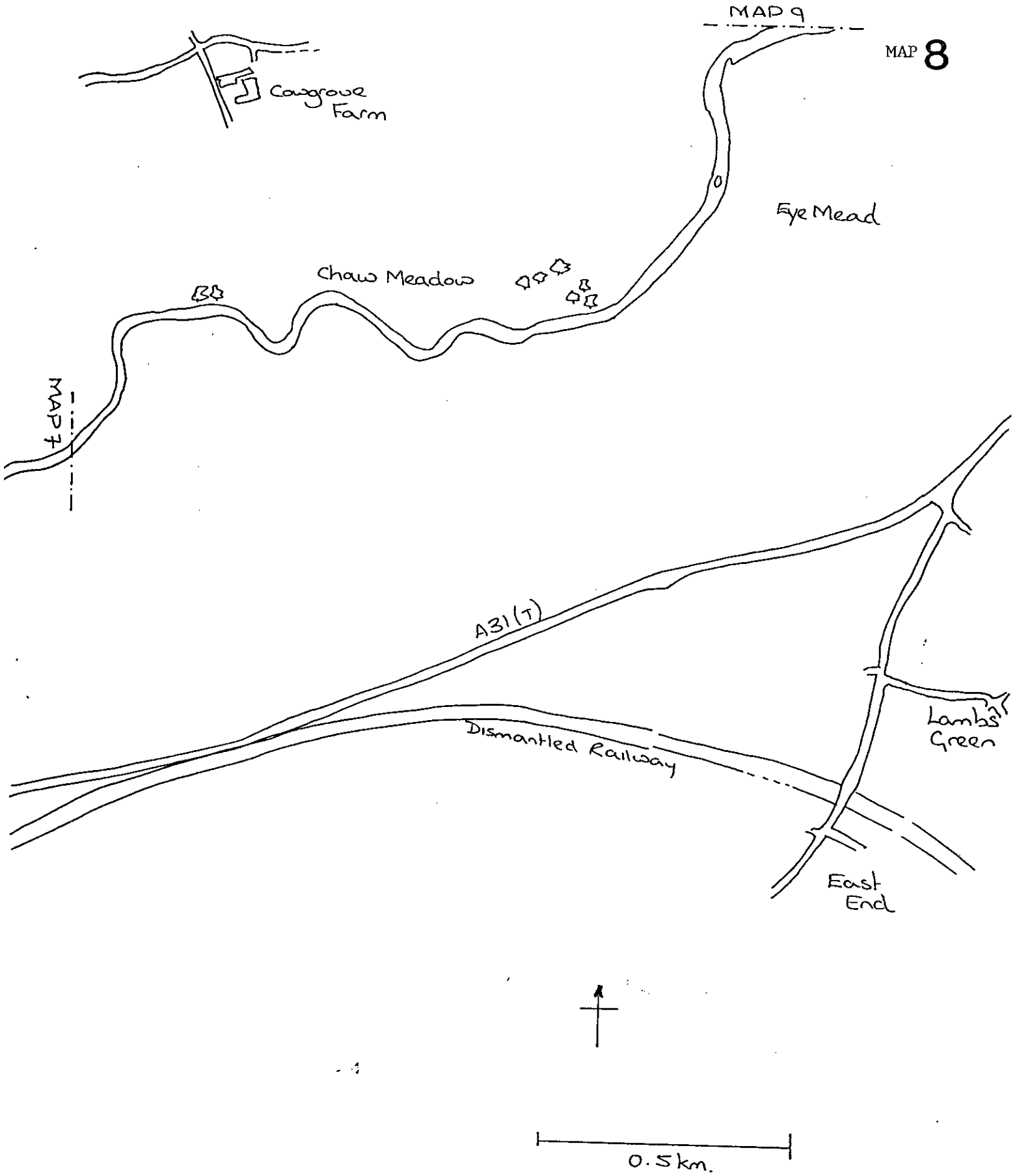

MAP 3
Crawford Farm
Withy Bed
Crawford Bridge
Spetisbury
A350
Dismantled Railway
Field Dairy
MAP 5
0.5km.

MAP 5

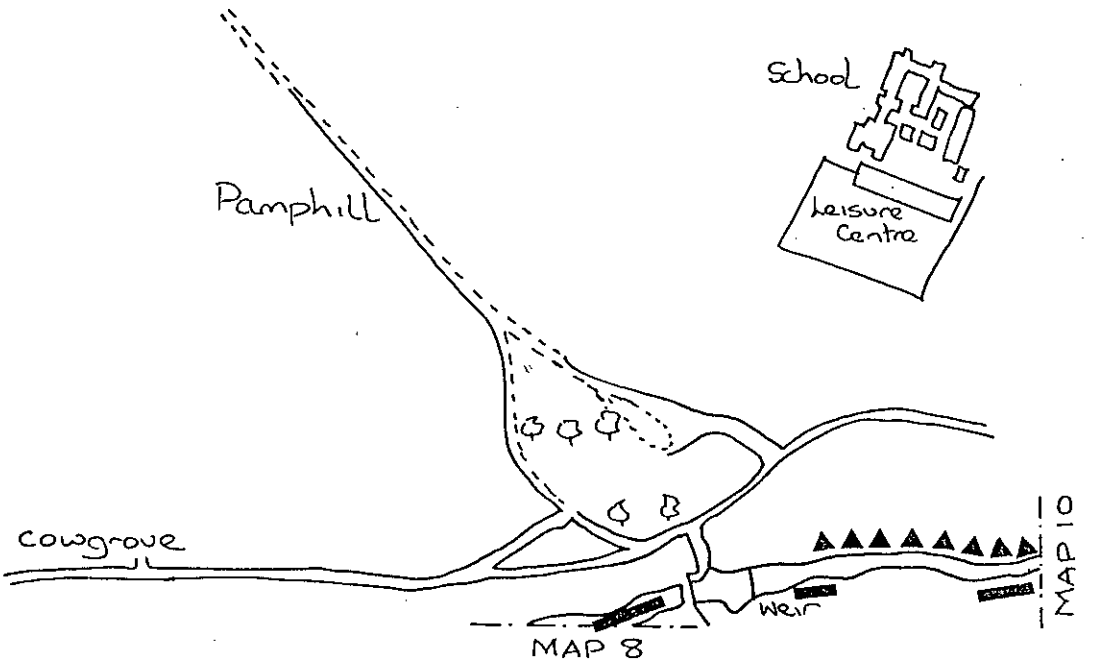

0·5km.
MAP 4
ch.
Shapwick
Dismantled Railway
MAP 6
Sturminster Marshall.

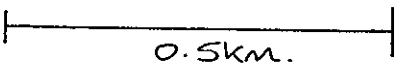

0·5km
Pit (dis.)
White Mill Br.
White Mill Fm.
Barford Farm
church
Sturminster Marshall
MAP 7

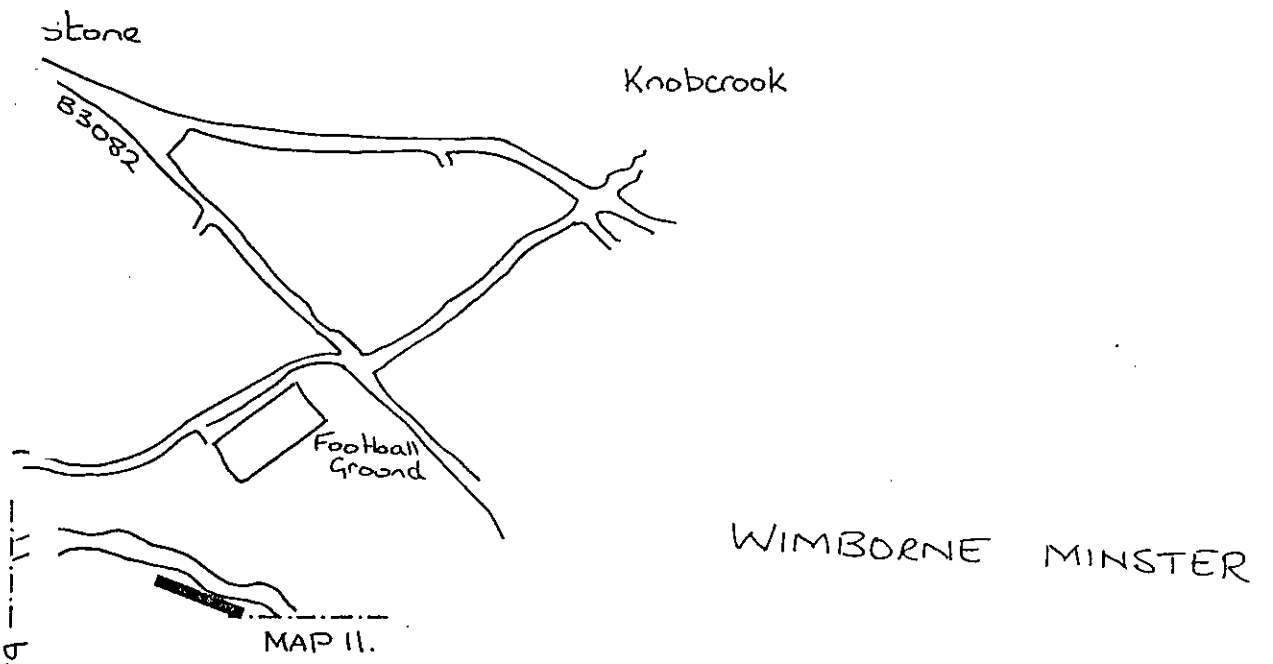

MAP 6.
MAP 7
Barford Dairy
Weir
Weir
Weir
Dismantled Railway
A 31(T)
A 31(T)
Court Hse.
Henbury Manor
church
Corfe Mullen
MAP 8
0.5km.

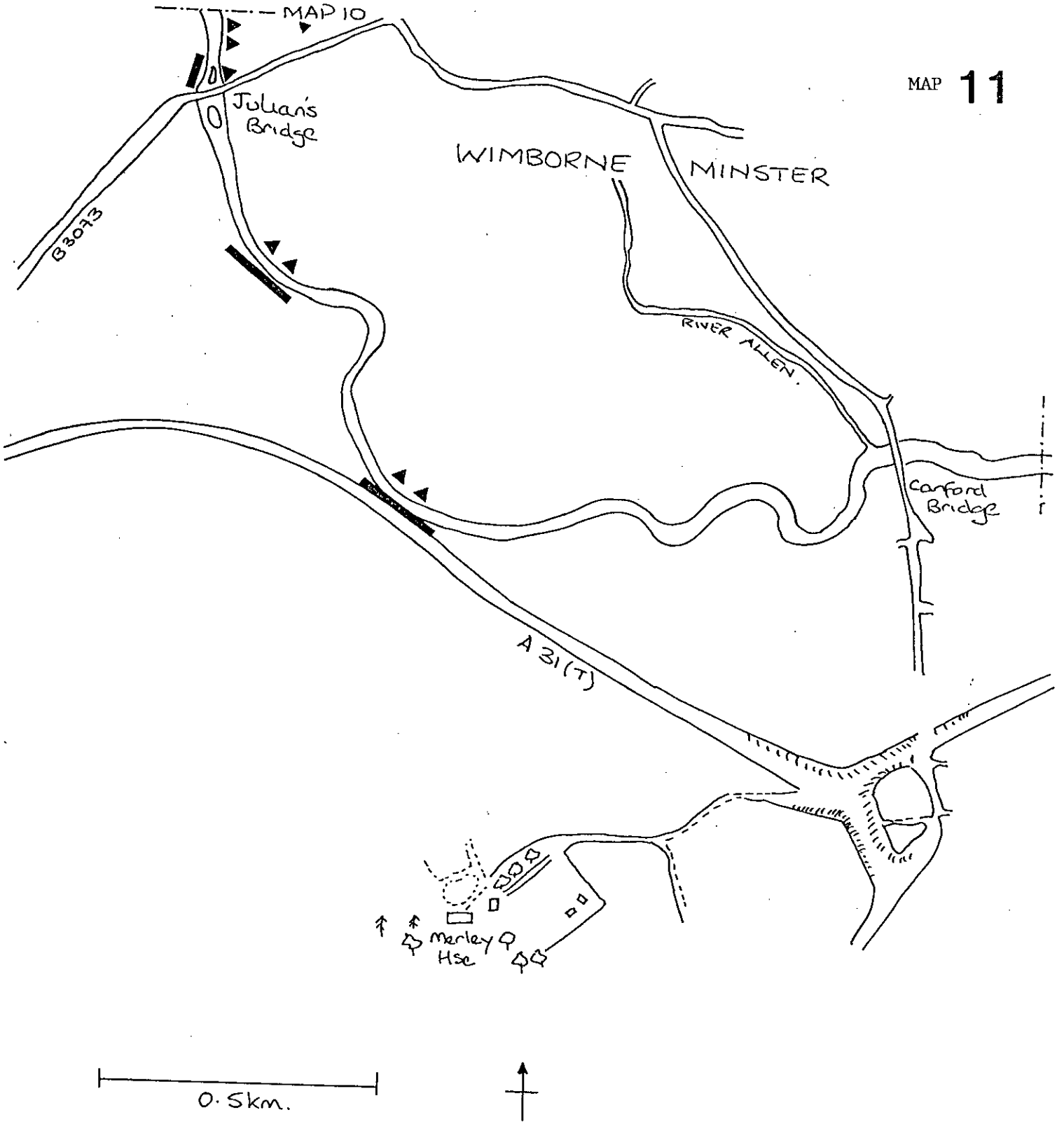

MAP 9
MAP 8
Cowgrove Farm
Eye Mead
Chaw Meadow
MAP 7
A31 (T)
Dismantled Railway
Lambs Green
East End
0.5km.


0·5km


School
Leisure Centre
Pamphill
Cowgrove
Weir
MAP 8
MAP 10


0.5km.


Stone
Knobcrook
B3082
Football Ground
WIMBORNE MINSTER
MAP 11.
MAP 9


MAP 10
MAP 11
Julian's Bridge
WIMBORNE
MINSTER
B3073
RIVER ALLEN
Canford Bridge
A 31(T)
Merley Hse
0·5km.

APPENDIX 1

NRA data on flows of the R. Stour

Your Ref:
Our Ref: RDS/EWW/CP270.1

Date: 3 April 1991

NRA

National Rivers Authority
Wessex Region

Dr M Ladle
Institute of Freshwater Ecoloy
The River Laboratory
East Stoke
WAREHAM
Dorset BH20 6BB

Dear Dr Ladle

Further to your request for information relating to flow estimation on the River Stour we have examined the records and regret there are insufficient current meter gaugings in the Middle Stour to be of use to you.

However, I enclose two maps and two graphs giving an indication of the order of gain in the Middle Stour at times of low flows, that is at flows which are exceeded 95% of the time.

Also enclosed is a graph showing the change throughout the year in ratio of flows recorded at Throop to the sum of those recorded at Hammon and Walford Mill, which may be of use.

However any estimate based on these will be unreliable, and it would be better if you could arrange for current meter gauging at appropriate times and sites.

Yours sincerely

Richard Symonds

R D Symonds
Principal Engineer (Resources)

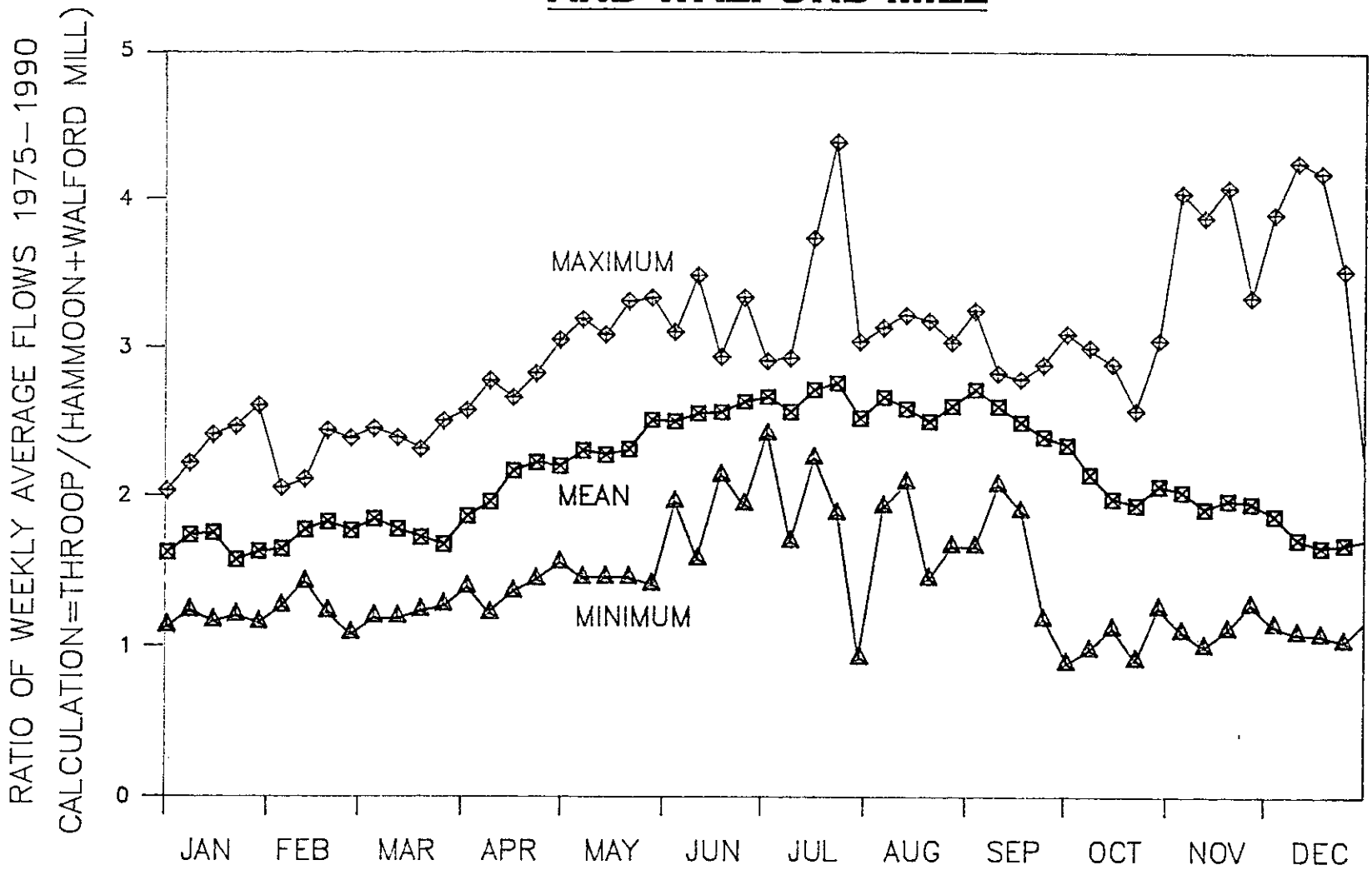
Encls.

COMM/3446/M

Rivers House
East Quay
Bridgwater
Somerset TA6 4YS
Tel: (0278) 457333
Fax: (0278) 452985

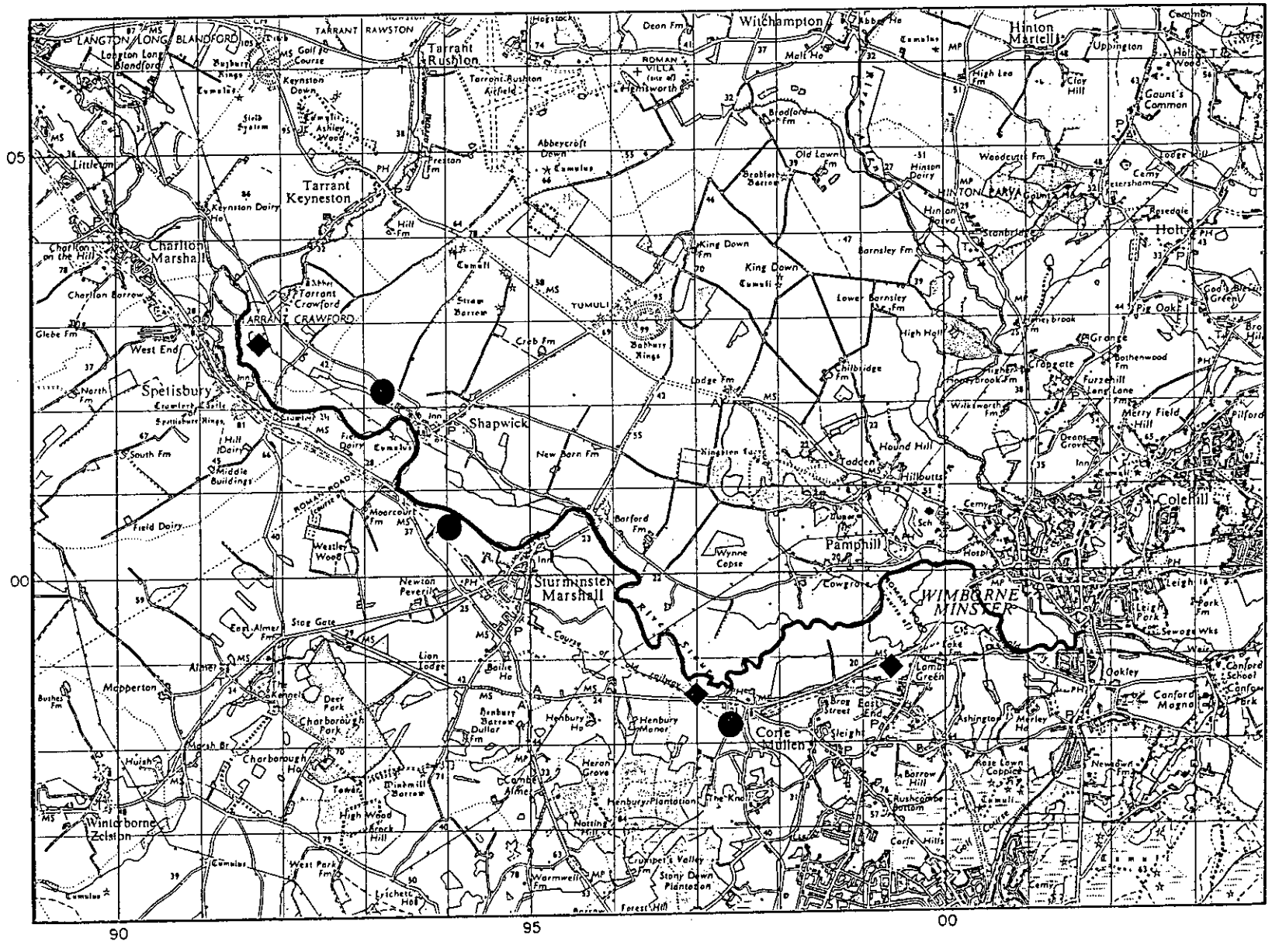
NRA WESSEX REGION

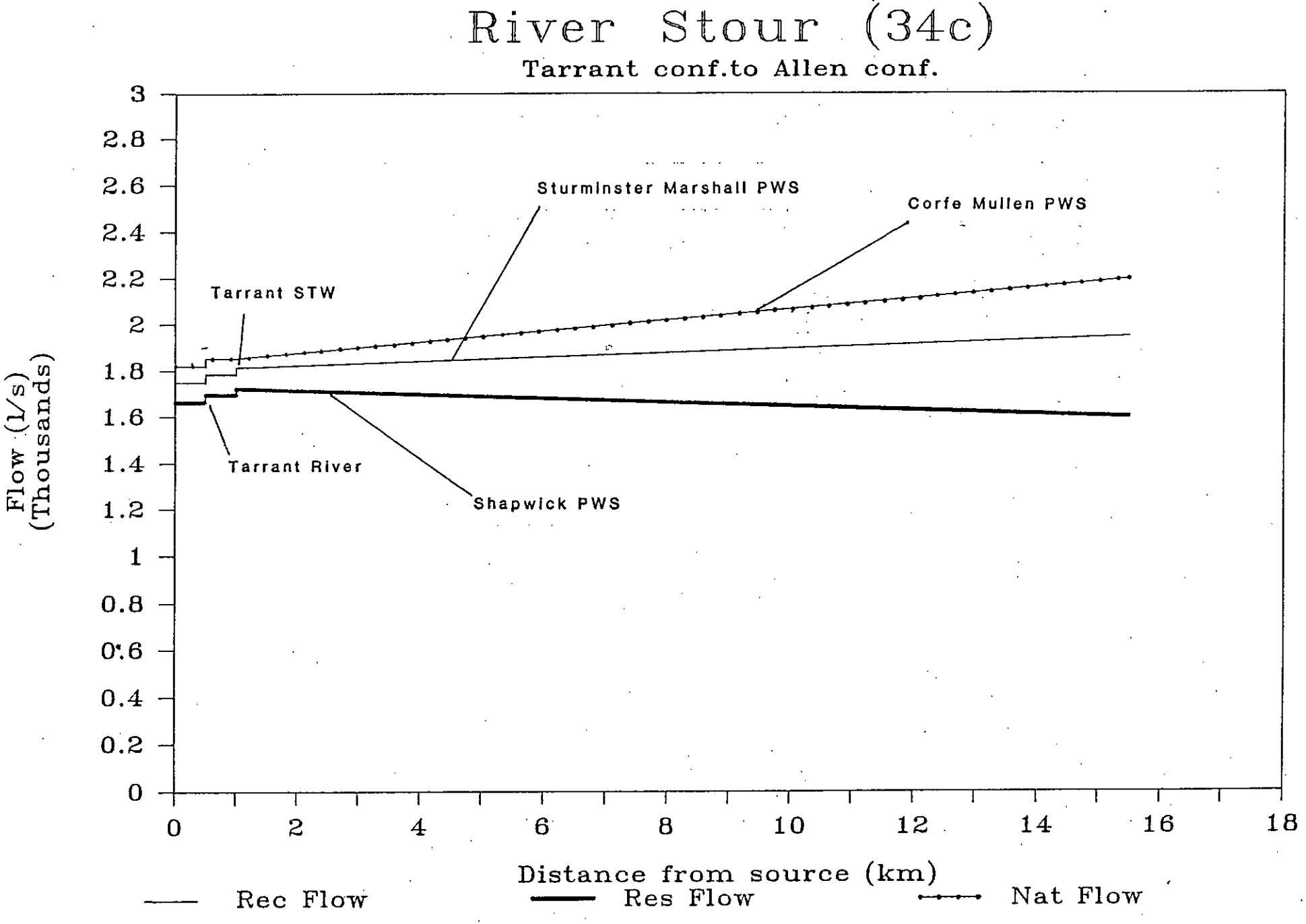
RELATIONSHIP OF FLOWS AT THROOP,HAMMOON AND WALFORD MILL



River Stour from Tarrant Crawford to Wimborne

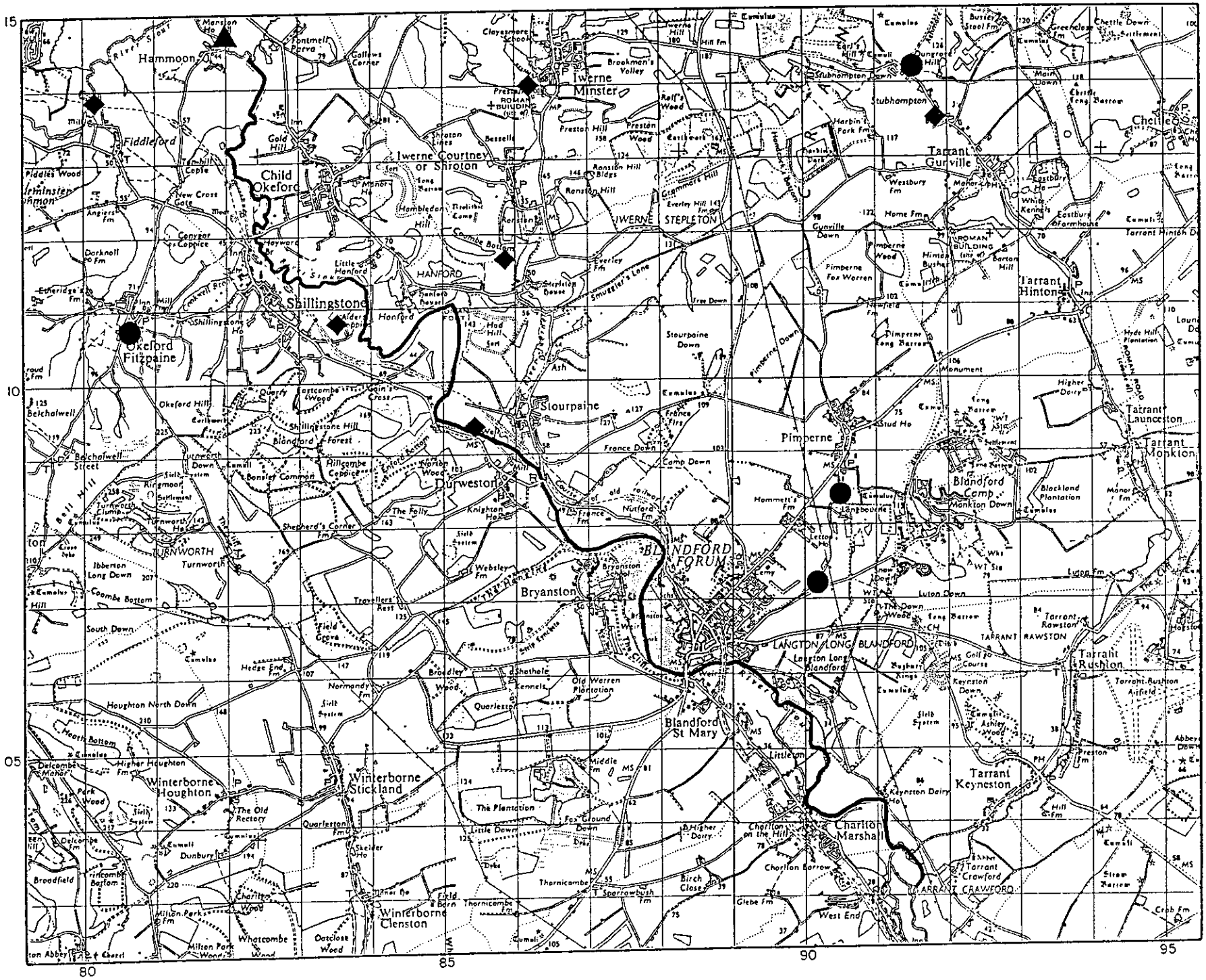
Catchment 34c




River Stour (34c)
Tarrant conf.to Allen conf.
Flow (l/s) (Thousands)
3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
2
4
6
8
10
12
14
16
18
Distance from source (km)
Sturminster Marshall PWS
Corfe Mullen PWS
Tarrant STW
Tarrant River
Shapwick PWS
Rec Flow
Res Flow
Nat Flow

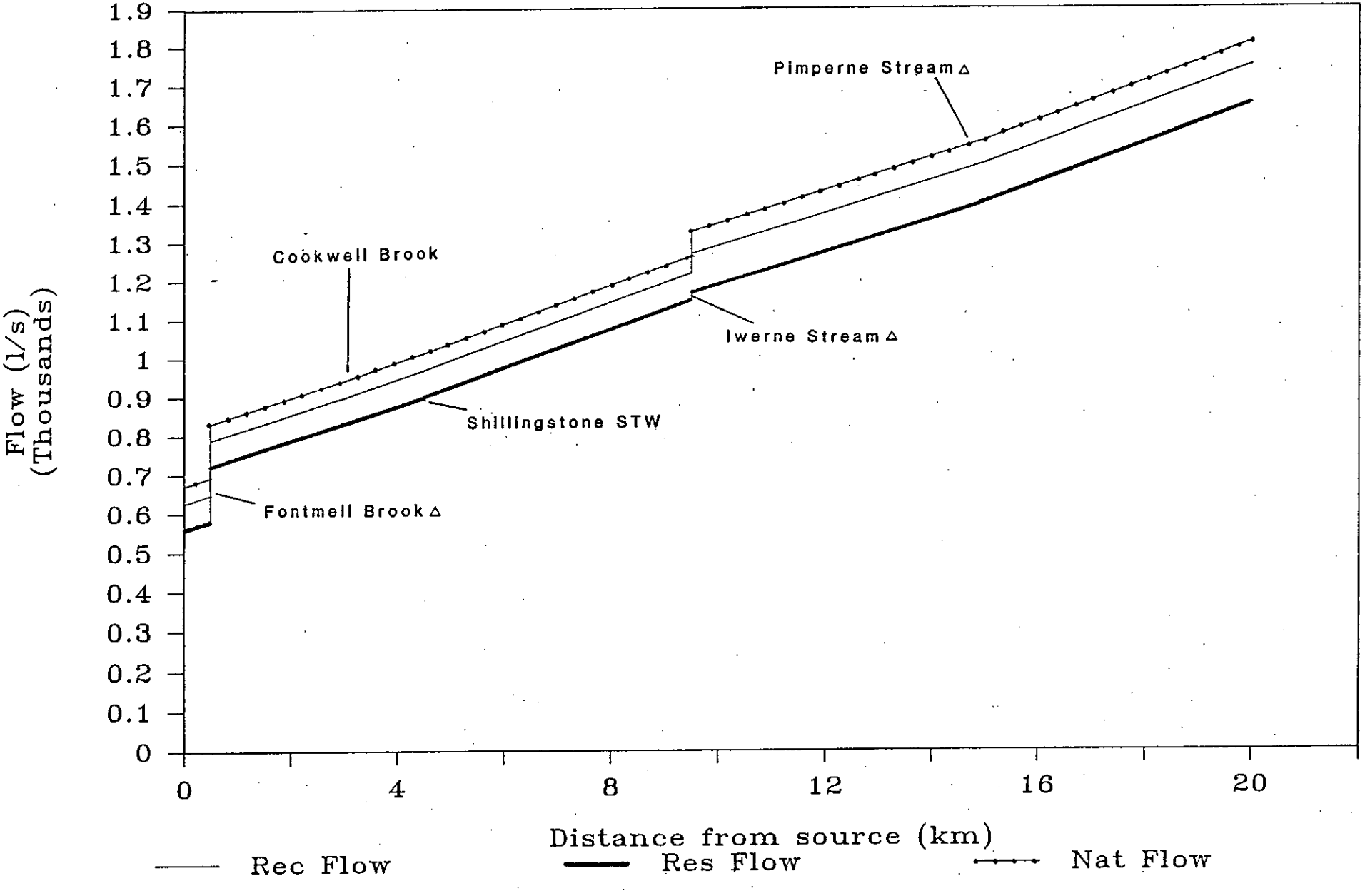
River S[illegible] from Hammoon to Tarrant C[illegible]

Catchment 34b



River Stour (34b)

Fontmell conf. to Tarrant conf.



