

Table SI-1: Reported gross DNRA (average values) [$\mu\text{g g}^{-1} \text{ soil day}^{-1}$] and relative contribution of DNRA to total gross NO_3^- consumption ($\%C_{\text{NO}_3}$) as well as environmental factors for various studies on different ecosystems used for statistical analysis. The reported environmental factors were: soil pH (measured in water), total soil carbon and nitrogen (TC and TN), concentration of ammonium and nitrate ($[\text{NH}_4^+]$ and $[\text{NO}_3^-]$), C/N ratio, mean annual temperature and precipitation (MAT and MAP), incubation temperature (T_{inc}), gravimetric water content (GWC) and water filled pore space (WFPS).

Reference	Ecosystem ^a	DNRA	$\%C_{\text{NO}_3}$	pH	TN	TC	$[\text{NH}_4^+]$ [$\mu\text{g N g}^{-1}$ soil]	$[\text{NO}_3^-]$	C/N	MAT °C	MAP mm	T_{inc} °C	GWC %	WFPS %
Ambus et al. (1992)	riparian	0.36	2.83	7.36	1.93	25.48	10.2	2.1	13.2			10	312	107
Bentsson & Bergwall (2000)	temp. For.	1.3								3.1	745	15		
Cookson et al. (2006)	grassland	0	0	8.2	0.108	1.25	1	2	13.5		350	40		
Cookson et al. (2006)	grassland	0	0	8.17	0.098	1.02	1	2	12.1		350	40		
Davis et al. (2008)	riparian	1.3									1384	25		100°
Davis et al. (2008)	grassland	0.32									1384	25		100°
Huygens et al. (2007)	temp. For.	0.448	99.33	5	0.68	13.4	493.2	8.1	19.7	4.5	7000	15	77	50
Huygens et al. (2008)	temp. For.	1	23.81	5	0.75	15.1	28.2	3	20.1	4.5	7000			
Inselsbacher et al. (2010)	arable	0.1	1.47	6.6	0.16	1.62	1.31	18.6	10			20	23.6	62
Inselsbacher et al. (2010)	arable	0.3	6.25	7.7	0.19	2.64	1.35	19.3	14.2			20	19.2	62
Laughlin et al. (2009)	grassland	0		6.3		4.9	2.66	7.7				20	44	65
Müller et al (2004)	grassland	0.071	13.73	6.2		6.6	13.96	69.38		9.3	600	20	51	55
Müller et al (2007)	grassland	0.091	72.8	6.2		6.6	13.96	69.38		9.3	600	20	51	55
Müller et al (2009)	grassland	0.27	28.10	6.2	0.45	4.5	26.7	56.33	10	9.3	600	20	51	55
Pett-Ridge et al. (2006)	trop. For.	2.89		4.81	0.2		6.1	1		18.5	4500	25*	56	39

