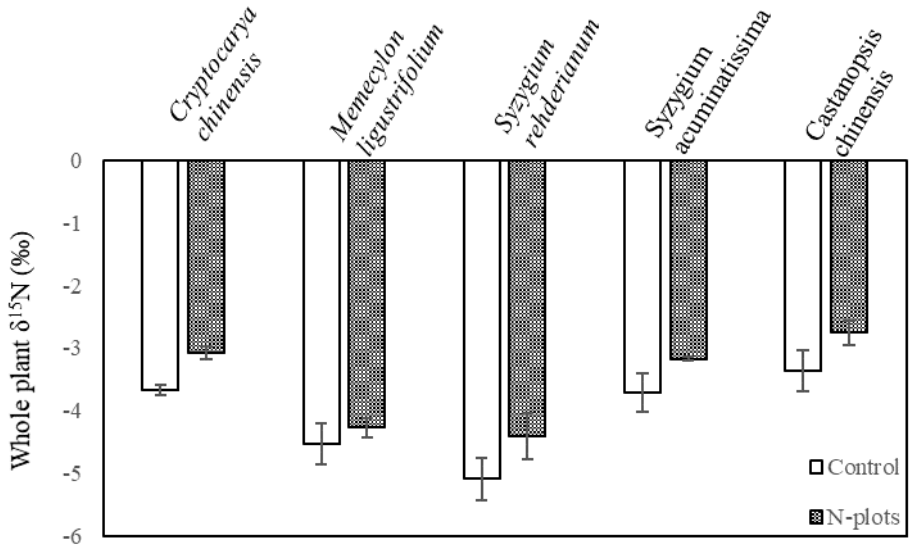

Figure S1. N pool-weighted plant $\delta^{15}N$ of five dominant tree species in Dinghushan Biosphere Reserve (DHSBR) in control plots (white bars) and N addition plots (shaded bars). Error bars indicate SE (n = 3).

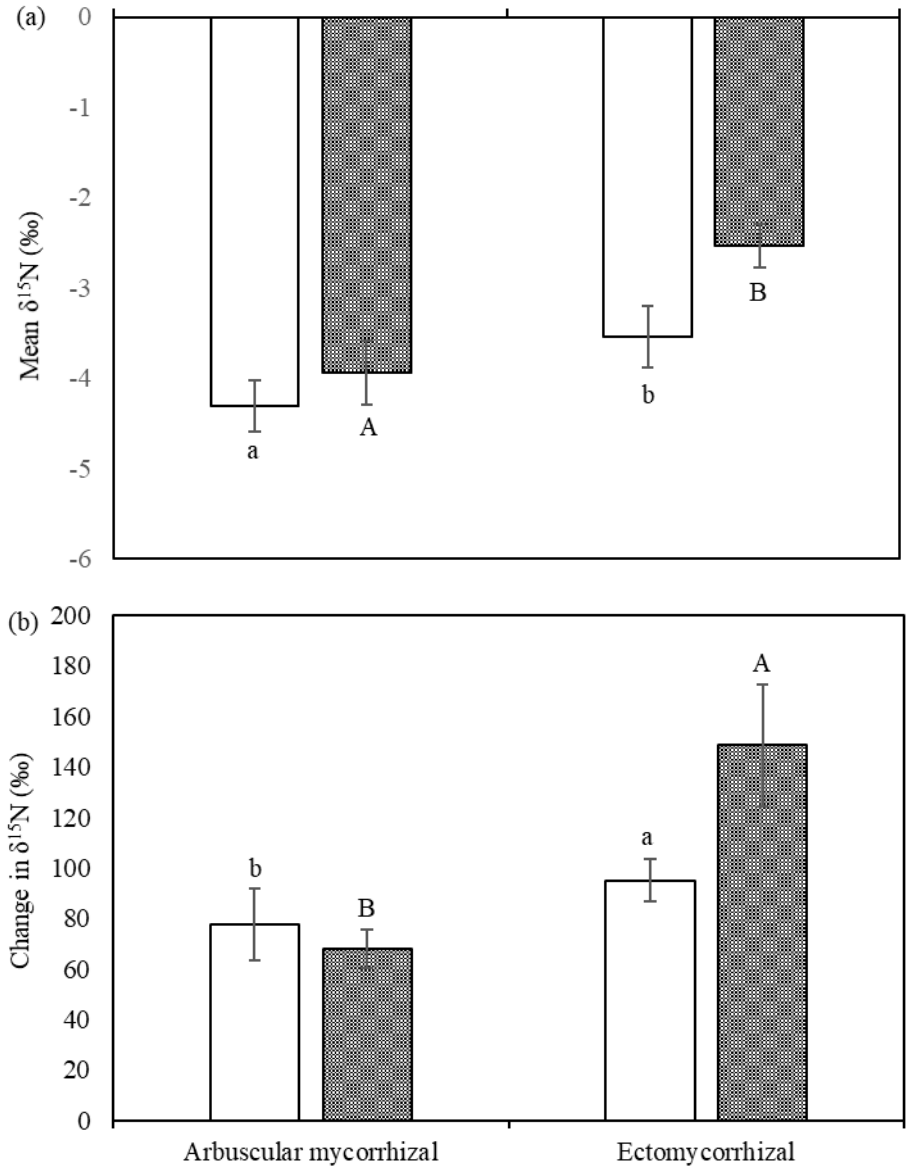

Figure S2. Mean leaf $\delta^{15}N$ of arbuscular mycorrhizal (AM) and ectomycorrhizal (ECM) trees in Dinghushan Biosphere Reserve (DHSBR). a) natural $\delta^{15}N$ abundance in control and in N-plots; and b) changes in leaf $\delta^{15}N$ values after one year of ^{15}N tracer addition in both treatments. Different lowercase letter for the control plots indicate significant difference between leaf $\delta^{15}N$ of AM and ECM tree groups at $p \leq 0.05$.