Discharge values from NRA gauging station on the R. Stour at Hammoon in April.
April 2 = pre-treatment day (day - 1)
April 3 = treatment day (day 0)
April 4 = day 1
April 10 = day 7
April 17 = day 14

DATE PROCESSED : 02/05/91 WESSEX WATER AUTHORITY

STATION 430013 HAMMOON RIVER RIVER STOUR GRID REF ST82001470

TYPE CMPND CRMP+DIV WLLS AREA 523.100 SQ.KM. RAINFALL 0

INSTRUMENTATION TG1150+PTR+MNR COMMENT AVON&D SOURCE CODE 0

** APRIL 1991 **

DAY	TCMD	DISCHARGE IN CUMECS MEAN	HIGHEST	STAGE IN MILLIMETRES LOWEST	MEAN	HIGHEST	TIME	LOWEST	TIME	DAY
1	244.2	2.827	3.035	2.714	344	354	08 45	339	20 30	1
2	383.0	4.433	5.567	3.057	411	453	08 45	355	09 00	2
3	525.1	6.077	6.412	5.567	470	481	08 45	453	09 00	3
4	1870.0	21.736	33.997	6.443	960	1331	08 30	482	09 00	4
5	1999.1	23.138	33.944	12.716	926	1328	09 00	651	08 45	5
6	1310.8	15.171	25.834	10.302	700	906	08 45	592	15 30	6
7	1776.3	20.559	27.887	13.368	815	996	15 00	666	08 45	7
8	889.9	10.300	13.324	6.537	591	665	09 00	485	08 45	8
9	578.5	6.696	7.279	4.916	490	508	18 00	430	10 15	9
10	502.3	5.813	6.443	5.130	461	482	09 30	438	08 45	10
11	420.8	4.870	5.130	4.485	428	438	10 15	414	08 45	11
12	373.2	4.319	4.485	3.997	408	414	15 30	395	08 45	12
13	320.4	3.708	4.047	3.419	383	397	16 00	371	08 45	13
14	272.7	3.157	3.419	2.991	359	371	09 00	352	08 45	14
15	248.7	2.878	3.035	2.735	347	354	16 15	340	08 45	15
16	231.5	2.679	2.840	2.611	337	345	16 30	334	08 45	16
17	220.9	2.557	2.652	2.410	331	336	13 30	324	08 45	17
18	195.5	2.263	2.430	2.179	316	325	16 30	312	20 45	18
19	186.4	2.157	2.217	2.095	310	314	21 15	306	08 45	19
20	180.7	2.092	2.142	2.013	306	310	20 15	298	08 45	20
21	169.4	1.960	2.095	1.912	293	306	13 30	288	01 00	21
22	165.6	1.917	2.095	1.072	288	306	14 00	284	20 30	22
23	155.8	1.803	1.932	1.734	277	290	17 15	270	23 00	23
24	153.1	1.772	2.013	1.647	274	298	14 00	261	20 45	24
25	206.1	2.385	2.969	1.734	319	351	08 30	270	09 00	25
26	217.9	2.522	2.948	2.105	329	350	10 00	307	08 45	26
27	171.5	1.985	2.105	1.901	295	307	17 30	287	08 45	27
28	213.5	2.471	3.035	1.891	323	354	21 00	286	15 30	28
29	331.0	3.831	17.746	0.706	322	759	08 45	149	16 45	29
30	2474.5	28.640	35.363	14.717	1101	1410	17 15	696	08 45	30

** MONTHLY SUMMARY **

HIGHEST FLOW	35.363	DAY 30
LOWEST FLOW	0.706	DAY 29
MAX DAILY MEAN	28.640	DAY 30
MIN DAILY MEAN	1.772	DAY 24
MONTHLY MEAN	6.557	
MONTHLY MEAN	566.546	THOUSAND CU METRES/DAY
MONTHLY TOTAL	196.717	
MONTHLY TOTAL	16996.389	THOUSAND CU METRES
MEAN/SQ.KM	12.535	LITRES/SEC/SQ.KM.
RUNOFF	32	MM

Discharge values from NRA gauging station on the R. Stour at Hammoon in May.
May 1 = day 28
May 15 = day 42
May 29 = day 56

DATE PROCESSED : 03/06/91

WESSEX WATER AUTHORITY

STATION 430913 HAMMOON

TYPE CMPND CRMP+DIV WLLS

INSTRUMENTATION TG1150+PTR+MNR

RIVER RIVER STOUR

AREA 523.100 SQ.KM.

COMMENT AVON&D

GRID REF ST82001470

RAINFALL 0

SOURCE CODE 0

** MAY 1991 **

DAY	TCMD	DISCHARGE IN CUMECS MEAN	HIGHEST	STAGE IN MILLIMETRES LOWEST	MEAN	HIGHEST	TIME	LOWEST	TIME	DAY
1	724.7	8.388	14.397	6.600	538	689	09 00	487	13 15	1
2	471.0	5.451	6.600	4.485	448	487	09 15	414	08 45	2
3	340.2	3.937	4.458	3.489	392	413	09 15	374	08 45	3
4	297.2	3.440	3.655	3.304	372	381	18 00	366	08 45	4
5	226.2	2.618	3.304	1.695	331	366	09 00	266	16 15	5
6	223.5	2.587	2.777	2.490	333	342	13 30	328	08 45	6
7	240.3	2.781	3.190	2.490	342	361	06 00	328	09 00	7
8	273.5	3.166	3.281	2.991	360	365	22 45	352	08 45	8
9	238.9	2.765	2.991	2.450	341	352	09 30	326	08 45	9
10	192.4	2.227	2.450	2.074	314	326	09 30	304	03 45	10
11	173.9	2.013	2.116	1.952	298	308	14 15	292	08 45	11
12	161.3	1.867	1.972	1.744	283	294	22 15	271	08 45	12
13	151.0	1.747	1.872	1.647	271	284	14 30	261	08 45	13
14	139.4	1.613	1.753	1.543	257	272	13 30	250	08 45	14
15	131.8	1.525	1.543	1.442	248	250	03 30	239	08 45	15
16	125.2	1.449	1.506	1.415	240	246	14 15	236	08 45	16
17	123.9	1.434	1.488	1.397	238	244	18 15	234	15 30	17
18	121.8	1.410	1.451	1.379	235	240	18 45	232	08 45	18
19	121.3	1.404	1.506	1.361	235	246	18 30	230	08 45	19
20	118.8	1.375	1.406	1.334	232	235	05 15	227	15 45	20
21	114.2	1.322	1.397	1.220	226	234	17 15	214	08 45	21
22	106.7	1.235	1.290	1.177	216	222	03 15	209	08 45	22
23	97.4	1.127	1.290	1.019	203	222	14 00	190	24 15	23
24	100.4	1.163	1.281	1.101	207	221	18 00	200	09 00	24
25	97.2	1.125	1.220	1.060	203	214	18 45	195	02 00	25
26	91.4	1.058	1.186	1.003	195	210	18 45	189	03 15	26
27	90.9	1.053	1.186	0.995	194	210	18 30	187	08 45	27
28	87.2	1.009	1.135	0.963	189	204	18 30	183	03 15	28
29	86.2	0.998	1.019	0.987	187	190	15 00	186	20 45	29
30	86.9	1.005	1.135	0.971	188	204	19 30	184	08 45	30
31	85.8	0.993	1.036	0.971	187	192	29 30	184	09 00	31

** MONTHLY SUMMARY **

HIGHEST FLOW	14.397	DAY 1	
LOWEST FLOW	0.963	DAY 28	
MAX DAILY MEAN	8.388	DAY 1	
MIN DAILY MEAN	0.993	DAY 31	
MONTHLY MEAN	2.106		
MONTHLY MEAN	181.955	THOUSAND CU METRES/DAY	
MONTHLY TOTAL	65.285		
MONTHLY TOTAL	5640.599	THOUSAND CU METRES	
MEAN/SQ.KM	4.026	LITRES/SEC/SQ.KM.	
RUNOFF	11	MM	

Discharge values from NRA gauging station on the R. Stour at Hammoon in June.
June 12 = day 70
June 26 = day 84

DATE PROCESSED : 04/07/91 WESSEX WATER AUTHORITY

STATION 430013 HAMMOON RIVER RIVER STOUR GRID REF ST82901470

TYPE CMPND CRMP+DIV WLLS AREA 523.100 SQ.KM. RAINFALL 0

INSTRUMENTATION TG1150+PTR+MNR COMMENT AVON&D SOURCE CODE 0

** JUNE 1991 **

	DISCHARGE IN CUMECS			STAGE IN MILLIMETRES						
DAY	TOMD	MEAN	HIGHEST	LOWEST	MEAN	HIGHEST	TIME	LOWEST	TIME	DAY
1	85.6	0.990	1.110	0.855	196	201	15 00	182	04 30	1
2	81.9	0.948	1.011	0.900	181	189	19 00	175	04 00	2
3	72.0	0.833	0.916	0.692	166	177	10 30	147	19 00	3
4	77.8	0.901	0.971	0.861	175	184	15 15	170	03 15	4
5	84.0	0.973	1.186	0.885	194	210	08 00	173	15 00	5
6	95.2	1.102	1.169	1.068	200	208	09 00	196	01 30	6
7	100.1	1.159	1.220	1.085	207	214	04 15	198	09 00	7
8	99.5	1.149	1.203	1.101	206	212	20 15	200	13 00	8
9	97.7	1.131	1.211	1.052	203	213	15 30	194	23 15	9
10	101.0	1.169	1.220	1.093	209	214	08 45	199	13 45	10
11	107.7	1.247	1.325	1.220	217	226	16 30	214	02 30	11
12	108.0	1.250	1.272	1.220	217	220	08 45	214	12 30	12
13	112.2	1.299	1.334	1.237	223	227	07 15	216	12 15	13
14	105.0	1.215	1.307	1.143	213	224	10 00	205	20 45	14
15	102.2	1.182	1.281	1.127	210	221	08 45	203	02 00	15
16	115.3	1.335	1.361	1.281	227	230	08 00	221	09 00	16
17	115.0	1.331	1.352	1.290	227	229	10 30	222	08 45	17
18	103.5	1.198	1.290	1.135	211	222	09 00	204	08 45	18
19	93.5	1.083	1.135	1.044	198	204	10 00	193	20 15	19
20	85.8	0.993	1.052	0.963	187	194	09 45	183	20 15	20
21	80.8	0.936	0.987	0.877	180	186	09 15	172	20 00	21
22	77.2	0.893	0.931	0.854	174	179	22 15	169	14 30	22
23	142.7	1.651	2.530	0.892	254	330	08 45	174	09 00	23
24	1606.5	19.593	28.534	2.510	755	1039	24 30	329	11 45	24
25	1335.6	15.458	24.475	9.613	707	883	09 00	574	08 45	25
26	543.2	6.287	9.463	5.279	476	570	09 00	443	22 45	26
27	397.3	4.598	5.480	4.022	418	450	09 00	396	02 30	27
28	389.1	4.503	5.509	3.190	413	451	15 30	361	08 45	28
29	189.1	2.188	3.168	1.872	307	360	09 30	284	19 00	29
30	148.4	1.717	1.942	1.562	268	291	09 15	252	08 45	30

** MONTHLY SUMMARY **

HIGHEST FLOW	28.534	DAY 24
LOWEST FLOW	0.692	DAY 3
MAX DAILY MEAN	18.593	DAY 24
MIN DAILY MEAN	0.833	DAY 3
MONTHLY MEAN	2.644	
MONTHLY MEAN	228.426	THOUSAND CU METRES/DAY
MONTHLY TOTAL	79.315	
MONTHLY TOTAL	6852.776	THOUSAND CU METRES
MEAN/SQ.KM	5.054	LITRES/SEC/SQ.KM.
RUNOFF	13	MM

Discharge values from NRA gauging station on the R. Stour at Throop in April.
April 2 = pre-treatment day (day -1)
April 3 = treatment day (day 0)
April 4 = day 1
April 10 = day 7
April 17 = day 14

TYPE COMPOUND CRUMP WEIR AREA 1073.000 SQ.KM. RAINFALL 0

INSTRUMENTATION TG1150+PTR+1H94 COMMENT AVON&D SOURCE CODE 0

** APRIL 1991 **

	DISCHARGE IN CUMECS			STAGE IN MILLIMETRES						
DAY	TOTAL	MEAN	HIGHEST	LOWEST	MEAN	HIGHEST	TIME	LOWEST	TIME	DAY
1	1145.1	13.254	13.673	13.080	508	594	08 45	585	02 45	1
2	1227.0	14.201	14.825	13.673	602	611	08 45	594	10 00	2
3	1353.3	15.663	16.890	14.825	623	640	08 45	611	09 00	3
4	1697.6	19.648	26.132	16.817	675	753	08 45	639	09 00	4
5	2871.2	33.231	36.298	26.493	827	857	22 00	757	09 00	5
6	2198.5	25.446	31.012	22.655	745	805	09 00	713	05 45	6
7	2409.9	27.892	31.012	23.246	772	805	03 15	720	09 15	7
8	2089.2	24.181	29.277	20.524	730	787	09 00	687	08 45	8
9	1528.7	17.693	20.445	15.383	650	686	09 00	619	03 45	9
10	1402.5	16.232	16.744	15.665	631	638	13 15	623	08 15	10
11	1309.0	15.150	15.807	13.873	616	625	09 30	597	06 00	11
12	1220.4	14.125	14.964	13.211	601	613	14 00	587	08 15	12
13	1109.3	12.839	13.940	10.711	581	598	09 00	547	02 15	13
14	1073.0	12.419	12.756	12.056	575	580	15 00	569	06 30	14
15	1027.2	11.889	12.245	11.559	566	572	12 00	561	08 15	15
16	991.4	11.474	11.806	11.192	560	565	12 30	555	08 15	16
17	961.6	11.130	11.375	10.950	554	559	12 45	551	07 45	17
18	950.2	10.997	11.253	10.830	552	556	14 15	549	06 15	18
19	926.1	10.718	11.010	10.357	547	552	15 30	541	07 45	19
20	905.3	10.478	10.771	10.249	543	548	16 15	539	08 30	20
21	884.4	10.236	10.416	10.066	539	542	14 15	536	08 45	21
22	857.1	9.920	10.182	9.722	533	538	10 00	530	07 45	22
23	832.2	9.632	10.299	8.138	528	540	17 45	501	14 45	23
24	817.5	9.462	9.609	9.328	525	528	13 00	523	07 00	24
25	835.4	9.669	9.836	9.440	529	532	23 15	525	10 45	25
26	867.2	10.037	10.240	9.779	535	539	02 30	531	09 15	26
27	851.9	9.628	9.951	9.217	528	534	14 30	521	08 45	27
28	778.1	9.005	9.320	8.243	517	523	15 30	503	18 00	28
29	949.2	10.986	11.993	8.941	551	568	05 30	516	09 00	29
30	1637.1	18.947	31.404	10.950	657	809	00 00	551	16 00	30 93 reads

** MONTHLY SUMMARY **

HIGHEST FLOW	36.298	DAY 5
LOWEST FLOW	8.138	DAY 23
MAX DAILY MEAN	33.231	DAY 5
MIN DAILY MEAN	9.005	DAY 28
MONTHLY MEAN	14.535	
MONTHLY MEAN	1255.815	THOUSAND CU METRES/DAY
MONTHLY TOTAL	435.593	
MONTHLY TOTAL	37635.199	THOUSAND CU METRES
MEAN/SQ.KM	13.546	LITRES/SEC/SQ.KM.
RUNOFF	35	MM

Discharge values from NRA gauging station on the R. Stour at Throop in May.
May 1 = day 28
May 15 = day 42
May 29 = day 56

DATE PROCESSED : 11/06/91

WESSEX WATER AUTHORITY

STATION 430021 THROOP

TYPE COMPOUND CRUMP WEIR

INSTRUMENTATION TG1150+PTR+IH94

RIVER RIVER STOUR

AREA 1073.000 SQ.KM.

COMMENT AVON&D

GRID REF SZ11309980

RAINFALL 0

SOURCE CODE 0

** MAY 1991 **

	DISCHARGE IN CUMECS			STAGE IN MILLIMETRES						
DAY	TCMD	MEAN	HIGHEST	LOWEST	MEAN	HIGHEST	TIME	LOWEST	TIME	DAY
1	2047.9	23.702	31.404	15.103	722	809	10 30	615	08 30	1
2	1232.3	14.263	16.093	12.756	603	629	10 15	580	03 30	2
3	1017.6	11.778	12.885	10.830	564	582	09 15	549	05 15	3
4	921.1	10.661	11.192	10.124	546	555	11 15	537	07 15	4
5	864.7	10.008	10.652	9.384	535	546	13 45	524	08 30	5
6	796.3	9.217	10.009	8.349	521	535	19 45	505	11 15	6
7	807.9	9.351	9.496	9.161	523	526	22 45	520	07 45	7
8	810.5	9.381	9.553	9.217	524	527	01 30	521	10 00	8
9	801.5	9.277	9.496	8.191	522	526	20 00	502	08 15	9
10	753.8	8.725	9.051	8.349	512	519	13 15	505	08 15	10
11	717.4	8.303	8.562	8.034	504	509	16 00	499	08 45	11
12	690.7	7.994	8.243	7.724	498	503	11 00	493	07 15	12
13	667.1	7.721	7.930	7.470	493	497	16 00	488	07 30	13
14	640.2	7.410	7.673	7.171	487	492	12 45	482	07 45	14
15	608.8	7.046	7.370	6.877	479	486	12 30	476	07 45	15
16	596.2	6.900	7.023	6.760	476	479	12 30	474	08 45	16
17	584.2	6.762	6.829	6.637	474	475	24 15	471	08 30	17
18	581.3	6.728	7.121	6.494	473	481	15 30	468	23 45	18
19	572.7	6.628	6.877	6.447	471	476	12 45	467	22 15	19
20	563.1	6.519	6.684	6.307	468	472	16 15	464	07 45	20
21	549.2	6.345	6.447	6.214	465	467	16 00	462	08 30	21
22	535.5	6.198	6.307	6.076	462	464	15 30	459	08 15	22
23	524.6	6.072	6.168	5.934	459	461	14 15	457	08 45	23
24	509.2	5.894	6.030	5.759	455	458	19 45	452	07 00	24
25	510.0	5.903	6.030	5.714	455	458	20 30	451	08 30	25
26	499.4	5.780	5.939	5.582	452	456	15 00	448	08 30	26
27	488.0	5.648	5.804	5.494	450	453	17 15	446	08 30	27
28	501.0	5.799	5.939	5.538	453	456	23 45	447	09 00	28
29	481.5	5.573	5.939	5.320	448	456	15 15	442	08 30	29
30	448.5	5.191	5.407	5.023	439	444	10 15	435	08 00	30
31	439.3	5.084	5.234	4.939	436	440	15 15	433	08 45	31

** MONTHLY SUMMARY **

HIGHEST FLOW	31.404	DAY 1
LOWEST FLOW	4.939	DAY 31
MAX DAILY MEAN	23.702	DAY 1
MIN DAILY MEAN	5.084	DAY 31
MONTHLY MEAN	8.125	
MONTHLY MEAN	701.962	THOUSAND CU METRES/DAY
MONTHLY TOTAL	251.861	
MONTHLY TOTAL	21760.820	THOUSAND CU METRES
MEAN/SQ.KM	7.572	LITRES/SEC/SQ.KM.
RUNOFF	20	M

Discharge values from NRA gauging station on the R. Stour at Throop in June.
June 12 = day 70
June 26 = day 84

DATE PROCESSED : 04/07/91

WESSEX WATER AUTHORITY

STATION 430021 THROOP

TYPE COMPOUND CRUMP WEIR

INSTRUMENTATION TG1150+PTR+1H94

RIVER RIVER STOUR

AREA 1073.000 SQ.KM.

COMMENT AVON&D

GRID REF SZ11309980

RAINFALL 0

SOURCE CODE 0

** JUNE 1991 **

DAY	TCMD	DISCHARGE IN CUMECS MEAN	HIGHEST	STAGE IN MILLIMETRES LOWEST	MEAN	HIGHEST	TIME	LOWEST	TIME	DAY
1	430.4	4.981	5.107	4.856	434	437	20 30	431	08 45	1
2	426.3	4.934	5.023	4.815	433	435	17 30	430	08 00	2
3	419.9	4.859	4.981	4.692	431	434	16 30	427	08 15	3
4	406.3	4.703	4.856	4.531	427	431	16 15	423	07 15	4
5	503.0	5.822	7.171	4.611	453	482	22 00	425	09 15	5
6	460.5	5.330	5.582	5.167	442	448	10 00	437	07 30	6
7	449.0	5.197	5.714	4.774	439	451	17 45	429	22 30	7
8	463.9	5.369	5.670	5.065	443	450	01 45	436	09 00	8
9	459.2	5.314	5.538	5.107	442	447	15 30	437	02 00	9
10	440.5	5.098	5.234	4.898	437	440	16 00	432	07 00	10
11	478.7	5.541	6.637	4.856	447	471	05 30	431	11 45	11
12	489.5	5.666	6.353	5.107	450	465	09 00	437	07 30	12
13	433.3	5.015	5.234	4.898	435	440	10 30	432	08 00	13
14	440.2	5.095	5.407	4.939	437	444	06 30	433	24 00	14
15	450.0	5.209	5.407	4.981	439	444	11 15	434	08 45	15
16	448.0	5.186	5.450	4.981	439	445	22 15	434	08 30	16
17	436.3	5.050	5.149	4.981	436	438	15 30	434	08 30	17
18	429.7	4.974	5.065	4.856	434	436	15 30	431	04 45	18
19	426.3	4.934	5.023	4.856	433	435	04 45	431	22 30	19
20	412.4	4.773	4.939	4.571	429	433	16 45	424	05 45	20
21	392.3	4.541	4.733	4.333	423	428	13 15	418	08 45	21
22	380.4	4.403	4.531	4.255	420	423	20 15	416	08 30	22
23	721.6	8.352	10.711	4.294	502	547	21 30	417	09 00	23
24	657.5	7.610	8.616	7.023	491	510	09 15	479	05 45	24
25	841.5	9.739	11.868	7.379	529	566	05 15	486	09 00	25
26	906.8	10.496	11.682	9.609	543	563	09 30	528	08 45	26
27	769.8	8.909	9.666	8.402	515	529	09 15	506	07 45	27
28	700.5	8.108	8.509	7.827	500	508	09 45	495	08 15	28
29	683.5	7.911	8.138	7.673	497	501	15 45	492	08 15	29
30	604.9	7.001	7.724	6.447	478	493	12 30	467	22 45	30

** MONTHLY SUMMARY **

HIGHEST FLOW	11.868	DAY 25
LOWEST FLOW	4.255	DAY 22
MAX DAILY MEAN	10.496	DAY 26
MIN DAILY MEAN	4.403	DAY 22
MONTHLY MEAN	6.004	
MONTHLY MEAN	518.750	THOUSAND CU METRES/DAY
MONTHLY TOTAL	180.121	
MONTHLY TOTAL	15562.494	THOUSAND CU METRES
MEAN/SQ.KM	5.596	LITRES/SEC/SQ.KM.
RUNOFF	15	MM

APPENDIX 2

Mosquito larvae bioassay report

Bti trial: Bioassay of Water Samples supplied by the Freshwater Biological Association, Wareham

M.J.Lehane,

School of Biological Sciences,

University of Wales,

Bangor,

Gwynedd LL57 2UW.

MJ Lehane 1.5.91.

Method

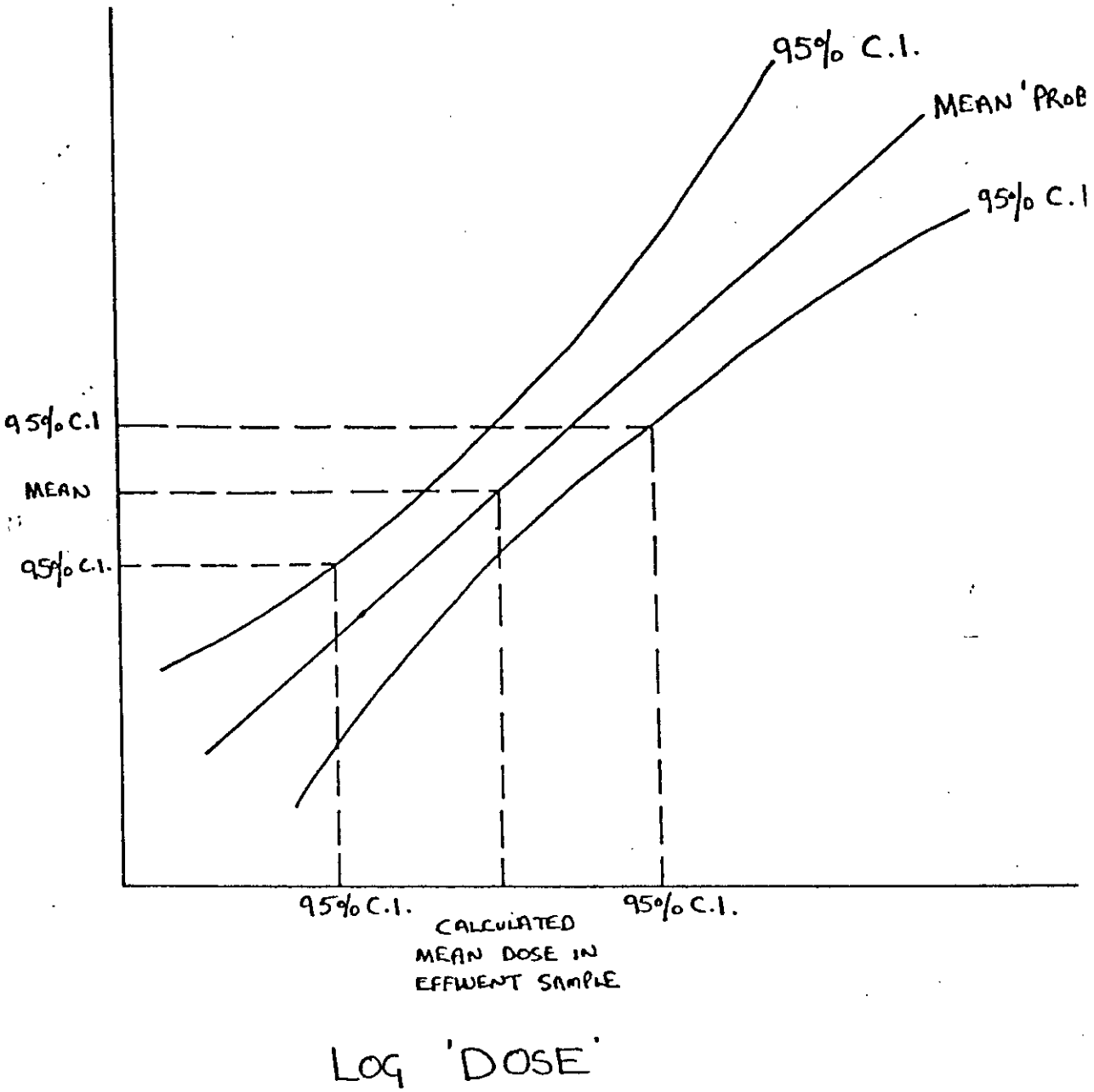
The method used is the standard World Health Organisation bioassay for Bacillus thuringiensis (see Rishikesh and Quelennec, 1983).

Aedes aegypti (a mixed strain derived from stock cultures held at the Liverpool School of Tropical Medicine and the London School of Hygiene and Tropical Medicine) were held in the laboratory at 25°C and 12L:2D. A standard preparation (IPS 82) of Bacillus thuringiensis serotype H - 14 (B.ti. H-14) (Lot 91509) was obtained from the Institut Pasteur in Paris. This laboratory is the International Reference Center for B.ti. recognised by The International Organisation for Biological Control. The sample was held in the dark at 4 C until used.

Bioassay For each sample either three or more replicate cups were prepared each containing 140 mls of water. Approximately 25 early fourth instar larvae were dispensed into each cup. These were held at 25°C and 12L:12D for exactly 24 hr. when the number of living and dead larvae in each cup were counted. If it was thought that all the larvae in a cup might be killed by a sample then it was serially diluted with distilled water to give mortalities of less than 100%. Twenty control cups containing larvae in distilled water were also prepared.

Calibration A weighed quantity of the standard, IPS 82 was homogenised in a known volume of chlorine free distilled water. To ensure even dispersal homogenisation was at low speed and continued for five minutes. To ensure there was no clumping of the bacteria in the homogenate drops of the suspension were observed microscopically. Serial dilutions of the homogenate were prepared. 140 ml of appropriate dilutions were placed in a plastic cup with 25 early fourth instar larvae. Three or more replicate cups were prepared for each dilution. These were held unfed for 24 hours at 25°C 12L:12D and the number of surviving larvae counted.

Probit analysis was performed on a Vax 8650 mainframe. Statistical analysis was performed on a micro using the package Supercalc 5. The procedures followed introduce two sources of variance to the data, that associated with the replicate assays of effluent samples and that associated with the probit analysis. To produce a 95% confidence interval on the final estimate of B. ti. concentration in the effluent samples the following procedure was adopted. The 95% confidence interval for the mortality in each sample was calculated along with the 95% confidence bands around the probit plot. By combining the two, as shown in the diagram, the 95% confidence interval for the


95% C.I.
MEAN 'PROB
95% C.I
95% C.I
MEAN
95% C.I.
95% C.I.
95% C.I.
CALCULATED
MEAN DOSE IN
EFFWENT SAMPLE
% MORTALITY EXPRESSED AS PROBITS
LOG 'DOSE'

concentration of B. ti. in each effluent sample was ascertained (Please note in practice this was done mathematically and not graphically. Also note that the confidence intervals on the estimated concentrations in the effluent samples are not equal on either side of the mean, this is a function of probit analysis and occurs because the probit plots are non-linear).

Results

The estimated concentration of B. ti. in each effluent sample is given in Tables 1 along with the 95% confidence intervals. These values have been calculated from the Bioassay of the calibration IPS 82 sample from Paris and the subsequent probit analysis of the data (Table 2).

Table 1. The location and time at which the sample were taken is given in the first column. If the sample had to be diluted then the dilution is also given in this column (e.g. a dilution of 75% means that 3 parts sample is diluted with 1 part distilled water). The percentage mortalities are given for each replicate performed for each sample. A mean mortality and its standard error is calculated for all the replicates performed on a particular sample. From this and the probit information given in Table 2 an estimate of the concentration of B.ti. in the sample is given in µg/L. The upper and lower 95% confidence intervals are also calculated and expressed in µg/L. Because of the construction of the probit analysis it is most accurate when dealing with mortalities around 50%. So where several estimates are given for on particular sample the most accurate will be that with mortality figures closest to 50%. Where these occur they are underlined in red.

F.B.A. trial
April 1991

Location	% Mortality	Mean Mortality	S.E.	µg/L	95% C.I.'s +	95% C.I.'s −
Blandford control	.00					
	12.50					
	6.25					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00	1.56	1.07	5.08	8.62	.00
Blandford +5 mins	92.86					
	87.50					
	87.50	89.29	1.46	70.88	92.57	55.98
75%	100.00					
	100.00					
	100.00					
	100.00					
	100.00					
	100.00	100.00	.00			
50%	100.00					
	100.00					
	94.12					
	96.88					
	100.00					
	100.00	98.50	.93	295.44	>405.54	185.34
35%	11.76					
	5.41					
	6.67					
	2.56	6.60	1.67	24.17	34.83	13.51
25%	100.00					
	88.89					
	27.78					
	81.48					
	92.00					
	76.00					
	8.00					
	3.57					
	.00					
	3.45					
	4.35					
	4.55	40.84	11.69	91.00	154.52	27.48
10%	.00					
	.00					
	.00					

	.00					
	.00					
	.00	.00	.00			
1%	.00					
	.00					
	.00					
	.00					
	.00					
	.00	.00	.00			
Wimborne	.00					
+5 mins	.00					
	.00	.00	.00			
Wimborne	20.83					
+25 mins	28.57					
	6.06					
	88.89					
	92.31					
	88.24					
	15.38					
	82.61					
	23.08	49.55	11.65	26.97	46.53	15.51
75%	3.03					
	.00					
	.00					
	.00					
	.00					
	2.78	.97	.56	5.67	9.78	1.56
50%	.00					
	.00					
	.00					
	.00					
	.00					
	.00	.00	.00			
25%	.00					
	.00					
	.00					
	.00					
	.00					
	.00	.00	.00			
Longham	.00					
+ 3 hrs	.00					
	.00					
	.00	.00	.00			
Longham	.00					
+3.5 hrs	.00					
	.00	.00	.00			
Longham	.00					
+4 hrs	.00					
	.00	.00	.00			

Longham	.00				
+4.5 hrs	.00				
	.00	.00	.00		
Longham	2.78				
+5 hrs	.00				
	.00				
	.00				
	.00				
	.00				
	.00				
	.00				
	.00	.31	.29	1.06	3.37 .00
Longham	.00				
+5.5 hrs	.00				
	.00	.00	.00		
Longham	.00				
+6 hrs	.00				
	.00	.00	.00		
Longham	.00				
+6.5 hrs	.00				
	.00	.00	.00		
Longham	.00				
+7 hrs	.00				
	.00	.00	.00		
Longham	.00				
+7.5 hrs	.00				
	.00	.00	.00		
Longham	.00				
+8 hrs	.00				
	.00	.00	.00		
Longham	.00				
+8.5 hrs	.00				
	.00	.00	.00		

Longham	3.45					
+9 hrs	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00	.38	.36	1.33	4.59	.0(
Longham	4.17					
+9.5 hrs	.00					
	.00	1.39	1.13	4.77	6.81	.0(
Longham	.00					
+10hrs	.00					
	.00	.00	.00			

4.4.91

Longham	.00		
0010 hrs	.00		
	.00	.00	.00
Longham	.00		
0400 hrs	.00		
	.00	.00	.00
Longham	.00		
0800 hrs	.00		
	.00	.00	.00
Longham	.00		
1200 hrs	.00		
	.00	.00	.00
Longham	.00		
1600 hrs	.00		
	.00	.00	.00
Longham	.00		
2000 hrs	.00		
	.00	.00	.00
Longham	.00		
2400 hrs	.00		
	.00	.00	.00
Water Co.	.00		
0830 hrs	.00		
	.00	.00	.00

5.4.91						
Longham	.00					
0400 hrs	.00					
	.00	.00	.00			
Longham	.00					
0800 hrs	.00					
	.00	.00	.00			
Longham	.00					
1200 hrs	.00					
	6.67					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00	.44	.70	1.41	5.36	.00
Longham	.00					
1600 hrs	.00					
	.00	.00	.00			
Distilled	.00					
Water	.00					
Controls	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00					
	.00	.00	.00			

Table 2. The results of the probit analysis on the IPS 82 Standard.

IPS 82 calibration

slope	2.978684
sum of ms	355.3082
mean dose	1.584662
ssxx	24.74432
mean response	5.448049
intercept	.727842
LC 50	27.17962

References

Rishikesh, N. and Quelennec, G. (1983) Introduction to a standardised method for the evaluation of the potency of Bacillus thuringiensis serotype H-14 based products. Bulletin of the World Health Organisation 61, 93-97.

APPENDIX 3

Microbiological assay results

Public Health Laboratory Service

Public Health Laboratory
Department of Pathology
West Dorset Hospital
Damers Road
Dorchester DT1 2JY
FAX: 0305 251044
Telephone: 0305 251150

Our ref EFC/PH Your ref

Mr D. Morgan
Senior Chief Environmental Health Officer
North Dorset District Council
Nordon
Salisbury Road
BLANDFORD FORUM
Dorset

21 May 1991

Dear Dave

Re: MONITORING FOR BTi TREATMENT ON THE RIVER STOUR APRIL 1991

We have now completed our examination of samples of water from the River Stour and I am now submitting to you our full report with a copy to Dr Mike Ladle.

Preliminary investigation:

Sample (954269/91) Teknar HP-D stored refrigerated at the Institute of Freshwater Ecology's River Laboratory, East Stoke, and received from Dr Mike Ladle, showed that we could isolate BT and that this sample had a viable bacterial count of 2.1×10^6 organisms per gram.

Two further samples (954264/91 & 954549/91) removed from container Teknar HP-D which was to be used for treating the River Stour in April 1991 gave total viable counts of:

(954264/91) = 1.3×10^4 organisms per gram
954549/91) = 1.0×10^5 organisms per gram

Dilution experiments suggested that we would be able to isolate BT in relatively small numbers.

A sample of river water (956773/91) taken downstream from Blandford Town Bridge was tested. 100ml of water passed through the membrane filter relatively easily. 500ml was slower while 1000ml would not go through the filter.

