

To convert discharge from mm/day to a volume unit of liters/day use the following formula:

$$\text{mm/day} * (0.001\text{m/mm}) * \text{total watershed acres} * (4047 \text{ m}^2/\text{acre}) * (1000 \text{ liters/m}^3)$$

Example: HF1 is 30 acres in size. HF1 cumulative postharvest discharge goes from 509 mm to 1334 mm, a difference of 825 mm over 1088 days. This computes to 0.76 mm/day (825mm/1088days).

$$0.76 \text{ mm/day} * (0.001\text{m/mm}) * 30 \text{ acres} * (4047 \text{ m}^2/\text{acre}) * (1000 \text{ liters/m}^3) = 92,271 \text{ liters/day}$$

Here is the number of days to convert other sites and periods -- HF site has 1209 days of discharge data preharvest and 1088 days of discharge data postharvest. UF site has 1087 days of discharge data preharvest and 1210 days of discharge data postharvest. See Figure A for watershed size. See Figure E for discharge in mm/day.

Figure S1. Example of how to convert watershed discharge from mm/day to a volume unit of liters/day.

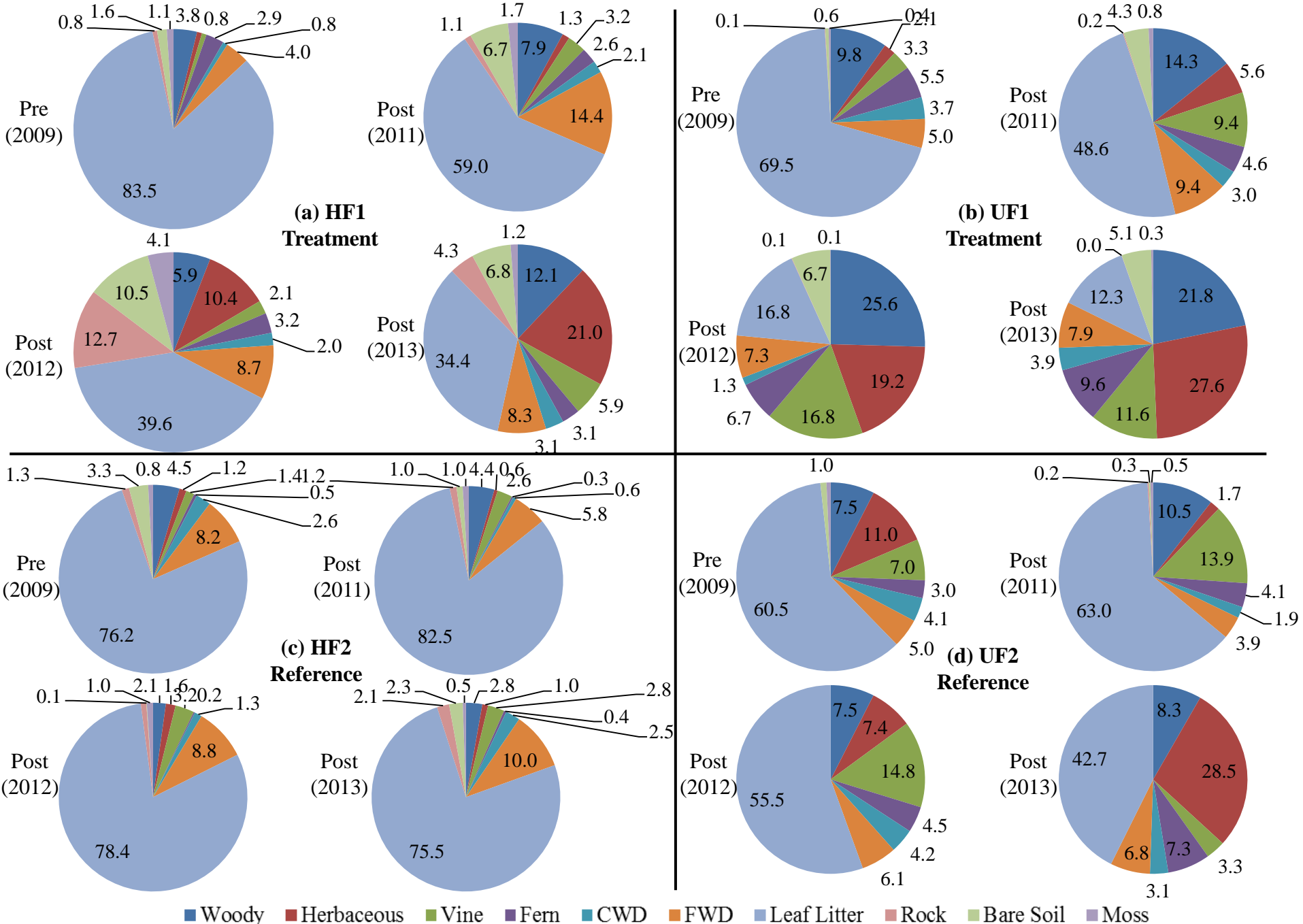


Figure S2. Percent groundcover in treatment watersheds (a) HF1 and (b) UF1 and reference watersheds (c) HF2 and (d) UF2 over monitoring period. CWD – coarse woody debris; FWD – fine woody debris. Ground cover plots were not established in HF1 and HF2. Pre=preharvest; Post=postharvest.

Table S1. Overstory, midstory, and canopy cover characteristics of the vegetated riparian buffer during preharvest and postharvest periods at Hill Demonstration Forest (HF1 and HF2) and Umstead Research Farm (UF1 and UF2).

	Overstory (Pine)		Overstory (Hardwood)		Total Overstory (Pine + Hardwood)		Midstory	Canopy Cover
	Stems	Basal Area	Stems	Basal Area	Stems	Basal Area	Stems	
	(ha ⁻¹)	(m ² ha ⁻¹)	(ha ⁻¹)	(m ² ha ⁻¹)	(ha ⁻¹)	(m ² ha ⁻¹)	(ha ⁻¹)	%
HF1								
