THE STATUS OF THE FAMILY MAGNOLIACEAE IN THE BAVI NATIONAL PARK

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SUMMARY

The family Magnoliaceae is one of the important groups in flowering plants and the important component of tropical rain forest. With ca. 300 Magnolias species world-wide, there are at least 60 species occurring in Vietnam, distributed throughout the country. To provide more knowledges on the family Magnoliaceae in defined forests, we select a study on the status of the family Magnoliaceae in Bavi National Park. The field trips were carried out to collect the specimens and other related information such as morphological and ecological characters, distribution, etc. These specimens were compared with the types and other realated species for identification. The compared morphology was the method used for plant taxonomy. The results show that there are seven species, belonging to three genera of the family Magnoliaceae are occuring in this site. They are *Michelia alba, M. tonkinensis, M. foveolata, M. balansae, Magnolia* aff. *fistulosa, Manglietia phuthoensis,* and *M. conifera*, three of which are cultivated as *Michelia alba, M. tonkinensis* and *Manglietia phuthoensis*. In each species, information of taxonomic treatment, vernacular name, morphological character, basic distribution and ecology, and note are provided. In addition, typus specimens and photos of these species as well as the key to genus and species are also given. This will be very useful for identification and a exact evidence for other sciences as species conservasion, biology, forestry, etc. in Bavi National Park.

Keywords: Bavi Nationa Park, Magnoliaceae, plant identification, taxonomy, taxonomic key.

1. INTRODUCTION

The Bavi National Park (NP) was established on December 18, 1991 issued Decision No. 407/CT of Prime Minister by changing from the Bavi national protected forest and managed by the Ministry of Agriculture and Rural Development. It is one of Vietnam's most famous areas of outstanding natural beauty and biodiversity with cool fresh mountain air in a mystical atmospheric backdrop of clouds, jungle and tropical rainforest. Currently, the total area of the park is 10,814.6 hectares, belonging to the administrative boundaries of 16 communes in 3 districts of Hanoi City and 2 districts of Hoa Binh Province and far from Hanoi City ca. 60 km on the west. Bavi NP contains the diverse flora and fauna such as *Calocedrus macrolepis*, *Podocarpus nerrifolius, Chrotogale owstoni*, *Artictis binturong*, *Prionodon pardicolor*… (http://vuonquocgiabavi.com.vn/gioi-thieu-vuon-quoc-gia-ba-vi/275)

Magnoliaceae is one of the earliest groups of the flowering plants in Angiosperms. Magnolias plants have great potential for exploitation and utilization because of the beautiful tree form and fragrant and nice flowers. In Vietnam, the family Magnoliaceae comprise at least 60 species, distributed widely from North to South (Vu, 2013). To provide more knowledges on the family Magnoliaceae in defined forests as Bavi NP, this paper will focused on the species composition, basic morphological and ecological characters, distribution and the taxonomic key to the species in the Bavi NP.

2. RESEARCH METHODOLOGY

The field trips were carried out to collect the specimens and other related information such as morphological and ecological characters, distribution, etc. (Thin, 2007; Chung, 2008). These specimens were compared with the types and other realated species for identification. The taxonomic key is established following the dichotomous key (Vu, 2014). The compared morphology was the method used for plant taxonomy.

3. RESULTS AND DISCUSSIONS

3.1. Taxonomic key to genera and species of Magnoliaceae in the Bavi NP

1A: Flower axillary……. *Michelia*
2A: Stipular scar on the petioles present (nearly reaching ½). *1. Michelia alba*
2B: Stipular free from the petioles (no scar on the petiole)
3A: Both surfaces of leaves freshly green, glabrous……. *2. Michelia tonkinensis*
3B: Lower surface of leaves with clour hairs
4A: Tepals 9-12……. *3. Michelia foveolata*
4B: Tepals 6…….. *4. Michelia balansae*
1B: Flowers terminal
5A: Ovules 2 per carpel……. *5.Magnolia* aff. *fistulosa*
5B: Ovules 4 to many per carpel
6A: Stipular scar semi-orbicular …… *6. Manglietia phuthoensis*
6B: Stipular scar 1/3-1/2 as long as petiole…… *7. Manglietia conifera*