Table S1. Foliar $\delta^{15}N$ values of dominant co-occurring tree and understory plant species in Dinghushan Biosphere Reserve (DHSBR) in control and N-plots before (sampled in January 2013) and after one-year ^{15}N addition (sampled in June 2014) in the two treatments. Values in parenthesis shows SE among plots (n = 3).

Species name	**Before ^{15}N addition**		**After ^{15}N addition**	
	Control plots	N-plots	Control plots	N-plots
Trees				
Syzygium acuminatissimum	−4.1 (0.2)	−3.3 (0.1)	113.6 (22.3)	158.1 (67.5)
Castanopsis chinensis	−3.0 (0.5)	−1.8 (0.4)	69.6 (4.7)	133.9 (21.5)
Cryptocarya chinensis	−4.0 (0.1)	−3.3 (0.5)	83.5 (17.7)	38.6 (0.9)
Memecylon ligustrifolium	−3.7 (0.3)	−3.8 (0.1)	58.8 (9.6)	88.2 (6.3)
Syzygium rehderianum	−5.2 (0.6)	−4.7 (0.5)	77.6 (16.2)	65.3 (17.1)
Understory plants				
Alpinia chinensis	−2.9 (0.3)	−0.0 (0.4)	1045.7 (158.7)	640.8 (78.9)
Blastus cochinchinensis	−6.6 (0.4)	−5.3 (0.7)	1071.5 (330.1)	402.5 (119.2)
Calamus rhabdocladus	−3.4 (0.5)	−3.2 (0.4)	550.8 (183.6)	286.1 (70.2)
Cryptocarya concinna	−3.6 (0.4)	−3.2 (0.1)	734.2 (124.5)	265.0 (28.3)
Tectaria harlandii	−4.0 (0.3)	−1.7 (0.2)	1256.4 (116.7)	690.3 (66.4)
Maesa salicifolia	−1.6 (0.4)	−0.1 (0.0)	712.7 (29.3)	536.2 (49.7)
Aidia canthioides	−3.1 (0.2)	−1.8 (0.5)	191.9 (23.1)	171.9 (13.6)

Table S2. Estimated leaf biomass (kg ha^{-1}) of dominant tree species in the in experimental plots of the old-growth broad-leaved forest at Dinghushan Biosphere Reserve (DHSBR), southern China. Estimation of the biomass was conducted based on growth equation as described in previous ^{15}N tracer study [41] using the same experimental plots.

Species name	N pool (kg ha^{-1})	Fraction (%)
Syzygium acuminatissimum	264	3.4
Castanopsis chinensis	2921	37.3
Cryptocarya chinensis	1102	14.1
Memecylon ligustrifolium	127	1.6
Syzygium rehderianum	676	8.6
Schima superba[1]	588	7.5
Machilus chinensis[1]	2147	27.4
Total		**100**

[1] This species was not sampled since the foliage could not be reached.

Table S3. Mean concentration (mg N L^{-1}) and $\delta^{15}N$ values of NH_4-N, NO_3-N and DON in precipitation, throughfall and soil solution in control plots (September 2012 to February 2013). Soil (0–50 cm) $\delta^{15}N$ values for bulk soil, TDN, NH_4-N, NO_3-N and DON were determined in 2007–2008 by extraction. For $\delta^{15}N$ values of precipitation, throughfall and soil solution, values in parenthesis shows SE among plots (n = 3).

N sources	N form	Concentration (in water)	$\delta^{15}N$ values (‰)
Precipitation	NH_4-N	2.9	−17 (4)
	NO_3-N	1.2	4.1 (0.7)
	DON		
Throughfall	NH_4-N	4.3	−15 (2)
	NO_3-N	2.6	−9.7 (0.8)
	DON		
Soil (0–50 cm)	Bulk soil		3.7
	TDN		7.7
	NH_4-N		6.1
	NO_3-N		1.6
	DON		8.9
Soil solution (0–20 cm)	NH_4-N	2.4	−23 (1)
	NO_3-N	8.8	−0.9 (1.0)
	DON		
Added fertilizer (NH_4NO_3)	NH_4-N	-	−3.3
	NO_3-N	-	1.8

Table S4. Leaf C:N ratio of the studied tree species grouped as ectomycorrhizal (ECM) and arbuscular mycorrhizal plants (AM). Values in parenthesis shows SE among plots (n = 3). In each treatment (control and N-plots), significant difference in leaf C:N ratio among the five tree species is indicated by different lowercase letters as in Table 1 while the difference between the two mycorrhizal group is indicted by different uppercase letters.

Species name	Mycorrhizal type	C:N ratio	
		Control plots	N-plots
Syzygium acuminatissimum	ECM	25.5 (1.0)b	23.7 (0.4)c
Castanopsis chinensis	ECM	24.9 (1.1)b	27.2 (0.2)bc
Cryptocarya chinensis	AM	25.9 (0.2)b	26.5 (1.7)bc
Memecylon ligustrifolium	AM	32.2 (0.9)a	32.4 (1.9)ab
Syzygium rehderianum	AM	34.3 (0.6)a	36.0 (1.0)a
Mycorrhizal group			
ECM average		25.2 (1.1)A	25.5 (1.3)A
AM average		31.0 (0.6)B	31.6 (1.7)B