Preharvest (2009)	93.8 (52.7)	6.2 (3.6)	459.4 (122.7)	25.6 (4.9)	553.2 (87.7)	31.8 (4.3)	2383 (390)	90 (0.9)
One Year Postharvest (2011)	56.3 (33.9)	4.7 (2.9)	393.8 (108.5)	18.5 (5.7)	450.1 (71.2)	23.2 (4.3)	2242 (339)	69 (5.7)
Two Years Postharvest (2012)	56.3 (33.9)	4.9 (3.0)	384.4 (90.3)	17.0 (4.1)	440.7 (62.1)	21.9 (3.6)	2324 (269)	72 (5.9)
Three Years Postharvest (2013)	56.3 (33.9)	5.2 (3.1)	403.1 (95.0)	18.3 (4.1)	459.4 (64.5)	23.5 (3.6)	2089 (566)	79 (4.0)
HF2								
2009	246.1 (86.3)	13.8 (4.7)	426.6 (145.5)	16.7 (6.8)	672.7 (115.9)	30.5 (5.8)	2885 (550)	93 (0.5)
2011	246.1 (82.0)	14.3 (4.8)	426.6 (137.9)	17.5 (7.0)	672.7 (110.0)	31.8 (5.9)	2756 (573)	92 (1.4)
2012	246.1 (82.0)	14.9 (5.0)	443.0 (126.7)	18.0 (6.9)	689.1 (104.4)	32.9 (6.0)	2510 (537)	95 (1.4)
2013	246.1 (82.0)	15.8 (5.3)	443.0 (126.7)	18.7 (7.1)	689.1 (104.4)	34.5 (6.2)	2264 (552)	93 (0.6)
UF1								
Preharvest (2009)	78.8 (30.6)	15.5 (6.6)	400.3 (49.4)	28.0 (6.8)	479.1 (40.0)	43.5 (6.7)	2503 (542)	85 (1.0)
One Year Postharvest (2011)	32.8 (14.7)	7.7 (3.9)	341.3 (65.5)	15.0 (4.0)	374.1 (40.1)	22.7 (4.0)	2238 (325)	71 (4.7)
Two Years Postharvest (2012)	32.8 (14.7)	7.7 (3.4)	341.3 (59.4)	15.6 (4.0)	374.1 (37.1)	23.3 (3.7)	2323 (492)	70 (5.0)
Three Years Postharvest (2013)	32.8 (14.7)	8.0 (4.0)	315.0 (44.6)	15.6 (3.1)	347.8 (29.7)	23.6 (3.6)	3176 (810)	72 (6.5)
UF2								
2009	0.00 (0.00)	0.00 (0.00)	475.8 (72.8)	36.9 (12.7)	475.8 (36.4)	36.9 (6.35)	1450 (447)	86 (1.0)
2011	0.00 (0.00)	0.00 (0.00)	443.0 (67.7)	38.0 (14.1)	443.0 (33.9)	38.0 (7.05)	1378 (325)	91 (1.2)
2012	0.00 (0.00)	0.00 (0.00)	459.4 (53.6)	40.2 (13.7)	459.4 (26.8)	40.2 (6.85)	2018 (599)	90 (1.3)
2013	0.00 (0.00)	0.00 (0.00)	459.4 (53.6)	41.8 (13.7)	459.4 (26.8)	41.8 (6.85)	1444 (416)	91 (1.0)
Value in parenthesis is standard error.								

