

Table S1: Location, mean annual temperature (MAT), mean annual precipitation (MAP), soil N content (N_{soil}), annual litter N (N_{re}) and net primary productivity (NPP) in this study.

Sites	Species	Latitude (°)	Longitude (°)	MAT (°C)	MAP (mm)	N_{soil} (kg ha ⁻¹)	N_{re} (kg ha ⁻¹ ha ⁻¹)	NPP (t ha ⁻¹ ha ⁻¹)	Ref
Miyaluo	<i>Picea Likiangensis</i>	35.6	102.6	9.0	850.0	1222.3	11.0	0.8	Pang et al. 2002
Xishan	<i>Quercus Variailis</i>	40.1	116.2	11.6	630.0		30.0	1.2	Tian et al. 1997a
Xizang	<i>Abies Georgei</i>	29.8	94.6	0.7	1134.1	3703.0	30.0	1.2	Xin and Zhai 2003
Zhengning	<i>Pinus Tabulaeformis</i>	35.3	108.5	9.3	588.2	4874.6	12.3	1.3	Zhang and Shang guan 2006
Liangshui	<i>Pinus Koraiensis</i>	47.2	128.9	0.3	676.0	7306.9	29.6	1.9	Chen et al. 1998
Zhengning	<i>Pinus Tabulaeformis</i>	35.3	108.5	9.3	588.2	5459.0	21.8	2.0	Zhang and Shangguan 2006
Caijiachuan	<i>Robinia Pseudoacacia</i>	36.3	110.7	0	579.0		4.0	2.1	Xia et al. 2010
Jiyuan	<i>Robinia Pseudoacacia</i>	35.0	112.5	14.3	646.4	1008.2		2.1	Zhao et al. 2009b
Jiyuan	<i>Platycladus Orientalis</i>	35.0	112.5	14.3	646.4	1323.8		2.2	Zhao et al. 2009c
Zhengning	<i>Pinus Tabulaeformis</i>	35.3	108.5	9.3	588.2	3927.0	12.9	2.3	Zhang and Shangguan 2006
Miyaluo	<i>Picea Likiangensis</i>	35.6	102.6	9.0	850.0	1447.8	28.0	2.4	Pang et al. 2002
Changbaishan	<i>Korena Pine</i>	42.4	128.1	3.6	695.0	3604.0	52.3	2.6	Cheng et al. 1987

Zhengning	<i>Pinus Tabulaeformis</i>	35.3	108.5	9.3	588.2	5689.3	25.2	2.8	Zhang and Shangguan 2006
Caijiachuan	<i>Pinus Tabulaeformis</i>	36.3	110.7	0	579.0		7.0	3.4	Xia et al. 2010
Xishan	<i>Acer Truncatum Bunge</i>	40.1	116.2	11.6	630.0	8315.0	40.6	3.4	Tian et al. 1997b
Caijiachuan	<i>Robinia p Seudoacacia</i>	36.3	110.7	0	579.0		3.7	3.7	Xia et al. 2010
Lufengshan	<i>Pinus Massoniana</i>	23.8	109.7	21.1	1418.5		39.7	4.0	Xiang and Tian 2002
Xiaolangdi	<i>Quercus Varlabilis</i>	35.0	112.5	14.3	646.4		70.3	4.2	Zhao 2009a
Xiaolangdi	<i>Quercus Varlabilis</i>	35.0	112.5	14.3	646.4		73.3	4.3	Zhao 2009a
Xiaolangdi	<i>Quercus Varlabilis</i>	35.0	112.5	14.3	646.4		77.7	4.4	Zhao 2009a
Longsheng	<i>Cunnlghamia Lanceolata</i>	25.8	110.0	17.4	1548.0	2713.0	22.2	4.6	Wen et al. 1991
Lufengshan	<i>Pinus Massoniana</i>	23.8	109.7	21.1	1418.5		38.8	5.2	Xiang and Tian 2002
Huitong	<i>Chinese Fir</i>	26.5	109.8	16.5	1300.0	11905.6	18.6	5.3	Chan and Pan 1989
Huian	<i>Casuarina</i>	24.9	118.9	19.8	1029.0		31.5	5.7	Ye et al. 1996
Longli	<i>Pinus Massoniana</i>	26.5	106.7	14.7	1158.5	4118.7	4.3	6.0	Li et al. 2008
Huitong	<i>Cunnlghamia Lanceolata</i>	26.5	109.8	16.5	1300.0		24.2	6.2	Deng et al. 1988
Huitong	<i>Cunnlghamia Lanceolata</i>	26.5	109.8	16.5	1300.0		19.2	6.4	Deng et al. 1988
Fulushan	<i>Pinus Massoniana</i>	23.8	105.1	21.1	1418.5		68.4	6.6	Tian 1989
Fulushan	<i>Pinus Massoniana</i>	23.8	105.1	21.1	1418.5		36.8	6.7	Tian 1989
Anxi	<i>Fokienia Hodginsii</i>	25.1	118.2	17.4	1939.5		9.6	6.9	Tan et al. 2001