From this sample of water a high bacterial count consisting of:

Coliforms Greater than 300 organisms/100ml
Esch. coli 123 organisms/100ml

These were heavily overgrown by organisms resembling Pseudomonas.

No spore bearing bacillus species resembling Bacillus cereus/thuringiensis were isolated.

RIVER STOUR BTi PROJECT 3 APRIL 1991

12 samples of 5000ml of river water and 1 sample from the Water Company after filtration but prior to chlorination which was taken on 4 April were received.

A total of 850ml of water was filtered from each site and cultured as laid down in the protocol. (Copy enclosed).

Sample name	Result (B.cereus/thuringiensis)
Blandford control (908028/91)	NOT isolated
Blandford 5 mins (20-50M)(908029/91)	NOT isolated
Wimborne 5 mins (20-50M) (908030/91)	NOT isolated
Wimborne 25 mins (750M) (908031/91)	ISOLATED
Longham (Wimborne + 3 hrs) (908032/91)	NOT isolated
Longham (Wimborne + 4 hrs) (908033/91)	ISOLATED
Longham (Wimborne + 5 hrs) (908034/91)	ISOLATED
Longham (Wimborne + 6 hrs) (908035/91)	ISOLATED
Longham (Wimborne + 7 hrs) (908036/91)	ISOLATED
Longham (Wimborne + 8 hrs) (908037/91)	ISOLATED
Longham (Wimborne + 9 hrs) (908038/91)	ISOLATED
Longham (Wimborne +10 hrs) (908039/91)	ISOLATED
NDDC Health & Housing sample of final water product at 8.30 hrs 4 April (after filtration and before chlorination (908040/91) from the Water Company	ISOLATED

Follow-up samples of water were taken on 7 May 1991, a month after treatment of the River Stour with BTi.

Sample name	Result (B/cereus/thuringiensis)
River Stour, Carrier Stream Blandford Forum (906549/91)	NOT isolated
River Stour, Longham (7.40 a.m.) (906550/91)	NOT isolated
River Stour, Longham (7.45 a.m.) (906551/91)	NOT isolated
Water Company, (Before chlorination) (7.55 a.m.) (906552/91)	NOT isolated
123 Cutters Place, Wimborne (8.15 a.m.) (906553/91)	NOT isolated

Comment and Discussion:

Please note that I've used the term B.cereus/thuringiensis instead of B. thuringiensis in this report. The reason being that B.thuringiensis is a variant of B.cereus, their biochemical reactions are identical and the only means we have of differentiation is the development of crystals within the cell of B.thuringiensis, which can also be transferred by plasmid transference to B.cereus, changing it into B.thuringiensis.

Out initial work with Teknar HP-D showed that we could isolate the organism and enabled us to demonstrate to our satisfaction that we could differentiate between B.cereus and B.thuringiensis by looking for crystal formation as produced by BT.

On examining the waters taken on 3 April we isolated what appears to be B.cereus/thuringiensis out of 9 of the 13 samples. Because of the overgrowth by other bacteria we were unable to quantify the number of B.cereus/thuringiensis present in these samples. All of the isolates were cultured as pure before further testing. Each isolate was checked biochemically to see that it conformed to the characteristics of B.cereus/thuringiensis and then stressed to enable the organisms to develop crystals. All strains isolated produced crystals which conformed in appearance to that of the control organism B.thuringiensis. A known B.cereus was used to act as a negative control.

Although there appears to be a pattern to the recovery of the organism from the water samples, we cannot account for why we did not isolate the organism from the point of initial treatment or why it should be in the Water Company's sample, if they were not extracting water at any time during the period of initial treating the river and the time of taking the sample on 14 April 1991.

We failed to isolate any B.cereus/thuringiensis from the follow-up samples taken a month later.

From our findings we must conclude that we successfully isolated B.cereus/thuringiensis from the River Stour on the day when BTi was applied to it. If this is not the organism BTi, then our findings are coincidental and another source of why the river on that particular day had B.cereus/thuringiensis should be looked for.

Best wishes

Yours sincerely

Eric

Eric F C COETZEE BA FIMLS CBIOL MIBIOL
Head Medical Laboratory Scientific Officer

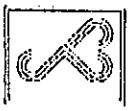
cc: Dr M. Ladle

Gu.

APPENDIX 4

Letter from Bournemouth Water Company

Bournemouth Water



Our ref GAW/KB

Your ref

Date 14th August 1991

North Dorset District Council,
"Nordon",
Salisbury Road,
Blandford Forum,
Dorset.
DT11 7LL

For the attention of Mr D T J Morgan
The Deputy Chief Health and Housing Officer

Dear Sir,

Re: Blandford Fly Treatment 1991

Further to our telephone conversation of the 13th August 1991 I now cofirm to you that the River Stour intake at Longham was switched off at 09.00 hours on the 3rd April 1991 and was switched back on at 14.00 hours on the 19th April 1991.

If I can be of any further assistance please do not hesitate to call.

Yours faithfully

G A Wooltorton
Supply Manager

The Bournemouth and District Water Company
Administration Offices: Watermill Road, Christchurch, Dorset BH23 2LU
Telephone (0202) 499000 Facsimile (0202) 499100

APPENDIX 5

Raw data of *S. posticatum* and chironomids on weed samples at Blandford

dist	= distance from input of *Bti*
simL	= numbers of live *Simulium*
simD	= numbers of dead *Simulium*
chirL	= numbers of live chironomids
chirD	= numbers of dead chironomids
weedwt	= weight of weed (g)
simL/g	= numbers of live *Simulium* per gram of weed

Raw data of numbers of simuliids and chironomids on weed at Blandford on pre-treatment day (day -1).

ROW	ptdist	ptsimL	ptsimD	ptchirL	ptchirD	ptweedwt	ptsimL/g
1	0	2	1	0	0	0.06	33.33
2	0	5	0	0	0	0.05	100.00
3	0	2	2	0	0	0.06	33.33
4	0	1	0	0	0	0.06	16.67
5	0	0	0	0	0	0.04	0.00
6	0	6	0	0	0	0.04	150.00
7	0	2	0	0	0	0.02	100.00
8	0	9	1	0	0	0.07	128.57
9	0	3	1	0	0	0.06	50.00
10	0	0	0	0	0	0.04	0.00
11	0	9	0	0	0	0.04	225.00
12	0	8	0	0	0	0.07	114.29
13	0	8	1	0	0	0.05	160.00
14	0	0	1	0	0	0.05	0.00
15	0	5	0	0	0	0.06	83.33
16	0	1	0	0	0	0.02	50.00
17	0	9	1	0	0	0.02	450.00
18	0	2	0	0	0	0.04	50.00
19	0	2	1	0	0	0.07	28.57
20	0	2	0	0	0	0.03	66.67
21	0	3	1	0	0	0.07	42.86
22	0	0	0	0	0	0.05	0.00
23	0	5	0	0	0	0.04	125.00
24	0	6	0	0	0	0.06	100.00
25	0	2	0	0	0	0.07	28.57
26	0	2	0	0	0	0.05	40.00
27	0	0	0	0	0	0.10	0.00
28	0	2	2	0	0	0.04	50.00
29	0	3	0	0	0	0.03	100.00
30	0	4	0	0	0	0.04	100.00
31	20	21	1	0	0	0.01	2100.00
32	20	17	0	0	0	0.02	850.00
33	20	10	0	0	0	0.03	333.33
34	20	23	1	0	0	0.03	766.67
35	20	22	0	0	0	0.01	2200.00
36	20	15	2	0	0	0.02	750.00
37	20	12	0	0	0	0.02	600.00
38	20	1	0	0	0	0.02	50.00
39	20	48	2	0	0	0.03	1600.00
40	20	17	0	0	0	0.01	1700.00
41	20	22	2	0	0	0.02	1100.00
42	20	21	2	0	0	0.01	2100.00
43	20	8	1	0	0	0.01	800.00
44	20	1	0	0	0	0.02	50.00
45	20	21	0	0	0	0.03	700.00
46	20	27	3	0	0	0.05	540.00
47	20	6	0	0	0	0.02	300.00
48	20	17	1	0	0	0.02	850.00
49	20	21	0	0	0	0.03	700.00
50	20	7	0	0	0	0.01	700.00
51	20	21	0	0	0	0.02	1050.00
52	20	17	1	0	0	0.02	850.00
53	20	18	0	0	0	0.01	1800.00
54	20	14	1	0	0	0.03	466.67
55	20	28	0	0	0	0.01	2800.00
56	20	3	0	0	0	0.03	100.00
57	20	4	0	0	0	0.03	133.33
58	20	20	0	0	0	0.03	666.67
59	20	14	0	0	0	0.02	700.00
60	20	4	1	0	0	0.02	200.00

61	50	1	0	0	0	0.03	33.33
62	50	3	0	0	0	0.06	50.00
63	50	0	0	0	0	0.01	0.00
64	50	5	0	0	0	0.02	250.00
65	50	1	0	0	0	0.02	50.00
66	50	1	0	0	0	0.01	100.00
67	50	1	0	0	0	0.03	33.33
68	50	5	0	0	0	0.02	250.00
69	50	0	0	0	0	0.01	0.00
70	50	3	0	0	0	0.03	100.00
71	50	1	0	0	0	0.03	33.33
72	50	13	0	0	0	0.05	260.00
73	50	1	0	0	0	0.03	33.33
74	50	1	0	0	0	0.01	100.00
75	50	5	1	0	0	0.04	125.00
76	50	3	0	0	0	0.02	150.00
77	50	0	0	0	0	0.02	0.00
78	50	3	0	0	0	0.03	100.00
79	50	0	0	0	0	0.01	0.00
80	50	0	0	0	0	0.02	0.00
81	50	3	0	0	0	0.04	75.00
82	50	1	0	0	0	0.01	100.00
83	50	2	0	0	0	0.05	40.00
84	50	0	0	0	0	0.02	0.00
85	50	7	0	0	0	0.07	100.00
86	50	1	0	0	0	0.04	25.00
87	50	0	0	0	0	0.02	0.00
88	50	2	0	0	0	0.03	66.67
89	50	1	0	0	0	0.03	33.33
90	50	1	0	0	0	0.03	33.33
91	100	0	0	0	0	0.03	0.00
92	100	29	0	0	0	0.09	322.22
93	100	4	0	0	0	0.06	66.67
94	100	8	3	0	0	0.04	200.00
95	100	1	0	0	0	0.01	100.00
96	100	5	4	0	0	0.03	166.67
97	100	5	0	0	0	0.02	250.00
98	100	39	0	0	0	0.02	1950.00
99	100	8	2	0	0	0.03	266.67
100	100	32	4	0	0	0.03	1066.67
101	100	2	1	0	0	0.03	66.67
102	100	3	0	0	1	0.05	60.00
103	100	40	2	0	0	0.02	2000.00
104	100	7	1	0	0	0.02	350.00
105	100	2	0	0	0	0.01	200.00
106	100	7	3	0	0	0.06	116.67
107	100	50	0	0	0	0.05	1000.00
108	100	26	0	0	0	0.05	520.00
109	100	3	2	0	0	0.01	300.00
110	100	19	0	0	0	0.02	950.00
111	100	11	0	0	0	0.02	550.00
112	100	14	1	0	0	0.03	466.67
113	100	0	0	0	0	0.01	0.00
114	100	1	0	0	0	0.01	100.00
115	100	3	1	0	0	0.01	300.00
116	100	30	0	0	0	0.04	750.00
117	100	13	1	0	0	0.03	433.33
118	100	27	1	0	0	0.03	900.00
119	100	8	0	0	0	0.01	800.00
120	100	11	0	0	0	0.01	1100.00
121	1000	2	0	0	0	0.04	50.00
122	1000	21	0	0	0	0.05	420.00
123	1000	0	4	0	0	0.03	0.00
124	1000	5	2	0	0	0.06	83.33
125	1000	10	0	0	0	0.05	200.00
126	1000	4	2	0	0	0.03	133.33

127	1000	3	1	0	0	0.06	50.00
128	1000	12	1	0	0	0.02	600.00
129	1000	8	1	0	0	0.03	266.67
130	1000	0	0	0	0	0.01	0.00
131	1000	13	0	0	0	0.04	325.00
132	1000	11	2	0	0	0.03	366.67
133	1000	2	0	0	0	0.03	66.67
134	1000	8	2	0	0	0.05	160.00
135	1000	58	3	0	0	0.02	2900.00
136	1000	1	0	0	0	0.03	33.33
137	1000	13	0	0	0	0.02	650.00
138	1000	13	0	0	0	0.03	433.33
139	1000	6	0	0	0	0.02	300.00
140	1000	46	0	0	0	0.05	920.00
141	1000	12	1	0	0	0.04	300.00
142	1000	11	0	0	0	0.02	550.00
143	1000	10	2	0	0	0.05	200.00
144	1000	1	0	0	0	0.03	33.33
145	1000	17	2	0	0	0.02	850.00
146	1000	73	3	0	0	0.05	1460.00
147	1000	8	0	0	0	0.01	800.00
148	1000	28	0	0	0	0.05	560.00
149	1000	4	0	0	0	0.01	400.00
150	1000	3	1	0	0	0.02	150.00

Raw data of numbers of simuliids and chironomids on weed at Blandford on treatment day (day 0).

ROW	Tdist	TsimL	TsimD	TchirL	TchirD	Tweedwt	TsimL/g
1	0	0	0	0	0	0.01	0.00
2	0	2	1	0	0	0.03	66.67
3	0	1	0	0	0	0.01	100.00
4	0	3	0	0	0	0.02	150.00
5	0	0	1	0	0	0.01	0.00
6	0	1	0	0	0	0.03	33.33
7	0	22	1	0	0	0.03	733.33
8	0	7	0	0	0	0.01	700.00
9	0	1	0	0	0	0.08	12.50
10	0	0	0	0	0	0.01	0.00
11	0	16	3	0	0	0.04	400.00
12	0	2	0	0	0	0.04	50.00
13	0	3	0	0	0	0.01	300.00
14	0	5	0	0	0	0.01	500.00
15	0	39	0	0	0	0.04	975.00
16	0	33	2	0	0	0.02	1650.00
17	0	0	0	0	0	0.01	0.00
18	0	0	0	0	0	0.02	0.00
19	0	0	0	0	0	0.01	0.00
20	0	23	0	0	0	0.03	766.67
21	0	14	0	0	0	0.03	466.67
22	0	1	0	0	0	0.01	100.00
23	0	0	0	0	0	0.02	0.00
24	0	5	0	0	0	0.02	250.00
25	0	4	0	0	0	0.04	100.00
26	0	0	0	0	0	0.01	0.00
27	0	0	0	0	0	0.03	0.00
28	0	20	0	0	0	0.04	500.00
29	0	9	0	0	0	0.03	300.00
30	0	9	0	0	0	0.04	225.00
31	20	0	0	0	0	0.03	0.00
32	20	1	0	0	0	0.02	50.00
33	20	0	1	0	0	0.02	0.00
34	20	1	0	0	0	0.03	33.33
35	20	11	10	0	0	0.02	550.00
36	20	0	0	0	0	0.02	0.00
37	20	1	0	0	0	0.02	50.00
38	20	0	3	0	0	0.03	0.00
39	20	0	1	0	0	0.02	0.00
40	20	1	1	0	0	0.02	50.00
41	20	0	0	0	0	0.04	0.00
42	20	1	0	0	0	0.01	100.00
43	20	0	0	0	0	0.02	0.00
44	20	3	0	0	0	0.02	150.00
45	20	2	1	0	0	0.02	100.00
46	20	0	1	0	0	0.02	0.00
47	20	0	0	0	0	0.02	0.00
48	20	0	0	0	0	0.01	0.00
49	20	0	0	0	0	0.02	0.00
50	20	0	1	0	0	0.04	0.00
51	20	0	2	0	0	0.02	0.00
52	20	0	1	0	0	0.02	0.00
53	20	2	2	0	0	0.03	66.67
54	20	0	3	0	0	0.01	0.00
55	20	0	2	0	0	0.02	0.00
56	20	0	3	0	0	0.01	0.00
57	20	0	1	0	0	0.01	0.00
58	20	0	0	0	0	0.02	0.00
59	20	7	14	0	0	0.01	700.00

60	20	0	1	0	0	0.02	0.00
61	50	1	0	0	0	0.05	20.00
62	50	1	0	0	0	0.02	50.00
63	50	0	1	0	0	0.02	0.00
64	50	0	0	0	0	0.02	0.00
65	50	0	0	0	0	0.03	0.00
66	50	0	0	0	0	0.01	0.00
67	50	0	1	0	0	0.04	0.00
68	50	0	0	0	0	0.04	0.00
69	50	2	2	0	0	0.05	40.00
70	50	0	0	0	0	0.03	0.00
71	50	1	0	0	0	0.03	33.33
72	50	2	5	0	0	0.02	100.00
73	50	0	0	0	0	0.04	0.00
74	50	2	0	0	0	0.05	40.00
75	50	1	1	0	0	0.07	14.29
76	50	3	0	0	0	0.04	75.00
77	50	0	1	0	0	0.05	0.00
78	50	0	0	0	0	0.03	0.00
79	50	0	0	0	0	0.04	0.00
80	50	0	0	0	0	0.04	0.00
81	50	0	0	0	0	0.02	0.00
82	50	0	0	0	0	0.06	0.00
83	50	8	4	0	0	0.03	266.67
84	50	1	0	0	0	0.04	25.00
85	50	1	0	0	0	0.05	20.00
86	50	0	0	0	0	0.03	0.00
87	50	7	0	0	0	0.03	233.33
88	50	9	1	0	0	0.05	180.00
89	50	0	0	0	0	0.05	0.00
90	50	1	0	0	0	0.05	20.00
91	100	1	8	0	0	0.02	50.00
92	100	0	0	0	0	0.04	0.00
93	100	3	13	0	0	0.03	100.00
94	100	4	2	0	0	0.05	80.00
95	100	2	2	0	0	0.03	66.67
96	100	1	7	0	0	0.03	33.33
97	100	5	8	0	0	0.06	83.33
98	100	3	7	0	0	0.05	60.00
99	100	9	11	0	0	0.03	300.00
100	100	17	12	0	0	0.04	425.00
101	100	0	0	0	0	0.03	0.00
102	100	3	11	0	0	0.04	75.00
103	100	0	0	0	0	0.05	0.00
104	100	1	5	0	0	0.01	100.00
105	100	0	1	0	0	0.03	0.00
106	100	2	11	0	0	0.03	66.67
107	100	4	6	0	0	0.03	133.33
108	100	16	28	0	0	0.05	320.00
109	100	4	6	0	0	0.05	80.00
110	100	2	1	0	0	0.03	66.67
111	100	0	0	0	0	0.04	0.00
112	100	2	2	0	0	0.05	40.00
113	100	10	4	0	0	0.03	333.33
114	100	3	3	0	0	0.04	75.00
115	100	2	27	0	0	0.06	33.33
116	100	1	3	0	0	0.05	20.00
117	100	22	3	0	0	0.06	366.67
118	100	8	11	0	0	0.04	200.00
119	100	4	2	0	0	0.04	100.00
120	100	0	4	0	0	0.04	0.00
121	1000	0	0	0	0	0.04	0.00
122	1000	0	0	0	0	0.03	0.00
123	1000	0	0	0	0	0.01	0.00
124	1000	1	1	0	0	0.03	33.33
125	1000	0	0	0	0	0.02	0.00

126	1000	0	1	0	0	0.03	0.00
127	1000	0	0	0	0	0.03	0.00
128	1000	9	3	0	0	0.04	225.00
129	1000	0	0	0	0	0.02	0.00
130	1000	2	4	0	0	0.02	100.00
131	1000	2	10	0	0	0.03	66.67
132	1000	0	0	0	0	0.03	0.00
133	1000	0	0	0	0	0.03	0.00
134	1000	0	0	0	0	0.03	0.00
135	1000	0	0	0	0	0.03	0.00
136	1000	0	2	0	0	0.05	0.00
137	1000	0	0	0	0	0.02	0.00
138	1000	3	2	0	0	0.04	75.00
139	1000	3	4	0	0	0.05	60.00
140	1000	0	0	0	0	0.03	0.00
141	1000	0	3	0	0	0.03	0.00
142	1000	1	1	0	0	0.03	33.33
143	1000	0	0	0	0	0.03	0.00
144	1000	*	*	*	*	*	*
145	1000	1	0	0	0	0.04	25.00
146	1000	1	2	0	0	0.04	25.00
147	1000	0	0	0	0	0.04	0.00
148	1000	0	0	0	0	0.02	0.00
149	1000	0	0	0	0	0.01	0.00
150	1000	*	*	*	*	*	*

Raw data of numbers of simuliids and chironomids on weed at Blandford on day 1.

ROW	T1Dist	T1SimL	T1SimD	T1ChirL	T1ChirD	T1WeedWt	T1SimL/g
1	0	0	0	0	0	0.03	0.00
2	0	2	1	0	0	0.05	40.00
3	0	6	0	0	0	0.08	75.00
4	0	0	0	0	0	0.02	0.00
5	0	3	0	0	0	0.07	42.86
6	0	13	2	0	0	0.05	260.00
7	0	16	0	0	0	0.02	800.00
8	0	0	0	0	0	0.03	0.00
9	0	24	1	0	0	0.06	400.00
10	0	0	0	0	0	0.04	0.00
11	0	2	1	0	0	0.05	40.00
12	0	113	3	0	0	0.05	2260.00
13	0	3	0	0	0	0.06	50.00
14	0	83	0	0	0	0.07	1185.71
15	0	37	3	0	0	0.05	740.00
16	0	5	0	0	0	0.07	71.43
17	0	40	0	0	0	0.06	666.67
18	0	5	1	0	0	0.09	55.56
19	0	2	2	0	0	0.03	66.67
20	0	6	0	0	0	0.05	120.00
21	0	4	0	0	0	0.03	133.33
22	0	41	2	0	0	0.04	1025.00
23	0	7	0	0	0	0.02	350.00
24	0	29	2	0	0	0.07	414.29
25	0	65	3	0	0	0.05	1300.00
26	0	0	0	0	0	0.02	0.00
27	0	2	0	0	0	0.05	40.00
28	0	15	0	0	0	0.40	37.50
29	0	1	1	0	0	0.04	25.00
30	0	3	3	0	0	0.02	150.00
31	20	0	2	0	0	0.03	0.00
32	20	0	2	0	0	0.03	0.00
33	20	1	4	0	0	0.03	33.33
34	20	0	0	0	0	0.03	0.00
35	20	4	3	0	0	0.03	133.33
36	20	0	0	0	0	0.04	0.00
37	20	0	3	0	0	0.07	0.00
38	20	0	0	0	0	0.05	0.00
39	20	1	5	0	0	0.05	20.00
40	20	1	20	0	0	0.03	33.33
41	20	0	0	0	0	0.04	0.00
42	20	2	1	0	0	0.03	66.67
43	20	0	2	0	0	0.05	0.00
44	20	0	0	0	0	0.04	0.00
45	20	0	0	0	0	0.03	0.00
46	20	0	2	0	0	0.05	0.00
47	20	0	0	0	0	0.04	0.00
48	20	0	0	0	0	0.03	0.00
49	20	1	4	0	0	0.04	25.00
50	20	0	4	0	0	0.08	0.00
51	20	0	2	0	0	0.03	0.00
52	20	0	1	0	0	0.02	0.00
53	20	2	7	0	0	0.05	40.00
54	20	2	5	0	0	0.04	50.00
55	20	1	3	0	0	0.03	33.33
56	20	0	9	0	0	0.06	0.00
57	20	0	0	0	0	0.05	0.00
58	20	0	1	1	0	0.05	0.00
59	20	0	1	0	0	0.04	0.00
60	20	0	3	0	0	0.04	0.00

61	50	0	0	0	0	0.05	0.00
62	50	1	1	0	0	0.04	25.00
63	50	0	0	0	0	0.02	0.00
64	50	0	0	0	0	0.02	0.00
65	50	0	0	0	0	0.06	0.00
66	50	0	0	0	0	0.05	0.00
67	50	0	0	0	0	0.02	0.00
68	50	3	0	0	0	0.06	50.00
69	50	0	0	0	0	0.03	0.00
70	50	0	0	0	0	0.03	0.00
71	50	0	0	0	0	0.06	0.00
72	50	0	0	0	0	0.01	0.00
73	50	0	0	0	0	0.02	0.00
74	50	0	0	0	0	0.03	0.00
75	50	0	0	0	0	0.03	0.00
76	50	0	0	0	0	0.03	0.00
77	50	0	0	0	0	0.04	0.00
78	50	0	0	0	0	0.05	0.00
79	50	0	0	0	0	0.05	0.00
80	50	0	0	0	0	0.50	0.00
81	50	0	0	0	0	0.03	0.00
82	50	0	0	0	0	0.06	0.00
83	50	0	0	0	0	0.05	0.00
84	50	0	0	0	0	0.03	0.00
85	50	1	0	0	0	0.03	33.33
86	50	0	0	0	0	0.03	0.00
87	50	0	0	0	0	0.05	0.00
88	50	0	0	0	0	0.05	0.00
89	50	0	0	0	0	0.03	0.00
90	50	0	0	0	0	0.03	0.00
91	100	1	1	0	0	0.03	33.33
92	100	0	1	0	0	0.03	0.00
93	100	0	0	0	0	0.01	0.00
94	100	1	0	0	0	0.02	50.00
95	100	4	6	0	0	0.03	133.33
96	100	1	2	0	0	0.07	14.29
97	100	0	0	0	0	0.02	0.00
98	100	0	0	0	0	0.04	0.00
99	100	0	0	0	0	0.03	0.00
100	100	0	0	0	0	0.06	0.00
101	100	0	0	0	0	0.03	0.00
102	100	0	0	0	0	0.05	0.00
103	100	3	0	0	0	0.02	150.00
104	100	1	1	0	0	0.03	33.33
105	100	0	0	0	0	0.04	0.00
106	100	2	2	0	0	0.03	66.67
107	100	0	0	0	0	0.05	0.00
108	100	1	4	0	0	0.03	33.33
109	100	1	2	0	0	0.03	33.33
110	100	0	0	0	0	0.04	0.00
111	100	0	0	0	0	0.04	0.00
112	100	8	10	0	0	0.04	200.00
113	100	0	0	0	0	0.01	0.00
114	100	0	0	0	0	0.03	0.00
115	100	0	0	0	0	0.02	0.00
116	100	1	0	0	0	0.02	50.00
117	100	0	0	0	0	0.04	0.00
118	100	0	2	0	0	0.01	0.00
119	100	0	0	0	0	0.03	0.00
120	100	0	0	0	0	0.05	0.00
121	1000	13	6	0	0	0.06	216.67
122	1000	10	7	0	0	0.05	200.00
123	1000	13	24	0	0	0.02	650.00
124	1000	4	2	0	0	0.01	400.00
125	1000	5	5	0	0	0.02	250.00
126	1000	3	9	0	0	0.04	75.00

127	1000	8	13	0	0	0.06	133.33
128	1000	3	2	0	0	0.05	60.00
129	1000	2	6	0	0	0.05	40.00
130	1000	6	25	0	0	0.03	200.00
131	1000	12	2	0	0	0.05	240.00
132	1000	0	2	0	0	0.06	0.00
133	1000	10	27	0	0	0.04	250.00
134	1000	7	24	0	0	0.10	70.00
135	1000	3	1	0	0	0.09	33.33
136	1000	0	0	0	0	0.01	0.00
137	1000	1	3	0	0	0.07	14.29
138	1000	2	4	0	0	0.10	20.00
139	1000	11	2	0	0	0.08	137.50
140	1000	2	14	0	0	0.05	40.00
141	1000	0	3	0	0	0.01	0.00
142	1000	5	12	0	0	0.05	100.00
143	1000	8	10	0	0	0.05	160.00
144	1000	3	5	0	0	0.07	42.86
145	1000	0	1	0	0	0.01	0.00
146	1000	6	12	0	0	0.07	85.71
147	1000	11	10	0	0	0.06	183.33
148	1000	14	45	0	0	0.06	233.33
149	1000	4	2	0	0	0.01	400.00
150	1000	2	10	0	0	0.03	66.67

Raw data of numbers of simuliids and chironomids on weed at Blandford on day 7.

ROW	T7Dist	T7SimL	T7SimD	T7ChirL	T7ChirD	T7WeedWt	T7SimL/g
1	0	4	0	0	0	0.02	200.00
2	0	1	0	0	0	0.01	100.00
3	0	12	1	0	0	0.03	400.00
4	0	2	0	0	0	0.02	100.00
5	0	0	0	0	0	0.02	0.00
6	0	8	0	0	0	0.04	200.00
7	0	2	0	0	0	0.02	100.00
8	0	2	0	0	0	0.02	100.00
9	0	33	0	0	0	0.04	825.00
10	0	15	0	0	0	0.02	750.00
11	0	13	0	0	0	0.04	325.00
12	0	35	0	0	0	0.02	1750.00
13	0	33	0	0	0	0.06	550.00
14	0	13	0	0	0	0.03	433.33
15	0	5	0	0	0	0.03	166.67
16	0	6	0	0	0	0.01	600.00
17	0	12	0	0	0	0.02	600.00
18	0	5	0	0	0	0.02	250.00
19	0	1	0	0	0	0.04	25.00
20	0	8	0	0	0	0.01	800.00
21	0	8	1	1	0	0.02	400.00
22	0	8	0	0	0	0.02	400.00
23	0	2	0	0	0	0.02	100.00
24	0	16	0	0	0	0.02	800.00
25	0	41	0	1	0	0.03	1366.67
26	0	7	1	0	0	0.01	700.00
27	0	3	0	0	0	0.02	150.00
28	0	6	0	0	0	0.04	150.00
29	0	23	0	0	0	0.03	766.67
30	0	7	0	0	0	0.01	700.00
31	20	7	1	0	0	0.04	175.00
32	20	1	0	1	0	0.02	50.00
33	20	1	0	0	0	0.06	16.67
34	20	1	1	0	0	0.02	50.00
35	20	15	0	0	0	0.03	500.00
36	20	2	0	0	0	0.01	200.00
37	20	5	0	1	0	0.05	100.00
38	20	2	0	0	0	0.02	100.00
39	20	21	0	0	0	0.01	2100.00
40	20	4	0	0	0	0.02	200.00
41	20	1	0	0	0	0.03	33.33
42	20	0	0	2	0	0.04	0.00
43	20	13	1	0	0	0.04	325.00
44	20	5	0	0	0	0.02	250.00
45	20	12	1	0	0	0.03	400.00
46	20	3	0	0	0	0.02	150.00
47	20	1	0	0	0	0.01	100.00
48	20	0	0	0	0	0.02	0.00
49	20	8	0	0	0	0.03	266.67
50	20	1	0	0	0	0.03	33.33
51	20	0	0	0	0	0.01	0.00
52	20	2	0	0	0	0.03	66.67
53	20	5	0	0	0	0.01	500.00
54	20	0	0	0	0	0.02	0.00
55	20	7	1	0	0	0.02	350.00
56	20	2	0	0	0	0.03	66.67
57	20	4	0	0	0	0.04	100.00
58	20	4	0	0	0	0.03	133.33
59	20	7	0	0	0	0.02	350.00
60	20	3	0	0	0	0.03	100.00

61	50	1	0	0	0	0.03	33.33
62	50	0	0	0	0	0.02	0.00
63	50	0	0	0	0	0.03	0.00
64	50	0	0	0	0	0.04	0.00
65	50	1	0	0	0	0.02	50.00
66	50	0	0	0	0	0.01	0.00
67	50	0	0	0	0	0.02	0.00
68	50	0	0	0	0	0.02	0.00
69	50	0	0	0	0	0.02	0.00
70	50	0	0	0	0	0.01	0.00
71	50	0	0	0	0	0.03	0.00
72	50	0	0	0	0	0.02	0.00
73	50	0	0	0	0	0.01	0.00
74	50	1	0	0	0	0.05	20.00
75	50	0	0	0	0	0.02	0.00
76	50	0	0	0	0	0.03	0.00
77	50	0	0	0	0	0.03	0.00
78	50	0	0	0	0	0.02	0.00
79	50	0	0	0	0	0.03	0.00
80	50	1	0	0	0	0.02	50.00
81	50	0	0	0	0	0.01	0.00
82	50	1	0	0	0	0.03	33.33
83	50	2	0	0	0	0.05	40.00
84	50	0	0	0	0	0.03	0.00
85	50	0	0	0	0	0.04	0.00
86	50	1	0	0	0	0.05	20.00
87	50	0	0	0	0	0.03	0.00
88	50	0	0	0	0	0.05	0.00
89	50	0	0	0	0	0.04	0.00
90	50	*	*	*	*	*	*
91	100	0	0	0	0	0.02	0.00
92	100	0	0	0	0	0.01	0.00
93	100	1	0	0	0	0.02	50.00
94	100	0	0	0	0	0.01	0.00
95	100	0	0	0	0	0.03	0.00
96	100	0	0	0	0	0.02	0.00
97	100	0	0	0	0	0.04	0.00
98	100	1	0	0	0	0.03	33.33
99	100	0	0	0	0	0.02	0.00
100	100	1	0	0	0	0.02	50.00
101	100	0	0	0	0	0.03	0.00
102	100	0	0	0	0	0.01	0.00
103	100	0	0	0	0	0.01	0.00
104	100	0	0	0	0	0.02	0.00
105	100	2	0	0	0	0.01	200.00
106	100	0	0	0	0	0.02	0.00
107	100	0	0	0	0	0.03	0.00
108	100	1	0	0	0	0.02	50.00
109	100	0	0	0	0	0.03	0.00
110	100	0	0	0	0	0.02	0.00
111	100	2	0	0	0	0.04	50.00
112	100	0	0	0	0	0.04	0.00
113	100	0	0	0	0	0.01	0.00
114	100	2	0	0	0	0.02	100.00
115	100	0	0	0	0	0.01	0.00
116	100	1	0	0	0	0.02	50.00
117	100	1	0	0	0	0.03	33.33
118	100	0	0	0	0	0.02	0.00
119	100	1	0	0	0	0.01	100.00
120	100	1	0	0	0	0.02	50.00
121	1000	0	0	0	0	0.02	0.00
122	1000	3	0	0	0	0.03	100.00
123	1000	2	0	0	0	0.03	66.67
124	1000	0	0	0	0	0.01	0.00
125	1000	0	0	0	0	0.02	0.00
126	1000	1	0	0	0	0.04	25.00

127	1000	7	0	0	0	0.02	350.00
128	1000	1	0	0	0	0.03	33.33
129	1000	2	0	0	0	0.01	200.00
130	1000	2	0	0	0	0.02	100.00
131	1000	6	0	0	0	0.04	150.00
132	1000	3	0	0	0	0.02	150.00
133	1000	2	0	0	0	0.03	66.67
134	1000	2	1	0	0	0.05	40.00
135	1000	0	1	0	0	0.04	0.00
136	1000	1	0	0	0	0.02	50.00
137	1000	2	0	0	0	0.02	100.00
138	1000	4	0	0	0	0.50	8.00
139	1000	0	0	0	0	0.03	0.00
140	1000	0	0	0	0	0.02	0.00
141	1000	0	0	0	0	0.04	0.00
142	1000	1	0	0	0	0.02	50.00
143	1000	1	0	0	0	0.05	20.00
144	1000	3	0	0	0	0.04	75.00
145	1000	0	0	0	0	0.02	0.00
146	1000	5	0	0	0	0.05	100.00
147	1000	0	0	0	0	0.03	0.00
148	1000	1	2	0	0	0.03	33.33
149	1000	1	0	0	0	0.02	50.00
150	1000	0	0	0	0	0.02	0.00

Raw data of numbers of simuliids and chironomids on weed at Blandford on day 14.