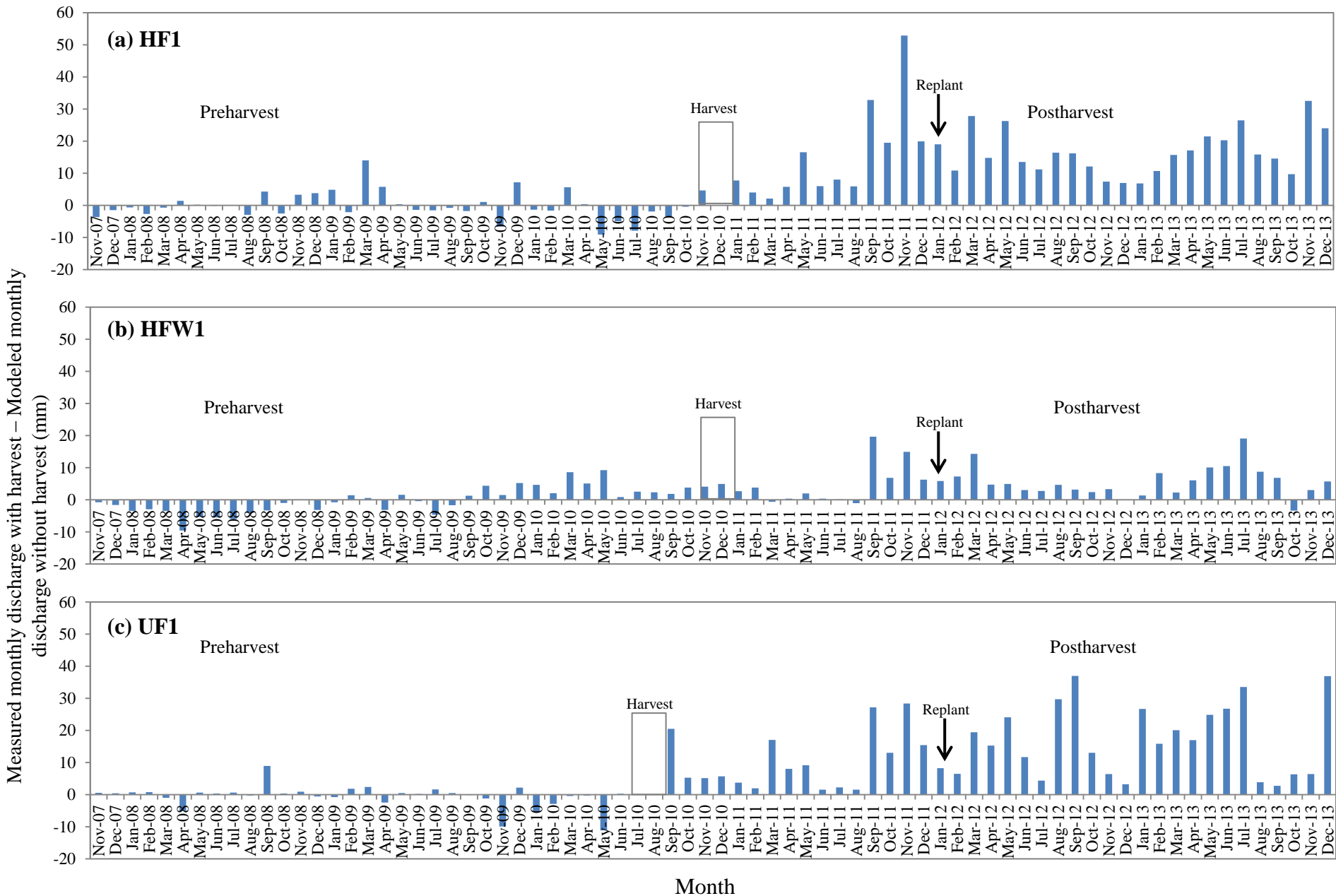


Figure S3. Monthly changes (measured discharge with harvest minus modeled discharge without harvest) in discharge in treatment watersheds (a) HF1, (b) HFW1 and (c) UF1 over monitoring period. Rectangle indicates tree harvest period; HF1 and HFW1 were harvested November 29, 2010 to January 19, 2011 and UF1 was harvested July 7, 2010 to September 8, 2010.