Huoditang	<i>Quercus aliena</i>	33.4	108.6	8.0	1133.0	4941.8	50.6	7.3	Zhang et al. 1996
Longhua	<i>Pinus Tabulaeformis</i>	41.7	117.2	7.0	500.0		17.7	7.3	Nie et al. 1986
Xinkou	<i>Castanopsisfissa</i>	26.2	117.4	19.1	1749.0	7039.0	19.0	7.3	Fan et al. 2008
Baotianman	<i>Castanea Mollissima</i>	33.5	111.9	15.1	885.6	115.6	14.1	7.4	Liu et al. 2003
Qianyanzhou	<i>Pinus Elliottii</i>	26.8	115.1	16.5	1486.9		46.9	7.4	Chen et al. 2001
Miyaluo	<i>Picea Likiangensis</i>	35.6	102.6	9.0	850.0	158.8	11.9	7.6	Pang et al. 2002
Anxi	<i>Fokienia Hodginsii</i>	25.1	118.2	17.4	1939.5		15.8	7.6	Tan et al. 2001
Lufengshan	<i>Pinus Massoniana</i>	23.8	109.7	21.1	1418.5		82.1	7.7	Xiang and Tian 2002
Huian	<i>Casuarina</i>	24.9	118.9	19.8	1029.0		1.9	7.7	Ye et al. 1996
Fulushan	<i>Pinus Massoniana</i>	23.8	105.1	21.1	1418.5		90.6	7.8	Tian 1989
Fulushan	<i>Pinus Massoniana</i>	23.8	105.1	21.1	1418.5		82.1	8.0	Tian 1989
Lufengshan	<i>Pinus Massoniana</i>	23.8	109.7	21.1	1418.5			8.1	Xiang and Tian 2002
Tianlin	<i>Cunninghamia Lanceolata</i>	24.3	106.3	5.8	1446.0	9396.1	32.8	8.2	Lin 1991
Longli	<i>Pinus Massoniana</i>	26.5	106.7	14.7	1158.5	6857.0	18.9	8.3	Li et al. 2008
Dagangshan	<i>Chinese Fir</i>	27.5	114.5	16.8	1591.0	5165.0	11.0	8.3	Ni 1993
Huitong	<i>Cunnlnghamia Lanceolata</i>	26.5	109.8	16.5	1300		6.6	8.4	Deng et al. 1988
Guangxi	<i>Chinese Fir</i>	22.8	108.3	19.6	1988.5	10376.0	2.8	8.5	Chen et al. 1988
Huoditang	<i>Pinus Tabulaeformis</i>	33.4	108.6	8.0	1133.0	1920.0	25.2	8.6	Zhang et al. 1996
Huitong	<i>Chinese Fir</i>	26.5	109.8	16.5	1300.0	10131.0	6.4	8.7	Xiang et al. 2002
Xishuangban	<i>Trema Orientalis</i>	21.9	101.3	21.4	1557.0		29.7	9.0	Zhang and Feng 1997