ROW	14dist	14simL	14simD	14chirL	14chirD	14weedwt	14simL/g
1	0	3	0	0	0	0.040	75.00
2	0	17	0	0	0	0.050	340.00
3	0	4	0	0	0	0.050	80.00
4	0	15	0	0	0	0.050	300.00
5	0	26	0	0	0	0.040	650.00
6	0	11	0	0	0	0.080	137.50
7	0	6	0	0	0	0.040	150.00
8	0	13	0	0	0	0.090	144.44
9	0	36	0	0	0	0.050	720.00
10	0	20	0	0	0	0.060	333.33
11	0	19	0	0	0	0.040	475.00
12	0	12	0	0	0	0.040	300.00
13	0	16	0	0	0	0.050	320.00
14	0	4	0	0	0	0.030	133.33
15	0	11	0	0	0	0.040	275.00
16	0	1	0	0	0	0.030	33.33
17	0	7	0	0	0	0.040	175.00
18	0	3	0	0	0	0.040	75.00
19	0	18	0	0	0	0.030	600.00
20	0	6	0	0	0	0.030	200.00
21	0	1	0	0	0	0.020	50.00
22	0	12	0	0	0	0.010	1200.00
23	0	18	0	0	0	0.050	360.00
24	0	4	0	0	0	0.060	66.67
25	0	1	0	0	0	0.040	25.00
26	0	14	0	0	0	0.060	233.33
27	0	12	0	0	0	0.040	300.00
28	0	8	0	0	0	0.050	160.00
29	0	2	0	0	0	0.030	66.67
30	0	3	0	0	0	0.010	300.00
31	20	3	0	0	0	0.030	100.00
32	20	10	0	0	0	0.030	333.33
33	20	4	0	0	0	0.120	33.33
34	20	4	0	0	0	0.060	66.67
35	20	4	0	0	0	0.100	40.00
36	20	5	0	0	0	0.020	250.00
37	20	1	0	0	0	0.030	33.33
38	20	1	0	0	0	0.040	25.00
39	20	2	0	0	0	0.100	20.00
40	20	1	0	0	0	0.090	11.11
41	20	0	0	0	0	0.070	0.00
42	20	3	0	0	0	0.080	37.50
43	20	1	0	0	0	0.050	20.00
44	20	0	0	0	0	0.040	0.00
45	20	0	0	0	0	0.020	0.00
46	20	7	0	0	0	0.060	116.67
47	20	0	0	0	0	0.030	0.00
48	20	0	0	0	0	0.060	0.00
49	20	7	0	0	0	0.050	140.00
50	20	4	0	0	0	0.030	133.33
51	20	1	0	0	0	0.030	33.33
52	20	3	0	0	0	0.050	60.00
53	20	1	0	0	0	0.020	50.00
54	20	1	0	0	0	0.070	14.29
55	20	0	0	0	0	0.030	0.00
56	20	1	0	0	0	0.020	50.00
57	20	1	0	0	0	0.030	33.33
58	20	1	0	0	0	0.030	33.33
59	20	7	0	0	0	0.030	233.33
60	20	2	0	0	0	0.010	200.00

61	50	2	0	0	0	0.040	50.00
62	50	0	0	0	0	0.020	0.00
63	50	1	0	0	0	0.050	20.00
64	50	2	0	0	0	0.030	66.67
65	50	0	0	0	0	0.060	0.00
66	50	1	0	0	0	0.030	33.33
67	50	1	0	0	0	0.070	14.29
68	50	0	0	0	0	0.050	0.00
69	50	2	0	0	0	0.060	33.33
70	50	0	0	0	0	0.020	0.00
71	50	0	0	0	0	0.040	0.00
72	50	0	0	0	0	0.004	0.00
73	50	0	0	0	0	0.003	0.00
74	50	1	0	0	0	0.040	25.00
75	50	2	0	0	0	0.020	100.00
76	50	2	0	0	0	0.040	50.00
77	50	0	0	0	0	0.050	0.00
78	50	3	0	0	0	0.050	60.00
79	50	0	0	0	0	0.070	0.00
80	50	0	0	0	0	0.060	0.00
81	50	0	0	0	0	0.080	0.00
82	50	1	0	0	0	0.050	20.00
83	50	1	0	0	0	0.060	16.67
84	50	1	0	0	0	0.040	25.00
85	50	0	0	0	0	0.060	0.00
86	50	1	0	0	0	0.100	10.00
87	50	0	0	0	0	0.030	0.00
88	50	0	0	0	0	0.050	0.00
89	50	2	0	0	0	0.050	40.00
90	50	1	0	0	0	0.080	12.50
91	100	3	0	0	0	0.020	150.00
92	100	0	0	0	0	0.030	0.00
93	100	0	0	0	0	0.030	0.00
94	100	0	0	0	0	0.050	0.00
95	100	1	0	0	0	0.060	16.67
96	100	0	0	0	0	0.060	0.00
97	100	0	0	0	0	0.050	0.00
98	100	1	0	0	0	0.020	50.00
99	100	1	0	0	0	0.030	33.33
100	100	0	0	0	0	0.010	0.00
101	100	1	0	0	0	0.020	50.00
102	100	1	0	0	0	0.030	33.33
103	100	4	0	0	0	0.040	100.00
104	100	0	0	0	0	0.010	0.00
105	100	4	0	0	0	0.020	200.00
106	100	0	0	0	0	0.020	0.00
107	100	1	0	0	0	0.030	33.33
108	100	3	0	0	0	0.020	150.00
109	100	3	0	0	0	0.020	150.00
110	100	0	0	0	0	0.020	0.00
111	100	1	0	0	0	0.020	50.00
112	100	0	0	0	0	0.050	0.00
113	100	6	0	0	0	0.040	150.00
114	100	0	0	0	0	0.030	0.00
115	100	10	0	0	0	0.040	250.00
116	100	10	0	0	0	0.070	142.86
117	100	1	0	0	0	0.040	25.00
118	100	0	0	0	0	0.020	0.00
119	100	0	0	0	0	0.050	0.00
120	100	9	0	0	0	0.050	180.00
121	1000	10	0	0	0	0.070	142.86
122	1000	1	0	0	0	0.020	50.00
123	1000	0	0	0	0	0.020	0.00
124	1000	0	0	0	0	0.030	0.00
125	1000	0	0	0	0	0.070	0.00

126	1000	0	0	0	0	0.010	0.00
127	1000	0	0	0	0	0.020	0.00
128	1000	0	0	0	0	0.060	0.00
129	1000	0	0	0	0	0.020	0.00
130	1000	0	0	0	0	0.020	0.00
131	1000	0	0	0	0	0.040	0.00
132	1000	4	0	0	0	0.060	66.67
133	1000	18	0	0	0	0.050	360.00
134	1000	2	0	0	0	0.004	500.00
135	1000	3	0	0	0	0.020	150.00
136	1000	4	0	0	0	0.003	1333.33
137	1000	2	0	0	0	0.030	66.67
138	1000	0	0	0	0	0.010	0.00
139	1000	0	0	0	0	0.040	0.00
140	1000	0	0	0	0	0.020	0.00
141	1000	1	0	0	0	0.030	33.33
142	1000	1	0	0	0	0.004	250.00
143	1000	0	0	0	0	0.020	0.00
144	1000	0	0	0	0	0.020	0.00
145	1000	0	0	0	0	0.010	0.00
146	1000	0	0	0	0	0.020	0.00
147	1000	4	0	0	0	0.030	133.33
148	1000	1	0	0	0	0.020	50.00
149	1000	0	0	0	0	0.050	0.00
150	1000	5	0	0	0	0.030	166.67

Raw data of numbers of simuliids and chironomids on weed at Blandford on day 42.

ROW	42dist	42simL	42simD	42chirL	42chirD	42weedwt	42simL/g
1	0	1	0	0	0	0.03	33.333
2	0	0	0	0	0	0.09	0.000
3	0	1	0	1	0	0.08	12.500
4	0	3	0	0	0	0.10	30.000
5	0	1	0	0	0	0.16	6.250
6	0	0	0	0	0	0.10	0.000
7	0	1	0	0	0	0.04	25.000
8	0	3	0	0	0	0.08	37.500
9	0	0	0	0	0	0.08	0.000
10	0	3	0	0	0	0.08	37.500
11	0	3	0	0	0	0.06	50.000
12	0	3	0	0	0	0.07	42.857
13	0	2	0	0	0	0.07	28.571
14	0	0	0	0	0	0.12	0.000
15	0	1	0	0	0	0.09	11.111
16	0	1	0	0	0	0.05	20.000
17	0	1	0	0	0	0.05	20.000
18	0	0	0	0	0	0.04	0.000
19	0	0	0	0	0	0.11	0.000
20	0	0	0	0	0	0.04	0.000
21	0	0	0	0	0	0.03	0.000
22	0	0	0	0	0	0.08	0.000
23	0	1	0	0	0	0.06	16.667
24	0	0	0	0	0	0.01	0.000
25	0	0	0	0	0	0.05	0.000
26	0	0	0	0	0	0.16	0.000
27	0	2	0	0	0	0.10	20.000
28	0	1	0	0	0	0.04	25.000
29	0	1	0	0	0	0.03	33.333
30	0	0	0	0	0	0.10	0.000
31	20	0	0	0	0	0.07	0.000
32	20	1	0	0	0	0.02	50.000
33	20	1	0	0	0	0.09	11.111
34	20	1	0	0	0	0.05	20.000
35	20	2	0	0	0	0.01	200.000
36	20	2	0	0	0	0.05	40.000
37	20	1	0	0	0	0.07	14.286
38	20	0	0	0	0	0.02	0.000
39	20	0	0	0	0	0.02	0.000
40	20	0	0	0	0	0.07	0.000
41	20	0	0	0	0	0.10	0.000
42	20	0	0	0	0	0.07	0.000
43	20	0	0	0	0	0.01	0.000
44	20	0	0	0	0	0.01	0.000
45	20	1	0	0	0	0.07	14.286
46	20	0	0	0	0	0.06	0.000
47	20	0	0	0	0	0.02	0.000
48	20	0	0	0	0	0.01	0.000
49	20	0	0	0	0	0.03	0.000
50	20	0	0	0	0	0.05	0.000
51	20	1	0	0	0	0.03	33.333
52	20	0	0	0	0	0.02	0.000
53	20	0	0	0	0	0.04	0.000
54	20	0	0	0	0	0.01	0.000
55	20	0	0	0	0	0.02	0.000
56	20	1	0	0	0	0.12	8.333
57	20	0	0	0	0	0.02	0.000
58	20	0	0	0	0	0.01	0.000
59	20	1	0	0	0	0.05	20.000
60	20	0	0	0	0	0.03	0.000

61	50	2	0	0	0	0.07	28.571
62	50	0	0	0	0	0.01	0.000
63	50	1	0	0	0	0.02	50.000
64	50	0	0	0	0	0.03	0.000
65	50	0	0	0	0	0.04	0.000
66	50	0	0	0	0	0.01	0.000
67	50	1	0	0	0	0.03	33.333
68	50	0	0	0	0	0.03	0.000
69	50	0	0	0	0	0.03	0.000
70	50	1	0	1	0	0.04	25.000
71	50	0	0	0	0	0.02	0.000
72	50	1	0	0	0	0.04	25.000
73	50	0	0	0	0	0.06	0.000
74	50	0	0	0	0	0.06	0.000
75	50	0	0	0	0	0.01	0.000
76	50	0	0	0	0	0.05	0.000
77	50	0	0	0	0	0.04	0.000
78	50	0	0	0	0	0.03	0.000
79	50	0	0	0	0	0.03	0.000
80	50	0	0	0	0	0.01	0.000
81	50	1	0	0	0	0.03	33.333
82	50	0	0	0	0	0.04	0.000
83	50	0	0	0	0	0.03	0.000
84	50	0	0	0	0	0.01	0.000
85	50	1	0	0	0	0.05	20.000
86	50	2	0	0	0	0.09	22.222
87	50	0	0	0	0	0.01	0.000
88	50	0	0	0	0	0.05	0.000
89	50	0	0	0	0	0.03	0.000
90	50	1	0	0	0	0.07	14.286
91	100	0	0	0	0	0.01	0.000
92	100	1	0	0	0	0.04	25.000
93	100	2	0	0	0	0.03	66.667
94	100	3	0	0	0	0.02	150.000
95	100	4	0	0	0	0.06	66.667
96	100	1	0	0	0	0.02	50.000
97	100	0	0	0	0	0.03	0.000
98	100	1	0	0	0	0.03	33.333
99	100	0	0	0	0	0.05	0.000
100	100	1	0	0	0	0.03	33.333
101	100	1	0	0	0	0.03	33.333
102	100	0	0	0	0	0.07	0.000
103	100	3	0	0	0	0.04	75.000
104	100	1	0	0	0	0.04	25.000
105	100	4	0	0	0	0.05	80.000
106	100	0	0	0	0	0.05	0.000
107	100	2	0	0	0	0.06	33.333
108	100	2	0	0	0	0.02	100.000
109	100	0	0	0	0	0.03	0.000
110	100	2	0	0	0	0.02	100.000
111	100	0	0	0	0	0.03	0.000
112	100	3	0	0	0	0.02	150.000
113	100	4	0	0	0	0.02	200.000
114	100	0	0	0	0	0.01	0.000
115	100	3	0	0	0	0.03	100.000
116	100	1	0	0	0	0.04	25.000
117	100	2	0	0	0	0.04	50.000
118	100	2	0	0	0	0.05	40.000
119	100	2	0	0	0	0.03	66.667
120	100	6	0	0	0	0.03	200.000
121	1000	3	0	0	0	0.04	75.000
122	1000	1	0	0	0	0.02	50.000
123	1000	2	0	0	0	0.03	66.667
124	1000	0	0	0	0	0.01	0.000
125	1000	1	0	0	0	0.06	16.667
126	1000	0	0	0	0	0.01	0.000

127	1000	1	0	0	0	0.03	33.333
128	1000	0	0	0	0	0.05	0.000
129	1000	0	0	0	0	0.03	0.000
130	1000	0	0	0	0	0.03	0.000
131	1000	0	0	0	0	0.01	0.000
132	1000	1	0	0	0	0.02	50.000
133	1000	0	0	0	0	0.01	0.000
134	1000	0	0	0	0	0.02	0.000
135	1000	1	0	0	0	0.01	100.000
136	1000	0	0	0	0	0.03	0.000
137	1000	1	0	0	0	0.03	33.333
138	1000	0	0	0	0	0.01	0.000
139	1000	0	0	0	0	0.03	0.000
140	1000	1	0	0	0	0.01	100.000
141	1000	0	0	0	0	0.03	0.000
142	1000	1	0	0	0	0.03	33.333
143	1000	0	0	0	0	0.03	0.000
144	1000	0	0	0	0	0.02	0.000
145	1000	0	0	0	0	0.02	0.000
146	1000	0	0	0	0	0.03	0.000
147	1000	2	0	0	0	0.03	66.667
148	1000	0	0	0	0	0.03	0.000
149	1000	0	0	0	0	0.02	0.000
150	1000	0	0	0	0	0.02	0.000

Raw data of numbers of simuliids and chironomids on weed at Blandford on day 84.

ROW	84dist	84simL	84SimD	84chirL	84chirD	84weedwt	84simL/g
1	0	6	0	0	0	0.06	100.00
2	0	5	0	0	0	0.06	83.33
3	0	34	0	0	0	0.09	377.78
4	0	20	0	0	0	0.07	285.71
5	0	5	0	0	0	0.10	50.00
6	0	33	0	0	0	0.09	366.67
7	0	12	0	0	0	0.08	150.00
8	0	22	1	0	0	0.07	314.29
9	0	4	0	0	0	0.05	80.00
10	0	13	1	1	0	0.06	216.67
11	0	18	0	0	0	0.09	200.00
12	0	11	0	0	0	0.10	110.00
13	0	18	0	0	0	0.05	360.00
14	0	13	0	1	0	0.07	185.71
15	0	6	0	0	0	0.11	54.55
16	0	16	0	0	0	0.09	177.78
17	0	4	0	0	0	0.05	80.00
18	0	13	0	0	0	0.06	216.67
19	0	16	0	0	0	0.05	320.00
20	0	25	0	0	0	0.07	357.14
21	0	4	0	0	0	0.05	80.00
22	0	26	0	0	0	0.06	433.33
23	0	5	0	0	0	0.10	50.00
24	0	52	0	0	0	0.06	866.67
25	0	8	1	0	0	0.04	200.00
26	0	15	1	1	0	0.11	136.36
27	0	27	0	0	0	0.03	900.00
28	0	18	0	0	0	0.03	600.00
29	0	5	0	0	0	0.02	250.00
30	0	12	0	0	0	0.08	150.00
31	20	51	0	1	0	0.07	728.57
32	20	27	0	0	0	0.02	1350.00
33	20	52	0	0	0	0.15	346.67
34	20	22	0	1	0	0.05	440.00
35	20	21	0	0	0	0.09	233.33
36	20	18	0	0	0	0.04	450.00
37	20	46	0	1	0	0.08	575.00
38	20	79	0	0	0	0.04	1975.00
39	20	15	0	0	0	0.04	375.00
40	20	54	0	1	0	0.05	1080.00
41	20	40	0	0	0	0.07	571.43
42	20	59	0	0	0	0.06	983.33
43	20	62	0	1	0	0.07	885.71
44	20	28	0	0	0	0.03	933.33
45	20	68	0	0	0	0.07	971.43
46	20	14	0	0	0	0.02	700.00
47	20	39	0	0	0	0.04	975.00
48	20	45	0	0	0	0.05	900.00
49	20	51	0	0	0	0.07	728.57
50	20	35	0	1	0	0.06	583.33
51	20	55	1	1	0	0.06	916.67
52	20	53	0	0	0	0.06	883.33
53	20	45	0	0	0	0.04	1125.00
54	20	15	0	2	0	0.05	300.00
55	20	25	0	1	0	0.04	625.00
56	20	160	0	0	0	0.05	3200.00
57	20	59	0	0	0	0.05	1180.00
58	20	47	0	0	0	0.07	671.43
59	20	29	0	0	0	0.06	483.33
60	20	32	0	0	0	0.02	1600.00

61	50	73	0	1	0	0.11	663.64
62	50	40	0	1	0	0.11	363.64
63	50	33	0	0	0	0.07	471.43
64	50	30	1	1	0	0.14	214.29
65	50	55	0	0	0	0.08	687.50
66	50	16	0	0	0	0.04	400.00
67	50	25	0	0	0	0.07	357.14
68	50	47	0	0	0	0.08	587.50
69	50	58	0	0	0	0.07	828.57
70	50	76	0	0	0	0.15	506.67
71	50	31	0	1	0	0.05	620.00
72	50	43	0	0	0	0.13	330.77
73	50	46	0	0	0	0.10	460.00
74	50	29	0	0	0	0.05	580.00
75	50	50	0	1	0	0.16	312.50
76	50	45	0	0	0	0.11	409.09
77	50	38	0	1	0	0.08	475.00
78	50	26	0	0	0	0.08	325.00
79	50	35	0	1	0	0.15	233.33
80	50	20	0	0	0	0.06	333.33
81	50	18	0	0	0	0.05	360.00
82	50	23	1	1	0	0.10	230.00
83	50	39	0	0	0	0.09	433.33
84	50	72	0	0	0	0.18	400.00
85	50	46	0	0	0	0.09	511.11
86	50	46	0	0	0	0.13	353.85
87	50	51	0	0	0	0.11	463.64
88	50	52	1	3	0	0.20	260.00
89	50	30	0	0	0	0.10	300.00
90	50	36	0	0	0	0.13	276.92
91	100	18	0	0	0	0.03	600.00
92	100	21	0	0	0	0.06	350.00
93	100	24	0	1	0	0.13	184.62
94	100	32	0	0	0	0.07	457.14
95	100	27	0	0	0	0.09	300.00
96	100	10	0	0	0	0.06	166.67
97	100	20	0	0	0	0.10	200.00
98	100	30	0	0	0	0.13	230.77
99	100	34	0	0	0	0.08	425.00
100	100	45	0	0	0	0.10	450.00
101	100	51	1	1	0	0.18	283.33
102	100	16	0	1	0	0.06	266.67
103	100	17	0	0	0	0.05	340.00
104	100	14	0	0	0	0.04	350.00
105	100	45	0	0	0	0.07	642.86
106	100	75	0	0	0	0.13	576.92
107	100	67	0	0	0	0.14	478.57
108	100	30	0	1	0	0.10	300.00
109	100	55	0	0	0	0.12	458.33
110	100	44	0	0	0	0.12	366.67
111	100	21	0	0	0	0.06	350.00
112	100	8	0	0	0	0.04	200.00
113	100	22	0	3	0	0.04	550.00
114	100	32	0	1	0	0.08	400.00
115	100	3	0	0	0	0.06	50.00
116	100	19	0	0	0	0.06	316.67
117	100	2	0	2	0	0.05	40.00
118	100	27	0	4	0	0.10	270.00
119	100	17	0	0	0	0.06	283.33
120	100	34	0	0	0	0.13	261.54
121	1000	40	0	0	0	0.10	400.00
122	1000	3	0	0	0	0.08	37.50
123	1000	35	0	0	0	0.07	500.00
124	1000	21	0	0	0	0.04	525.00
125	1000	36	0	0	0	0.07	514.29
126	1000	22	0	0	0	0.07	314.29

127	1000	51	0	0	0	0.13	392.31
128	1000	37	0	0	0	0.11	336.36
129	1000	64	0	0	0	0.08	800.00
130	1000	67	0	0	0	0.11	609.09
131	1000	23	0	0	0	0.06	383.33
132	1000	43	0	0	0	0.06	716.67
133	1000	48	2	0	0	0.08	600.00
134	1000	17	0	0	0	0.02	850.00
135	1000	53	0	0	0	0.15	353.33
136	1000	12	0	0	0	0.04	300.00
137	1000	21	0	0	0	0.03	700.00
138	1000	70	0	0	0	0.14	500.00
139	1000	31	0	0	0	0.15	206.67
140	1000	80	0	0	0	0.08	1000.00
141	1000	16	0	0	0	0.05	320.00
142	1000	19	0	0	0	0.07	271.43
143	1000	52	1	0	0	0.08	650.00
144	1000	53	0	0	0	0.09	588.89
145	1000	36	1	0	0	0.07	514.29
146	1000	74	1	0	0	0.12	616.67
147	1000	25	0	0	0	0.08	312.50
148	1000	60	0	0	0	0.07	857.14
149	1000	36	0	0	0	0.11	327.27
150	1000	35	0	0	0	0.07	500.00

APPENDIX 6

Raw data of *S. posticatum* and chironomids on weed samples at Wimborne

dist	= distance from input of *Bti*
simL	= numbers of live *Simulium*
simD	= numbers of dead *Simulium*
chirL	= numbers of live chironomids
chirD	= numbers of dead chironomids
weedwt	= weight of weed (g)
simL/g	= numbers of live *Simulium* per gram of weed

Raw data of numbers of simuliids and chironomids on weed at Wimborne on pre-treatment day (day -1).

ROW	ptdist	ptsimL	ptsimD	ptchirL	ptchirD	ptweedwt	ptsimL/g
1	0	28	0	1	0	0.09	311.11
2	0	2	0	0	0	0.21	9.52
3	0	5	0	0	0	0.04	125.00
4	0	5	0	0	0	0.12	41.67
5	0	29	1	1	0	0.11	263.64
6	0	14	0	1	0	0.05	280.00
7	0	32	0	0	0	0.11	290.91
8	0	14	0	0	0	0.09	155.56
9	0	11	0	0	0	0.06	183.33
10	0	3	0	0	0	0.06	50.00
11	0	10	0	0	0	0.07	142.86
12	0	1	0	0	0	0.09	11.11
13	0	1	0	0	0	0.07	14.29
14	0	3	0	0	0	0.03	100.00
15	0	7	0	0	0	0.03	233.33
16	0	11	0	0	0	0.09	122.22
17	0	3	0	0	0	0.05	60.00
18	0	17	0	0	0	0.17	100.00
19	0	4	0	0	0	0.13	30.77
20	0	4	0	0	0	0.14	28.57
21	0	8	0	0	0	0.08	100.00
22	0	2	0	0	0	0.01	200.00
23	0	16	0	1	0	0.04	400.00
24	0	5	0	0	0	0.06	83.33
25	0	4	0	0	0	0.12	33.33
26	0	4	0	0	0	0.08	50.00
27	0	7	0	1	0	0.03	233.33
28	0	8	0	0	0	0.06	133.33
29	0	5	0	0	0	0.09	55.56
30	0	0	0	0	0	0.05	0.00
31	20	43	0	1	0	0.30	143.33
32	20	8	0	1	0	0.16	50.00
33	20	85	0	1	0	0.29	293.10
34	20	13	0	0	0	0.06	216.67
35	20	14	1	3	1	0.14	100.00
36	20	11	0	1	0	0.07	157.14
37	20	8	0	1	0	0.05	160.00
38	20	3	0	0	0	0.05	60.00
39	20	35	4	0	0	0.16	218.75
40	20	7	0	1	0	0.10	70.00
41	20	39	0	0	0	0.25	156.00
42	20	7	0	0	0	0.08	87.50
43	20	44	0	1	0	0.12	366.67
44	20	10	0	0	0	0.07	142.86
45	20	10	1	0	0	0.08	125.00
46	20	6	1	0	0	0.04	150.00
47	20	18	0	0	0	0.32	56.25
48	20	13	0	1	0	0.07	185.71
49	20	9	0	0	0	0.07	128.57
50	20	3	0	0	0	0.03	100.00
51	20	33	0	0	0	0.37	89.19
52	20	15	0	0	0	0.12	125.00
53	20	21	2	1	0	0.24	87.50
54	20	24	0	0	0	0.23	104.35
55	20	8	0	0	0	0.07	114.29
56	20	11	0	0	0	0.07	157.14
57	20	13	1	1	0	0.15	86.67
58	20	14	0	0	0	0.09	155.56
59	20	78	0	9	0	0.17	458.82
60	20	12	0	1	0	0.05	240.00

61	50	88	1	0	0	0.06	1466.67
62	50	11	0	0	0	0.04	275.00
63	50	52	0	0	0	0.06	866.67
64	50	32	0	0	0	0.03	1066.67
65	50	22	0	1	0	0.03	733.33
66	50	25	1	0	0	0.05	500.00
67	50	3	0	0	0	0.08	37.50
68	50	14	0	0	0	0.04	350.00
69	50	9	0	0	0	0.02	450.00
70	50	7	1	0	0	0.07	100.00
71	50	13	0	0	0	0.12	108.33
72	50	29	0	0	0	0.10	290.00
73	50	8	0	0	0	0.13	61.54
74	50	101	0	1	0	0.07	1442.86
75	50	23	0	0	0	0.06	383.33
76	50	12	0	0	0	0.07	171.43
77	50	82	0	0	0	0.12	683.33
78	50	17	0	0	0	0.05	340.00
79	50	23	0	0	0	0.08	287.50
80	50	87	0	0	0	0.06	1450.00
81	50	12	0	0	0	0.08	150.00
82	50	15	0	1	0	0.07	214.29
83	50	25	0	0	0	0.04	625.00
84	50	13	0	0	0	0.04	325.00
85	50	14	0	1	0	0.08	175.00
86	50	6	0	0	0	0.03	200.00
87	50	51	0	0	0	0.11	463.64
88	50	24	0	0	0	0.05	480.00
89	50	33	0	0	1	0.10	330.00
90	50	15	0	0	0	0.05	300.00
91	100	15	0	0	0	0.23	65.22
92	100	26	0	0	0	0.09	288.89
93	100	104	0	0	0	0.12	866.67
94	100	5	0	0	0	0.04	125.00
95	100	20	0	0	0	0.07	285.71
96	100	12	0	0	0	0.12	100.00
97	100	8	0	0	0	0.06	133.33
98	100	2	0	0	0	0.03	66.67
99	100	5	0	0	0	0.05	100.00
100	100	4	0	0	0	0.03	133.33
101	100	4	0	0	0	0.02	200.00
102	100	10	2	0	0	0.03	333.33
103	100	1	0	1	0	0.03	33.33
104	100	8	0	0	0	0.07	114.29
105	100	12	0	0	0	0.04	300.00
106	100	7	0	0	0	0.02	350.00
107	100	8	0	0	0	0.05	160.00
108	100	21	0	0	0	0.12	175.00
109	100	9	0	0	0	0.09	100.00
110	100	57	0	0	0	0.07	814.29
111	100	6	0	0	0	0.02	300.00
112	100	5	0	0	0	0.03	166.67
113	100	20	0	0	0	0.04	500.00
114	100	38	2	1	0	0.03	1266.67
115	100	11	0	0	0	0.12	91.67
116	100	5	0	0	0	0.01	500.00
117	100	22	0	0	0	0.04	550.00
118	100	35	0	0	0	0.05	700.00
119	100	8	0	0	0	0.04	200.00
120	100	2	0	0	0	0.04	50.00
121	1000	30	1	1	0	0.07	428.57
122	1000	22	1	0	1	0.05	440.00
123	1000	92	0	1	0	0.06	1533.33
124	1000	78	0	1	0	0.04	1950.00
125	1000	81	4	0	0	0.04	2025.00
126	1000	167	0	0	0	0.09	1855.56

127	1000	83	0	3	0	0.09	922.22
128	1000	131	0	0	0	0.06	2183.33
129	1000	3	0	0	0	0.05	60.00
130	1000	10	0	0	0	0.04	250.00
131	1000	6	0	0	0	0.05	120.00
132	1000	82	0	3	0	0.09	911.11
133	1000	29	1	1	0	0.08	362.50
134	1000	41	0	0	0	0.02	2050.00
135	1000	31	0	0	0	0.03	1033.33
136	1000	102	0	1	0	0.03	3400.00
137	1000	42	0	0	0	0.04	1050.00
138	1000	73	0	1	0	0.06	1216.67
139	1000	140	0	0	0	0.05	2800.00
140	1000	48	0	1	0	0.07	685.71
141	1000	30	0	0	0	0.11	272.73
142	1000	15	0	0	0	0.04	375.00
143	1000	16	0	0	0	0.04	400.00
144	1000	26	0	0	0	0.06	433.33
145	1000	77	0	1	0	0.08	962.50
146	1000	110	0	0	0	0.05	2200.00
147	1000	107	10	1	0	0.14	764.29
148	1000	24	0	0	0	0.07	342.86
149	1000	74	0	0	0	0.05	1480.00
150	1000	49	0	0	0	0.05	980.00

Raw data of numbers of simuliids and chironomids on weed at Wimborne on treatment day (day 0).

ROW	Tdist	TsimL	TsimD	TchirL	TchirD	Tweedwt	TsimL/g
1	0	25	0	0	0	0.08	312.50
2	0	2	0	0	0	0.08	25.00
3	0	4	0	0	0	0.13	30.77
4	0	4	0	0	0	0.05	80.00
5	0	26	1	0	0	0.09	288.89
6	0	19	0	0	0	0.07	271.43
7	0	12	0	0	0	0.08	150.00
8	0	3	0	0	0	0.05	60.00
9	0	2	0	0	0	0.05	40.00
10	0	6	0	0	0	0.04	150.00
11	0	18	0	0	0	0.05	360.00
12	0	3	0	0	0	0.03	100.00
13	0	1	0	0	0	0.04	25.00
14	0	5	0	0	0	0.07	71.43
15	0	3	0	0	0	0.09	33.33
16	0	8	0	0	0	0.04	200.00
17	0	9	0	0	0	0.08	112.50
18	0	55	0	0	0	0.06	916.67
19	0	0	0	0	0	0.09	0.00
20	0	0	0	0	0	0.05	0.00
21	0	1	0	0	0	0.03	33.33
22	0	0	0	0	0	0.09	0.00
23	0	14	0	0	0	0.06	233.33
24	0	2	0	0	0	0.04	50.00
25	0	44	0	0	0	0.09	488.89
26	0	5	0	0	0	0.07	71.43
27	0	4	0	0	0	0.07	57.14
28	0	5	4	0	0	0.03	166.67
29	0	3	0	0	0	0.05	60.00
30	0	38	0	0	0	0.03	1266.67
31	20	2	6	0	0	0.08	25.00
32	20	10	14	0	0	0.17	58.82
33	20	12	57	0	0	0.13	92.31
34	20	1	3	0	0	0.07	14.29
35	20	6	37	1	0	0.09	66.67
36	20	2	14	0	0	0.03	66.67
37	20	0	16	0	0	0.05	0.00
38	20	4	29	0	0	0.08	50.00
39	20	12	37	0	0	0.11	109.09
40	20	5	26	0	0	0.05	100.00
41	20	1	23	0	0	0.08	12.50
42	20	11	25	0	0	0.15	73.33
43	20	4	14	0	0	0.08	50.00
44	20	2	8	0	0	0.03	66.67
45	20	2	10	1	0	0.08	25.00
46	20	8	32	2	0	0.08	100.00
47	20	6	9	0	0	0.08	75.00
48	20	6	36	3	0	0.08	75.00
49	20	7	12	0	0	0.11	63.64
50	20	2	28	0	0	0.10	20.00
51	20	8	1	0	0	0.07	114.29
52	20	3	32	0	0	0.08	37.50
53	20	2	15	0	0	0.04	50.00
54	20	2	3	0	0	0.08	25.00
55	20	3	43	0	0	0.10	30.00
56	20	12	42	0	0	0.12	100.00
57	20	11	5	0	0	0.08	137.50
58	20	4	18	0	0	0.07	57.14
59	20	26	14	0	0	0.20	130.00
60	20	5	26	0	0	0.06	83.33

61	50	2	23	0	0	0.04	50.00
62	50	4	37	0	0	0.03	133.33
63	50	4	42	0	0	0.06	66.67
64	50	3	37	0	0	0.04	75.00
65	50	1	21	0	0	0.06	16.67
66	50	4	13	0	0	0.03	133.33
67	50	3	19	0	0	0.05	60.00
68	50	6	13	0	0	0.05	120.00
69	50	5	25	0	0	0.09	55.56
70	50	7	30	0	0	0.05	140.00
71	50	3	16	0	0	0.05	60.00
72	50	0	4	0	0	0.06	0.00
73	50	6	17	0	0	0.05	120.00
74	50	5	3	0	0	0.13	38.46
75	50	6	11	1	0	0.04	150.00
76	50	4	34	0	0	0.03	133.33
77	50	5	3	0	0	0.06	83.33
78	50	7	7	0	0	0.03	233.33
79	50	1	3	0	0	0.07	14.29
80	50	0	1	0	0	0.04	0.00
81	50	1	16	0	0	0.06	16.67
82	50	0	8	0	0	0.11	0.00
83	50	3	4	0	0	0.12	25.00
84	50	3	9	0	0	0.03	100.00
85	50	5	11	0	0	0.06	83.33
86	50	2	4	0	0	0.17	11.76
87	50	0	3	0	0	0.13	0.00
88	50	10	39	0	0	0.05	200.00
89	50	3	42	0	0	0.05	60.00
90	50	2	12	0	0	0.03	66.67
91	100	4	30	0	0	*	*
92	100	1	99	1	0	*	*
93	100	2	13	0	0	*	*
94	100	4	36	0	0	*	*
95	100	1	51	0	0	0.04	25.00
96	100	5	38	0	0	0.06	83.33
97	100	0	4	0	0	0.02	0.00
98	100	2	22	1	0	0.07	28.57
99	100	1	21	0	1	0.04	25.00
100	100	1	13	0	0	0.08	12.50
101	100	2	37	0	0	*	*
102	100	1	12	0	0	*	*
103	100	1	18	1	0	0.06	16.67
104	100	1	18	0	0	0.03	33.33
105	100	0	51	2	0	0.03	0.00
106	100	1	13	0	0	0.02	50.00
107	100	1	12	0	0	*	*
108	100	1	52	1	0	0.05	20.00
109	100	2	21	0	0	0.07	28.57
110	100	0	27	0	0	0.04	0.00
111	100	4	24	2	0	0.06	66.67
112	100	3	70	0	0	0.05	60.00
113	100	0	20	0	0	0.03	0.00
114	100	1	29	0	0	0.10	10.00
115	100	0	66	1	0	0.05	0.00
116	100	4	45	0	0	0.03	133.33
117	100	3	26	1	0	0.06	50.00
118	100	0	14	1	0	0.04	0.00
119	100	0	67	0	3	0.17	0.00
120	100	0	7	0	0	0.02	0.00
121	1000	4	9	0	0	0.05	80.00
122	1000	4	2	1	0	0.04	100.00
123	1000	26	20	0	0	0.17	152.94
124	1000	14	7	0	0	0.05	280.00
125	1000	2	2	0	0	0.04	50.00
126	1000	42	6	1	0	0.07	600.00

127	1000	4	7	0	0	0.06	66.67
128	1000	24	25	2	0	0.04	600.00
129	1000	16	17	2	0	0.05	320.00
130	1000	13	4	3	0	0.03	433.33
131	1000	18	2	0	0	0.05	360.00
132	1000	7	16	0	0	0.08	87.50
133	1000	14	9	0	0	0.05	280.00
134	1000	26	7	0	0	0.06	433.33
135	1000	25	10	0	0	0.05	500.00
136	1000	71	20	3	0	0.10	710.00
137	1000	20	27	1	0	0.09	222.22
138	1000	0	5	1	0	0.07	0.00
139	1000	25	12	1	0	0.04	625.00
140	1000	26	25	0	0	0.07	371.43
141	1000	57	15	0	0	0.07	814.29
142	1000	35	10	0	0	0.07	500.00
143	1000	15	9	0	0	0.03	500.00
144	1000	22	12	0	0	0.05	440.00
145	1000	23	19	2	0	0.06	383.33
146	1000	16	11	0	0	0.05	320.00
147	1000	13	13	1	0	0.05	260.00
148	1000	1	2	0	0	0.05	20.00
149	1000	4	1	0	0	0.05	80.00
150	1000	25	15	0	0	0.10	250.00

Raw data of numbers of simuliids and chironomids on weed at Wimborne on day 1.

