

## **Rhos2: Notes from field visits for tensiometers and OLF**

15/06/04	Degassed.
23/06/05	Cut grass
19/07/05	Degassed. Downloaded data and on inspection noticed that all sensors were giving the same, non sensible, readings. This was attributed to a storm event that may have caused some sort of electrical surge in the logger. The same was observed in all manipulation plot loggers
26/07/05	Degassed tensios and cut grass Re-installed tensios at 10 cm depth. Not all but those that were lose as a result of the dry conditions.
01/09/05	Changed the wiring
31/10/05	Data was downloaded. Trap 1 hole was full of water because the pump battery had run out.
10/11/05	Trap 1 full of water and gutter blocked. Do not know for how long it was blocked. Ignore any data between collected in the afternoon of this day.
16/11/06	Trap 3 full of water, evidence of subsurface flow Trap 1+2 no water in the hole Trap 2 blocked
5/12/05	Grass cut by tensios Tensio 3.50 removed for checking as there have been dodgy readings.
15/12/05	Traps removed from the pits to do soil bulk density rings. Ignore any tips during this time
19/12/05	Tensio. 3.10 reinstalled
10/1/06	Tensios degassed Alex removed the sediment trap for plot 2 to extract the sediment. No tips were heard but this took place between 12:30 and 13:15
20/01/06	All working correctly
24/01/06	Work done by Alex, see table below Notes from Alex- tipping bucket removal for sediment sampling

Plot	Date	Time disconnected	Time reconnected	Tips audible
1	24/01/2006	10:24	10:48	

	2	24/01/2006	11:50	12:11	
	3	24/01/2006	12:58	13:26	2
01/02/06	Battery changed for Delta-T logger. Needs new desiccant Traps All working correctly. Batteries changed				
17/02/06	Degassed Tensiometers on 2.3 (no 50cm) Vents checked on all, OK. Traps all working correctly, Battery changed				
19/03/06	Trap 1 sump repaired. Replaced pipe				
20/03/06	Trenches dug above the OLF traps to divert water running down off the field				
23/03/06	T/B trap 1 had come of its mountings Trap 2 sump repaired. Replaced pipe				
04/04/06	~14:35GMT – glued nuts on OLF tipping bucket rockers. Tips at this time should be disregarded.				
05/04/06	~0815-0830GMT – checked glue had set on traps 1 & 3. Tips at this time should be disregarded.				
06/04/06	– re-installed 50cm tension @ plot 3.				
07/04/06	Alex was collecting sediment samples, tips should be ignored between 10 and 6.				
20/04/06	~11:55-13:15 GMT tips should be ignored as checking the nuts were still glued on the t.b. rockers. All ok except trap 1 where nut had come undone – reglued. Degassed tensios. Plot 2.2 30cm tension degassing tube not on properly. Cover missing from tension @ plot 2.3 – Need to take a spare tube next visit. Changed big battery.				
04/05/06	Cut grass and checked vents – all OK Repaired damaged lawn edging on OLF1				
09/05/06	Tested plot 1 t/b. Restarted tiny tag - no apparent problems but recently measured tips at a very different time from those recorded at traps 2 & 3.				
10/05/06	T/bs 2 & 3 checked and appear to be working properly. Reset tiny tag of T1 to measure every 10 minutes as it was recording every 1 minute from the day before.				
18/05/06	Changed battery for OLF. Pit 2 tube was blocked into the TB (grey				