3.2. The basic morphological, ecological characters and taxonomic treatment of Magnoliacious species in Bavi NP

(1) *Michelia x alba* Candolle (Fig 1)

Syst. Nat. 1: 449. 1817. T. B. H. H. Pham, Ill. Fl. Vietn.1: 290.1991; Ill. Fl. Vietn.1: 236. 1999; Chen & Noot. in Ann. Missouri Bot. Gard. 80(4): 1076. 1993; Law in Fl. Reip. Pop. Sin. 30(1): 157. 1996; D. G. Frodin & R. Govaerts, World Checklist Bibliogr. Magnoliaceae: 54. 1996; Law et al., Magn. China: 214. 2004; Law & Xia in Fl. Yunnan. 16: 41. 2006; Nguyen in Checklist Pl. Sp. Vietn. 2: 12. 2003.-- *Magnolia x alba* (Candolle) Figlar & Noot. in Blumea 49(1): 96. 2004. TYPE: *Sampacca domestica* IV *alba* Rumph., Herb. Amboin. 2: 200. 1741.

Michelia x longifolia Blume, Verh. Batav. Genootsch. Kunsten 9: 155. 1823. *Sampacca x longifolia* O. Kunsten, Rev. Gen. Pl.1: 6. 1891. TYPE: Indonesia, Java, Blume s.n. (L, sheet No. 908.126-1242; IT: K!).

Michelia x longifolia var. *racemosa* Blume, Fl. Javae 19-20: 13. 1829. TYPE: Blume s.n. (L).

Vern.: Ngọc lan hoa trắng

Trees, to 15 m tall, to 30 - 60 cm in diam. Bark gray, not fissured; young twigs and buds densely grayish white pubescent or puberulous, glabrescent. Stipular scar nearly reaching 1/2 of petiole. Leaf blade thinly leathery, lanceolate to elliptic to obovate-elliptic, 10 - 35 x 4 - 13 cm, base cuneate, apex long acuminate to caudate-acuminate; secondary veins 12 - 18 on each side of petiole; reticulate veins conspicuous on both surfaces when dry. Brachyblast with 2 - 3 spathaceous scars. Flowers very fragrant, white. Tepals 10 - 12, subequal, lanceolate. Stamens cream white, connective exserted and forming a long appendage. Fruit ussually rare, carpels usually partly undeveloped, forming a sparsely follicular fruit as torus elongates when mature. Fl. Apr-Sep.

Cultivated. [Native to Indonesia (Java)]. **In Bavi NP**, it is cultivated around code 400m alt. for the ornamental tree.

Note: Most closely related to *Michelia champaca,* but differs in its glossier leaves with stipular scar nearly ½ of the petiole and usually not fruiting.

(2) *Michelia tonkinensis* A. Chev. (Fig 1)

In Bull. Econ. Indochine 21: 792. 1918; H. H. Pham, Ill. Fl. Vietn. 1: 296.1991. Ill. Fl. Vietn. 1: 241.1999; T. B. Nguyen in Checklist Pl. Sp. Vietn. 2: 15. 2003. TYPE: Vietnam. Tuyen Quang Prov., Reserve Forestiere de hũi là, 1 May 1918, Fleury 37.667, P).

Michelia gioi (A. Chev.) Sima & Hong Yu, Seed Pl. Honghe Reg. SE Yunnan. 55. 2003 Xia et al. in Fl. China 7: 89. 2008; Q. N. Vu & N. H. Xia in Vietnam Journal of Forest Science 1: 826. 2009. -- *Talauma gioi* A. Chev. in Bull.

Econ. Indochine 21: 790. 1918. TYPE: Service forestier 38204 (HT: P!). [‘*gioii*’].

Michelia hypolampra Dandy in J. Bot. 66: 321. 1928; Gagnep. in H. Humbert, Suppl. Fl. Indo-Ch. 1: 51. 1938; T. B. Nguyen in Checklist Pl. Sp. Vietn. 2: 13. 2003. H. H. Pham, Ill. Fl. Vietn.1: 294.1991, Ill. Fl. Vietn.1: 239.1999; -- *Magnolia hypolampra* (Dandy) Figlar in Proc. Internat. Fam. Magnoliaceae: 22. 2000.TYPE: Vietnam. 8 May 1914, Fleury in Chevalier 30158 (HT: P!; IT: K!).