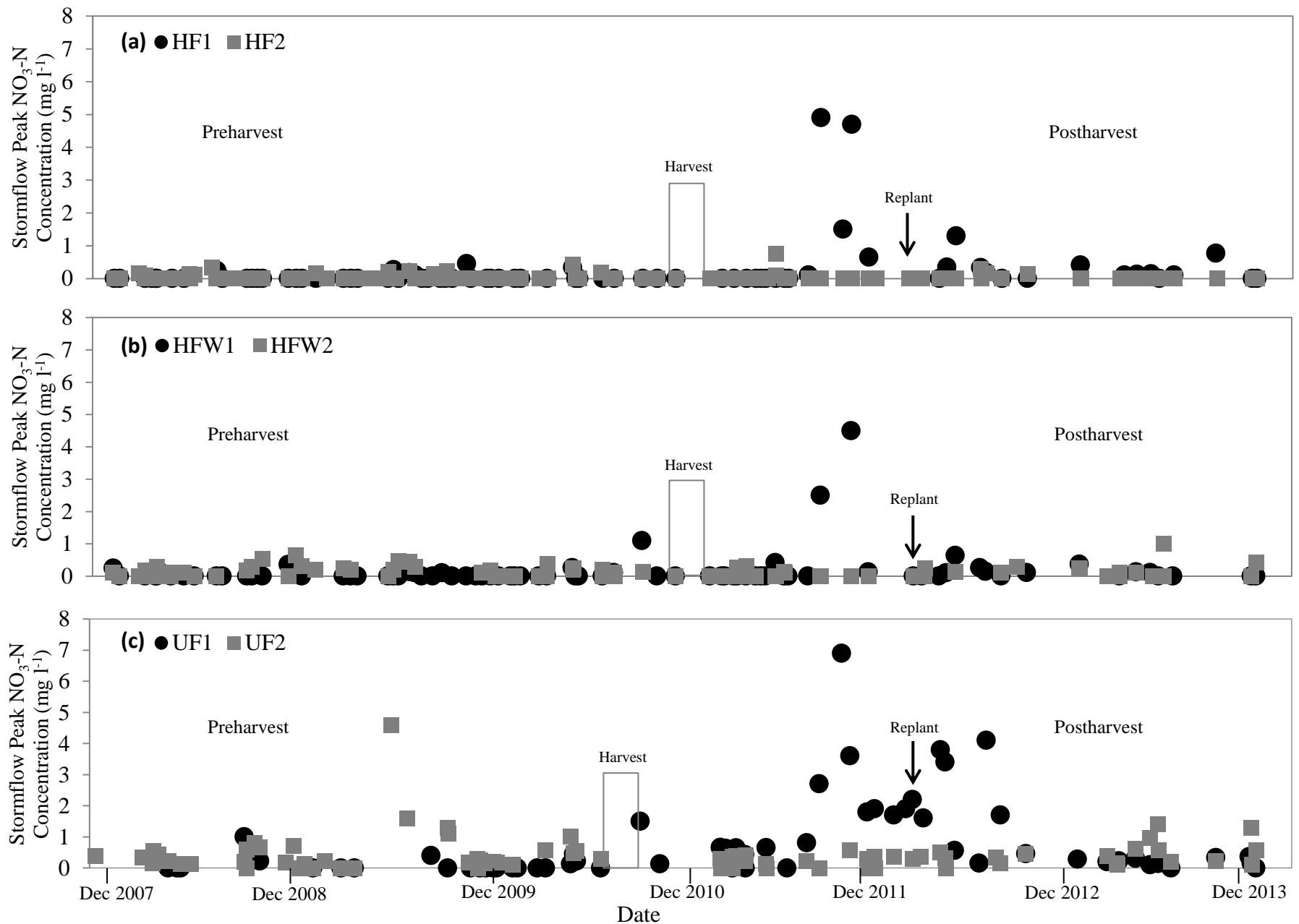


Figure S4. Peak stormflow nitrate-nitrogen ($\text{NO}_3\text{-N}$) concentration in treatment and reference watersheds (a) HF1 and HF2, (b) HFW1 and HFW2, and (c) UF1 and UF2 over monitoring period. Rectangle indicates tree harvest period; HF1 and HFW1 were harvested November 29, 2010 to January 19, 2011 and UF1 was harvested July 7, 2010 to September 8, 2010. Replant periods are also shown.