	pipe), this was cleared. Pit 1 tube from gutter blocked (clear tube), cleared giving around 3 tips ~10:30 am
25/05/06	Trap 2 T/B blocked inside TB. Ignore any tips occurring during this time.
31/05/06	Battery changed for OLF, all working OK
1/06/06	Cut grass and degassed
21/06/06	Enlarged pits for housing pump. Ignore tips between 3-6pm. Ground cracking around lawn edging- filled in with soil. Enlarged trench above plots. Need new cover for battery.
22/06/06	Finished above work. Ignore tips between 8-11am.
29/06/06	Replaced damaged lawn edging, cut grass and degassed
05/07/06	Checked big battery- OK 12.61v. Cleared and calibrated OLF for all plots.
07/07/06	Degassed tensios
17/07/06	Degassed tensios
18/07/06	Downloaded. Reset time. Downloaded from t/t plot 1 timing appears ok- restarted. Ignore tips. Degassed and fitted sump covers- ignore tips.
24/07/06	Permeameter. Degassed.
25/07/06	Permeameter
26/07/06	Permeameter. Pump jamming on Rhos 2 plot 1. All 3 Pits lined ignore tips 15:00-17:00 BST
02/08/06	Changed batteries delta t and olf. Downloaded delta t around 08:10GMT. Cage off tensios plot 2, wires appear OK. lawn edging needs repairing at plot 1. downloaded tinytag 0815GMT. Degassed, 2.1 10cm needs reinstalling.
10/08/06	Degassed. Checked t/b. ignore tips 13:30-16:00. trap 2 adjusted and recalibrated as getting some double beeps for single tips. trap 3 checked and ok. Trap one knackered- t/b is ok. Tinytag is broken. Both removed. Reinstalled t10cm at plot 1.
16/08/06	Degassed at around 13:00. tensiometer 2 plot 2 needs reinstalling.
23/08/06	Degassed. Replaced tipping bucket for trap 1. changed big battery.

30/08/06	Replaced lawn edging. Fitted new sump covers.
31/08/06	Changed delta t battery. All working OK
21/09/06	Degassed @~10:00GMT
28/09/06	All tensios degassed. Changed big battery. Plots are looking different from the rest of the field because there are thistles growing in them but the ones in the field have been cut.
12/10/06	8:25 GMT OLF pump batteries changed. Only one pump, trap 2, working. Trap 1 half filled with water
18/10/06	All traps checked, no water in pits and gutters clear. Cut thistles around the plots
27/10/06	Grass in cages cuts
02/11/06	Replaced float switches in all 3 OLF traps but trap 1 pump not working
09/11/06	Replaced pump in OLF trap 1, now working OK
06/12/06	Cut grass
13/12/06	Ignore tips between 10.30-12 and 14.30-15.30 for OLF2.2 Marked out plot corners, checked OLF working ok. Some blockage on plot 2.1 but should be OK now, not major. Broke pipe on 2.2, replaced in pm. Removed leaves from the trenches at the top of the plots
17/01/07	Lawn edging repaired on all plots.
14/03/07	Ring infiltration experiment carried out in the morning.
22/03/07	Cut grass
04/04/07	Ignore tips ~13:00-14:00 GMT . All recording OK. Tensios all seemed OK. De-gassed: plot 1 30cm, plot 3 10, 30 and 50cm few bubbles but all seemed OK.
13/04/07	Downloaded trap 1 tinytag then replaced battery, seal and desiccant.
23/04/07	Degassed all tensios. Cut grass in plot 1 ~ 1400 – 1500
13/06/07	Discovered that sheep had got into tree manipulation area and eaten the tops of most trees. Margaret and Graham said they saw this and shut the gate on the 10/06/07 (I think)