Michelia hedyosperma Y. W. Law in Bull. Bot. Res. 5(3): 123. 1985; Law in Fl. Reip. Pop. Sin. 30(1): 173. 1996; Law et al., Magn. China: 274. 2004. TYPE: China. Guangxi, Longzhou, Daqingshan, L. C. Chia & S. L. Feng 6054 (HT: IBSC!).

Figure 1. Types and photos of *Michelia alba* (left) and *Michelia tonkinensis* (right)

Vern.: Giổi ăn hạt, giổi sơ pai (Gia Lai)

Trees, ca. 20 m tall, ca. 20 - 25 cm in diam. Bark grey, smooth; buds, young petioles, brachyblasts, flower buds, and carpels

appressed short sericeous to glabrous. Stipule free from petiole. Leaf blade small-medium, obovate to elliptic-obovate, thinly leathery, with *Illicium* odor when crushed, both surfaces freshly green, slightly glossy and glabrous; secondary veins 7 - 10 on each side of midvein and prominent on both surfaces, reticulate veins slender, dense, and prominent on both surfaces. Spathaceous bracts 2. Flower very fragrant, yellow. Tepals 9 with greenish-yellow outside in outer tepals. Gynoecium yellowish-green, glabrous, ovoid, capels few, 7 - 10, becoming very separate in developed fruit. Mature carpels 2 - 7, ellipsoid, densely lenticellate, base shrunken into 5-10 mm stalks, apex mucronate, valves thick, reflexed when matured, exposing white endocarp. Seeds 1-4 per carpel, red. Fl. Mar-Apr, fr. Sep-Oct.

Distribution and ecology: Vietnam. Tuyen Quang, Yen Bai, Phu Tho, Ninh Binh, Nghe An, Thanh Hoa, Ha Tinh, Thua Thien Hue, Quang Tri Provinces. Also in China (SW Guangxi, Hainan, S Yunnan). In forest, at 33-650 m alt. **In Bavi NP**, it is cultivated in the code 400 m alt.

Note: Remarkable species by its normally less than 10 carpels per gynoecium, ellipsoid and ca. 3 - 7 developed carpels. Seeds used for spice and medicine.

(3) *Michelia balansae* (Aug. DC.) Dandy (Fig 2)

in Kew Bull. 7: 263.1927; Gagnep. in H. Humbert, Suppl. Fl. Indo-Ch. 1: 46. 1938; H. H. Pham, Ill. Fl. Vietn.1: 291.1991; Ill. Fl. Vietn.1: 237.1999 Chen & Noot. in Ann. Missouri Bot. Gard. 80(4): 1078. 1993, excl. syn. *Michleia tonkinensis* A. Chev.; Law in Fl. Reip. Pop. Sin. 30(1): 167. 1996; D. G. Frodin & R. Govaerts, World Checklist Bibliogr. Magnoliaceae: 54. 1996; T. B. Nguyen in Checklist Pl. Sp. Vietn. 2: 12. 2003; Law et al., Magn. China: 220. 2004; Law & Xia in Fl. Yunnan. 16: 47. 2006; Xia et al. in Fl. China 7: 89. 2008, excl. syn. *Michleia tonkinensis* A. Chev. - *Magnolia balansae* Aug. DC. in Bull. Herb. Boiss. Ser. 2. 4: 294. 1904. TYPE: Vietnam. Ha Tay, Ba Vi, 7 Jan. 1887, Balansa 3886 (HT: P!; IT: K!, L!).

Michelia baviensis Finet & Gagnep. in Bull. Soc. Bot. France 52(Mém. 4): 44. 1906; in M. H. Lecomte, Fl. Indo-Ch. 1: 38. 1907. TYPE: Vietnam. Ha Tay, Ba Vi, 7 Jan. 1887, Balansa 3886 (HT: P!; IT: K!, L!).