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Xishan	<i>Pinus Tabulaeformis</i>	39.9	116.3	11.8	630.0	9220.0	11.0	9.2	Yao 1989
Maoershan	<i>Quercus mongolica</i>	45.3	127.6	2.8	723.8	7959.9	53.0	9.4	Guan et al. 1999
Leizhou	<i>Eucalyptus</i>	21.1	110.1	23.5	1610.6		25.2	9.4	Zhong et al. 2004
Huian	<i>Casuarina</i>	24.9	118.9	19.8	1029.0		5.4	9.4	Ye et al. 1996
Xishan	<i>Platycladus Orientalis</i>	39.9	116.3	11.8	630.0	11700.0	26.3	9.7	Yao 1989
Dagangshan	<i>Chinese Fir</i>	27.5	114.5	16.8	1591.0	9346.0	42.5	10.1	Nie 1993
Dagangshan	<i>Chinese Fir</i>	27.5	114.5	16.8	1591.0	6718.0	20.5	10.2	Nie 1993
Xishan	<i>Pinus Tabulaeformis</i> × <i>Platycladus Orientalis</i>	39.9	116.3	11.8	630.0	8560.0	21.4	10.7	Yao 1989
Huian	<i>Casuarina</i>	24.9	118.9	19.8	1029.0		10.6	10.8	Ye et al. 1996
Leizhou	<i>Eucalyptus</i>	21.1	110.1	23.5	1610.6		24.5	11.4	Zhong et al. 2004
Anxi	<i>Fokienia Hodginsii</i>	25.1	118.2	17.4	1939.5		16.1	11.4	Tan et al. 2001
Yishan	<i>Masson Pine</i>	24.4	108.7	19.2	1260.0	4577.0	22.7	11.9	Wen and Liang 1991
Huian	<i>Casuarina</i>	24.9	118.9	19.8	1029.0		16.6	11.9	Ye et al. 1996
Maoershan	<i>Dahurian Larch</i>	45.3	127.6	2.8	723.8	11459.0	35.7	12.2	Liu 1992
Huairou	<i>Pinus Tabulaeformis</i>	40.3	116.6	10.0	500.0	5541.0	10.2	12.3	Zhang et al. 1991
Huitong	<i>Cunninghamia Lanceolata</i>	26.5	109.8	16.5	1300.0	5376.0	13.5	12.5	Feng et al. 1985
Guangxi	<i>Chinese Fir</i>	22.8	108.3	19.6	1988.5	16350.0		12.9	Chen et al. 1988

Wuyishan	<i>Castanopsis Eyrei</i>	27.7	117.7	15.0	2000.0	9456.0	49.7	13.8	Chen 2005
Miyaluo	<i>Picea Likiangensis</i>	35.6	102.6	9.0	850.0	1467.3	20.9	14.0	Pang et al. 2002
Huoditang	<i>Picea Armandi</i>	33.4	108.6	8.0	1133.0	2992.5	32.8	14.1	Zhang et al. 1996
Huian	<i>Casuarina</i>	24.9	118.9	19.8	1029.0		23.0	14.2	Ye et al. 1996
Huian	<i>Casuarina</i>	24.9	118.9	19.8	1029.0		28.2	14.8	Ye et al. 1996
Leizhou	<i>Eucalyptus</i>	21.1	110.1	23.5	1610.6		34.0	15.0	Zhong et al. 2004
Xinkou	<i>Castanopsisfissa</i>	26.2	117.4	19.1	1749.0	7061.6	47.4	15.3	Fan et al. 2008
Nanning	<i>Acacia Mangium</i>	23.0	108.4	21.2	1350.0		91.4	15.8	He et al. 2007
Lufengshan	<i>Chinese Fir</i>	23.8	109.7	21.1	1400.0		10.3	15.8	Pan et al. 1983
Leizhou	<i>Eucalyptus</i>	21.1	110.1	23.5	1610.6		29.1	17.6	Zhong et al. 2004
Xishuangban na	<i>Mallotus Paniculatus</i>	21.9	101.3	21.4	1557.0		64.5	17.7	Zhang and Feng 1997
Kaiping	<i>Eucalyptus grandis</i> × <i>E.urophylla</i>	22.4	112.7	22.1	1822.0		46.1	19.2	Xu et al. 1997
Kaiping	<i>Eucalyptus grandis</i> × <i>E.urophylla</i>	22.4	112.7	22.1	1822.0		34.5	19.3	Xu et al. 1997
Nanning	<i>Acacia Mangium</i>	23.0	108.4	21.2	1350.0		92.3	19.4	He et al. 2007
Fenghuangshan	<i>Acacia Mangium</i>	23.1	113.4	13.3	1694.0		83.6	19.9	Xu et al. 1998
Dinghushan	<i>Cryptocary Aconcinna</i> × <i>Lindera Chunii</i>	23.2	112.6	21.4	1927.0		172.2	20.6	Mo et al. 1994
Jiulong	<i>Kandella Candel</i>	24.4	117.9	21.0	1365.1	7854.0	129.5	23.5	Lin and Lin 1985
Nanning	<i>Acacia Mangium</i>	23.0	108.4	21.2	1350.0		96.3	24.2	He et al. 2007