	Removed 3.10 and 3.30 tensios.
15/06/07	Re-installed removed tensios with working ones.
28/06/07	Trap 1 hole full of water, pump not working. Other 2 traps OK Grass cut in control tensio cage.
01/08/07	Pump replaced in trap 1 hole. All pumps working OK.
31/08/07	All traps OK
03/09/07	Re-dug trenches around plots 1 and 2 and marked out survey quadrats
04/09/07	Re-dug trench around plot 3
18/09/07	Destructive harvest in buffer strip of plots
25/09/07	Trap 1 hole full of water, float switch not working properly, emptied water
02/10/07	Float switches cleaned and sprayed with WD40. Cleared gutters. Repaired lawn edging around OLF for 2.1.
09/10/07	Leaf cover off sump in plot 3. Something been digging after voles. All OLF traps OK.
12/10/07	De-gassed all tensios
18/10/07	Noticed that tensios in plot 3 were in ground at slightly different depths. 3.10 data strange, not loose but slight nick in the vent and shrink wrap stuff a little bit loose (also in ground deep) 2.50 data strange in past but seems OK now. Nothing obviously wrong.
24/10/07	Took N cores and checked all traps clear. 13:30 – 14:00 Replaced 50cm tensiometer in Plot 2.2 (giving odd values for certain periods). Reinstalled 10cm tensiometer in plot 2.3 – was giving too high values and thought it might be installed too deep. Noted that Plot 2.3 tips were not right, seemed to be double tipping. Ignore tips during this time. Cut grass in tensiometer cage in control plot
30/10/07	10:20am. Checking tipping buckets. Ignore tips during this time. Plot 2.3 double tipping, but not constantly. Adjusted height. <b>NEEDS RECALIBRATING</b> . Plot 2.2 working OK. Plot 2.1 Nothing on the tiny tag, checked the read switch and that worked fine, on looking at the connections you could see water in the shrink wrap. Re-did the connection and seemed to work OK. Cleared outlet pipes for OLF

	pumps.
27/11/07	All pits OK
08/01/08	<p>All pits OK  Replaced plot 3 10cm tensio but seemed to be in at correct depth. This one was the one with damage to the vent that was repaired with tape. Other tensios in this plot maybe in too shallow.  Plot 2 tensios OK  Plot 1 10cm tensio loose so re-inserted, possibly went in slightly deep because ground so wet: check this.</p>
18/01/08	<p>2.1: detached OLF pipe from TB to sample 09:30-10:00.  2.2: detached OLF pipe from TB to sample 09:45-10:15.  2.3: detached OLF pipe from TB to sample 10:00-10:30.</p>
23/01/08	Pits OK, changed big battery.
29/01/08	Enlarged trenches above the plots to ensure deep enough to cope with volumes of water
11/02/08	Pipe to TB in Plot 2.3 was disconnected, connected back up at 13.30 Checked big battery- OK. All traps OK.
20/02/08	<p>Tipping bucket re-calibration (12:13)  Trap 3: 24 (6,6,6,6)  Replaced plot 3 10cm tensio at around 12:30.</p>
03/03/08	<p><b>Delta T needs new dessicant</b>  Pit 1 water above tipping bucket but not up to level of Tinytag  Pits 1 and 2 pumps not working</p>
13/03/08	<p>Emptied pit 1 of water. Pit 2 had no water in but pits1 and 2 pumps not working. Detached plot 1 pump and was still working OK so problem elsewhere. No obvious damage to wire and seems unlikely that both float switched would go. Did however find that left hand fuse had gone, replaced this but didn't solve the problem.  Re-inserted plot 3 10cm tensio in new hole and de-gassed – no problem with wire.</p>
18/03/08	<p>Pit 1 still not working but switch and pump working fine. Possibly chewed wire although couldn't find close to either end. Put separate battery in pit for power (bit risky!) so working OK. IGNORE TIPS.</p> <p>Pit 2 still not working – found out reason – wires to float switch had been drastically chewed up! Put new float switch in – working OK (new float switch has very thick wires so hopefully resistant to chewing) Wire to TB had also been chewed but not all the way through but will probably have to ignore recent data. Carried out a calibration on pit 2 and after looking at downloaded data noticed that</p>