Michelia balansae var. *appressipubescens* Y. W. Law in Bull. Bot. Res. 5(3): 124. 1985; in Fl. Reip. Pop. Sin. 30(1): 168. 1996; Law et al., Magn. China: 222. 2004. TYPE: China. Hainan, Dingan, 30 Apr. 1932, S. P. Ko 52279 (HT: IBSC!; IT: A, BM, K!, NY).

M. balansae var. *brevipes* B. L. Chen in Acta Sci. Nat. Univ. Sunyatseni 1: 112. 1988. TYPE: China, Yunnan, Malipo, alt. 1165 m, B. L. Chen & C. N. Mai 87T-034 (HT: SYS!).

Vern.: Giổi bà, giổi ba vì

Trees, 7 - 10 m tall, to 60 cm in diam. Bark gray to grayish brown, not fissured. Young twigs, buds, petioles, leaf blade abaxial surfaces, flower buds, gynoecium and brachyblasts densely brown or reddish tomentose or appressed fine tomentose. Stipules densely pubescent, free from the petioles. Leaf blade oblong-elliptic to obovate-elliptic to broadly elliptic, abaxially veins evidently prominent and brown or reddish tomentose, adaxially subglabrous; base broadly cuneate, apex abruptly acute; secondary veins 10 - 15 on each side of midvein with ends arching upward and becoming reticulate. Brachyblast 1 - 1.2 cm long, with 1 - 2 spathaceous bracts. Flowers fragrant; tepals 6, subequal, white and/or pale greenish, obovate-elliptic, glabrous; stamens with connective exserted and forming a mucro. Fruiting 4 - 12 cm long. Seeds ellipsoid, testa bright red. Fl. Mar-Jul, fr. Aug-Oct.

Distribution and ecology: Cao Bang, Ha Giang, Hanoi, Hoa Binh, Lao Cai, Nghe An, Ninh Binh, Phu Tho, Quang Binh, Quang Tri, Son La, Thai Nguyen, Thanh Hoa, Tuyen Quang, Vinh Phuc, Yen Bai provinces. Also in China (S Fujian, S and SW Guangdong, S

Guangxi, Guizhou, Hainan, S Yunnan). Evergreen broad-leaved forest, on moist sandy soil, at 200 - 1100 m alt. **In Bavi NP**, it is found in the path from code 450 m alt. to 1100 m alt.

Notes: *Magnolia balansae* and *Michelia baviensis* were published based on the same collection *Balansa 3886* from Mts. Bavi, Hanoi, Vietnam, but Finet & Gagnepain wrongly cited the number as 3386. The former is the earlier name and should be used.