Maoershan	<i>Korena Pine</i>	45.3	127.6	2.8	723.8	6322.0	36.4	24.6	Ding and Sun 1989
Heishiding	<i>Cryp tocarry a Concinna</i>	23.5	111.9	19.6	1743.8		154.3	29.6	Chen et al. 1995

TableS1-References

Chan, X.Y., and Pan, W.C. 1989. Dynamic properties of nitrogen in the Chinese Fir plantation ecosystem. *Acta Ecol. Sin.* **9**(3): 201–206. [In Chinese with English abstract]. doi:cnki:issn: 1000-0933.0.1989-03-001.

Chen, C.Y., Wang, K.P., Zhang, J.W., Zeng, S.Y., Zhao, J.L., Deng, S.J., Gao, H., Ma, J.X., Li, S.M., Xie, W.C., and Xiong, Z.P. 1988. Nutrient accumulation, distribution and cycling in Chinese Fir-Homana mixed forest ecosystem. *Chin. J. Ecol.* **7**(4): 7–13. [In Chinese with English abstract]. doi:cnki:issn:1000-4890.0.1988-04-001.

Chen, R.H. 2005. Studies on the Nutrient Circulation in *Castanopsis Eyrei* Community in Wuyishan Mountain. *Acta Agric. Univ. Jiangxiensis.* **27**(2): 195–198. [In Chinese with English abstract]. doi:cnki:sun:jxnd.0.2005-02-007.

Chen, Y.L., Cui X.Y., Zhu N., and Guan J.Y. 1998. Status and role of the bush layer and main shrub species in nutrient cycling of *Tilia Amurensis-Pinus Koraiensis* Forest. *J. Northeast For. Univ.* **26**(4): 7–13. [In Chinese with English abstract]. doi:cnki:issn:1000- 5382.0.1998-04-001.

Chen, Y.R., Lin, Y.M., Li, J.Y., Liu, Y.F., and Yang, R.R. 2001. Studies on nutrient biological cycling in plantations in Qianyanzhou Experimental Area. *Jiangxi Sci.*

19(3): 147–152. [In Chinese with English abstract]. doi:cnki:sun:jskx.0.2001-03-006.

Chen, Z.H., Wang, B.S., Zhang H.D., and Peng, S.L. 1995. Distribution, accumulation, and cycling of several mineral elements of the lower subtropical evergreen broad-leaved forest in heishiding nature reserve. *Acta Bot. Sin.* **37**(7): 558–565. [In Chinese with English abstract]. doi:cnki:sun:zwx.0.1995-07-009.

Cheng, B.R., Ding, G.F., Xu, G.S., and Zhang, Y.H. 1987. The nutrient cycling in the *Korena Pine*-broadleaved forest of the Changbai Mountains. *Acta Pedol. Sin.* **24**(2): 160–169. [In Chinese with English abstract]. doi:cnki:issn:0564-3929.0.1987-02-008.

Deng, S.J., Wang, K.P., and Gao, H. 1988. Biological productivity and nutrient distribution in Over-mature plantation of *Cunninghamia Lanceolata*. *Chin. J. Ecol.* **7**(1): 13–18. [In Chinese with English abstract]. doi:cnki:sun:stxz.0.1988-01-003.

Ding, B.Y., and Sun, J.H. 1989. Studies on biological productivity and nutrient cycling of artificial forest ecosystem of *Korena Pine*. *J. Northeast For. University.* **17**(I): 2–98. [In Chinese with English abstract]. doi:cnki:sun:dbly.0.1989-S2-000.