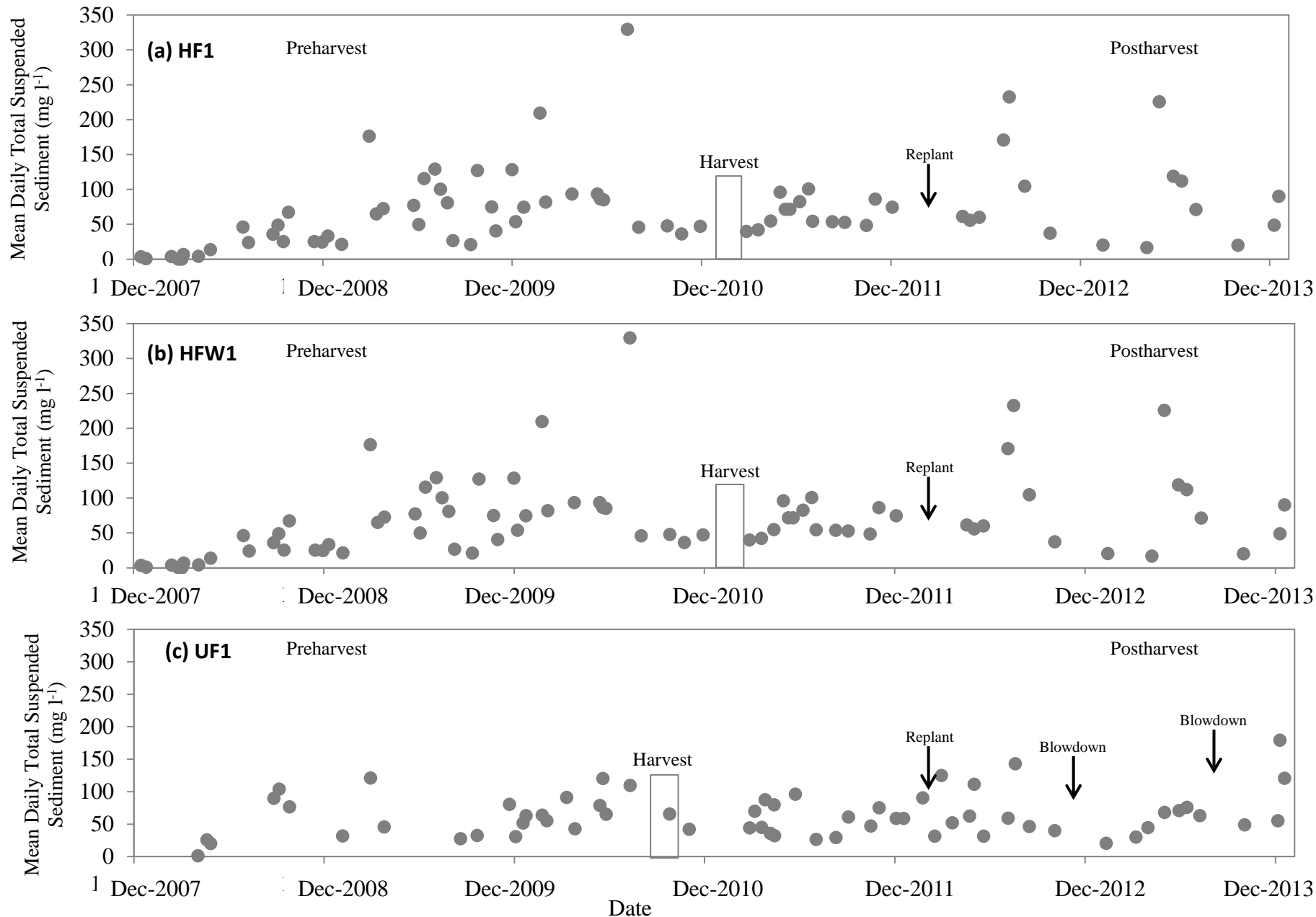


Figure S5. Mean daily stormflow total suspended sediment (TSS) concentration in treatment watersheds (a) HF1, (b) HFW1 and (c) UF1 over monitoring period. Rectangle indicates tree harvest period; HF1 and HFW1 were harvested November 29, 2010 to January 19, 2011 and UF1 was harvested July 7, 2010 to September 8, 2010. Replant and stream edge tree blowdown periods are also shown. Tree Blowdown only occurred in UF1 during this monitoring period.