Rütting & Müller (2008)	grassland	0.091	97.85	6.2		6.6	13.96	69.38		9.3	600	20	51	55
Rütting et al (2008)	temp. For.	0.355	98.33	5	0.68	13.4	493.2	8.1	19.7	4.5	7000	15	77	50
Rütting et al (2010)	grassland	0.034	99.71	5.9	0.37	4.52	11.42	26.9	12.2	12.9	870	19	33	35
Silver et al. (2001)	trop. For.	0.6	75		0.2		2.92	0.78		19.1	4000			
Silver et al. (2001)	trop. For.	1.2				6.8				19.1	4000	25	51	
Silver et al. (2001)	trop. For.	0.9				10.9				19.5	4000	25	62	
Silver et al. (2001)	trop. For.	0.5				13.9				18.6	4000	25	55	
Silver et al. (2005)	trop. For.	0.23	10.13		0.32	2.25	0.77	1.34	7.0	25.8	4000			
Silver et al. (2005)	trop. For.	0.24	4.60		0.525	5.605	0.67	1.935	10.7	25.8	4000			
Silver et al. (2005)	trop. For.	0.33			0.32	2.32	0.93	0.79	7.25	25.8	4000	25		
Sotta et al. (2007)	trop. For.	0.3	25	3.9	0.13	2.01	13.6	7.7	15.46	25.7	2272	24	17	51
Sotta et al. (2007)	trop. For.	0.5	50	3.9	0.13	2.01	14.3	5.3	15.46	25.7	2272	24	20	58
Sotta et al. (2007)	trop. For.	0.8	12.12	3.8	0.25	3.58	18.2	23.9	14.32	25.7	2272	24	32	71
Sotta et al. (2007)	trop. For.	0.7	21.88	3.8	0.25	3.58	27.3	10.1	14.32	25.7	2272	24	40	88
Staelens et al. (2011)	temp. For.	0.012	1.74	3.28	0.136	2.66	1.32	0.23	19.6	10.4	873			
Staelens et al. (2011)	temp. For.	0.004	0.40	3.12	0.103	2.15	2.66	3.96	20.9	10.4	873			
Templer et al. (2008)	trop. For.	0.12	3.76		0.28	5.66	2.81	2.27	20.2	18.5	4500		46.7	29
Templer et al. (2008)	trop. For.	1.27	119.8		0.38	9.21	10.95	0.46	24.2	18.5	4500		52.7	31
Templer et al. (2008)	trop. For.	0.03	2.24		0.27	5.29	2.93	1.31	19.6	18.5	4500		49.2	32
Tietema & van Dam (1996)	temp. For.	0.19215	31.82	4.5	2.5		4.81	0.76				20	200	
Tietema & van Dam (1996)	temp. For.	0.25256	27.18	4.55	2.39		3.6	0.84				20	200	
Tietema & van Dam (1996)	temp. For.	0.00847	11.11	4.19	2.01		2.97	0.5				20	200	
Tietema & van Dam (1996)	temp. For.	0.09262	21.15	4.04	2.04		3.23	0.68				20	200	
Zhang et al. (2011a)	subtrop. For.	0.015	2.12	4.3	0.11	2.32	18.8	3	21.1	17.6	1788	25	26.0	66
Zhang et al. (2011a)	subtrop. For.	0.021	15.56	4.2	0.31	6.28	45.1	1	20.3	17.6	1788	25	40.5	66
Zhang et al. (2011b)	temp. For.	0.106	100	5	0.23	3.01	10.6	20.5	13.3	1.9	600	25	21.9	

Zhang et al. (2011b)	temp. For.	0.042	80.77	4.9	0.37	4.6	8.7	38.5	12.6	-0.3	723	25	46.8
Zhang et al. (2011b)	temp. For.	0.08	100	4.8	0.37	4.86	6.9	26.6	13.2	-0.3	723	25	43.0
Zhang et al. (2011b)	temp. For.	0.017	100	5.3	0.42	5.98	30.4	36.4	14.1	5	695	25	51.6
Zhang et al. (2011b)	temp. For.	0.014	100	4.9	0.84	8.3	5.3	66.3	9.9	5	695	25	74.0
Zhang et al. (2011b)	temp. For.	0.029	4.55	5.5	0.17	2.14	5.4	0.5	12.9	7.4	711	25	25.6
Zhang et al. (2011b)	temp. For.	0.066	95.65	7.4	0.4	4.67	6.3	68.5	11.7	12.8	694	25	40.2
Zhang et al. (2011b)	temp. For.	0.01	100	6.7	0.55	6.82	4.7	50.8	12.4	12.8	694	25	48.4
Zhang et al. (2011b)	temp. For.	0.062	49.21	7.9	0.22	2.63	4.7	0.7	12	13.6	600	25	18.7
Zhang et al. (2011b)	subtrop. For.	0.023	2.93	4.3	0.11	2.32	18.8	3	21.1	18.2	1788	25	26.3
Zhang et al. (2011b)	subtrop. For.	0.053	7.08	6.1	0.23	3.04	16.2	3.9	13.3	19.4	1700	25	33.8
Zhang et al. (2011b)	subtrop. For.	0		4.7	0.36	4.1	5.4	24.4	11.5	21.5	2133	25	29.9
Zhang et al. (2011b)	trop. For.	0.155	9.83	5	0.05	0.66	5	23.1	12.7	24.3	2300	25	33.6

^a Ecosystems were: trop. For. = tropical forest; subtrop. For. = subtropical forest; temp. For. = temperate forest; riparian = riparian fen/zone; arable = arable field; grassland = temperate meadow, pasture or ryegrass field

* room temperature, assumed to be 25 °C for statistical analysis

° slurry incubation, assumed to be 100% WFPS for statistical analysis