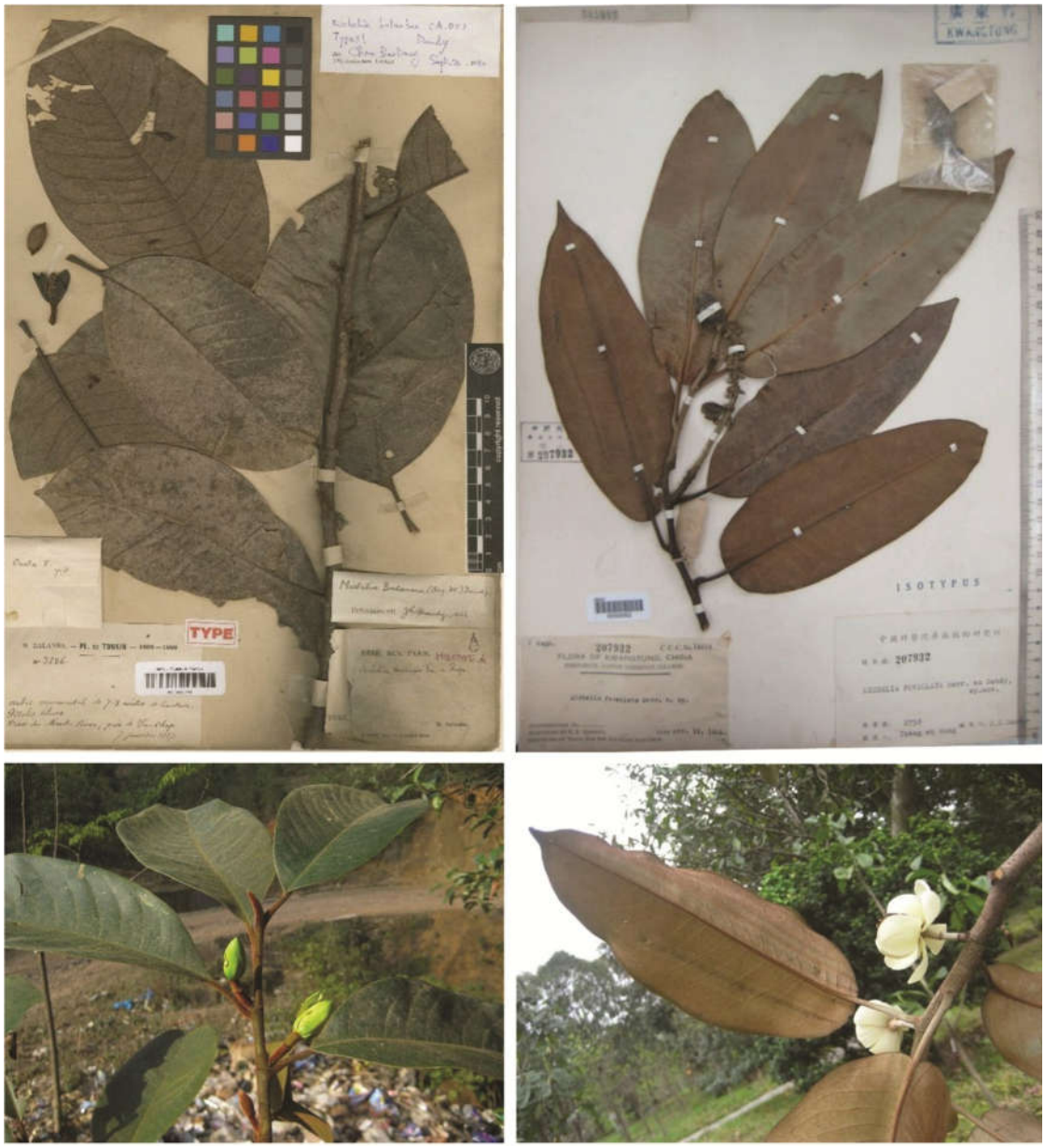

Figure 2. Types and photos of *Michelia balansae* (left) and *Michelia foveolata* (right)

(4) *Michelia foveolata* Merr. ex Dandy (Fig 2)

in J. Bot. 66(12): 360. 1928; Gagnep. in H. Humbert, Suppl. Fl. Indo-Ch. 1: 46. 1938; H. H. Pham, Ill. Fl. Vietn.1: 293.1991, Ill. Fl. Vietn.1: 239.1999; Chen & Noot. in Ann. Missouri Bot. Gard. 80(4): 1066. 1993; Law in Fl. Reip. Pop. Sin. 30(1): 181. 1996; D. G. Frodin & R. Govaerts, World Checklist Bibliogr. Magnoliaceae: 57. 1996; T. B. Nguyen in Checklist Pl. Sp. Vietn. 2: 13. 2003; Law et al., Magn. China: 256. 2004; Law & Xia in Fl. Yunnan. 16: 53. 2006; Xia et al. in Fl. China 7: 86. 2008. - *Magnolia foveolata* (Merr. ex Dandy) Figlar in Proc. Internat. Fam. Magnoliaceae: 22. 2000. TYPE: China. Guangdong, Yingde, 19 Oct. 1926, W. T.

Tsang & W. C. Wong 2738 in Canton Christian College 14599 (HT: UC; IT: IBSC!).

Michelia fulgens Dandy in J. Bot. 68: 210. 1930; Law in Fl. Reip. Pop. Sin. 30(1): 159. 1996; Law et al., Magn. China: 262. 2004. TYPE: Vietnam. Da Nang, Tourane, Ba Na, alt. 1400 m, 12 July 1923, Poilane 7092 (HT: P!; PT: SYS!).