ROW	T1dist	T1simL	T1simD	T1chirL	T1chirD	T1weedwt	T1simL/g
1	0	2	0	0	0	0.06	33.333
2	0	0	0	0	0	0.03	0.000
3	0	31	0	0	0	0.05	620.000
4	0	1	0	0	0	0.02	50.000
5	0	3	0	0	0	0.03	100.000
6	0	1	0	0	0	0.01	100.000
7	0	0	0	0	0	0.02	0.000
8	0	7	3	0	0	0.05	140.000
9	0	3	0	0	0	0.05	60.000
10	0	2	1	0	0	0.06	33.333
11	0	2	0	0	0	0.03	66.667
12	0	3	0	0	0	0.04	75.000
13	0	4	1	0	0	0.05	80.000
14	0	1	0	0	0	0.05	20.000
15	0	8	0	0	0	0.03	266.667
16	0	2	2	0	0	0.02	100.000
17	0	2	0	0	0	0.05	40.000
18	0	0	0	0	0	0.04	0.000
19	0	1	0	0	0	0.07	14.286
20	0	2	0	0	0	0.06	33.333
21	0	2	1	0	0	0.05	40.000
22	0	1	0	0	0	0.04	25.000
23	0	10	1	0	0	0.07	142.857
24	0	6	3	0	0	0.05	120.000
25	0	2	0	0	0	0.05	40.000
26	0	0	0	0	0	0.03	0.000
27	0	1	0	0	0	0.06	16.667
28	0	3	0	0	0	0.02	150.000
29	0	5	3	0	0	0.08	62.500
30	0	4	1	0	0	0.04	100.000
31	20	0	1	0	0	0.05	0.000
32	20	6	2	1	0	0.06	100.000
33	20	0	2	1	0	0.05	0.000
34	20	0	0	0	0	0.03	0.000
35	20	0	1	0	0	0.03	0.000
36	20	4	12	0	0	0.05	80.000
37	20	0	2	0	0	0.04	0.000
38	20	4	30	0	0	0.07	57.143
39	20	0	5	0	0	0.05	0.000
40	20	2	2	1	0	0.03	66.667
41	20	2	14	0	0	0.04	50.000
42	20	0	0	0	0	0.03	0.000
43	20	1	5	0	0	0.06	16.667
44	20	1	0	0	0	0.04	25.000
45	20	1	0	0	0	0.04	25.000
46	20	2	0	0	0	0.09	22.222
47	20	1	0	0	0	0.03	33.333
48	20	0	0	1	0	0.05	0.000
49	20	2	0	0	0	0.05	40.000
50	20	0	0	0	0	0.03	0.000
51	20	1	0	0	0	0.03	33.333
52	20	1	1	0	0	0.03	33.333
53	20	0	2	0	0	0.08	0.000
54	20	0	0	0	0	0.04	0.000
55	20	0	0	0	0	0.04	0.000
56	20	6	6	0	0	0.04	150.000
57	20	1	4	0	0	0.03	33.333
58	20	0	7	0	0	0.05	0.000
59	20	0	4	0	0	0.05	0.000
60	20	4	3	0	0	0.07	57.143

61	50	1	0	0	0	0.08	12.500
62	50	2	3	0	0	0.03	66.667
63	50	1	0	0	0	0.03	33.333
64	50	0	1	0	0	0.02	0.000
65	50	0	1	1	0	0.07	0.000
66	50	2	0	0	0	0.04	50.000
67	50	0	0	0	0	0.05	0.000
68	50	2	2	0	0	0.02	100.000
69	50	0	0	0	0	0.03	0.000
70	50	0	0	0	0	0.05	0.000
71	50	1	1	0	0	0.04	25.000
72	50	0	0	1	0	0.05	0.000
73	50	0	0	0	0	0.06	0.000
74	50	1	0	0	0	0.02	50.000
75	50	0	0	0	0	0.03	0.000
76	50	0	0	0	0	0.07	0.000
77	50	1	0	0	0	0.04	25.000
78	50	4	0	0	0	0.07	57.143
79	50	0	0	0	0	0.04	0.000
80	50	3	2	0	0	0.05	60.000
81	50	1	2	0	0	0.06	16.667
82	50	0	2	0	0	0.02	0.000
83	50	3	1	0	0	0.07	42.857
84	50	1	0	0	0	0.05	20.000
85	50	6	0	1	0	0.07	85.714
86	50	3	1	0	0	0.07	42.857
87	50	1	1	0	0	0.05	20.000
88	50	1	0	0	0	0.06	16.667
89	50	0	2	0	0	0.04	0.000
90	50	0	1	0	0	0.04	0.000
91	100	2	5	0	0	0.09	22.222
92	100	3	1	0	0	0.05	60.000
93	100	2	2	0	0	0.06	33.333
94	100	0	0	0	0	0.05	0.000
95	100	1	0	0	0	0.04	25.000
96	100	1	0	0	0	0.05	20.000
97	100	2	4	0	0	0.08	25.000
98	100	0	0	0	0	0.02	0.000
99	100	3	4	0	0	0.08	37.500
100	100	0	1	0	0	0.03	0.000
101	100	2	0	0	0	0.07	28.571
102	100	0	4	0	0	0.05	0.000
103	100	0	0	0	0	0.05	0.000
104	100	0	2	1	0	0.05	0.000
105	100	1	2	0	0	0.04	25.000
106	100	1	0	1	0	0.04	25.000
107	100	0	1	0	0	0.05	0.000
108	100	0	2	0	0	0.06	0.000
109	100	0	1	0	0	0.04	0.000
110	100	0	0	0	0	0.09	0.000
111	100	5	4	0	0	0.09	55.556
112	100	0	0	0	0	0.04	0.000
113	100	0	0	0	0	0.06	0.000
114	100	0	0	0	0	0.02	0.000
115	100	0	0	0	0	0.04	0.000
116	100	0	1	0	0	0.05	0.000
117	100	0	0	0	0	0.03	0.000
118	100	0	1	0	0	0.02	0.000
119	100	0	1	0	0	0.05	0.000
120	100	1	3	0	0	0.04	25.000
121	1000	8	8	0	0	0.02	400.000
122	1000	5	12	0	0	0.03	166.667
123	1000	9	3	0	0	0.03	300.000
124	1000	9	3	0	0	0.03	300.000
125	1000	1	0	0	0	0.04	25.000

126	1000	8	3	0	0	0.03	266.667
127	1000	18	13	0	0	0.06	300.000
128	1000	5	12	0	0	0.07	71.429
129	1000	5	5	0	0	0.05	100.000
130	1000	24	16	0	0	0.04	600.000
131	1000	15	5	0	0	0.05	300.000
132	1000	2	1	1	0	0.04	50.000
133	1000	4	6	0	0	0.04	100.000
134	1000	14	5	1	0	0.06	233.333
135	1000	5	2	0	0	0.04	125.000
136	1000	2	6	0	0	0.06	33.333
137	1000	3	1	0	0	0.03	100.000
138	1000	5	1	0	0	0.05	100.000
139	1000	4	9	0	0	0.04	100.000
140	1000	0	1	0	0	0.04	0.000
141	1000	2	0	0	0	0.02	100.000
142	1000	3	1	2	0	0.03	100.000
143	1000	3	7	0	0	0.04	75.000
144	1000	2	2	1	0	0.04	50.000
145	1000	23	13	1	0	0.06	383.333
146	1000	11	6	0	0	0.06	183.333
147	1000	10	6	1	0	0.02	500.000
148	1000	10	6	0	0	0.07	142.857
149	1000	7	5	1	0	0.02	350.000
150	1000	6	1	0	0	0.04	150.000

Raw data of numbers of simuliids and chironomids on weed at Wimborne on day 7.

ROW	T7dist	T7simL	T7simD	T7chirL	T7chirD	T7weedwt	T7simL/g
1	0	11	4	0	0	0.05	220.00
2	0	3	0	0	0	0.07	42.86
3	0	24	0	1	0	0.05	480.00
4	0	19	0	0	0	0.03	633.33
5	0	1	0	0	0	0.06	16.67
6	0	2	0	0	0	0.04	50.00
7	0	13	0	0	0	0.03	433.33
8	0	28	2	0	0	0.11	254.55
9	0	11	0	2	0	0.10	110.00
10	0	37	0	0	0	0.13	284.62
11	0	15	0	0	0	0.05	300.00
12	0	3	0	0	0	0.05	60.00
13	0	4	0	0	0	0.06	66.67
14	0	75	0	0	0	0.09	833.33
15	0	9	0	0	0	0.06	150.00
16	0	10	0	0	0	0.07	142.86
17	0	11	0	0	0	0.06	183.33
18	0	7	0	0	0	0.10	70.00
19	0	24	0	0	0	0.05	480.00
20	0	20	0	0	0	0.11	181.82
21	0	39	0	0	0	0.07	557.14
22	0	27	0	0	0	0.09	300.00
23	0	53	0	0	0	0.08	662.50
24	0	6	0	0	0	0.06	100.00
25	0	4	0	0	0	0.02	200.00
26	0	15	0	0	0	0.06	250.00
27	0	6	0	0	0	0.04	150.00
28	0	6	0	0	0	0.10	60.00
29	0	18	0	0	0	0.07	257.14
30	0	24	0	0	0	0.12	200.00
31	20	3	0	0	0	0.05	60.00
32	20	2	0	0	0	0.06	33.33
33	20	3	0	0	0	0.05	60.00
34	20	7	0	0	0	0.06	116.67
35	20	3	0	0	0	0.08	37.50
36	20	3	0	0	0	0.05	60.00
37	20	8	0	0	0	0.12	66.67
38	20	3	0	0	0	0.07	42.86
39	20	5	0	0	0	0.06	83.33
40	20	5	0	0	0	0.10	50.00
41	20	2	1	0	0	0.08	25.00
42	20	6	0	0	0	0.10	60.00
43	20	3	0	1	0	0.12	25.00
44	20	4	0	0	0	0.05	80.00
45	20	3	0	0	0	0.05	60.00
46	20	2	0	0	0	0.06	33.33
47	20	4	0	0	0	0.05	80.00
48	20	1	0	1	0	0.07	14.29
49	20	6	1	0	0	0.11	54.55
50	20	3	0	0	0	0.08	37.50
51	20	18	0	0	0	0.09	200.00
52	20	4	0	0	0	0.09	44.44
53	20	0	0	0	0	0.07	0.00
54	20	2	0	0	0	0.04	50.00
55	20	1	0	0	0	0.04	25.00
56	20	1	0	1	0	0.05	20.00
57	20	0	0	0	0	0.05	0.00
58	20	5	0	0	0	0.08	62.50
59	20	3	0	0	0	0.07	42.86
60	20	3	1	0	0	0.07	42.86

61	50	8	0	1	0	0.03	266.67
62	50	2	0	0	0	0.02	100.00
63	50	2	0	0	0	0.04	50.00
64	50	0	0	1	0	0.08	0.00
65	50	1	0	0	0	0.04	25.00
66	50	0	0	0	0	0.05	0.00
67	50	2	0	0	0	0.04	50.00
68	50	15	0	2	0	0.16	93.75
69	50	1	0	0	0	0.06	16.67
70	50	5	1	0	0	0.07	71.43
71	50	1	0	0	0	0.03	33.33
72	50	3	0	0	0	0.04	75.00
73	50	4	0	0	0	0.04	100.00
74	50	1	0	0	0	0.07	14.29
75	50	2	0	0	0	0.04	50.00
76	50	1	0	0	0	0.02	50.00
77	50	3	0	0	0	0.04	75.00
78	50	2	0	0	0	0.05	40.00
79	50	6	2	0	0	0.07	85.71
80	50	2	0	0	0	0.03	66.67
81	50	4	2	0	0	0.03	133.33
82	50	1	0	0	0	0.02	50.00
83	50	2	0	0	0	0.03	66.67
84	50	1	0	0	0	0.04	25.00
85	50	0	1	0	0	0.04	0.00
86	50	0	0	0	0	0.05	0.00
87	50	7	0	0	0	0.04	175.00
88	50	2	0	0	0	0.05	40.00
89	50	0	0	0	0	0.02	0.00
90	50	2	1	0	0	0.04	50.00
91	100	2	0	0	0	0.11	18.18
92	100	0	0	0	0	0.05	0.00
93	100	4	0	0	0	0.07	57.14
94	100	6	0	0	0	0.07	85.71
95	100	1	0	0	0	0.04	25.00
96	100	2	0	0	0	0.05	40.00
97	100	0	0	0	0	0.11	0.00
98	100	4	2	0	0	0.09	44.44
99	100	0	1	0	0	0.07	0.00
100	100	3	0	0	0	0.06	50.00
101	100	5	0	0	0	0.06	83.33
102	100	0	0	0	0	0.04	0.00
103	100	1	0	0	0	0.11	9.09
104	100	3	0	0	0	0.10	30.00
105	100	10	0	1	0	0.12	83.33
106	100	4	0	0	0	0.09	44.44
107	100	9	0	0	0	0.11	81.82
108	100	1	0	0	0	0.07	14.29
109	100	3	0	0	0	0.13	23.08
110	100	5	0	0	0	0.11	45.45
111	100	2	0	1	0	0.11	18.18
112	100	1	0	0	0	0.11	9.09
113	100	9	0	0	0	0.08	112.50
114	100	6	0	0	0	0.05	120.00
115	100	1	0	0	0	0.09	11.11
116	100	1	0	0	0	0.06	16.67
117	100	6	1	0	0	0.08	75.00
118	100	4	0	1	0	0.07	57.14
119	100	0	0	0	0	0.10	0.00
120	100	2	0	0	0	0.05	40.00
121	1000	3	0	0	0	0.08	37.50
122	1000	2	0	0	0	0.09	22.22
123	1000	14	21	2	0	0.07	200.00
124	1000	2	1	0	0	0.06	33.33
125	1000	16	0	0	0	0.07	228.57
126	1000	7	1	1	0	0.06	116.67

127	1000	1	0	0	0	0.04	25.00
128	1000	11	0	0	0	0.05	220.00
129	1000	1	0	1	0	0.06	16.67
130	1000	2	0	0	0	0.08	25.00
131	1000	20	1	1	0	0.08	250.00
132	1000	9	1	1	0	0.07	128.57
133	1000	15	0	0	0	0.05	300.00
134	1000	15	0	0	0	0.07	214.29
135	1000	27	0	0	0	0.05	540.00
136	1000	14	0	1	0	0.03	466.67
137	1000	43	7	0	0	0.04	1075.00
138	1000	1	1	1	0	0.02	50.00
139	1000	1	0	0	0	0.05	20.00
140	1000	13	0	0	0	0.02	650.00
141	1000	5	0	1	0	0.04	125.00
142	1000	1	0	0	0	0.07	14.29
143	1000	0	0	0	0	0.02	0.00
144	1000	1	0	0	0	0.04	25.00
145	1000	1	0	0	0	0.03	33.33
146	1000	7	1	0	0	0.06	116.67
147	1000	3	1	0	0	0.05	60.00
148	1000	7	0	2	0	0.07	100.00
149	1000	0	0	0	0	0.04	0.00
150	1000	1	0	0	0	0.08	12.50

Raw data of numbers of simuliids and chironomids on weed at Wimborne on day 14.

ROW	14dist	14simL	14simD	14chirL	14chirlD	14weedwt	14simL/g
1	0	31	0	0	0	0.02	1550.00
2	0	23	0	1	0	0.23	100.00
3	0	72	0	0	0	0.07	1028.57
4	0	2	0	0	0	0.04	50.00
5	0	29	0	0	0	0.02	1450.00
6	0	60	0	0	0	0.08	750.00
7	0	31	0	0	0	0.05	620.00
8	0	34	0	0	0	0.15	226.67
9	0	10	0	0	0	0.07	142.86
10	0	7	0	0	0	0.06	116.67
11	0	38	0	0	0	0.05	760.00
12	0	36	0	0	0	0.04	900.00
13	0	19	0	0	0	0.01	1900.00
14	0	39	0	0	0	0.04	975.00
15	0	26	0	0	0	0.04	650.00
16	0	16	0	0	0	0.03	533.33
17	0	14	0	0	0	0.02	700.00
18	0	13	0	0	0	0.01	1300.00
19	0	23	0	0	0	0.01	2300.00
20	0	15	1	0	0	0.02	750.00
21	0	6	0	0	0	0.01	600.00
22	0	57	2	0	0	0.03	1900.00
23	0	74	3	0	0	0.03	2466.67
24	0	10	0	0	0	0.02	500.00
25	0	15	0	0	0	0.04	375.00
26	0	2	0	0	0	0.01	200.00
27	0	13	0	1	0	0.07	185.71
28	0	23	0	0	0	0.06	383.33
29	0	36	0	0	0	0.03	1200.00
30	0	15	1	0	0	0.01	1500.00
31	20	9	0	0	0	0.07	128.57
32	20	0	0	0	0	0.03	0.00
33	20	1	0	0	0	0.08	12.50
34	20	1	0	0	0	0.05	20.00
35	20	2	0	0	0	0.06	33.33
36	20	3	0	0	0	0.05	60.00
37	20	1	0	0	0	0.02	50.00
38	20	2	0	0	0	0.05	40.00
39	20	0	0	0	0	0.02	0.00
40	20	5	0	0	0	0.11	45.45
41	20	2	0	0	0	0.04	50.00
42	20	0	0	0	0	0.04	0.00
43	20	15	0	1	0	0.07	214.29
44	20	4	0	0	0	0.06	66.67
45	20	0	0	1	0	0.02	0.00
46	20	3	0	0	0	0.07	42.86
47	20	3	0	0	0	0.05	60.00
48	20	0	0	0	0	0.02	0.00
49	20	2	0	0	0	0.02	100.00
50	20	0	0	0	0	0.03	0.00
51	20	4	0	1	0	0.03	133.33
52	20	0	0	0	0	0.08	0.00
53	20	5	0	0	0	0.03	166.67
54	20	5	0	1	0	0.05	100.00
55	20	1	0	0	0	0.04	25.00
56	20	0	0	0	0	0.03	0.00
57	20	1	1	0	0	0.06	16.67
58	20	2	0	0	0	0.04	50.00
59	20	1	0	0	0	0.05	20.00
60	20	5	2	0	0	0.03	166.67

61	50	7	0	0	0	0.03	233.33
62	50	12	0	0	0	0.04	300.00
63	50	3	0	0	0	0.06	50.00
64	50	4	0	0	0	0.05	80.00
65	50	4	0	0	0	0.09	44.44
66	50	24	0	0	0	0.06	400.00
67	50	2	0	0	0	0.05	40.00
68	50	4	0	0	0	0.10	40.00
69	50	6	0	0	0	0.04	150.00
70	50	12	0	0	0	0.12	100.00
71	50	18	0	0	0	0.07	257.14
72	50	4	1	0	0	0.12	33.33
73	50	12	0	0	0	0.11	109.09
74	50	13	0	0	0	0.06	216.67
75	50	10	0	0	0	0.05	200.00
76	50	5	0	0	0	0.03	166.67
77	50	5	0	0	0	0.04	125.00
78	50	2	0	0	0	0.05	40.00
79	50	0	0	0	0	0.07	0.00
80	50	4	0	0	0	0.06	66.67
81	50	9	0	0	0	0.10	90.00
82	50	7	0	0	0	0.05	140.00
83	50	27	0	0	0	0.10	270.00
84	50	4	0	0	0	0.09	44.44
85	50	17	0	0	0	0.09	188.89
86	50	14	0	0	0	0.10	140.00
87	50	17	2	0	0	0.06	283.33
88	50	2	0	0	0	0.04	50.00
89	50	1	0	0	0	0.09	11.11
90	50	6	0	0	0	0.02	300.00
91	100	2	0	0	0	0.06	33.33
92	100	21	0	0	0	0.08	262.50
93	100	19	4	0	0	0.11	172.73
94	100	5	0	0	0	0.04	125.00
95	100	5	0	0	0	0.07	71.43
96	100	2	1	0	0	0.03	66.67
97	100	4	0	0	0	0.04	100.00
98	100	7	1	0	0	0.04	175.00
99	100	10	0	0	0	0.09	111.11
100	100	6	0	0	0	0.06	100.00
101	100	1	0	0	0	0.04	25.00
102	100	1	0	0	0	0.04	25.00
103	100	1	0	0	0	0.05	20.00
104	100	3	0	0	0	0.03	100.00
105	100	5	1	0	0	0.03	166.67
106	100	15	0	0	0	0.08	187.50
107	100	0	0	0	0	0.05	0.00
108	100	5	4	0	0	0.05	100.00
109	100	1	0	0	0	0.03	33.33
110	100	7	0	0	0	0.09	77.78
111	100	6	1	0	0	0.05	120.00
112	100	5	0	0	0	0.07	71.43
113	100	1	0	0	0	0.07	14.29
114	100	4	0	0	0	0.07	57.14
115	100	5	1	0	0	0.06	83.33
116	100	10	2	0	0	0.06	166.67
117	100	12	0	0	0	0.07	171.43
118	100	3	0	0	0	0.02	150.00
119	100	6	0	0	0	0.04	150.00
120	100	9	0	0	0	0.07	128.57
121	1000	11	0	1	0	0.09	122.22
122	1000	25	0	0	0	0.09	277.78
123	1000	25	0	0	0	0.08	312.50
124	1000	41	0	1	0	0.07	585.71
125	1000	6	0	0	0	0.07	85.71
126	1000	10	0	3	0	0.10	100.00

127	1000	23	0	2	0	0.18	127.78
128	1000	40	0	2	0	0.10	400.00
129	1000	34	0	0	0	0.06	566.67
130	1000	15	0	0	0	0.12	125.00
131	1000	28	0	0	0	0.08	350.00
132	1000	2	0	5	0	0.11	18.18
133	1000	17	0	0	0	0.07	242.86
134	1000	2	1	3	0	0.07	28.57
135	1000	6	0	0	0	0.07	85.71
136	1000	8	8	2	0	0.12	66.67
137	1000	8	0	0	0	0.13	61.54
138	1000	11	0	0	0	0.12	91.67
139	1000	35	0	0	0	0.05	700.00
140	1000	2	0	1	0	0.09	22.22
141	1000	2	0	0	0	0.06	33.33
142	1000	50	0	1	0	0.13	384.62
143	1000	10	0	1	0	0.07	142.86
144	1000	47	0	1	0	0.08	587.50
145	1000	10	0	0	0	0.14	71.43
146	1000	10	0	0	0	0.07	142.86
147	1000	5	0	0	0	0.06	83.33
148	1000	38	0	1	0	0.11	345.45
149	1000	18	0	1	0	0.13	138.46
150	1000	37	0	1	0	0.11	336.36

Raw data of numbers of simuliids and chironomids on weed at Wimborne on day 42.

print c42-c48

ROW	42dist	42simL	42simD	42chirL	42chirD	42weedwt	42simL/g
1	0	0	0	0	0	0.05	0.000
2	0	2	0	0	0	0.10	20.000
3	0	2	0	0	0	0.07	28.571
4	0	0	0	0	0	0.07	0.000
5	0	1	0	0	0	0.04	25.000
6	0	0	0	0	0	0.05	0.000
7	0	5	0	0	0	0.05	100.000
8	0	2	0	0	0	0.09	22.222
9	0	0	0	0	0	0.09	0.000
10	0	0	0	0	0	0.19	0.000
11	0	2	0	0	0	0.12	16.667
12	0	3	0	0	0	0.12	25.000
13	0	1	0	0	0	0.08	12.500
14	0	1	0	0	0	0.10	10.000
15	0	1	0	0	0	0.08	12.500
16	0	3	0	0	0	0.09	33.333
17	0	2	0	0	0	0.05	40.000
18	0	0	0	0	0	0.08	0.000
19	0	1	0	1	0	0.09	11.111
20	0	1	0	0	0	0.04	25.000
21	0	2	0	0	0	0.11	18.182
22	0	0	0	0	0	0.10	0.000
23	0	0	0	0	0	0.06	0.000
24	0	1	0	0	0	0.14	7.143
25	0	0	0	0	0	0.06	0.000
26	0	2	0	0	0	0.10	20.000
27	0	4	0	0	0	0.10	40.000
28	0	0	0	0	0	0.06	0.000
29	0	1	0	0	0	0.09	11.111
30	0	1	0	0	0	0.05	20.000
31	20	0	0	0	0	0.03	0.000
32	20	0	0	0	0	0.09	0.000
33	20	0	0	0	0	0.02	0.000
34	20	1	0	0	0	0.10	10.000
35	20	0	0	0	0	0.07	0.000
36	20	0	0	0	0	0.03	0.000
37	20	0	0	0	0	0.03	0.000
38	20	0	0	0	0	0.09	0.000
39	20	0	0	0	0	0.03	0.000
40	20	0	0	0	0	0.05	0.000
41	20	2	0	0	0	0.09	22.222
42	20	0	0	0	0	0.03	0.000
43	20	0	0	0	0	0.04	0.000
44	20	1	0	0	0	0.05	20.000
45	20	0	0	0	0	0.05	0.000
46	20	0	0	0	0	0.03	0.000
47	20	0	0	0	0	0.11	0.000
48	20	0	0	0	0	0.09	0.000
49	20	1	0	0	0	0.09	11.111
50	20	0	0	0	0	0.04	0.000
51	20	1	0	0	0	0.03	33.333
52	20	0	0	0	0	0.10	0.000
53	20	0	0	0	0	0.06	0.000
54	20	0	0	0	0	0.10	0.000
55	20	0	0	0	0	0.06	0.000
56	20	2	0	0	0	0.07	28.571
57	20	0	0	0	0	0.08	0.000
58	20	0	0	0	0	0.06	0.000
59	20	0	0	0	0	0.11	0.000
60	20	3	0	0	0	0.05	60.000

61	50	1	0	0	0	0.03	33.333
62	50	1	0	0	0	0.06	16.667
63	50	1	0	0	0	0.09	11.111
64	50	0	0	0	0	0.08	0.000
65	50	0	0	0	0	0.07	0.000
66	50	1	0	0	0	0.06	16.667
67	50	0	0	0	0	0.16	0.000
68	50	0	0	0	0	0.07	0.000
69	50	0	0	0	0	0.03	0.000
70	50	2	0	0	0	0.07	28.571
71	50	2	0	0	0	0.06	33.333
72	50	1	0	0	0	0.02	50.000
73	50	10	0	0	0	0.07	142.857
74	50	4	0	1	0	0.07	57.143
75	50	0	0	0	0	0.08	0.000
76	50	2	0	0	0	0.09	22.222
77	50	10	0	0	0	0.06	166.667
78	50	0	0	0	0	0.05	0.000
79	50	0	0	0	0	0.05	0.000
80	50	5	0	1	0	0.04	125.000
81	50	2	0	1	0	0.04	50.000
82	50	4	0	0	0	0.02	200.000
83	50	5	0	0	0	0.07	71.429
84	50	1	0	0	0	0.03	33.333
85	50	2	0	0	0	0.05	40.000
86	50	5	0	0	0	0.06	83.333
87	50	2	0	0	0	0.02	100.000
88	50	8	1	0	0	0.10	80.000
89	50	0	0	0	0	0.08	0.000
90	50	5	0	0	0	0.10	50.000
91	100	1	0	0	0	0.08	12.500
92	100	0	0	0	0	0.13	0.000
93	100	0	0	0	0	0.06	0.000
94	100	0	0	0	0	0.08	0.000
95	100	3	0	0	0	0.17	17.647
96	100	1	0	0	0	0.04	25.000
97	100	0	0	0	0	0.04	0.000
98	100	1	0	0	0	0.04	25.000
99	100	2	0	0	0	0.07	28.571
100	100	0	0	0	0	0.03	0.000
101	100	0	0	0	0	0.11	0.000
102	100	4	0	0	0	0.04	100.000
103	100	0	0	0	0	0.03	0.000
104	100	0	0	0	0	0.07	0.000
105	100	1	0	0	0	0.07	14.286
106	100	2	0	0	0	0.04	50.000
107	100	2	0	0	0	0.06	33.333
108	100	1	0	0	0	0.04	25.000
109	100	2	0	0	0	0.06	33.333
110	100	0	0	0	0	0.03	0.000
111	100	1	0	0	0	0.05	20.000
112	100	1	0	0	0	0.08	12.500
113	100	0	0	0	0	0.04	0.000
114	100	0	0	0	0	0.04	0.000
115	100	2	0	0	0	0.08	25.000
116	100	1	0	0	0	0.05	20.000
117	100	0	0	0	0	0.07	0.000
118	100	1	0	0	0	0.04	25.000
119	100	1	0	0	0	0.08	12.500
120	100	0	0	0	0	0.08	0.000
121	1000	0	0	2	0	0.08	0.000
122	1000	0	0	8	0	0.09	0.000
123	1000	0	0	12	0	0.08	0.000
124	1000	0	0	6	0	0.13	0.000
125	1000	0	0	14	0	0.15	0.000
126	1000	0	0	5	0	0.16	0.000

127	1000	0	0	8	0	0.07	0.000
128	1000	0	0	7	0	0.09	0.000
129	1000	0	0	9	0	0.07	0.000
130	1000	0	0	5	0	0.07	0.000
131	1000	1	0	0	0	0.06	16.667
132	1000	1	0	5	0	0.08	12.500
133	1000	1	0	4	0	0.12	8.333
134	1000	0	0	11	0	0.15	0.000
135	1000	0	0	10	0	0.08	0.000
136	1000	0	0	7	0	0.11	0.000
137	1000	1	0	8	0	0.05	20.000
138	1000	0	0	1	0	0.11	0.000
139	1000	0	0	1	0	0.09	0.000
140	1000	4	0	7	1	0.13	30.769
141	1000	0	0	2	0	0.08	0.000
142	1000	4	0	0	0	0.07	57.143
143	1000	0	0	5	0	0.15	0.000
144	1000	0	0	1	0	0.17	0.000
145	1000	1	0	4	0	0.13	7.692
146	1000	0	0	6	0	0.17	0.000
147	1000	0	0	0	0	0.07	0.000
148	1000	0	0	0	0	0.09	0.000
149	1000	2	0	1	0	0.09	22.222
150	1000	0	0	1	0	0.16	0.000

Raw data of numbers of simuliids and chironomids on weed at Wimborne on day 84
print c62-c68

ROW	84dist	84simL	84simD	84chirL	84chirD	84weedwt	84simL/g
1	0	19	0	0	0	0.07	271.43
2	0	6	0	0	0	0.03	200.00
3	0	49	0	0	0	0.11	445.45
4	0	64	0	1	0	0.06	1066.67
5	0	25	0	0	0	0.06	416.67
6	0	3	0	0	0	0.06	50.00
7	0	18	0	0	0	0.10	180.00
8	0	12	0	0	0	0.05	240.00
9	0	22	0	0	0	0.06	366.67
10	0	34	2	0	0	0.07	485.71
11	0	1	0	2	0	0.06	16.67
12	0	11	0	0	0	0.06	183.33
13	0	2	0	0	0	0.09	22.22
14	0	4	0	0	0	0.03	133.33
15	0	16	0	0	0	0.05	320.00
16	0	92	0	0	0	0.05	1840.00
17	0	38	0	0	0	0.06	633.33
18	0	39	0	2	0	0.05	780.00
19	0	13	1	0	0	0.04	325.00
20	0	17	0	0	0	0.04	425.00
21	0	49	0	0	0	0.09	544.44
22	0	80	0	1	0	0.07	1142.86
23	0	28	0	0	0	0.06	466.67
24	0	35	0	0	0	0.07	500.00
25	0	21	0	2	0	0.08	262.50
26	0	16	0	0	0	0.07	228.57
27	0	10	0	0	0	0.03	333.33
28	0	11	0	0	0	0.06	183.33
29	0	19	0	0	0	0.11	172.73
30	0	58	2	0	0	0.05	1160.00
31	20	26	0	0	0	0.09	288.89
32	20	101	1	2	0	0.16	631.25
33	20	26	0	0	0	0.08	325.00
34	20	53	0	0	0	0.08	662.50
35	20	18	0	1	0	0.06	300.00
36	20	13	0	2	0	0.10	130.00
37	20	45	0	1	0	0.13	346.15
38	20	4	0	0	0	0.05	80.00
39	20	32	0	0	0	0.09	355.56
40	20	28	0	0	0	0.10	280.00
41	20	42	0	1	0	0.06	700.00
42	20	15	0	1	0	0.08	187.50
43	20	33	0	0	0	0.13	253.85
44	20	7	0	0	0	0.08	87.50
45	20	25	0	0	0	0.08	312.50
46	20	15	0	0	0	0.06	250.00
47	20	23	0	0	0	0.10	230.00
48	20	24	0	0	0	0.07	342.86
49	20	43	0	1	0	0.07	614.29
50	20	12	0	0	0	0.03	400.00
51	20	30	0	0	0	0.08	375.00
52	20	23	0	0	0	0.08	287.50
53	20	8	0	0	0	0.11	72.73
54	20	30	0	2	0	0.12	250.00
55	20	28	0	1	0	0.07	400.00
56	20	18	0	1	0	0.03	600.00
57	20	17	0	0	0	0.07	242.86
58	20	35	0	0	0	0.08	437.50
59	20	25	0	0	0	0.05	500.00