Fan, H.B., Liu, W.F., and Su, B.Q. 2008. Impact of underplanting *Castanopsisfissa* on nutrient cycling in *Pinus Massoniana* stand. *Chin. J. Appl. Environ. Biol.* **14** (5): 610–615. [In Chinese with English abstract]. doi: :cnki:sun:yyhs.0.2008-05-005.

Feng, Z.W., Chen, C.Y., Wang, K.P., Zhang, J.W., Zeng, S.Y., Zhao, J.L., and Deng, S.J. 1985. Studies on the accumulation, distribution and cycling of nutrient elements in the ecosystem of the pure stand of subtropical *Cunninghamia Lanceolata* forests. *Chin. J. Plant Ecol.* **9**(4): 245–256. [In Chinese with English

abstract]. doi:cnki:sun:zwsb.0.1985-04-000.

Guan, J.Y., Chen, Y.L., Zhu N., Zhuo, L.H., and Liu, Y. 1999. Studies and role of the shrub layer and its main shrub species in nutrient cycling of Mongolia oak forest. *Bull. Bot. Res.* **19**(1): 100–110. [In Chinese with English abstract].

He, B., Qin, W.M., Yu, H.G., Liu, Y.H., Qin, L., and Qin, Y.H. 2007. Biological cycling of nutrients in different ages classes of *Acacia Mangium* plantation. *Acta Ecol. Sin.* **27**(12): 5158–5167. [In Chinese with English abstract]. doi:cnki:sun:stxb.0.2007-12-026.

Li, Q., Yang, S.T., Sheng, H.R., Sheng, Y., Li, W., and Li, S.J. 2008. Biological cycling of nutrients in Pinus forest and Pinus-Hardwood mixed forest in karst area-A case study in Longli, Guizhou. *Carsol Sin.* **27**(4): 321–328. [In Chinese with English abstract]. doi:cnki:sun:zgyr.0.2008-04-008.

Lin, P., and Lin, G.H. 1985. Studies on the mangrove ecosystem of the Jiulongjiang river estuary in China. IV. The accumulation and biological cycling of nutrient and phosphorus elements in the *Kandella Candell* community. *Chin. J. Plant Ecol.* **9**(1): 21–31. [In Chinese with English abstract].
doi:cnki:sun:zwsb.0.1985-01-001.

Lin, W.J. 1991. Studies on productivity and biological cycling of nutrient elements of *Cunninghamia Lanceolata* plantation in mid-mountain region of Laoshan, Tianlin county. *J. Guangxi Agric. Coll.* **10**(4): 27–39. [In Chinese with English abstract]. doi:cnki:issn:1008-3464.0.1991-04-002.

Liu, S.H., Yu, X.X., Hu, C.H., and Gao, G.X. 2003. Nutrient cycling in *Castanea Mollissima* forest at the Miyun reservoir watershed, Beijing. *Chin. J. Appl. Ecol.*

14(10): 1597–1601. [In Chinese with English abstract]. doi:cnki:sun:yysb.0.2003-10-001.

Liu, S.R. 1992. Biogeochemical cycling characteristic of *Dahurian Larch* plantation ecosystem. Chin. J. Ecol. **11**(5):1–6. [In Chinese with English abstract].

doi:cnki:issn: c1000-4890.0. 1992-05-000.

Mo, J.M., Ding, M.M., Zhang, Z.P., Yi, W.M. 1994. Nutrient accumulation and cycling in a *Massoon* evergreen broad-leaved forest-The *Cryptocary Aconcinna*,

Lindera Chunii community of Dinghushan. Chin. J. Plant Ecol. **18**(2): 140–146. [In Chinese with English abstract].

Ni, D.P. 1993. A comparison of the productivity and nutrient cycling of Chinese Fir plantation in different site conditions. Forest Res. **6**(6): 643–649. [In Chinese

with English abstract]. doi: cnki:issn:1001-1498.0.1993-06-008.

Nie, D.P., Shen, G.F., and Dong, S.R. 1986. Studies on the nutrient elements cycling in the *Pinus Tabulaeformis* plantation. J. Beijing For. Univ. **2**(2):8–19. [In

Chinese with English abstract]. doi:cnki:issn:1000-1522.0.1986-02-001.