	<p>these weren't recorded! And before the calibration hundreds of tips recorded (must have been dodgy chewed wire to TB)</p> <p>Plot 3 all OK Put new OK 10cm tensio in trap 3 in new hole.</p> <p>VOLES GOING TO BE BIG PROBLEM – LOTS OF RUNWAYS ABOVE OLF GUTTER AT ALL PLOTS THEREFORE DIVERTING OLF WATER – ASWELL AS THE DAMAGE THEY ARE DOING TO WIRES!!</p>
27/03/08	<p>Pit 1 still OK, battery still had loads of charge.</p> <p>Pit 2 pump still working OK but delta T still not recording tips. Reed switch working OK and when circuit open and closed using wires to delta T this was recorded by logger. Must be something to do with connection between reed switch wires and wires going to delta T, CHECK THIS OUT.</p> <p>Pit 3 OK</p>
02/04/08	Pits all as they were.
15/04/08	<p>Pits all as they were. Discovered that problem with TB in pit 2 is with connection but too wet to repair.</p> <p>Cut grass in control plot tensio cage.</p>
17/04/08	<p>Pit 2: reed switch working and wire to delta T working but when connect up not working! Took out and brought back to Bangor.</p> <p>Trap 3 10cm tensio connection little bit damp, could be cause of weird data, check at end of month.</p>
22/04/08	Imogens soil sampling
30/04/08	Re-inserted plot 2 TB with TinyTag.
06/05/08	Drains installed in all pits.
05/06/08	<p>New OLF gutter covers put out in fenced off plots.</p> <p>Replaced elbows and tubing from OLF gutter to TB – ignore tips.</p>
10/07/08	<p>11:00</p> <p>Plot 1: Reed switch wrong way round - corrected</p> <p>Plot 2: OK</p> <p>Plot 3: Reed switch wrong way round – corrected</p>
25/07/08	Installed wooden boxes in pits to shore up sides.

14/08/08	Plot 2: Ignore around 17 tips at around 13:00 – working OK Plot 3: Ignore around 9 tips at around 13:10 – working OK
09/09/08	09:50 GMT. Checked calibration on all TB and that correct number of tips was recorded by the loggers. All reading OK. The grass was cut in the tensiometer cage.
01/10/08	Cover for the gutter at 2.2 was ripped and had blown off the frame. Cover for 2.3 was ripped in one place. Repaired this on the 02/10/08. Both will need replacing at some stage.
25/11/08	Replaced the covering on the OLF gutters for the treatment plots, dug the pits out and reset the frames for the tipping buckets. Ignore tips from 10-12am. Replaced all tensiometers. Checked trenches above plots and enlarged where required.
08/12/08	Covers removed from the tipping bucket holes at plots 2.2 and 2.3 to help stop vole damage to wires.
20/02/08	Swapped logger with one that was recalibrated.
17/03/09	T1.10 not working – flat lining. Changed to another logger channel 10 and it appears to be working now. Tensiometer 2.30 not working. It was discovered that the rubber tubing had come off. However, it was changed because the porous cup may have dried out. Serial number 243 out and 260 (50 cm) in. 3.10 tensiometer replaced Serial 381 out and 179 in.
24/03/09	Degassed tensios. Cut grass in control plot.
23/04/09	Replaced tensiometers <u>2.50</u> In Serial 260 which was in 2.30 Out serial 214 Depth 54.5 cm <u>2.30</u> In serial 248 Out serial 260 Depth 33 cm
13/05/09	Cut the grass in the tensiometers cage of the control plot. Changed the tensiometers 2.30, 2.50, and 3.30 as they appeared not to be working. Checked the t/b of olf plot 3 and it appeared to be working ok.
19/05/09	Replaced tension 3.30 as it appears still not to be working
08/07/09	Whilst doing olf calib. Discovered that rhos2.2 olf was only reading one tip for every two tips. Replaced read switch and now appears to



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be working properly.

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18/08/09	M2.1	10cm	180	30 cm	388	50 cm	210
	M2.2	10cm	230?	30 cm	238	50 cm	255
	M2.3	10cm	179	30 cm	216*	50 cm	213
	* 50cm tension installed						

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