60	20	70	0	0	0	0.08	875.00
61	50	3	0	0	0	0.03	100.00
62	50	1	0	0	0	0.04	25.00
63	50	10	0	0	0	0.08	125.00
64	50	3	0	0	0	0.04	75.00
65	50	13	0	0	0	0.05	260.00
66	50	5	0	0	0	0.05	100.00
67	50	9	0	0	0	0.04	225.00
68	50	4	0	0	0	0.06	66.67
69	50	16	0	1	0	0.09	177.78
70	50	23	1	0	0	0.10	230.00
71	50	17	0	0	0	0.06	283.33
72	50	4	0	0	0	0.07	57.14
73	50	16	0	0	0	0.03	533.33
74	50	12	1	1	0	0.07	171.43
75	50	66	0	1	0	0.12	550.00
76	50	39	0	0	0	0.08	487.50
77	50	13	0	0	0	0.02	650.00
78	50	59	0	2	0	0.09	655.56
79	50	15	0	1	0	0.05	300.00
80	50	26	0	0	0	0.05	520.00
81	50	13	0	0	0	0.05	260.00
82	50	15	0	0	0	0.04	375.00
83	50	3	0	0	0	0.02	150.00
84	50	10	0	0	0	0.04	250.00
85	50	14	0	0	0	0.10	140.00
86	50	6	0	0	0	0.04	150.00
87	50	4	0	0	0	0.07	57.14
88	50	11	0	0	0	0.06	183.33
89	50	6	0	0	0	0.05	120.00
90	50	10	0	1	0	0.07	142.86
91	100	9	0	0	0	0.04	225.00
92	100	33	0	0	0	0.10	330.00
93	100	3	0	0	0	0.08	37.50
94	100	7	0	0	0	0.06	116.67
95	100	3	0	0	0	0.06	50.00
96	100	7	0	0	0	0.03	233.33
97	100	10	0	0	0	0.08	125.00
98	100	6	0	0	0	0.06	100.00
99	100	6	0	0	0	0.04	150.00
100	100	4	0	0	0	0.04	100.00
101	100	8	0	0	0	0.06	133.33
102	100	26	0	0	0	0.06	433.33
103	100	4	0	0	0	0.06	66.67
104	100	45	0	1	0	0.05	900.00
105	100	33	0	0	0	0.09	366.67
106	100	14	1	0	0	0.09	155.56
107	100	15	0	0	0	0.04	375.00
108	100	8	0	1	0	0.08	100.00
109	100	26	0	0	0	0.11	236.36
110	100	47	0	0	0	0.10	470.00
111	100	12	0	0	0	0.06	200.00
112	100	11	0	0	0	0.09	122.22
113	100	2	0	1	0	0.15	13.33
114	100	15	0	0	0	0.06	250.00
115	100	20	0	0	0	0.12	166.67
116	100	11	0	0	0	0.04	275.00
117	100	19	0	0	0	0.06	316.67
118	100	23	0	0	0	0.09	255.56
119	100	6	0	0	0	0.04	150.00
120	100	4	0	0	0	0.03	133.33
121	1000	16	1	1	0	0.15	106.67
122	1000	16	0	1	0	0.12	133.33
123	1000	34	0	2	0	0.10	340.00
124	1000	9	0	2	1	0.15	60.00

125	1000	29	0	2	0	0.09	322.22
126	1000	2	0	0	0	0.19	10.53
127	1000	10	0	4	0	0.11	90.91
128	1000	5	0	0	0	0.10	50.00
129	1000	60	0	2	0	0.12	500.00
130	1000	16	1	1	0	0.12	133.33
131	1000	17	0	1	0	0.19	89.47
132	1000	2	0	1	0	0.04	50.00
133	1000	14	0	0	0	0.13	107.69
134	1000	11	0	2	0	0.10	110.00
135	1000	2	0	0	0	0.09	22.22
136	1000	22	0	1	0	0.12	183.33
137	1000	10	1	1	0	0.12	83.33
138	1000	11	0	2	0	0.10	110.00
139	1000	13	1	1	0	0.12	108.33
140	1000	7	0	2	0	0.14	50.00
141	1000	9	0	2	0	0.10	90.00
142	1000	9	0	1	0	0.07	128.57
143	1000	9	0	1	0	0.09	100.00
144	1000	36	1	2	0	0.11	327.27
145	1000	27	1	2	0	0.07	385.71
146	1000	20	0	3	0	0.10	200.00
147	1000	25	1	2	0	0.15	166.67
148	1000	3	0	1	0	0.13	23.08
149	1000	20	0	3	0	0.13	153.85
150	1000	7	1	3	0	0.13	53.85

APPENDIX 7

Raw data of chironomid numbers found

in 10-second kick samples at Blandford

Raw data of numbers of chironomids at each treatment site at Blandford on pre-treatment day (day -1)

ROW	DatePT	PTBC	PTB20	PTB50	PTB100	PTB1000
1	-1	4	9	5	7	2
2	-1	1	4	4	8	6
3	-1	7	8	7	5	3
4	-1	14	8	10	3	0
5	-1	8	3	17	4	3
6	-1	3	11	22	1	1
7	-1	1	8	11	8	8
8	-1	5	21	9	2	3
9	-1	3	12	4	6	0
10	-1	0	5	4	5	1
11	-1	0	19	19	7	6
12	-1	9	1	15	8	6
13	-1	5	2	7	7	11
14	-1	12	20	18	5	3
15	-1	11	12	9	9	5
16	-1	2	8	43	1	5
17	-1	1	10	18	6	5
18	-1	19	17	28	13	14
19	-1	3	9	8	8	4
20	-1	8	12	38	4	7
21	-1	16	11	3	6	2
22	-1	12	3	24	3	3
23	-1	4	6	10	5	6
24	-1	0	7	9	7	8
25	-1	5	5	26	6	7
26	-1	0	8	9	3	10
27	-1	0	9	10	4	1
28	-1	0	9	16	3	3
29	-1	3	6	26	7	8
30	-1	6	2	13	10	5

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
PTBC	30	5.400	4.000	4.885	5.223	0.954
PTB20	30	8.833	8.000	8.500	5.193	0.948
PTB50	30	14.73	10.50	13.62	10.02	1.83
PTB100	30	5.700	6.000	5.615	2.693	0.492
PTB1000	30	4.867	5.000	4.654	3.329	0.608

	MIN	MAX	Q1	Q3
PTBC	0.000	19.000	1.000	8.250
PTB20	1.000	21.000	5.000	11.250
PTB50	3.00	43.00	7.75	19.75
PTB100	1.000	13.000	3.750	7.250
PTB1000	0.000	14.000	2.750	7.000

Raw data of numbers of chironomids at each treatment site at Blandford on day 1

ROW	DateT+1	T+1BC	T+1B20	T+1B50	T+1B100	T+1B1000
1	1	0	3	3	9	1
2	1	2	2	4	13	2
3	1	0	11	5	12	0
4	1	0	8	3	3	0
5	1	0	14	3	8	0
6	1	0	3	4	4	2
7	1	3	17	3	7	1
8	1	0	11	1	4	0
9	1	0	11	0	20	1
10	1	*	4	1	4	0
11	1	2	24	12	7	5
12	1	1	23	17	2	5
13	1	0	4	16	5	0
14	1	2	15	10	3	1
15	1	1	16	4	11	3
16	1	0	21	11	23	1
17	1	1	39	31	6	2
18	1	4	20	7	6	0
19	1	1	25	17	10	2
20	1	1	10	15	5	1
21	1	3	30	6	16	0
22	1	1	19	11	12	1
23	1	2	15	4	18	0
24	1	0	45	5	9	3
25	1	2	4	14	7	7
26	1	2	13	3	14	4
27	1	3	24	28	9	5
28	1	3	29	5	5	7
29	1	2	39	25	2	4
30	1	1	24	6	9	6

	N	N*	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+1BC	29	1	1.276	1.000	1.222	1.192	0.221
T+1B20	30	0	17.43	15.50	16.69	11.34	2.07
T+1B50	30	0	9.13	5.50	8.23	8.13	1.48
T+1B100	30	0	8.767	7.500	8.308	5.361	0.979
T+1B1000	30	0	2.133	1.000	1.923	2.240	0.409

	MIN	MAX	Q1	Q3
T+1BC	0.000	4.000	0.000	2.000
T+1B20	2.00	45.00	9.50	24.00
T+1B50	0.00	31.00	3.00	14.25
T+1B100	2.000	23.000	4.750	12.000
T+1B1000	0.000	7.000	0.000	4.000

Raw data of numbers of chironomids at each treatment site at Blandford on day 7

ROW	DateT+7	T+7BC	T+7B20	T+7B50	T+7B100	T+7B 1K
1	7	0	6	36	6	1
2	7	1	10	21	5	1
3	7	1	8	11	8	9
4	7	1	27	25	16	5
5	7	1	21	6	20	0
6	7	0	17	5	9	1
7	7	0	7	37	4	4
8	7	0	15	5	4	2
9	7	6	4	69	7	1
10	7	5	18	1	18	4
11	7	0	18	74	15	4
12	7	0	13	5	5	4
13	7	1	7	22	1	7
14	7	0	11	8	14	5
15	7	9	6	51	11	6
16	7	1	3	21	11	1
17	7	5	15	25	8	1
18	7	5	20	19	16	0
19	7	4	13	13	4	3
20	7	3	17	10	6	2
21	7	3	16	110	4	1
22	7	5	6	46	12	4
23	7	6	8	79	8	3
24	7	4	18	6	6	0
25	7	1	9	12	13	2
26	7	2	7	21	4	6
27	7	1	36	45	4	1
28	7	0	23	20	5	6
29	7	2	16	18	9	7
30	7	1	23	36	10	2

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+7BC	30	2.267	1.000	2.038	2.392	0.437
T+7B20	30	13.93	14.00	13.38	7.57	1.38
T+7B50	30	28.57	21.00	25.46	26.06	4.76
T+7B100	30	8.767	8.000	8.462	4.876	0.890
T+7B 1K	30	3.100	2.500	2.962	2.426	0.443

	MIN	MAX	Q1	Q3
T+7BC	0.000	9.000	0.000	4.250
T+7B20	3.00	36.00	7.00	18.00
T+7B50	1.00	110.00	9.50	39.00
T+7B100	1.000	20.000	4.750	12.250
T+7B 1K	0.000	9.000	1.000	5.000

Raw data of numbers of chironomids at each treatment site at Blandford on day 14

ROW	DateT+14	T+14BC	T+14B20	T+14B50	T+14B100	T+14B 1K
1	14	1	24	75	10	5
2	14	2	26	32	9	0
3	14	0	34	65	5	3
4	14	5	23	31	6	2
5	14	3	11	79	8	7
6	14	3	36	22	8	14
7	14	4	37	17	23	7
8	14	7	42	19	19	3
9	14	1	37	16	29	7
10	14	11	22	53	9	7
11	14	5	36	32	12	5
12	14	7	21	28	6	4
13	14	1	20	26	25	1
14	14	3	50	44	19	6
15	14	1	28	56	12	3
16	14	5	17	48	16	4
17	14	4	32	34	23	2
18	14	1	89	22	13	2
19	14	3	37	39	8	8
20	14	0	61	34	1	11
21	14	0	38	77	30	7
22	14	0	9	26	24	6
23	14	3	17	39	11	2
24	14	4	10	65	15	2
25	14	2	12	47	42	5
26	14	4	27	51	13	11
27	14	2	53	32	15	2
28	14	10	27	51	19	18
29	14	2	76	12	23	6
30	14	8	31	36	14	9

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+14BC	30	3.400	3.000	3.115	2.884	0.527
T+14B20	30	32.77	29.50	30.73	18.51	3.38
T+14B50	30	40.27	35.00	39.38	18.60	3.40
T+14B100	30	15.57	13.50	14.96	8.92	1.63
T+14B 1K	30	5.633	5.000	5.231	4.013	0.733

	MIN	MAX	Q1	Q3
T+14BC	0.000	11.000	1.000	5.000
T+14B20	9.00	89.00	20.75	37.25
T+14B50	12.00	79.00	26.00	51.50
T+14B100	1.00	42.00	8.75	23.00
T+14B 1K	0.000	18.000	2.000	7.000

Raw data of numbers of chironomids at each treatment site at Blandford on day 28

ROW	DateT+28	T+28BC	T+28B20	T+28B50	T+28B100	T+28B 1K
1	28	10	6	25	9	18
2	28	5	21	2	12	1
3	28	13	10	3	2	4
4	28	2	13	14	6	6
5	28	1	15	5	1	2
6	28	5	2	18	3	5
7	28	9	16	6	3	1
8	28	14	14	11	7	1
9	28	11	31	3	13	2
10	28	3	8	2	8	1
11	28	1	15	8	9	0
12	28	5	32	4	9	4
13	28	11	6	33	12	5
14	28	4	3	19	10	3
15	28	0	29	29	12	8
16	28	4	23	0	14	4
17	28	10	40	6	11	1
18	28	1	19	7	13	1
19	28	4	9	17	9	3
20	28	2	13	3	14	1
21	28	0	16	2	7	5
22	28	0	51	4	16	1
23	28	2	6	27	8	2
24	28	1	3	22	6	2
25	28	1	3	18	4	1
26	28	1	21	17	4	5
27	28	1	25	3	11	0
28	28	10	42	27	14	3
29	28	3	15	5	3	3
30	28	2	35	19	12	*

	N	N*	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+28BC	30	0	4.533	3.000	4.192	4.297	0.785
T+28B20	30	0	18.07	15.00	17.08	12.77	2.33
T+28B50	30	0	11.97	7.50	11.35	9.79	1.79
T+28B100	30	0	8.733	9.000	8.808	4.143	0.756
T+28B 1K	29	1	3.207	2.000	2.778	3.458	0.642

	MIN	MAX	Q1	Q3
T+28BC	0.000	14.000	1.000	9.250
T+28B20	2.00	51.00	7.50	26.00
T+28B50	0.00	33.00	3.00	19.00
T+28B100	1.000	16.000	5.500	12.000
T+28B 1K	0.000	18.000	1.000	4.500

Raw data of numbers of chironomids at each treatment site at Blandford on day 42

ROW	DateT+42	T+42BC	T+42B20	T+42B50	T+42B100	T+42B 1K
1	42	5	17	29	7	3
2	42	5	33	35	2	0
3	42	8	7	44	5	4
4	42	2	29	26	6	9
5	42	11	25	23	8	7
6	42	6	14	11	38	8
7	42	2	18	8	23	4
8	42	4	54	52	12	5
9	42	1	33	23	117	3
10	42	4	35	14	10	3
11	42	0	43	17	8	2
12	42	1	77	4	33	4
13	42	0	24	58	27	5
14	42	1	29	34	15	7
15	42	1	31	35	16	10
16	42	4	19	30	5	0
17	42	1	25	30	77	0
18	42	6	53	7	73	8
19	42	3	20	17	30	8
20	42	4	24	37	9	8
21	42	5	7	12	3	5
22	42	4	6	42	14	1
23	42	2	37	8	3	2
24	42	15	10	24	1	2
25	42	1	23	145	16	5
26	42	4	9	98	35	0
27	42	3	9	27	2	3
28	42	1	19	80	11	0
29	42	1	10	39	3	1
30	42	5	*	41	18	7

	N	N*	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+42BC	30	0	3.667	3.500	3.231	3.284	0.599
T+42B20	29	1	25.52	24.00	24.33	16.25	3.02
T+42B50	30	0	35.00	29.50	30.62	29.44	5.38
T+42B100	30	0	20.90	11.50	16.54	26.10	4.77
T+42B 1K	30	0	4.133	4.000	4.038	3.048	0.557

	MIN	MAX	Q1	Q3
T+42BC	0.000	15.000	1.000	5.000
T+42B20	6.00	77.00	12.00	33.00
T+42B50	4.00	145.00	16.25	41.25
T+42B100	1.00	117.00	5.00	27.75
T+42B 1K	0.000	10.000	1.750	7.000

Raw data of numbers of chironomids at each treatment site at Blandford on day 56

ROW	DateT+56	T+56BC	T+56B20	T+56B50	T+56B100	T+56B 1K
1	56	23	138	86	434	69
2	56	6	284	98	136	54
3	56	26	80	81	283	88
4	56	11	270	94	357	77
5	56	21	233	111	232	73
6	56	50	257	85	181	82
7	56	16	117	103	302	72
8	56	17	252	76	106	179
9	56	25	205	145	99	71
10	56	9	300	136	303	150
11	56	8	223	92	250	124
12	56	113	304	117	307	62
13	56	34	551	82	503	47
14	56	46	147	84	266	58
15	56	33	168	69	184	34
16	56	41	164	115	215	81
17	56	35	159	60	238	97
18	56	14	146	71	406	115
19	56	28	321	95	292	89
20	56	49	171	153	177	106
21	56	53	299	127	189	59
22	56	32	287	34	96	71
23	56	20	225	72	312	68
24	56	47	195	79	287	98
25	56	35	318	89	129	76
26	56	91	313	126	248	123
27	56	38	197	54	219	84
28	56	11	403	73	376	72
29	56	28	351	76	231	61
30	56	15	*	69	165	75

	N	N*	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+56BC	30	0	32.50	28.00	29.12	23.39	4.27
T+56B20	29	1	244.1	233.0	238.8	97.5	18.1
T+56B50	30	0	91.73	85.50	91.00	27.34	4.99
T+56B100	30	0	250.8	243.0	245.8	100.0	18.3
T+56B 1K	30	0	83.83	75.50	80.96	30.44	5.56

	MIN	MAX	Q1	Q3
T+56BC	6.00	113.00	15.75	42.25
T+56B20	80.0	551.0	166.0	302.0
T+56B50	34.00	153.00	72.75	112.00
T+56B100	96.0	503.0	180.0	304.0
T+56B 1K	34.00	179.00	66.50	97.25

Raw data of numbers of chironomids at each treatment site at Blandford on day 70

ROW	DateT+70	T+70BC	T+70B20	T+70B50	T+70B100	T+70B 1K
1	70	7	3	14	4	46
2	70	21	12	15	1	0
3	70	3	14	2	3	40
4	70	3	28	5	4	5
5	70	12	8	7	16	1
6	70	7	25	16	2	2
7	70	2	18	23	1	0
8	70	11	15	25	0	2
9	70	2	22	13	7	45
10	70	16	13	7	4	51
11	70	6	17	16	1	84
12	70	9	8	5	6	7
13	70	3	8	7	2	8
14	70	18	1	11	2	35
15	70	10	15	53	1	4
16	70	3	6	16	4	6
17	70	3	10	5	1	4
18	70	4	8	10	0	3
19	70	10	7	9	1	1
20	70	9	15	24	3	1
21	70	12	37	17	13	25
22	70	6	8	5	2	1
23	70	16	24	6	2	2
24	70	8	13	29	2	45
25	70	4	4	12	11	1
26	70	5	17	7	5	4
27	70	7	42	13	3	1
28	70	5	5	18	3	1
29	70	7	28	2	7	10
30	70	1	12	8	1	2

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+70BC	30	7.667	7.000	7.231	5.095	0.930
T+70B20	30	14.77	13.00	13.85	9.82	1.79
T+70B50	30	13.33	11.50	12.08	10.23	1.87
T+70B100	30	3.733	2.500	3.192	3.796	0.693
T+70B 1K	30	14.57	4.00	11.62	21.38	3.90

	MIN	MAX	Q1	Q3
T+70BC	1.000	21.000	3.000	10.250
T+70B20	1.00	42.00	8.00	19.00
T+70B50	2.00	53.00	6.75	16.25
T+70B100	0.000	16.000	1.000	4.250
T+70B 1K	0.00	84.00	1.00	27.50

Raw data of numbers of chironomids at each treatment site at Blandford on day 84

ROW	DateT+84	T+84BC	T+84B20	T+84B50	T+84B100	T+84B 1K
1	84	18	117	113	20	1
2	84	31	85	85	22	12
3	84	14	130	91	40	16
4	84	14	129	149	21	4
5	84	39	208	105	18	3
6	84	36	120	82	27	5
7	84	10	157	126	32	6
8	84	12	121	117	20	11
9	84	49	90	71	16	2
10	84	29	134	172	15	5
11	84	23	240	79	23	3
12	84	24	157	87	26	12
13	84	13	125	74	41	3
14	84	14	155	96	32	5
15	84	17	176	127	40	3
16	84	25	118	71	23	12
17	84	32	118	37	42	1
18	84	8	133	92	28	4
19	84	34	128	98	29	7
20	84	6	148	90	26	5
21	84	15	144	80	33	15
22	84	20	63	166	29	4
23	84	11	58	184	20	3
24	84	28	136	129	33	24
25	84	31	130	165	78	5
26	84	21	104	78	45	20
27	84	37	103	113	50	21
28	84	4	175	116	48	13
29	84	17	127	83	46	12
30	84	*	142	85	52	19

	N	N*	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+84BC	29	1	21.79	20.00	21.44	11.14	2.07
T+84B20	30	0	132.37	129.50	130.85	37.30	6.81
T+84B50	30	0	105.37	94.00	103.73	34.57	6.31
T+84B100	30	0	32.50	29.00	31.31	13.71	2.50
T+84B 1K	30	0	8.53	5.00	8.04	6.56	1.20

	MIN	MAX	Q1	Q3
T+84BC	4.00	49.00	13.50	31.00
T+84B20	58.00	240.00	117.75	149.75
T+84B50	37.00	184.00	81.50	126.25
T+84B100	15.00	78.00	21.75	41.25
T+84B 1K	1.00	24.00	3.00	12.25

APPENDIX 8

Raw data of chironomid numbers found

in 10-second kick samples at Wimborne

Raw data of numbers of chironomids at each treatment site at Wimborne on pretreatment day (day -1)

ROW	DateW	PT	PTWC	PTW20	PTW50	PTW100	PTW1000
1		-1	10	7	7	6	3
2		-1	11	15	8	15	6
3		-1	11	8	13	20	6
4		-1	12	5	12	16	10
5		-1	8	14	6	9	10
6		-1	15	6	4	4	20
7		-1	12	4	7	4	4
8		-1	24	2	13	18	11
9		-1	23	4	14	18	13
10		-1	8	6	7	11	12
11		-1	20	7	30	105	12
12		-1	19	5	37	80	5
13		-1	12	7	21	90	17
14		-1	25	9	10	100	5
15		-1	18	3	25	72	10
16		-1	11	8	8	119	6
17		-1	19	4	22	107	12
18		-1	9	2	11	115	11
19		-1	14	11	34	36	13
20		-1	15	12	25	66	4
21		-1	23	11	11	65	4
22		-1	13	26	17	91	6
23		-1	14	6	6	153	14
24		-1	16	6	15	105	8
25		-1	14	8	16	78	9
26		-1	13	2	21	59	5
27		-1	16	36	19	149	7
28		-1	42	21	15	74	6
29		-1	29	10	32	106	5
30		-1	86	8	26	148	13

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
PTWC	30	18.73	14.50	16.08	14.59	2.66
PTW20	30	9.10	7.00	7.96	7.39	1.35
PTW50	30	16.40	14.50	15.81	9.12	1.66
PTW100	30	67.97	73.00	66.50	47.61	8.69
PTW1000	30	8.900	8.500	8.577	4.237	0.774

	MIN	MAX	Q1	Q3
PTWC	8.00	86.00	11.75	20.75
PTW20	2.00	36.00	4.75	11.00
PTW50	4.00	37.00	8.00	22.75
PTW100	4.00	153.00	17.50	105.25
PTW1000	3.000	20.000	5.000	12.000

Raw data of numbers of chironomids at each treatment site at Wimborne on day 1

ROW	DateWT+1	T+1WC	T+1W20	T+1W50	T+1W100	T+1W1000
1	1	4	6	8	18	13
2	1	6	25	4	6	27
3	1	3	6	16	13	34
4	1	3	10	19	9	12
5	1	15	3	6	8	60
6	1	33	0	6	7	2
7	1	16	1	5	2	4
8	1	9	37	4	8	3
9	1	6	10	13	10	4
10	1	8	7	45	9	5
11	1	5	4	8	17	111
12	1	3	24	7	10	19
13	1	1	8	7	13	100
14	1	12	43	18	31	53
15	1	10	9	15	14	11
16	1	17	10	12	11	11
17	1	10	13	19	18	45
18	1	7	5	3	8	31
19	1	18	25	10	23	10
20	1	1	38	14	10	101
21	1	3	2	23	18	19
22	1	7	1	22	18	29
23	1	0	27	11	6	20
24	1	16	9	17	18	12
25	1	6	4	9	25	16
26	1	0	33	12	20	125
27	1	12	14	6	22	15
28	1	11	6	6	12	11
29	1	12	47	17	23	22
30	1	9	7	18	9	31

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+1WC	30	8.77	7.50	8.15	6.94	1.27
T+1W20	30	14.47	9.00	13.19	13.65	2.49
T+1W50	30	12.67	11.50	11.73	8.40	1.53
T+1W100	30	13.87	12.50	13.54	6.77	1.24
T+1W1000	30	31.87	19.00	27.50	34.16	6.24

	MIN	MAX	Q1	Q3
T+1WC	0.00	33.00	3.00	12.00
T+1W20	0.00	47.00	4.75	25.00
T+1W50	3.00	45.00	6.00	17.25
T+1W100	2.00	31.00	8.75	18.00
T+1W1000	2.00	125.00	11.00	36.75

Raw data of numbers of chironomids at each treatment site at Wimborne on day 7

ROW	DateWT+7	T+7WC	T+7W20	T+7W50	T+7W100	T+7W1000
1	7	10	0	15	59	10
2	7	22	22	14	64	29
3	7	48	6	8	17	8
4	7	22	7	3	17	7
5	7	15	20	9	27	37
6	7	37	1	15	129	4
7	7	85	1	5	16	27
8	7	41	1	17	60	22
9	7	24	9	24	129	36
10	7	40	2	9	50	19
11	7	32	13	29	14	14
12	7	3	3	14	41	10
13	7	8	2	29	29	19
14	7	24	3	5	21	7
15	7	3	6	4	16	59
16	7	15	2	15	36	5
17	7	10	2	1	17	53
18	7	13	26	15	21	36
19	7	12	23	5	38	12
20	7	6	13	6	45	10
21	7	17	10	3	77	97
22	7	38	7	12	16	9
23	7	33	4	9	79	19
24	7	5	2	9	65	33
25	7	26	8	5	54	8
26	7	7	9	9	69	25
27	7	8	4	8	75	41
28	7	3	7	5	29	11
29	7	5	19	4	28	5
30	7	16	5	10	*	23

	N	N*	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+7WC	30	0	20.93	15.50	18.81	17.80	3.25
T+7W20	30	0	7.90	6.00	7.19	7.33	1.34
T+7W50	30	0	10.53	9.00	9.77	7.19	1.31
T+7W100	29	1	46.14	38.00	44.26	31.21	5.80
T+7W1000	30	0	23.17	19.00	20.38	20.13	3.68

	MIN	MAX	Q1	Q3
T+7WC	3.00	85.00	7.75	32.25
T+7W20	0.00	26.00	2.00	10.75
T+7W50	1.00	29.00	5.00	15.00
T+7W100	14.00	129.00	19.00	64.50
T+7W1000	4.00	97.00	8.75	33.75

Raw data of numbers of chironomids at each treatment site at Wimborne on day 14

ROW	DateT+14	T+14WC	T+14W20	T+14W50	T+14W100	T+14W1K
1	14	17	4	11	54	10
2	14	56	23	7	83	13
3	14	47	14	4	30	10
4	14	31	19	12	63	36
5	14	26	21	11	53	35
6	14	38	9	6	32	22
7	14	10	6	13	67	30
8	14	12	3	21	49	34
9	14	47	10	4	36	5
10	14	17	7	2	39	23
11	14	42	7	15	97	53
12	14	27	3	17	42	28
13	14	8	6	11	61	30
14	14	7	1	25	30	18
15	14	11	0	11	56	50
16	14	31	1	9	59	25
17	14	9	0	11	33	15
18	14	28	6	12	43	38
19	14	16	10	14	63	39
20	14	4	12	7	49	26
21	14	23	11	20	51	35
22	14	4	7	12	19	46
23	14	42	10	25	38	19
24	14	26	14	12	53	32
25	14	26	7	5	68	33
26	14	57	1	10	87	39
27	14	17	7	7	60	10
28	14	22	5	13	50	53
29	14	6	2	7	70	32
30	14	6	1	14	75	7

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+14WC	30	23.77	22.50	22.77	15.64	2.85
T+14W20	30	7.57	7.00	7.04	6.08	1.11
T+14W50	30	11.60	11.00	11.23	5.73	1.05
T+14W100	30	53.67	53.00	52.96	18.16	3.32
T+14W1K	30	28.20	30.00	28.00	13.46	2.46

	MIN	MAX	Q1	Q3
T+14WC	4.00	57.00	9.75	32.75
T+14W20	0.00	23.00	2.75	10.25
T+14W50	2.00	25.00	7.00	14.00
T+14W100	19.00	97.00	38.75	64.00
T+14W1K	5.00	53.00	17.25	36.50

Raw data of numbers of chironomids at each treatment site at Wimborne on day 28

ROW	DateT+28	T+28WC	T+28W20	T+28W50	T+28W100	T+28W 1K
1	28	34	11	22	29	54
2	28	26	5	14	49	68
3	28	13	13	24	18	99
4	28	16	8	1	14	73
5	28	42	5	14	29	39
6	28	41	10	3	16	56
7	28	39	14	4	16	55
8	28	106	1	17	14	135
9	28	23	3	4	12	77
10	28	109	11	19	29	90
11	28	23	19	44	26	72
12	28	53	10	39	17	79
13	28	43	4	27	46	42
14	28	28	10	6	15	17
15	28	19	6	5	9	79
16	28	38	24	38	18	89
17	28	21	32	47	43	47
18	28	14	13	13	39	65
19	28	58	9	1	22	58
20	28	13	16	21	19	94
21	28	70	7	29	66	80
22	28	28	30	7	9	70
23	28	15	13	2	20	75
24	28	25	41	22	15	59
25	28	15	12	16	20	74
26	28	36	7	28	28	89
27	28	62	29	56	17	69
28	28	27	22	16	12	91
29	28	22	13	6	14	71
30	28	33	17	10	16	105

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+28WC	30	36.40	28.00	32.73	24.40	4.46
T+28W20	30	13.83	11.50	13.00	9.44	1.72
T+28W50	30	18.50	16.00	17.31	14.78	2.70
T+28W100	30	23.23	18.00	21.69	13.34	2.44
T+28W 1K	30	72.37	72.50	72.12	22.50	4.11

	MIN	MAX	Q1	Q3
T+28WC	13.00	109.00	20.50	42.25
T+28W20	1.00	41.00	7.00	17.50
T+28W50	1.00	56.00	5.75	27.25
T+28W100	9.00	66.00	14.75	29.00
T+28W 1K	17.00	135.00	57.50	89.00

Raw data of numbers of chironomids at each treatment site at Wimborne on day 42

ROW	DateT+42	T+42WC	T+42W20	T+42W50	T+42W100	T+42W 1K
1	42	73	11	52	21	12
2	42	91	18	32	110	14
3	42	41	12	4	37	19
4	42	35	18	23	38	17
5	42	79	4	56	28	4
6	42	57	76	10	46	39
7	42	118	2	15	58	42
8	42	71	9	10	29	45
9	42	73	14	20	18	46
10	42	81	23	11	28	40
11	42	19	34	32	58	25
12	42	122	15	19	11	72
13	42	69	22	2	29	26
14	42	78	4	11	39	44
15	42	74	51	46	21	18
16	42	34	4	7	11	33
17	42	34	8	6	73	18
18	42	10	0	10	52	29
19	42	176	*	3	35	20
20	42	84	5	55	40	11
21	42	82	13	64	25	15
22	42	9	7	14	24	7
23	42	77	2	20	5	8
24	42	111	12	28	16	19
25	42	22	14	14	8	29
26	42	124	8	2	18	17
27	42	141	11	23	29	5
28	42	43	58	36	31	17
29	42	48	31	9	19	6
30	42	27	37	43	*	11

	N	N*	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+42WC	30	0	70.10	73.00	67.96	40.31	7.36
T+42W20	29	1	18.03	12.00	16.56	18.04	3.35
T+42W50	30	0	22.57	17.00	21.27	17.96	3.28
T+42W100	29	1	33.00	29.00	31.19	21.78	4.05
T+42W 1K	30	0	23.60	18.50	22.35	15.69	2.87

	MIN	MAX	Q1	Q3
T+42WC	9.00	176.00	34.75	85.75
T+42W20	0.00	76.00	6.00	22.50
T+42W50	2.00	64.00	9.75	33.00
T+42W100	5.00	110.00	18.50	39.50
T+42W 1K	4.00	72.00	11.75	34.50

Raw data of numbers of chironomids at each treatment site at Wimborne on day 56

ROW	DateT+56	T+56WC	T+56W20	T+56W50	T+56W100	T+56W 1K
1	56	802	202	345	363	144
2	56	510	103	453	717	100
3	56	326	105	299	565	150
4	56	344	92	305	498	224
5	56	402	119	171	151	244
6	56	286	122	104	356	96
7	56	438	120	127	381	142
8	56	384	162	207	273	175
9	56	322	108	230	299	165
10	56	512	228	225	405	285
11	56	350	239	178	453	232
12	56	624	180	164	370	199
13	56	598	213	272	324	123
14	56	244	215	410	353	186
15	56	298	112	231	304	167
16	56	294	120	363	284	115
17	56	127	233	286	324	226
18	56	205	217	253	298	175
19	56	63	161	313	388	168
20	56	388	141	467	266	209
21	56	402	309	195	275	94
22	56	424	261	265	304	181
23	56	376	232	131	317	117
24	56	258	288	245	322	123
25	56	416	197	346	246	196
26	56	272	245	219	348	208
27	56	180	252	247	264	120
28	56	361	277	353	216	244
29	56	505	147	265	381	141
30	56	433	190	170	394	159

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+56WC	30	371.5	368.5	366.5	150.3	27.4
T+56W20	30	186.3	193.5	184.5	63.0	11.5
T+56W50	30	261.3	250.0	257.2	92.2	16.8
T+56W100	30	348.0	324.0	338.1	107.3	19.6
T+56W 1K	30	170.27	167.50	168.81	49.39	9.02

	MIN	MAX	Q1	Q3
T+56WC	63.0	802.0	282.5	434.2
T+56W20	92.0	309.0	120.0	234.5
T+56W50	104.0	467.0	190.7	321.0
T+56W100	151.0	717.0	281.8	382.7
T+56W 1K	94.00	285.00	123.00	208.25

Raw data of numbers of chironomids at each treatment site at Wimborne on day 70

ROW	DateT+70	T+70WC	T+70W20	T+70W50	T+70W100	T+70W 1K
1	70	52	114	19	38	81
2	70	54	52	20	73	59
3	70	26	62	29	102	22
4	70	43	92	22	105	43
5	70	21	87	27	50	69
6	70	18	25	39	79	88
7	70	54	68	34	34	42
8	70	46	99	28	*	9
9	70	52	85	54	97	60
10	70	31	50	28	69	74
11	70	58	18	25	109	93
12	70	61	34	29	111	73
13	70	39	38	13	105	48
14	70	51	35	34	77	39
15	70	53	21	30	112	47
16	70	83	53	26	90	58
17	70	105	23	57	68	57
18	70	82	55	54	98	81
19	70	76	38	53	134	42
20	70	103	28	33	48	54
21	70	56	25	56	37	77
22	70	76	73	37	45	64
23	70	39	48	29	35	38
24	70	92	75	61	37	91
25	70	43	54	60	45	31
26	70	86	86	62	29	74
27	70	58	69	48	29	45
28	70	42	26	58	43	32
29	70	82	57	105	20	56
30	70	58	80	29	58	95

	N	N*	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+70WC	30	0	58.00	54.00	57.42	22.81	4.16
T+70W20	30	0	55.67	53.50	54.54	26.16	4.78
T+70W50	30	0	39.97	33.50	38.46	19.06	3.48
T+70W100	29	1	68.17	68.00	67.52	32.23	5.99
T+70W 1K	30	0	58.07	57.50	58.58	21.90	4.00