Pan, W.H., Tian, D.L., Lei, Z.X., and Kang, W.X. 1983. Studies on the nutrient cycling in the Chinese Fir plantations.(II) Content, accumulation rate and biological

cycling of nutrient elements in the fast-growing Chinese Fir forest in the hill regions. J. central south for. Univ. **3**(1): 1–17. [In Chinese with English

abstract].doi:cnki:sun:znlb.0.1983-01-000.

Pang, X.Y., Hu, H., and Qiao, Y.K. 2002. Nutrient distribution and cycling of artificial and natural *Subalpine Spruce* forest in western Sichuan. Chin. J. Appl.

Environ. biol. **8**(1) :1–7. [In Chinese with English abstract]. doi:cnki:sun:yyhs.0.2002-01-000.

Tan, F.L., Yang, Z.W., Chen, D.Q., Zhuo, K.F., and Chen, H.Y. 2001. A study on nutrient cycling of *Fokienia Hodginsii* plantation. J. Nanjing For. Univ. **25**(3): 35–38. [In Chinese with English abstract]. doi:cnki:sun:njly.0.2001-03-007.

Tian, D.L. 1989. Studies on nutrient elements cycling and density effect of pole stage of *Pinus Massoniana* stand. Sci. Silv. Sin. **25**(2): 106–112. [In Chinese with English abstract]. doi: cnki:issn:1001-7488.0.1989-02-001.

Tian, Q.F., Li, H., and Duan, G.M. 1997(a). Study on nutrient cycle in *Quercus Variailis* plantation in Beijing Xishan National Forest Park. J. Beijing For. Univ. **19**(2): 67–75. [In Chinese with English abstract]. doi:cnki:sun:bjly.0.1997-S2-013.

Tian, Q.F., Wang, H., Gao, H.G., and Li, H. 1997(b). Study on nutrient cycle in a *Acer Truncatum Bunge* forest ecosystem. J. Beijing For. Univ. **19**(2): 81–86. [In Chinese with English abstract].doi:cnki:sun:bjly.0.1997-S2-015.

Wen, Z.M., Liang, H.W., and Li, Y. 1991. Studies on the biocycling of nutrient elements of tree layer of *Cunnlghamia Lanceolata* mature plantation. Chin. J. Plant Ecol. **15**(1): 36–45. [In Chinese with English abstract]. doi:cnki:sun:zwsb.0.1991-01-004.

Wen, Z.M., and Liang, L. 1991. The productivity and the biocycling of nutrient elements of *Masson Pine*. J. Guangxi Agric. Coll. **10**(1): 49–57. [In Chinese with English abstract]. doi cnki:sun:gxnb.0.1991-01-008.

- Xia, J., Wei, T.X., Chen, J.L., and Yi, N. 2010. Biological cycling of nutrients of plantation in hilly loess plateau. *J. Soil Water Conserv.* **24**(3): 89–93. [In Chinese with English abstract]. doi: cnki:sun:trqs.0.2010-03-020.
- Xiang, W.H., and Tian, D.L. 2002. Nutrient cycling in *Pinus Massoniana* stands of different age classes. *Chin. J. Plant Ecol.* **26** (1): 89–95. [In Chinese with English abstract]. doi:cnki:sun:zwsb.0.2002-01-017.
- Xiang, W.H., Tian, D.L., Yan, W.D., Kang, W.X., and Fang, H.B. 2002. Nutrient elements distribution and cycling in the secondary rotation Chinese Fir plantation at fast-growing stage. *Sci. Silv. Sin.* **38**(2): 2–8. [In Chinese with English abstract]. doi:cnki:issn:1001-7488.0.2002-02-001.
- Xin, X.B., and Zhai, M.P. 2003. Studies on nutrition cycle of *Abies Georgei* forest ecosystem of mountain Segila in Tibet. *Forest Res.* **16**(6) : 668–676. [In Chinese with English abstract]. doi:cnki:issn:1001-1498.0.2003-06-003.
- Xu, D.P., He, Q.X., Yang, C.J., Long, Y.S., and Jian, X.H. 1997. Above-ground primary productivity and nutrient cycling of *Eucalyptus grandis* × *E.urophylla* plantation. *Forest Res.* **10** (4): 365–372. [In Chinese with English abstract]. doi:cnki:issn:1001-1498.0.1997-04-005.
- Xu, D.P., Yang, Z.J., and He, Q.X. 1998. Above ground biomass production and nutrient cycling of middle-age plantation of *Acacia Mangium*. *Forest Res.* **11** (6): 592–598. [In Chinese with English abstract]. doi:cnki:sun:lykx.0.1998-06-005.
- Yao, Y.T. 1989. Studies on the biomass and nutrient cycling of the mixed plantation of *Pinus tabulaeformis* and *Platycladus Orientalis* in Xishan region, Beijing. *J.*