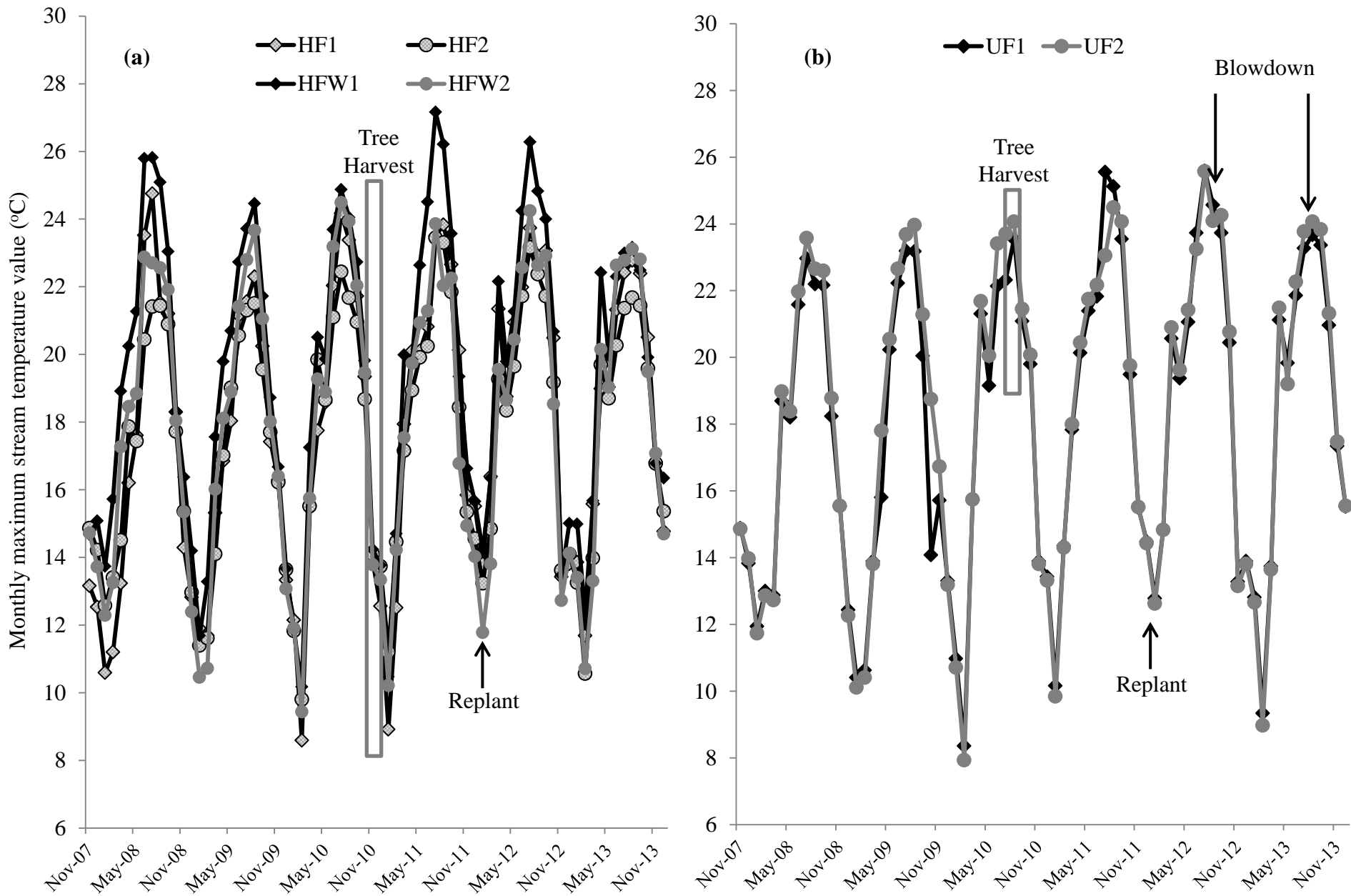


Figure S6. Monthly maximum stream temperature in treatment (a) (HF1, HFW1, and UF1) and reference (b) (HF2, HFW2, and UF2) watersheds over monitoring period, 2007-2013.