	MIN	MAX	Q1	Q3
T+70WC	18.00	105.00	42.75	77.50
T+70W20	18.00	114.00	32.50	76.25
T+70W50	13.00	105.00	27.75	54.50
T+70W100	20.00	134.00	37.50	100.00
T+70W 1K	9.00	95.00	42.00	74.75

Raw data of numbers of chironomids at each treatment site at Wimborne on day 84

ROW	DateT+84	T+84WC	T+84W20	T+84W50	T+84W100	T+84W 1K
1	84	73	40	121	239	84
2	84	70	46	86	76	52
3	84	140	63	51	531	51
4	84	41	40	79	225	103
5	84	83	126	108	343	53
6	84	31	82	43	225	62
7	84	37	49	22	215	56
8	84	44	32	16	156	42
9	84	53	44	13	196	71
10	84	31	42	24	104	27
11	84	69	54	46	319	75
12	84	112	33	81	298	83
13	84	51	34	67	404	35
14	84	116	64	19	190	56
15	84	89	41	75	256	12
16	84	120	81	22	229	57
17	84	76	37	51	316	89
18	84	146	41	93	482	59
19	84	98	77	131	115	57
20	84	75	22	42	306	40
21	84	74	41	171	81	80
22	84	77	75	35	101	44
23	84	43	42	57	263	87
24	84	54	24	177	124	98
25	84	40	23	37	545	64
26	84	53	53	159	80	56
27	84	67	63	67	594	69
28	84	25	64	130	157	83
29	84	38	30	123	279	72
30	84	18	41	6	239	57

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
T+84WC	30	68.13	68.00	65.96	33.55	6.12
T+84W20	30	50.13	42.00	48.12	22.13	4.04
T+84W50	30	71.73	62.00	68.65	48.98	8.94
T+84W100	30	256.3	234.0	245.9	141.1	25.8
T+84W 1K	30	62.47	58.00	62.85	20.82	3.80

	MIN	MAX	Q1	Q3
T+84WC	18.00	146.00	40.75	84.50
T+84W20	22.00	126.00	36.25	63.25
T+84W50	6.00	177.00	32.25	111.25
T+84W100	76.0	594.0	148.0	316.7
T+84W 1K	12.00	103.00	51.75	80.75

APPENDIX 9

Results of 3-minute kick samples at Blandford

Invertebrate taxa found in 3 min. kick samples from Blandford Control on pretreatment day (day -1), one day after treatment (day + 1), 14 days after treatment (day + 14), 42 days after treatment (day + 42) and 84 days after treatment (day + 84).

	day -1			day + 1			day + 14			day + 42			day + 84		
Taxa	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Ephemerellidae				x	x	x				x	x	x	x	x	x
Ephemeridae			x	x	x	x	x	x	x	x	x	x	x		x
Leuctridae							x						x	x	x
Leptoceridae	x		x		x		x	x	x	x	x	x	x	x	x
Lepidostomatidae							x			x		x	x	x	
Brachycentridae		x	x	x	x	x	x	x			x		x	x	x
Sericostomatidae	x	x		x		x	x	x	x	x	x	x	x	x	x
Caenidae	x	x	x		x								x	x	x
Rhyacophilidae						x	x			x	x		x	x	x
Polycentropodidae				x				x							
Limnephilidae													x		x
Neritidae	x	x	x	x			x	x	x	x	x	x	x	x	x
Ancylidae		x							x		x				
Unionidae									x						
Gammaridae		x		x	x	x	x	x		x	x	x	x	x	x
Haliplidae								x							
Dytiscidae												x			
Gyrinidae				x	x			x							
Elminthidae	x		x	x			x	x	x	x	x	x	x	x	x
Hydropsychidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Simuliidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Planariidae							x	x							
Baetidae				x		x		x	x	x	x	x	x	x	x
Hydrobiidae		x		x		x	x	x	x	x	x	x	x	x	x
Lymnaeidae			x	x	x	x	x	x				x	x		
Planorbidae	x	x	x	x	x			x		x	x	x			x

Taxa	day -1			day + 1			day + 14			day + 42			day + 84		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sphaeriidae				x	x	x	x	x	x	x		x	x	x	x
Glossiphoniidae					x		x	x		x	x	x	x		x
Erpobdellidae				x		x	x	x		x	x	x		x	
Asellidae				x	x	x	x	x		x	x	x		x	
Chironomidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Oligochaeta	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Invertebrate taxa found in 3 min. kick samples from Blandford 20 m downstream on pretreatment day (day -1), one day after treatment (day + 1), 14 days after treatment (day + 14), 42 days after treatment (day + 42) and 84 days after treatment (day + 84).

	day -1			day + 1			day + 14			day + 42			day + 84		
Taxa	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Ephemerellidae										x			x	x	x
Ephemeridae			x	x		x	x	x	x			x	x	x	x
Leuctridae										x	x	x	x		x
Leptoceridae	x	x	x		x	x	x	x	x		x		x	x	x
Lepidostomatidae	x	x	x	x	x	x								x	
Brachycentridae				x	x										
Sericostomatidae	x	x		x	x	x	x	x	x	x		x	x	x	x
Caenidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Rhyacophilidae					x	x				x	x	x	x	x	x
Polycentropodidae				x		x				x	x	x	x	x	
Limnephilidae	x			x											x
Neritidae		x		x	x	x	x		x	x	x	x			x
Ancylidae	x	x											x	x	x
Hydroptilidae							x			x		x	x	x	
Gammaridae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Haliplidae							x		x				x		
Dytiscidae										x	x	x			
Gyrinidae						x									
Elminthidae	x	x	x			x	x	x	x	x	x	x	x	x	x
Hydropsychidae	x	x	x	x	x	x		x	x		x		x	x	x
Tipulidae				x		x									
Simuliidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Planariidae							x								
Baetidae		x	x	x	x		x	x	x	x	x	x	x	x	x
Sialidae					x	x						x			
Piscicolidae								x					x		

Taxa	day -1			day + 1			day + 14			day + 42			day + 84		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Valvatidae	x	x		x	x	x							x		x
Hydrobiidae	x	x	x	x		x	x		x	x	x	x	x	x	x
Lymnaeidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Physidae	x		x												
Planorbidae	x	x	x	x	x	x	x	x	x	x	x		x	x	
Sphaeriidae	x			x	x	x	x	x	x	x		x	x	x	x
Glossiphoniidae	x	x	x	x	x	x		x	x		x		x	x	x
Erpobdellidae	x		x	x	x	x	x	x	x	x	x	x	x	x	x
Asellidae				x		x	x	x	x	x	x	x	x	x	x
Chironomidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Oligochaeta	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Invertebrate taxa found in 3 min. kick samples from Blandford 50 m downstream on pretreatment day (day -1), one day after treatment (day + 1), 14 days after treatment (day + 14), 42 days after treatment (day + 42) and 84 days after treatment (day + 84).

	day -1			day + 1			day + 14			day + 42			day + 84		
Taxa	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Ephemerellidae							x	x		x		x	x	x	x
Ephemeridae	x	x	x	x	x	x	x	x	x		x	x	x	x	x
Leuctridae													x	x	x
Leptoceridae	x	x	x				x	x		x	x	x	x		x
Lepidostomatidae	x	x	x	x			x	x		x	x	x			
Brachycentridae								x					x	x	x
Sericostomatidae	x		x	x	x	x	x	x	x	x	x		x	x	x
Caenidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Rhyacophilidae	x		x	x	x	x		x		x	x	x	x	x	x
Polycentropodidae								x	x	x		x	x		x
Limnephilidae		x					x				x	x	x	x	x
Neritidae				x	x	x	x	x	x		x	x	x	x	x
Ancylidae	x			x	x	x	x	x					x	x	
Hydroptilidae							x			x		x			
Gammaridae	x	x	x	x	x	x	x	x	x	x	x		x	x	x
Haliplidae								x							
Dytiscidae				x		x								x	
Elminthidae				x	x	x				x	x	x	x	x	x
Hydropsychidae	x	x	x	x	x	x		x	x				x	x	x
Tipulidae				x		x									
Simuliidae		x	x	x	x	x	x	x	x	x	x	x	x	x	x
Baetidae			x						x	x	x	x	x	x	x
Valvatidae							x			x	x	x			
Hydrobiidae	x	x	x	x	x	x	x	x		x	x	x		x	x
Lymnaeidae	x	x	x				x	x		x	x	x	x	x	
Planorbidae	x	x	x	x		x			x	x		x	x	x	x

Taxa	day -1			day + 1			day + 14			day + 42			day + 84		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sphaeriidae	x	x	x		x	x	x	x	x		x		x	x	x
Glossiphoniidae			x				x	x	x	x		x		x	
Erpobdellidae	x	x		x	x		x	x	x		x		x	x	x
Asellidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Chironomidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Oligochaeta	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Invertebrate taxa found in 3 min. kick samples from Blandford 100 m downstream on pretreatment day (day -1), one day after treatment (day + 1), 14 days after treatment (day + 14), 42 days after treatment (day + 42) and 84 days after treatment (day + 84).

	day -1			day + 1			day + 14			day + 42			day + 84		
Taxa	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Heptageniidae													x		
Ephemerellidae			x		x	x	x	x	x	x	x	x	x	x	x
Ephemeridae	x	x	x	x	x	x	x	x		x	x	x		x	x
Leuctridae										x	x	x	x	x	
Molannidae						x	x	x	x		x				
Odontoceridae				x											
Leptoceridae	x	x	x	x	x	x		x		x	x	x	x	x	
Lepidostomatidae	x	x		x	x	x	x		x	x	x		x	x	x
Brachycentridae		x	x	x	x	x								x	x
Sericostomatidae	x	x		x		x	x	x	x	x	x	x	x	x	x
Agriidae	x			x											
Caenidae	x	x					x	x	x	x	x	x	x		
Rhyacophilidae		x		x		x			x	x		x	x	x	x
Polycentropodidae	x	x			x	x		x			x	x	x		
Limnephilidae			x				x			x	x				x
Neritidae		x	x	x	x		x	x			x		x		x
Ancylidae	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Hydroptilidae				x			x		x					x	
Gammaridae	x			x			x	x	x	x	x	x	x	x	x
Haliplidae	x						x	x		x	x		x	x	x
Dytiscidae		x	x		x					x		x	x		x
Gyrinidae	x			x			x		x						
Elminthidae	x	x	x		x		x	x	x	x	x	x	x	x	x
Hydropsychidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Tipulidae		x										x		x	x
Simuliidae	x		x	x	x	x	x	x	x	x	x	x	x	x	x

Taxa	day -1			day + 1			day + 14			day + 42			day + 84		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Baetidae		x	x				x	x	x	x	x	x	x	x	x
Sialidae	x	x												x	
Piscicolidae													x		
Valvatidae		x	x		x	x	x		x		x			x	x
Hydrobiidae	x	x		x		x	x	x	x	x	x	x	x	x	x
Lymnaeidae	x	x	x	x		x	x	x	x			x	x	x	
Physidae	x		x												
Planorbidae	x	x		x	x	x	x		x	x			x		x
Sphaeriidae	x	x	x			x	x	x		x	x		x		x
Glossiphoniidae	x		x					x	x				x	x	x
Erpobdellidae	x	x					x		x				x		x
Asellidae	x	x	x	x		x	x	x	x		x	x	x	x	x
Chironomidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Oligochaeta	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Invertebrate taxa found in 3 min. kick samples from Blandford 1000 m downstream on pretreatment day (day -1), one day after treatment (day + 1), 14 days after treatment (day + 14), 42 days after treatment (day + 42) and 84 days after treatment (day + 84).

	day -1			day + 1			day + 14			day + 42			day + 84		
Taxa	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Heptageniidae					x								x	x	x
Ephemerellidae										x	x	x	x	x	x
Ephemeridae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Leuctridae								x	x				x	x	x
Aphelocheiridae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Lepidostomatidae			x	x	x	x	x	x	x	x	x	x	x		
Brachycentridae	x	x		x	x	x	x	x	x		x	x	x		
Sericostomatidae	x	x	x	x		x	x	x	x	x	x	x			
Caenidae	x	x	x	x	x	x	x	x	x	x	x	x	x		
Rhyacophilidae		x													
Limnephilidae				x							x				
Neritidae	x	x	x	x	x		x	x	x	x		x	x	x	x
Ancylidae	x		x	x	x	x	x	x	x	x	x	x	x	x	x
Gammaridae									x	x	x	x	x	x	x
Haliplidae							x	x					x		
Dytiscidae					x	x			x	x	x	x	x	x	x
Gyrinidae				x	x	x	x	x		x	x	x		x	
Elminthidae	x			x		x	x	x	x	x	x	x	x	x	x
Hydropsychidae		x	x	x	x	x	x	x	x	x	x	x			
Simuliidae	x	x	x	x	x	x	x	x	x	x	x	x			
Baetidae						x							x	x	x
Sialidae														x	
Valvatidae	x		x		x	x		x	x	x	x		x	x	
Hydrobiidae	x	x	x	x	x	x	x	x	x	x	x	x		x	x
Lymnaeidae	x	x	x	x	x		x		x	x	x	x	x	x	
Physidae															x

Taxa	day -1			day + 1			day + 14			day + 42			day + 84		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Planorbidae	x	x	x	x	x	x	x	x	x	x		x	x		x
Sphaeriidae	x	x	x	x	x		x			x	x	x	x	x	
Glossiphoniidae	x	x		x		x	x		x	x	x	x	x	x	x
Erpobdellidae	x	x	x	x	x		x	x		x	x		x	x	x
Asellidae	x	x	x		x	x	x	x	x		x		x	x	x
Chironomidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Oligochaeta	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

APPENDIX 10

Results of 3-minute kick samples at Wimborne

Invertebrate taxa found in 3 min. kick samples from Wimborne Control on pretreatment day (day - 1), one day after treatment (day + 1), 14 days after treatment (day + 14), 42 days after treatment (day + 42) and 84 days after treatment (day + 84).

	day - 1			day + 1			day + 14			day + 42			day + 84		
Taxa	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Ephemerellidae										x		x	x	x	x
Ephemeridae	x	x	x	x	x	x	x	x	x	x	x	x		x	
Leptoceridae	x	x	x		x		x	x		x			x	x	x
Lepidostomatidae				x		x	x		x	x	x	x		x	x
Brachycentridae		x						x			x	x	x		x
Sericostomatidae	x		x		x	x		x			x	x			x
Caenidae	x	x	x				x	x	x	x	x	x	x	x	x
Rhyacophilidae	x	x	x										x	x	
Polycentropodidae													x	x	x
Limnephilidae			x										x		x
Neritidae	x	x	x	x	x		x	x			x		x		x
Ancylidae	x	x		x	x	x	x		x	x	x	x	x	x	
Hydroptilidae			x					x		x					
Gammaridae	x	x	x		x	x	x	x	x	x	x	x	x	x	x
Corixidae		x													
Haliplidae		x	x									x			
Dytiscidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Gyrinidae	x	x		x	x	x	x	x		x	x				x
Elminthidae	x	x	x				x	x	x	x	x	x	x	x	x
Hydropsychidae	x	x	x	x	x	x	x	x	x		x		x	x	x
Tipulidae	x		x	x	x		x	x					x	x	x
Simuliidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Planariidae	x												x		
Baetidae	x	x	x			x	x		x	x	x	x	x	x	x
Sialidae									x						
Valvatidae			x		x	x	x	x			x	x			x

Taxa	day - 1			day + 1			day + 14			day + 42			day + 84		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Hydrobiidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Lymnaeidae	x	x	x				x	x	x	x	x		x	x	x
Physidae	x	x											x	x	x
Planorbidae	x	x	x	x	x		x	x	x	x	x		x		x
Sphaeriidae			x	x		x	x	x	x			x		x	
Glossiphoniidae	x	x	x			x	x	x	x	x	x	x	x	x	x
Erpobdellidae	x		x	x	x	x	x		x	x	x	x	x	x	x
Asellidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Chironomidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Oligochaeta	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Invertebrate taxa found in 3 min. kick samples from Wimborne 20 m downstream on pretreatment day (day -1), one day after treatment (day + 1), 14 days after treatment (day + 14), 42 days after treatment (day + 42) and 84 days after treatment (day + 84).

	day - 1			day + 1			day + 14			day + 42			day + 84		
Taxa	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Heptageniidae													x	x	
Ephemerellidae										x	x	x	x	x	x
Ephemeridae	x	x	x	x	x	x	x	x	x	x		x		x	x
Aphelocheiridae	x	x					x	x		x	x	x	x	x	
Molannidae										x					
Leptoceridae	x	x	x	x	x	x	x		x	x	x	x	x	x	x
Goeridae	x		x	x			x				x		x		
Lepidostomatidae			x							x	x		x	x	x
Brachycentridae				x	x	x	x	x	x				x	x	x
Sericostomatidae			x	x	x	x		x	x	x	x	x			x
Agriidae				x											
Caenidae	x	x	x				x	x	x	x	x	x	x	x	x
Rhyacophilidae			x		x	x		x							
Limnephilidae	x	x	x	x	x	x	x	x	x	x	x	x			
Neritidae	x	x	x	x	x	x	x	x	x			x		x	
Ancylidae	x	x	x	x	x	x	x	x		x	x	x	x	x	x
Hydroptilidae		x													
Unionidae										x					
Gammaridae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Corixidae	x		x	x			x	x	x			x			
Haliplidae									x		x				
Dytiscidae	x	x	x		x		x	x	x	x	x	x			x
Gyrinidae	x	x	x	x	x	x	x	x		x		x			
Elminthidae	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Hydropsychidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Tipulidae			x				x		x						

Taxa	day - 1			day + 1			day + 14			day + 42			day + 84		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Simuliidae	x	x	x		x	x		x	x	x	x	x	x	x	x
Baetidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Sialidae				x	x									x	
Valvatidae			x		x			x	x		x			x	x
Hydrobiidae	x	x	x	x	x	x	x	x		x	x	x	x		x
Lymnaeidae		x		x	x		x	x		x	x	x			
Physidae													x	x	x
Planorbidae				x		x	x		x	x		x	x	x	x
Sphaeriidae	x	x	x	x	x	x	x		x	x	x	x	x	x	x
Glossiphoniidae		x	x			x	x	x	x	x	x	x	x	x	x
Erpobdellidae	x	x		x	x	x	x	x	x		x				
Asellidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Chironomidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Oligochaeta	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Invertebrate taxa found in 3 min. kick samples from Wimborne 50 m downstream on pretreatment day (day - 1), one day after treatment (day + 1), 14 days after treatment (day + 14), 42 days after treatment (day + 42) and 84 days after treatment (day + 84).

	day - 1			day + 1			day + 14			day + 42			day + 84		
Taxa	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Ephemerellidae										x		x	x		
Ephemeridae	x	x		x	x	x	x	x	x					x	x
Aphelocheiridae							x		x				x		
Leptoceridae					x	x				x	x	x	x	x	x
Goeridae				x						x	x	x	x		
Lepidostomatidae							x	x	x	x			x		
Brachycentridae	x	x	x	x	x	x	x	x	x				x		x
Sericostomatidae	x	x		x	x	x		x	x		x	x		x	
Agriidae							x								
Caenidae										x	x	x	x	x	x
Rhyacophilidae				x	x			x					x		x
Limnephilidae	x	x	x		x	x	x		x					x	
Neritidae	x		x	x	x	x	x	x	x			x	x	x	
Ancylidae	x			x	x	x	x	x	x		x		x	x	x
Gammaridae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Dytiscidae	x	x	x	x	x	x	x			x	x	x		x	x
Gyrinidae		x									x		x	x	
Elminthidae	x	x	x	x	x	x				x	x	x	x	x	x
Hydropsychidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Tipulidae			x	x		x			x						
Simuliidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Baetidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Valvatidae					x		x	x	x		x				x
Hydrobiidae	x	x	x	x	x	x	x	x		x	x	x			
Lymnaeidae	x	x		x		x	x	x	x	x		x			
Planorbidae				x	x	x	x	x	x	x			x	x	

Taxa	day - 1			day + 1			day + 14			day + 42			day + 84		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sphaeriidae							x	x	x	x	x	x	x	x	x
Glossiphoniidae		x	x	x	x	x		x	x		x		x	x	x
Erpobdellidae	x		x	x	x	x	x		x			x	x	x	x
Asellidae	x	x	x	x	x	x	x	x		x	x	x	x	x	x
Chironomidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Oligochaeta	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Invertebrate taxa found in 3 min. kick samples from Wimborne 100 m downstream on pretreatment day (day - 1), one day after treatment (day + 1), 14 days after treatment (day + 14), 42 days after treatment (day + 42) and 84 days after treatment (day + 84).

	day - 1			day + 1			day + 14			day + 42			day + 84		
Taxa	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Ephemerellidae										x	x	x	x		
Ephemeridae	x	x	x	x	x	x	x	x	x	x	x	x		x	x
Molannidae				x											
Leptoceridae				x	x		x	x		x	x	x	x	x	x
Goeridae				x	x	x									
Lepidostomatidae			x							x	x				
Brachycentridae	x	x	x				x	x	x				x	x	x
Sericostomatidae		x			x	x		x	x			x		x	
Agriidae				x	x										
Caenidae	x	x	x			x	x	x	x	x	x	x	x	x	x
Rhyacophilidae					x					x	x	x	x	x	x
Polycentropodidae													x	x	
Limnephilidae				x	x	x				x			x		x
Neritidae		x						x			x	x	x	x	
Ancylidae			x				x	x	x	x		x	x		x
Gammaridae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Corixidae				x	x		x		x			x	x		
Haliplidae													x		x
Dytiscidae		x	x		x	x	x	x	x	x	x	x	x	x	x
Gyrinidae	x	x		x	x		x	x		x	x			x	x
Elminthidae	x	x	x	x	x	x		x	x	x	x	x	x		x
Hydropsychidae	x	x	x	x	x	x	x	x	x	x	x	x			
Tipulidae		x		x		x	x	x	x			x			
Simuliidae	x	x	x		x	x	x		x	x	x	x			
Planariidae	x						x						x	x	
Baetidae	x	x	x	x	x	x			x	x	x	x		x	

Taxa	day - 1			day + 1			day + 14			day + 42			day + 84		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Piscicolidae													x		
Valvatidae		x	x		x										x
Hydrobiidae	x	x	x	x	x	x	x	x		x	x	x	x	x	x
Lymnaeidae	x	x	x			x		x					x	x	
Planorbidae	x	x	x	x		x	x	x	x	x		x	x	x	x
Sphaeriidae	x	x		x	x	x	x	x	x				x	x	x
Glossiphoniidae	x	x	x	x	x	x	x	x	x	x	x		x	x	x
Erpobdellidae	x	x		x	x		x	x	x		x	x	x	x	x
Asellidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Chironomidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Oligochaeta	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Invertebrate taxa found in 3 min. kick samples from Wimborne 1000 m downstream on pretreatment day (day - 1), one day after treatment (day + 1), 14 days after treatment (day + 14), 42 days after treatment (day + 42) and 84 days after treatment (day + 84).

	day - 1			day + 1			day + 14			day + 42			day + 84		
Taxa	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Siphlonuridae													x		
Heptageniidae													x		x
Ephemerellidae	x	x	x							x	x	x	x	x	x
Ephemeridae				x	x						x				
Aphelocheiridae							x	x	x				x	x	x
Molannidae	x	x													
Leptoceridae				x	x	x	x	x	x	x	x	x	x	x	x
Lepidostomatidae					x					x	x	x			
Brachycentridae	x	x	x	x	x	x	x	x	x				x	x	x
Sericostomatidae			x					x						x	x
Agriidae				x	x										
Caenidae							x	x	x	x	x	x	x	x	x
Rhyacophilidae		x					x	x	x			x	x	x	x
Polycentropodidae	x	x			x		x	x					x	x	
Limnephilidae	x	x	x	x	x	x	x	x	x						x
Neritidae				x	x	x	x								
Ancylidae				x	x	x	x						x	x	x
Gammaridae	x	x	x	x	x	x			x	x	x	x	x	x	x
Corixidae				x	x	x							x		
Dytiscidae	x	x		x		x	x	x		x		x	x	x	
Gyrinidae	x	x	x	x	x	x	x	x	x	x	x	x			x
Elminthidae	x	x	x				x	x	x	x	x	x	x	x	x
Hydropsychidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Tipulidae	x	x	x										x	x	x
Simuliidae	x	x	x		x	x	x	x	x	x	x	x	x	x	x
Planariidae	x		x	x											

Taxa	day - 1			day + 1			day + 14			day + 42			day + 84		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Baetidae	x	x	x				x	x	x	x	x	x	x	x	x
Piscicolidae							x		x						
Hydrobiidae										x	x	x	x	x	x
Lymnaeidae										x	x	x	x		x
Planorbidae										x		x		x	
Sphaeriidae							x	x							
Glossiphoniidae	x	x	x	x	x		x	x	x	x	x		x	x	x
Erpobdellidae	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Asellidae	x	x	x	x	x	x	x	x	x			x	x	x	x
Chironomidae	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Oligochaeta	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

APPENDIX 11

Results of drift sampling at Blandford and Wimborne

PRETREATMENT DAY - WIMBORNE - DIURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Corixidae	-	-	-	-	1	-	-	-
Planorbidae	-	-	-	1	-	-	-	-
Erpobdellidae	-	1	-	-	-	-	-	-
Asellidae	1	1	-	-	1	-	-	-
20 m DOWNSTREAM								
Ephemeridae	-	3	-	-	-	-	-	1
Gammaridae	-	-	-	-	-	1	-	-
Dytiscidae	-	-	1	-	-	-	-	-
Gyrinidae	-	-	-	1	-	-	-	-
Hydropsychidae	-	-	1	1	-	-	-	-
Asellidae	-	1	-	-	-		-	-
Brachycentridae	-	-	-	-	-	-	1	-
50 m DOWNSTREAM								
Polycentropodidae	-	-	1	-	-	-	-	-
Limnephilidae	1	-	-	-	-	-	-	-
Gammaridae	-	-	-	2	1	-	-	-
Corixidae	2	-	-	1	1	1	-	-
Dytiscidae	-	1	-	-	-	-	-	-
Hydropsychidae	-	-	-	-	1	-	-	-
Erpobdellidae	-	-	-	-	-	1	-	-

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
Asellidae	1	-	-	-	1	1	-	-
100 m DOWNSTREAM								
Gammaridae	-	1	-	-	-	-	-	-
Glossiphoniidae	-	1	-	-	-	-	-	-
Asellidae	-	4	-	1	-	1	-	-
1000 m DOWNSTREAM								
Limnephilidae	-	-	1	-	-	-	-	-
Corixidae	-	1	-	1	-	-	-	-
Hydropsychidae	-	1	-	-	-	-	-	-
Planorbidae	-	-	-	-	1	-	-	-
Oligochaeta	-	-	-	-	-	2	-	-

PRETREATMENT DAY - WIMBORNE - NOCTURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Ephemerellidae	-	-	-	-	-	1	-	-
Ephemeridae	-	-	-	1	-	-	-	-
Caenidae	1	-	-	-	-	-	-	-
Gammaridae	-	-	-	-	-	1	-	-
Corixidae	1	-	-	1	-	1	-	-
Hydropsychidae	-	-	-	-	1	-	-	-
Asellidae	-	-	-	-	2	-	-	-
Oligochaeta	1	-	-	-	-	-	-	-
20 m DOWNSTREAM								
Ephemerellidae	-	-	-	1	-	-	-	-
Gammaridae	-	-	-	4	-	-	-	-
Corixidae	2	-	-	-	5	-	-	-
Baetidae	-	-	-	2	-	-	-	-
Asellidae	-	-	-	1	-	-	-	-
Hydracarina	-	-	-	-	1	-	-	-
50 m DOWNSTREAM								
Ephemerellidae	1	-	-	-	-	-	-	-
Caenidae	2	-	-	-	6	-	-	-
Corixidae	1	2	-	2	1	1	-	-
Dytiscidae	-	1	-	-	1	-	-	-
Hydropsychidae	-	1	-	-	-	-	-	-
Baetidae	-	2	1	-	1	-	-	-
Erpobdellidae	-	2	-	-	-	-	-	-

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
100 m DOWNSTREAM								
Caenidae	-	1	-	-	-	-	-	-
Gammaridae	-	1	-	-	-	-	-	-
Corixidae	1	-	-	1	-	-	-	-
Gyrinidae	-	-	1	-	-	-	-	-
Asellidae	-	1	-	-	-	-	-	-
1000 m DOWNSTREAM								
Corixidae	-	1	-	-	-		-	-

PRETREATMENT DAY - BLANDFORD - DIURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Leptoceridae	-	-	1	-	-	-	-	-
Limnephilidae	1	-	-	-	-	-	-	-
Gammaridae	-	-	1	-	-	-	-	1
Corixidae	1	-	-	-	-	-	-	-
Hydropsychidae	2	-	-	-	1	1	-	2
Sialidae	-	-	1	-	-	-	-	-
Physidae	1	-	-	-	-	-	-	-
Sphaeriidae	1	-	-	-	-	-	-	-
Glossiphoniidae	-	-	-	-	-	1	-	-
Rhyacophilidae	-	-	-	-	-	-	1	-
Asellidae	-	-	-	-	-	-	-	1
20 m DOWNSTREAM								
Limnephilidae	-	-	-	-	1	-	-	-
Gammaridae	-	-	-	-	-	2	-	-
Corixidae	1	1	-	1	-	-	-	-
Helodidae	1	-	-	-	-	-	-	-
50 m DOWNSTREAM								
Ephemeridae	-	-	-	-	1	1	-	1
Ancylidae	-	-	-	1	-	-	-	-
Gammaridae	3	-	-	-	-	-	-	-
Corixidae	1	-	-	5	2	3	-	-
Erpobdellidae	-	-	-	-	2	-	-	-
Asellidae	-	-	-	1	-	2	-	-
Diptera larva	-	-	-	-	1	-	-	-

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
100 m DOWNSTREAM								
Ephemeridae	-	-	1	2	-	-	-	-
Caenidae	-	1	-	-	-	-	-	-
Dytiscidae	-	1	-	-	-	-	-	-
Hydropsychidae	-	-	-	-	-	1	-	-
Hydrobiidae	-	-	-	1	-	-	-	-
Sphaeriidae	-	-	-	-	1	-	-	-
Erpobdellidae	-	3	-	-	-	-	-	-
Asellidae	2	-	-	-	-	-	-	-
Hydracarina	-	1	-	-	-	-	-	-
Ephemerellidae	-	-	-	-	-	-	1	-
1000 m DOWNSTREAM								
Leptoceridae	-	1	-	-	-	-	-	-
Brachycentridae	-	-	1	-	-	-	-	-
Neritidae	1	-	-	-	-	-	-	-
Corixidae	2	-	-	-	-	-	-	-

PRETREATMENT DAY - BLANDFORD - NOCTURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Ephemeridae	-	-	1	-	-	-	-	-
Caenidae	-	1	-	1	-	-	-	-
Hydroptilidae	-	-	-	-	-	1	-	-
Gammaridae	-	1	-	-	-	-	-	-
Corixidae	-	-	2	-	1	-	-	-
Hydropsychidae	-	-	1	1	-	-	-	-
Baetidae	-	-	-	1	-	-	-	-
20 m DOWNSTREAM								
Ephemeridae	-	1	-	1	-	-	-	-
Caenidae	2	-	-	1	-	-	-	-
Corixidae	-	1	2	-	-	-	-	-
50 m DOWNSTREAM								
Ephemeridae	-	2	-	-	-	-	-	-
Leptoceridae	1	-	-	-	-	-	-	-
Caenidae	9	1	11	-	-	-	-	-
Polycentropodidae	1	-	-	-	-	-	-	-
Corixidae	1	3	1	-	-	-	-	-
Elminthidae	-	1	-	-	-	-	-	-
Hydrobiidae	-	1	-	-	-	-	-	-
Planorbidae	1	1	-	-	-	-	-	-
Erpobdellidae	-	-	1	-	-	-	-	-
Asellidae	1	-	1	-	-	-	-	-

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
100 m DOWNSTREAM								
Ephemerellidae	-	1	-	1	-	-	-	-
Ephemeridae	-	-	-	1	-	-	-	-
Caenidae	7	1	14	2	-	-	-	-
Polycentropodidae	-	-	1	-	-	-	-	-
Limnephilidae	-	-	-	1	-	-	-	-
Hydroptilidae	-	-	1	-	-	-	-	-
Gammaridae	-	1	-	-	-	-	-	-
Corixidae	1	1	-	4	-	-	-	-
Elminthidae	2	-	1	-	-	-	-	-
Tipulidae	-	-	-	1	-	-	-	-
Sialidae	-	-	1	-	-	-	-	-
Planorbidae	-	-	1	-	-	-	-	-
Asellidae	-	1	-	-	-	-	-	-
Limnophora	1	1	1	-	-	-	-	-
Diptera larva	-	-	1	-	-	-	-	-
1000 m DOWNSTREAM								
Caenidae	1	-	-	-	-	-	-	-
Helodidae	1	-	-	-	-	-	-	-
Baetidae	1	-	-	1	-	-	-	-

TREATMENT DAY - BLANDFORD - DIURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Ephemeridae	-	1	-	-	-	-	-	-
Limnephilidae	-	-	1	-	-	1	-	-
Corixidae	7	6	4	5	7	1	-	-
Hydrophilidae	-	-	-	-	1	-	-	-
Hydropsychidae	2	1	-	-	-	1	-	2
Tipulidae	-	-	-	-	1	-	-	-
Baetidae	-	-	-	-	-	1	-	-
Hydrobiidae	-	-	1	-	-	-	-	-
Lymnaeidae	-	-	1	-	-	-	-	-
Sphaeriidae	1	-	-	-	-	-	-	-
Glossiphoniidae	1	-	-	-	-	-	-	-
20 m DOWNSTREAM								
Gammaridae	-	1	-	-	5	-	-	-
Corixidae	2	-	2	1	-	2	-	-
Dytiscidae	-	-	-	1	-	-	-	-
Gyrinidae	1	-	-	-	-	-	-	-
Hydrophilidae	-	-	-	1	1	-	-	-
Lymnaeidae	-	-	-	1	-	-	-	-
Planorbidae	-	1	-	-	-	-	-	-
Sphaeridae	-	-	-	1	-	-	-	-
Asellidae	-	1	-	-	-	-	-	1
caseless caddis	-	-	-	-	-	-	-	1

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
50 m DOWNSTREAM								
Limnephilidae	-	-	-	-	-	1	-	-
Gammaridae	1	-	-	-	-	1	-	-
Corixidae	1	4	2	3	3	2	-	-
Dytiscidae	-	-	1	-	-	-	-	-
Elminthidae	-	-	-	-	-	1	-	-
Planorbidae	-	-	-	-	-	2	-	-
Sphaeriidae	-	-	-	-	2	1	-	-
Erpobdellidae	-	-	-	-	1	-	-	-
Asellidae	-	1	-	1	-	-	1	-
Oligochaeta	-	-	-	-	1	-	-	-
Caenidae	-	-	-	-	-	-	1	-
Notonectidae	-	-	-	-	-	-	1	-
caseless caddis	-	-	-	-	-	-	-	1
100 m DOWNSTREAM								
Caenidae	-	-	1	-	-	-	2	-
Gammaridae	2	1	1	-	1	-	-	-
Corixidae	-	-	-	-	1	1	-	-
Dytiscidae	-	-	-	1	-	-	-	-
Sphaeriidae	1	-	-	-	-	-	-	-
Elminthidae	-	-	-	-	-	-	1	-
Philopotamidae	-	-	-	-	-	-	-	1
1000 m DOWNSTREAM								
Brachycentridae	2	-	15	-	3	1	-	-
Corixidae	-	1	-	-	-	-	-	-
Dytiscidae	-	1	-	-	-	-	-	-
Hydrophilidae	-	-	1	-	-	-	-	-
Planorbidae	-	-	-	-	-	1	-	-