Beijing For. Univ. **11**(2): 38–46. [In Chinese with English abstract]. doi:cnki:sun:bjly.0.1989-02-004.

Ye, G.F., Zhang, S.S., Xu, J.S., Long, X.W., Pan, H.Z., Lin, W.X., Ma, Z.X., and Huang, C.Y. 1996. A study on nutrient cycling in *Casuarina* plantation of different Growth stages. Prot. For. Sci. Tech. 40–47. [In Chinese with English abstract].

Zhang, F.Z., Liang, H., Zhang, H.L., and Jin, X.L. 1991. Biological cycling of Nitrogen, Phosphorus and Sulphur in *Pinus Tabulaeformis* forest ecosystem in Haihe river basin. Acta Sci. Circumst. **11**(2): 131–141. [In Chinese with English abstract]. doi:cnki:issn: 0253-2468.0.1991-02-001.

Zhang, P., and Feng, Z.L. 1997. Biological nutrient cycling of secondary forest in Xishuangbanna. Acta Pedol. Sin. **34**(4): 418–426. [In Chinese with English abstract]. doi: cnki:issn:0564-3929.0.1997-04-008.

Zhang, S.X., Lei, R.D., Liu, G.Q., Dang, K.L., Shang, L.B., and Zhang, Y.Q. 1996. Nutrient cycle in main types of forests at Huoditang forest region in the Qinling Mountains. J. Northwest For. Coll. **11**(II): 115–120. [In Chinese with English abstract]. doi:cnki:issn:1001-7461.0.1996-S1-014.

Zhang X.B., and ShangGuan, Z.P. 2006. Nutrient distributions and biocycle patterns in both natural and artificial *Pinus Tabulaeformis* forests in Hilly Loess Regions. Acta Ecol. Sin. **26**(2): 373–382. [In Chinese with English abstract]. doi:cnki:issn:1000-0933.0.2006-02-008.

Zhao, Y., Fan, W., Wu, M.Z., and Zhu, Y.J. 2009(b). Nutrient allocation and cycling pattern in the *Robinia Pseudoacacia* plantation in hilly region of Taihang Mountains. Sci. Soil Water Conserv. **7**(5): 111–116. [In Chinese with English abstract]. doi:cnki:sun:stbc.0.2009-05-023.

- Zhao Y., Fan W., Wu M.Z., Zhang, J., and Zhu, Y.F. 2009(c). The nutrient allocation and cycling pattern in the *Platycladus Orientalis* plantation in Hilly region of Taihang Mountains. *J. Soil Water Conserv.* **23**(2): 143–152. [In Chinese with English abstract]. doi:cnki:sun:trqs.0.2009-02-030.
- Zhao, Y., Wang, P.F., Fan, W., and Zhu, Y.F. 2009(a). Nutrient cycling in *Quercus Varlabilis* plantations of different ages classes in hilly region of Taihang Mountain. *Sci. Soil Water Conserv.* **7** (4) :66–71. [In Chinese with English abstract]. doi:cnki:sun:stbc.0.2009-04-013.
- Zhong, J.H., Li, S.Y., Lan, P.L., Liao, X.R., and Liao, G.R. 2004. Biological cycling of nutrients in *Eucalyptus* plantation ecosystem. *J. Soil Water Conserv.* **18**(6):45–62. [In Chinese with English abstract]. doi:cnki:issn:1009-2242.0.2004-06-011.