Taxa / Site	Live animals						dead	distressed
	1	2	3	4	5	6		
1000 m DOWNSTREAM (contd)								
Glossiphoniidae	-	1	-	-	-	-	-	-
Asellidae	-	-	-	1	-	-	-	-

TREATMENT DAY - BLANDFORD - NOCTURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Ephemeridae	1	1	1	1	3	1	-	-
Caenidae	-	-	1	-	1	1	-	-
Gammaridae	-	1	1	1	3	4	-	-
Corixidae	15	10	16	10	7	10	-	-
Elminthidae	-	-	-	-	-	1	-	-
Hydropsychidae	1	-	-	-	-	-	3	-
Baetidae	-	-	1	-	-	-	-	-
Sialidae	-	-	-	-	1	-	-	-
Planorbidae	-	1	-	1	-	-	-	-
Asellidae	1	-	-	-	1	-	-	-
Veliid	-	-	-	1	-	-	-	-
20 m DOWNSTREAM								
Ephemeridae	4	2	3	6	10	5	-	-
Caenidae	1	6	22	-	3	7	1	-
Gammaridae	1	-	-	-	-	-	-	-
Corixidae	5	-	1	3	4	3	-	-
Gyrinidae	1	-	-	-	-	-	-	-
Elminthidae	-	-	1	-	-	-	-	-
Hydropsychidae	-	-	-	-	1	1	-	-
Asellidae	-	-	-	-	1	-	-	-
Baetidae	-	-	-	-	-	-	-	1

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
50 m DOWNSTREAM								
Ephemerellidae	-	-	1	-	-	-	-	-
Ephemeridae	14	15	31	2	14	22	-	-
Philopotamidae	-	-	1	-	-	-	-	-
Caenidae	14	3	1	2	-	-	-	-
Polycentropodidae	2	1	1	-	-	-	-	-
Limnephilidae	1	-	-	-	-	-	-	-
Gammaridae	1	1	1	-	-	-	-	-
Corixidae	6	4	3	-	1	4	-	-
Gyrinidae	-	1	-	-	-	-	-	-
Hydropsychidae	-	-	2	-	-	-	-	-
Baetidae	1	-	1	1	-	-	1	-
Sialidae	2	-	-	-	-	-	-	-
Lymnaeidae	1	-	-	-	-	-	-	-
Erpobdellidae	-	-	-	-	-	2	-	-
Asellidae	1	2	3	-	-	4	-	-
100 m DOWNSTREAM								
Ephemerellidae	2	1	-	-	-	-	-	-
Ephemeridae	10	5	3	7	17	8	-	-
Odontoceridae	-	-	-	1	-	-	-	-
Caenidae	1	-	1	1	-	-	-	-
Gammaridae	-	-	1	-	-	-	-	-
Corixidae	3	4	-	2	6	2	-	-
Dytiscidae	-	-	1	-	-	1	-	-
Gyrinidae	-	1	-	-	1	-	-	-
Baetidae	1	-	-	1	-	-	1	-
Sialidae	-	1	-	-	-	-	-	-
Erpobdellidae	-	-	-	-	1	2	-	-

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
100 m DOWNSTREAM (contd)								
Asellidae	1	-	-	-	1	-	-	-
Beetle larva	-	-	-	-	-	-	1	-
1000 m DOWNSTREAM								
Leptoceridae	-	-	-	1	-	-	-	-
Brachycentridae	-	1	-	-	-	-	-	-
Hydrophilidae	-	1	-	-	-	-	-	-
Dytiscidae	1	1	-	-	-	-	-	-
Hydropsychidae	-	-	-	1	-	-	-	-

TREATMENT DAY - WIMBORNE - DIURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Ephemeridae	1	-	-	-	-	-	-	-
Gammaridae	1	-	-	-	1	-	-	1
Corixidae	1	-	-	-	-	1	1	-
Dytiscidae	-	-	-	1	-	-	-	-
Elminthidae	-	-	-	-	-	1	-	-
Hydropsychidae	-	1	-	-	-	-	-	-
Planorbidae	-	-	-	-	-	1	-	-
Asellidae	-	1	-	-	1	-	-	-
20 m DOWNSTREAM								
Ephemeridae	1	1	-	-	-	-	-	-
Leptoceridae	-	-	-	-	1	-	-	-
Agriidae	-	-	-	1	-	-	-	-
Limnephilidae	1	-	1	-	-	1	-	-
Corixidae	-	-	1	-	-	-	1	-
Elminthidae	-	1	1	-	1	1	1	1
Hydropsychidae	-	-	-	1	-	-	-	-
Baetidae	-	1	-	-	-	-	-	-
Planorbidae	-	-	-	-	1	-	-	-
Asellidae	1	1	2	1	-	-	-	-

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
50 m DOWNSTREAM								
Gammaridae	-	1	-	-	-	-	-	-
Corixidae	1	1	-	1	-	-	-	-
Hygrobiidae	-	-	-	-	-	1	-	-
Elminthidae	1	1	-	1	-	-	2	-
Planorbidae	-	-	1	-	-	-	-	-
Erpobdellidae	-	-	1	-	1	-	-	-
Asellidae	1	-	1	1	1	-	-	-
100 m DOWNSTREAM								
Brachycentridae	1	-	-	-	-	-	-	-
Limnephilidae	1	-	-	1	-	-	-	-
Gammaridae	-	-	-	-	-	1	-	-
Elminthidae	1	-	-	-	-	-	-	-
Baetidae	-	-	-	-	-	1	-	-
1000 m DOWNSTREAM								
Limnephilidae	-	-	-	-	1	-	-	-
Corixidae	-	1	-	-	-	-	-	-
Dytiscidae	-	2	-	1	-	-	-	-
Elminthidae	-	-	-	1	-	-	-	-
Baetidae	-	1	-	-	-	-	-	-
Planorbidae	-	-	1	-	-	-	-	-

TREATMENT DAY - WIMBORNE - NOCTURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Ephemeridae	1	1	2	-	-	1	-	1
Caenidae	5	3	4	2	2	2	-	-
Gammaridae	2	-	-	-	2	1	-	-
Corixidae	1	2	1	8	2	2	-	-
Dytiscidae	2	-	1	2	1	-	-	-
Gyrinidae	1	-	-	-	-	-	-	-
Elminthidae	-	-	-	-	-	1	-	-
Baetidae	3	-	-	1	-	-	-	-
Lymnaeidae	-	-	-	1	-	-	-	-
Glossiphoniidae	-	-	-	1	-	-	-	-
Erpobdellidae	1	-	-	-	-	-	-	-
Asellidae	-	-	-	1	-	-	-	-
20 m DOWNSTREAM								
Ephemeridae	1	1	1	-	-	-	-	-
Brachycentridae	-	-	1	-	1	-	-	-
Caenidae	-	-	-	1	-	-	-	-
Gammaridae	3	5	1	-	5	-	-	-
Corixidae	3	5	6	6	3	3	-	-
Dytiscidae	-	-	1	-	-	-	-	-
Helodidae	-	-	-	-	1	-	-	-
Elminthidae	-	-	-	-	1	-	-	-
Hydropsychidae	-	-	1	-	-	-	-	-
Baetidae	-	1	1	1	-	2	-	-
Planorbidae	-	-	-	-	-	1	-	-
Erpobdellidae	1	-	-	-	-	-	-	-
Asellidae	-	2	3	-	1	-	-	-

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
50 m DOWNSTREAM								
Ephemeridae	-	-	1	1	-	2	-	-
Leptoceridae	-	-	-	-	1	-	-	-
Caenidae	1	2	-	6	-	1	-	-
Polycentropodidae	-	-	-	-	1	-	-	-
Gammaridae	1	1	-	1	-	2	-	-
Corixidae	8	1	3	4	4	4	-	-
Dytiscidae	1	3	1	-	-	-	-	-
Gyrinidae	1	-	1	-	2	-	-	-
Baetidae	3	3	-	1	4	5	-	-
Sialidae	1	-	1	1	-	-	-	-
Asellidae	1	-	1	-	-	2	-	-
100 m DOWNSTREAM								
Ephemeridae	1	-	1	-	-	1	-	-
Caenidae	-	-	-	1	-	-	-	-
Gammaridae	1	1	-	-	-	-	-	-
Corixidae	-	-	-	1	-	2	-	-
Dytiscidae	1	1	-	-	-	1	-	-
Hydropsychidae	-	-	-	-	-	1	-	-
Baetidae	-	1	1	-	-	2	-	-
Asellidae	-	-	-	1	-	1	-	-
1000 m DOWNSTREAM								
Caenidae	-	-	-	-	1	-	1	-
Limnephilidae	-	1	-	-	-	-	-	-
Dytiscidae	-	-	1	1	-	-	-	-
Asellidae	1	-	-	-	-	-	-	-

TREATMENT DAY + 1 - BLANDFORD - DIURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Limnephilidae	-	-	-	1	-	-	-	-
Corixidae	1	-	-	-	-	-	-	-
Erpobdellidae	-	-	-	-	-	1	-	-
Asellidae	-	-	-	1	1	1	-	-
20 m DOWNSTREAM								
Ephemeridae	1	-	8	-	-	-	1	-
Corixidae	-	-	5	2	-	1	-	-
Hydrobiidae	-	1	-	-	-	-	-	-
Erpobdellidae	-	-	-	1	-	-	-	-
Asellidae	-	-	-	1	-	-	1	-
50 m DOWNSTREAM								
Ephemerellidae	1	-	1	-	-	-	-	-
Caenidae	-	-	1	1	-	-	-	1
Limnephilidae	-	1	-	-	-	-	-	-
Corixidae	-	1	-	-	1	1	-	-
Hydropsychidae	-	-	-	1	-	-	-	-
Lymnaeidae	-	-	-	-	-	1	-	-
Planorbidae	-	-	-	1	-	-	-	-
Erpobdellidae	1	-	-	-	1	1	-	-
Asellidae	-	-	-	1	1	1	-	-
Gammaridae	-	-	-	-	-	-	-	1
Diptera larva	-	-	-	-	1	-	-	-

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
100 m DOWNSTREAM								
Ephemerellidae	-	1	3	-	-	-	-	-
Ephemeridae	-	-	-	1	-	1	1	-
Leptoceridae	-	-	1	-	-	-	-	-
Polycentropodidae	-	-	1	-	-	-	-	-
Limnephilidae	-	-	1	-	-	-	-	-
Gammaridae	-	-	-	1	-	-	-	-
Corixidae	-	-	-	1	4	-	-	-
Dytiscidae	-	-	-	-	-	1	-	-
Hydropsychidae	1	-	-	-	1	-	-	-
Planorbidae	-	-	1	-	-	-	-	-
Sphaeriidae	-	-	-	-	-	1	-	-
Erpobdellidae	-	1	1	-	-	1	-	-
Asellidae	-	-	3	2	2	-	-	-
Caenidae	-	-	-	-	-	-	2	-
Baetidae	-	-	-	-	-	-	1	-
1000 m DOWNSTREAM								
Ephemerellidae	-	1	-	-	-	-	-	-
Brachycentridae	-	1	1	-	-	-	-	-
Corixidae	1	-	-	-	-	-	-	-
Dytiscidae	1	-	-	-	-	-	-	-
Lymnaeidae	1	-	-	-	-	-	-	-
Sphaeriidae	1	-	-	-	-	-	-	-
Asellidae	-	-	-	-	-	1	-	-
Oligochaeta	-	-	1	-	-	-	-	-
Caenidae	-	-	-	-	-	-	-	1

TREATMENT DAY + 1 - BLANDFORD - NOCTURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Ephemeridae	5	1	1	2	1	1	-	-
Agriidae	-	1	-	-	-	-	-	-
Gammaridae	-	3	2	1	2	4	-	-
Corixidae	9	8	3	6	18	3	-	-
Dytiscidae	-	-	-	1	1	-	-	-
Gyrinidae	-	-	1	-	-	-	-	-
Hydropsychidae	-	-	2	-	-	1	-	-
Asellidae	-	1	-	1	-	-	-	-
20 m DOWNSTREAM								
Ephemeridae	33	48	55	51	51	54	-	-
Agriidae	1	-	1	-	1	-	-	-
Caenidae	1	6	6	2	3	-	-	-
Polycentropodidae	-	-	-	-	-	1	-	-
Limnephilidae	1	-	1	-	-	-	-	-
Gammaridae	-	2	-	1	-	-	-	-
Corixidae	5	10	3	4	5	4	-	-
Gyrinidae	-	-	1	-	-	-	-	-
Elminthidae	-	-	1	-	-	-	-	-
Baetidae	-	-	-	-	1	-	-	-
Sialidae	-	-	3	-	-	-	-	-
Asellidae	-	-	-	1	-	1	-	-

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
50 m DOWNSTREAM								
Ephemeridae	39	56	58	58	45	26	-	-
Agriidae	-	1	-	-	-	-	-	-
Caenidae	1	5	-	2	1	1	-	-
Gammaridae	1	-	1	4	3	4	-	-
Corixidae	9	6	10	4	2	3	-	-
Dytiscidae	-	-	-	1	-	-	-	-
Elminthidae	-	2	-	-	-	-	-	-
Hydropsychidae	-	-	-	-	-	1	1	-
Baetidae	-	-	-	-	-	1	-	-
Sialidae	2	1	-	2	-	1	-	-
Erpobdellidae	-	-	-	1	-	-	-	-
Asellidae	-	-	1	1	-	-	-	-
100 m DOWNSTREAM								
Ephemeridae	7	5	12	4	2	5	-	-
Caenidae	-	-	5	2	-	-	-	-
Limnephilidae	-	1	-	-	-	-	-	-
Gammaridae	1	1	-	1	4	-	-	-
Corixidae	2	4	7	-	-	2	-	-
Baetidae	-	-	1	-	-	-	1	-
Asellidae	-	-	1	-	-	1	-	-
1000 m DOWNSTREAM								
Aphelocheiridae	-	-	1	-	-	-	-	-
Brachycentridae	-	-	-	1	1	-	-	-
Dytiscidae	-	-	1	-	-	-	-	-
Planorbidae	-	-	-	-	1	-	-	-

TREATMENT DAY + 1 - WIMBORNE - DIURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Corixidae	1	-	-	1	-	-	-	-
Dytiscidae	-	-	-	-	-	1	-	-
Planorbidae	-	-	1	-	-	-	-	-
Erpobdellidae	-	-	-	-	-	1	-	-
20 m DOWNSTREAM								
Leptoceridae	-	-	1	-	-	-	-	-
Gammaridae	-	-	-	1	-	-	1	-
Asellidae	-	-	-	1	-	-	-	-
Haliplidae	-	-	-	-	-	-	1	-
50 m DOWNSTREAM								
Gammaridae	-	-	-	1	1	-	-	-
Corixidae	1	-	1	-	1	-	-	-
Dytiscidae	2	-	-	-	-	-	-	-
Lymnaeidae	-	-	-	-	1	-	-	-
Erpobdellidae	-	-	-	-	-	1	-	-
Asellidae	-	1	1	1	-	-	-	-
100 m DOWNSTREAM								
Gammaridae	-	-	-	-	1	-	-	-
Corixidae	-	-	-	1	-	-	-	-
Dytiscidae	1	-	-	-	-	1	-	-
Elminthidae	-	1	-	-	-	-	-	-

Taxa / Site	Live animals						dead	distressed
	1	2	3	4	5	6		
1000 m DOWNSTREAM								
Corixidae	-	1	-	-	-	-	-	-
Dytiscidae	-	-	-	-	-	1	-	-
Elminthidae	-	1	-	-	-	-	-	-
Baetidae	-	-	-	-	1	-	-	-
Asellidae	-	-	-	-	1	-	-	-

TREATMENT DAY + 1 - WIMBORNE - NOCTURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Ephemeridae	-	2	2	-	1	-	-	-
Agriidae	-	-	1	-	-	-	-	-
Gammaridae	1	-	-	-	-	1	-	-
Corixidae	1	3	4	2	6	5	-	-
Dytiscidae	-	-	2	-	1	4	-	-
Gyrinidae	-	-	1	-	-	-	-	-
Sialidae	-	1	-	-	-	-	-	-
Asellidae	1	-	-	-	-	1	-	-
20 m DOWNSTREAM								
Ephemeridae	-	1	-	-	-	1	-	-
Caenidae	-	1	-	-	-	-	-	-
Rhyacophilidae	-	-	-	-	-	1	-	-
Polycentropodidae	-	-	1	-	-	-	-	-
Limnephilidae	-	-	1	-	-	-	-	-
Gammaridae	1	-	2	3	3	2	-	-
Corixidae	-	3	1	5	4	6	-	-
Dytiscidae	-	-	-	1	1	2	-	-
Gyrinidae	-	1	-	-	-	-	-	-
Hydropsychidae	1	-	-	-	-	1	-	-
Baetidae	-	-	3	1	1	-	-	-
Sialidae	-	-	-	-	-	2	-	-
Glossiphoniidae	-	-	1	-	-	-	-	-
Erpobdellidae	-	1	-	-	-	-	-	-
Asellidae	-	1	3	1	3	-	-	-

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
50 m DOWNSTREAM								
Ephemeridae	1	1	2	1	-	4	-	-
Rhyacophilidae	-	-	-	-	1	-	-	-
Gammaridae	1	-	-	-	-	2	-	-
Corixidae	4	2	4	6	6	7	-	-
Dytiscidae	-	-	2	2	-	1	-	-
Gyrinidae	-	-	3	-	-	1	-	-
Baetidae	1	-	-	-	-	-	-	-
Sialidae	-	1	-	1	-	3	-	-
Sphaeriidae	1	-	-	-	-	-	-	-
Asellidae	1	4	2	1	2	3	-	-
100 m DOWNSTREAM								
Ephemeridae	-	-	-	-	-	2	-	-
Polycentropodidae	-	-	-	-	1	-	-	-
Gammaridae	-	-	1	-	-	-	-	-
Corixidae	-	-	-	-	-	1	-	-
Dytiscidae	-	-	1	-	-	-	-	-
Baetidae	1	-	-	-	-	-	-	-
Hydrobiidae	-	1	-	-	-	-	-	-
Asellidae	-	-	1	5	-	-	-	-
1000 m DOWNSTREAM								
No animals present								

TREATMENT DAY + 28 DAYS - BLANDFORD - DIURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Ephemerellidae	-	-	-	-	-	7	-	-
Neritidae	1	-	-	-	-	-	-	-
Gammaridae	1	5	1	-	4	-	-	-
Corixidae	-	-	-	-	-	7	-	-
Helodidae	2	1	-	-	3	-	-	-
Hydropsychidae	6	-	-	-	-	3	-	-
Baetidae	-	-	-	-	-	9	-	-
Hydrobiidae	-	-	-	4	-	-	-	-
Planorbidae	-	11	8	-	-	-	-	-
Asellidae	-	-	-	-	-	7	-	-
Oligochaeta	-	-	-	-	2	-	-	-
Hydracarina	5	4	-	1	6	-	-	-
20 m DOWNSTREAM								
Hydropsychidae	-	-	-	-	-	-	4	-
50 m DOWNSTREAM								
Corixidae	-	-	9	-	-	14	-	-
Baetidae	4	-	4	4	4	-	-	-
Hydracarina	10	6	3	-	1	-	-	-
Diptera larva	6	4	-	-	-	5	-	-

Taxa / Site	Live animals						dead	distressed
	1	2	3	4	5	6		
100 m DOWNSTREAM								
Corixidae	-	-	6	-	-	-	6	-
Hydropsychidae	-	5	-	-	-	-	-	-
Baetidae	1	-	1	1	2	1	-	-
Hydracarina	-	-	-	-	-	-	7	-
1000 m DOWNSTREAM								
Baetidae	-	-	-	2	-	-	-	-
Hydracarina	5	-	1	4	-	-	-	-

TREATMENT DAY + 28 DAYS - WIMBORNE - DIURNAL DRIFT.

Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Hydracarina	77	59	8	-	-	48	-	-
20 m DOWNSTREAM								
Neritidae	-	-	-	12	-	-	-	-
Dytiscidae	1	6	4	-	-	-	-	-
Sphaeriidae	-	-	-	9	-	-	-	-
Hydracarina	31	147	154	107	100	-	-	-
Ceratopogonidae	1	-	-	10	-	-	-	-
50 m DOWNSTREAM								
Dytiscidae	10	3	-	3	7	-	-	-
Asellidae	10	1	-	-	-	-	-	-
Hydracarina	51	48	35	26	10	-	-	-
100 m DOWNSTREAM								
Ephemeridae	-	-	13	-	-	-	-	-
Hydracarina	-	22	23	-	14	-	-	-
1000 m DOWNSTREAM								
Gammaridae	-	-	-	10	-	-	-	-
Asellidae	3	8	6	-	-	6	-	-
Hydracarina	26	25	15	-	21	12	-	-

TREATMENT DAY + 70 DAYS - BLANDFORD - DIURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Ephemerellidae	2	-	5	3	-	2	121	-
Brachycentridae	-	6	26	13	3	-	-	-
Caenidae	-	-	-	-	-	-	48	-
Neritidae	-	11	-	-	-	-	-	-
Hydrophilidae	4	5	4	-	-	-	-	-
Sphaeriidae	-	-	-	-	-	10	-	-
Asellidae	-	-	20	9	20	-	-	-
Oligochaeta	-	-	-	-	-	23	-	-
Hydracarina	12	10	4	10	1	-	-	-
20 m DOWNSTREAM								
Ephemerellidae	-	-	-	-	-	-	3	-
Brachycentridae	-	7	6	4	4	-	-	-
50 m DOWNSTREAM								
Ephemerellidae	11	61	-	12	7	-	5	-
Leuctridae	-	-	6	6	-	-	-	-
Brachycentridae	8	1	-	11	-	2	-	-
Caenidae	-	-	-	-	-	-	16	-
Lymnaeidae	-	-	-	-	13	-	-	-
Planorbidae	-	-	-	-	11	-	-	-
Oligochaeta	-	7	10	-	9	-	-	-
Hydracarina	-	17	-	15	-	12	-	-

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
100 m DOWNSTREAM								
Ephemerellidae	15	14	38	7	15	10	8	-
Ephemeridae	-	-	-	-	-	12	-	-
Brachycentridae	-	-	-	-	-	17	-	-
Caenidae	-	-	-	-	-	-	13	-
Ancylidae	-	-	-	11	-	-	-	-
Dytiscidae	-	-	4	-	-	8	-	-
Elminthidae	-	1	5	-	-	-	6	-
Oligochaeta	6	13	18	2	17	-	-	-
Hydracarina	1	1	1	-	6	3	-	-
1000 m DOWNSTREAM								
Ephemerellidae	2	-	-	9	1	-	-	-
Brachycentridae	7	4	10	4	5	6	-	-
Planorbidae	11	-	1	-	-	-	-	-
Oligochacta	-	-	7	3	-	2	-	-
Hydracarina	1	-	-	9	2	-	23	-

TREATMENT DAY + 70 DAYS - WIMBORNE - DIURNAL DRIFT.
Invertebrate taxa found in drift samples. Numbers of live individuals are recorded for each of 6 hourly drift samples taken on each occasion. Total numbers of dead and distressed animals are also given.

Taxa / Site	Live animals						dead	distressed
	1	2	3	4	5	6		
CONTROL								
Ephemerellidae	-	1	5	-	3	3	24	-
Brachycentridae	-	-	48	-	15	9	-	-
Caenidae	3	-	9	7	5	-	-	-
Baetidae	1	2	1	4	3	1	-	-
Hydracarina	7	3	5	-	-	9	-	-
20 m DOWNSTREAM								
Ephemerellidae	-	-	8	6	10	-	12	-
Leptoceridae	5	-	3	4	-	-	-	-
Brachycentridae	85	62	55	23	39	-	-	-
Caenidae	3	3	4	-	7	7	-	-
Elminthidae	2	1	2	-	3	4	-	-
Glossiphoniidae	7	-	-	3	-	2	-	-
Asellidae	-	-	-	7	3	2	-	-
Oligochaeta	2	-	5	3	2	-	-	-
Hydracarina	8	-	-	10	-	6	-	-
50 m DOWNSTREAM								
Ephemerellidae	59	-	-	25	-	12	12	-
Brachycentridae	-	-	12	10	7	7	-	-
Caenidae	2	2	-	3	5	-	-	-
Gammaridae	8	-	-	-	7	9	-	-
Baetidae	3	1	1	1	3	3	-	-
Asellidae	5	3	-	7	-	9	-	-
Hydracarina	8	7	9	-	9	3	12	-

Taxa Site	Live animals						dead	distressed
	1	2	3	4	5	6		
100 m DOWNSTREAM								
Ephemerellidae	2	1	3	-	3	3	24	-
Caenidae	2	4	-	10	5	3	-	-
Gammaridae	2	3	-	3	4	-	-	-
Baetidae	1	5	1	-	3	2	12	-
Hydracarina	5	5	-	3	8	3	-	-
1000 m DOWNSTREAM								
Ephemerellidae	6	2	-	-	2	2	-	-
Aphelocheiridae	-	-	-	-	-	-	12	-
Brachycentridae	5	-	12	3	-	4	-	-
Elminthidae	5	3	-	-	3	1	-	-
Planorbidae	1	1	8	-	-	2	-	-
Hydracarina	23	14	10	-	33	16	-	-

APPENDIX 12

Number of live and dead Simuliidae and

Chironomidae in drift samples

Number of live and dead Simuliidae found in each one hour drift sample at Blandford.

Day and Time	Distance downstream									
	Control		20		50		100		1000	
	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead
Pretreatment Diurnal	16	-	-	-	16	-	-	-	-	-
	16	-	-	-	-	-	-	-	-	-
	16	-	-	-	-	-	-	-	-	-
	32	-	16	-	-	26	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	16	-	-	-	-	-	-	-	-	-
Pretreatment Nocturnal	-	-	-	-	1	-	5	-	-	-
	4	-	5	-	-	-	2	-	-	-
	-	-	-	-	-	-	-	-	-	-
	1	-	2	-	-	-	-	-	1	-
	1	-	-	-	1	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
Treatment Diurnal	64	-	32	-	-	16	-	16	-	-
	16	16	-	-	-	-	16	16	16	-
	608	-	-	48	48	-	-	-	-	-
	192	64	48	32	-	-	16	32	-	-
	-	32	16	-	-	-	-	64	-	-
	-	-	-	-	-	32	-	32	-	-
Treatment Nocturnal	-	-	-	1	1	-	1	4	-	-
	-	-	-	-	-	2	-	-	-	-
	-	-	-	2	-	1	-	4	-	-
	-	-	-	-	-	-	-	-	-	-
	-	1	-	1	-	2	-	10	-	-
	-	1	-	1	-	1	-	2	-	-

Day and Time	Distance downstream									
	Control		20		50		100		1000	
	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead
Treatment + 1 Diurnal	-	-	-	16	-	16	-	48	-	48
	-	-	-	32	-	48	-	160	-	256
	-	-	-	-	-	528	-	32	-	128
	-	-	16	64	-	32	-	736	-	80
	-	-	-	-	-	64	-	176	8	224
	48	-	-	-	-	496	-	192	-	128
Treatment + 1 Nocturnal	1	-	-	-	-	-	-	-	-	-
	-	1	1	-	-	-	-	-	-	-
	-	1	1	-	-	-	-	-	-	-
	-	1	-	-	-	2	-	-	-	1
	-	-	-	-	3	1	-	-	-	-
	-	-	-	-	-	1	-	-	-	-
Treatment + 28 Diurnal	864	-	6	-	-	-	12	-	6	-
	84	12	-	-	-	-	-	-	-	-
	126	6	-	-	-	-	-	-	-	-
	84	-	-	-	-	-	-	-	-	-
	180	-	-	-	-	-	-	-	-	-
	210	-	-	-	-	-	-	-	-	-
Treatment + 70 Diurnal	72	12	-	-	-	-	12	-	12	-
	-	12	-	-	-	-	-	-	-	-
	72	12	-	-	-	-	-	12	-	-
	24	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

Number of live and dead Chironomidae found in each one hour drift sample at Blandford.

Day and Time	Distance downstream									
	Control		20		50		100		1000	
	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead
Pretreatment Diurnal	-	16	-	-	16	-	16	16	-	-
	-	-	-	-	32	-	-	-	-	-
	48	-	-	-	-	-	48	-	-	-
	32	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	16	-	-
	16	-	-	-	32	48	32	-	-	-
Pretreatment Nocturnal	-	-	-	-	3	-	2	-	-	-
	-	-			-	-	-	-		
	-	-			-	-	-	-		
	-	-					-	-	-	-
	-	-					4	-		
	-	-					-	-		
Treatment Diurnal	-	-	32	-	32	32	16	-	-	-
	32	-	16	-	32	16	16	16	-	-
	-	-	-	-	16	32	-	-	-	-
	-	16	32	-	16	-	-	-	-	-
	-	-	-	-	16	32	16	-	32	-
	16	-	-	-	16	-	-	-	-	-
Treatment Nocturnal	-	-	-	-	-	-	-	-	2	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	1	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	1	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

Day and Time	Distance downstream									
	Control		20		50		100		1000	
	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead
Treatment + 1 Diurnal	16	-	-	-	-	-	16	-	-	-
	16	-	-	-	-	-	-	-	-	-
	-	-	-	-	16	-	-	-	-	-
	16	-	-	-	16	-	-	32	16	-
	-	-	-	-	-	-	16	16	-	-
	16	-	-	-	32	16	-	-	-	-
Treatment + 1 Nocturnal	-	-	1	-	-	-	-	-	-	-
	-	-	2	-	-	-	-	-	-	-
	1	-	2	1	-	-	-	-	-	-
	-	-	1	-	-	-	2	-	-	-
	1	-	-	-	2	-	-	-	-	-
	-	-	-	-	1	-	-	-	1	-
Treatment + 28 Diurnal	-	6	6	12	12	-	-	6	12	-
	-	-	-	-	24	-	-	6	-	-
	-	-	-	-	-	-	6	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
Treatment + 70 Diurnal	120	-	12	-	24	-	24	-	12	-
	272	12	12	12	12	-	36	-	-	-
	-	-	36	-	12	-	12	-	-	-
	-	-	-	-	72	-	48	12	-	-
	-	-	-	-	12	12	12	-	-	-
	-	-	-	-	36	-	132	36	-	-

Number of live and dead Simuliidae found in each one hour drift sample at Wimborne.

Day and Time	Distance downstream									
	Control		20		50		100		1000	
	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead
Pretreatment Diurnal	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	3	-	-	-	1	-
	1	-	-	-	-	-	1	-	-	-
	-	-	-	-	1	-	-	-	-	-
	-	-	1	-	1	-	1	-	1	-
	-	-	1	-	2	-	-	-	-	-
Pretreatment Nocturnal	-	-	-	-	-	1	-	48	-	-
	-	-	-	16	1	-	-	3	-	2
	-	-	-	16	-	2	-	-	-	1
	-	-	-	16	-	-	-	4	-	-
	-	-	-	16	4	1	-	16	-	16
	-	-	-	-	-	-	-	6	-	-
Treatment Diurnal	-	-	3	3	-	3	-	1	1	1
	1	-	3	-	1	-	-	1	1	-
	-	-	2	1	1	-	1	1	1	-
	-	-	12	-	4	-	-	-	-	1
	7	-	3	4	1	1	-	3	-	-
	-	-	-	-	1	1	-	1	1	-
Treatment Nocturnal	-	-	-	-	-	1	-	48	-	-
	-	-	-	1	1	-	-	3	-	2
	-	-	-	1	-	2	-	-	-	1
	-	-	-	1	-	-	-	4	-	-
	-	-	-	1	4	1	-	16	-	1
	-	-	-	-	-	-	-	6	-	-

Day and Time	Distance downstream									
	Control		20		50		100		1000	
	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead
Treatment + 1 Diurnal	-	-	-	6	-	-	-	25	-	18
	-	-	-	7	1	10	4	12	1	16
	1	1	-	7	-	5	-	13	1	12
	-	-	1	8	1	7	-	5	2	7
	-	-	-	48	-	7	-	18	-	-
	-	-	-	-	-	6	-	48	1	8
Treatment + 1 Nocturnal	-	-	-	16	-	16	-	-	-	1
	-	-	-	1	-	-	-	16	-	16
	-	-	-	16	-	16	-	96	-	3
	-	-	1	64	-	-	-	48	-	16
	-	-	1	32	1	1	-	16	-	5
	1	-	1	32	-	-	-	16	-	1
Treatment + 28 Diurnal	12	-	12	-	12	-	12	-	12	-
	12	-	24	-	12	-	12	-	24	-
	-	-	-	-	-	-	-	-	12	-
	-	-	-	-	-	-	-	-	108	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
Treatment + 70 Diurnal	36	-	12	-	-	12	-	24	-	12
	-	-	12	-	-	-	-	-	-	-
	-	-	12	12	-	-	-	-	-	-
	-	-	-	12	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

Number of live and dead Chironomidae found in each one hour drift sample at Wimborne.

Day and Time	Distance downstream									
	Control		20		50		100		1000	
	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead
Pretreatment Diurnal	2	1	2	2	5	-	-	-	-	-
	-	-	1	1	1	-	2	-	1	-
	-	-	-	-	2	1	1	-	1	1
	1	-	3	-	-	-	-	-	1	-
	1	-	1	1	2	1	1	-	1	-
	2	1	1	2	2	-	-	-	-	-
Pretreatment Nocturnal	-	-	6	-	-	-	-	-	-	-
	-	-	-	-	3	-	1	-	-	-
	-	-	1	-	-	-	-	-	2	-
	-	-	-	-	3	-	-	-	-	-
	-	-	-	-	-	-	-	-	1	-
	-	-	2	-	1	-	1	-	-	-
Treatment Diurnal	5	-	5	-	2	-	3	-	1	-
	-	-	1	-	8	-	2	-	1	-
	32	1	3	-	3	-	2	-	1	-
	-	-	4	-	-	-	2	-	-	-
	-	1	1	-	3	-	1	1	1	-
	3	-	1	-	-	-	-	-	-	-
Treatment Nocturnal	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	1	-	-
	1	-	-	-	1	-	-	-	1	-
	1	-	-	-	-	-	2	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	16	-	-	-	1	-	-	-

Day and Time	Distance downstream									
	Control		20		50		100		1000	
	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead
Treatment + 1 Diurnal	11	1	3	-	7	-	5	-	6	-
	4	1	4	2	6	-	10	-	1	-
	-	1	7	-	5	-	18	-	4	-
	32	-	3	-	6	-	-	-	3	-
	5	-	6	-	3	-	5	-	7	-
	6	-	5	-	2	1	16	-	2	-
Treatment + 1 Nocturnal	32	-	16	-	16	-	5	-	1	-
	-	-	2	-	16	-	-	-	-	-
	-	-	32	-	-	-	16	-	1	-
	16	-	16	-	16	-	16	-	16	-
	16	-	-	-	3	-	32	-	3	-
	16	-	-	16	32	-	48	-	-	-
Treatment + 28 Diurnal	24	-	12	-	12	-	12	-	12	-
	-	12	12	-	12	-	12	-	-	-
	-	-	24	-	36	-	12	-	-	-
	-	-	24	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
Treatment + 70 Diurnal	72	-	48	-	192	12	12	-	180	-
	-	-	24	-	12	-	-	-	84	24
	-	-	72	12	-	12	-	-	252	12
	-	-	-	12	-	-	-	-	12	-
	-	-	24	-	-	-	-	-	72	-
	-	-	-	-	-	-	-	-	-	-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