Michelia foveolata var. *cinerascens* Y. W. Law & Y. F. Wu in Bull. Bot. Res. 6(2): 99. 1986; Law in Fl. Reip. Pop. Sin. 30(1): 159. 1996; Law et al., Magn. China: 258. 2004. TYPE: China. Zhejiang, Qingyuan, M. X. Wu 7720 (HT: IBSC!; IT: IBSC!).

Michelia longistyla Y.W. Law & Y.F. Wu in Acta Bot. Yunnan. 10(3): 341. 1988; Law et al., Magn. China: 283. 2004. TYPE: China. Yunnan, Jingping, 2000 m alt., 19 Mar. 1958, Q. Wang 142 (HT: PE!).

Michelia oblongifolia Hung T. Chang & B. L. Chen in Acta Sci. Nat. Univ. Sunyatseni 3: 86. 1987. TYPE: B. L. Chen 86S193 (HT: SYS!).

Vern.: Giổi lá láng

Trees, to 40 m tall, to 80 cm in diam. Bark pale gray to dark gray, not fissured. Young twigs, buds, petioles, leaf blade abaxial surfaces, and brachyblasts densely reddish brown, brown, or white tomentulose. Stipule free from the petiole. Leaf blade oblong-elliptic, elliptic-ovate, lanceolate, narrowly elliptic or narrowly ovate, thickly leathery, abaxially coppery to gray tomentulose, sometimes white tomentulose, adaxially deep green and glossy, secondary veins 11 - 19, slender, reticulate veins dense, base broadly cuneate, obtuse, rounded or subcaudate and usually asymmetrical, apex acuminate to shortly acuminate to rounded. Brachyblasts with 3 or 4 bract scars. Tepals 9 - 12, pale yellowish green to yellowish-white. Stamens with filaments dark purple. Gynophore silvery tomentulose. Fruit 7 - 20 cm; mature carpels long ellipsoid. Fl. Mar-May, fr. Sep-Oct.

Distribution and ecology: Vietnam. Lao Cai, Tuyen Quang, Son La, Yen Bai, Phu Tho, Vinh Phuc, Ha Tay, Quang Ninh, Thanh Hoa, Nghe An, Thua Thien Hue, Da Nang, Kon Tum, Gia Lai provinces. Also in China (Fujian, Guangdong, S Guangxi, SE Guizhou, Hainan, W Hubei, Hunan, Jiangxi, SE Yunnan). Evergreen broad-leaved forests, 500 - 1800 m alt. **In Bavi NP**, it is found in the path from the code 1100m alt. to Den Thuong Temple.

Note: The size and indumentum of leaf blade are variable and wide distributed.

(5) *Manglietia phuthoensis* Dandy ex Gagnep. (Fig 3)

in Fl. Indo-Chine. Paris. Suppl.: 36.1938, nom. subnud. Ill. Fl. Vietn.1: 231.1999. nom. nud. TYPE: Vietnam, Phu Tho, 7/10/1924, Service forestier N15 (HT: P!).

Vern.: Mỡ phú thọ

Trees, to 10 - 15 m tall, ca. 30cm in diam. Bark grayish brown. Young twigs, petioles and stipular scars with pale reddish brown appressed trichomes. Young twigs green. Stipular scar semi-orbicular to semi-elliptic, 1/10 - 1/5 as long as petiole. Leaf blade oblanceolate to obovate to elliptic to ovate-oblong; base cuneate to sometimes subobtuse, apex cuspidate to shortly caudate, leathery, adaxially glabrous, abaxially reddish setulose; secondary veins 10 - 16 on each side of midvein, slender. Peduncle 1 - 1.5 cm long in flower and ca. 2.5 in fruit; pedicle short ca. 0.5cm long. Flower white, terminal. Tepals 9, outer tepals greenish outside, thin, inner ones white, obovate, fleshy, base gradually tapered and forming a long claw. Stamens numerous, cream. Gynoecium terete, glabrous. Fruit ovoid to ellipsoid. Fl. Feb-Apr, fr. Sep-Oct.

Distribution and ecology: Vietnam. Yen Bai, Lao Cai, Tuyen Quang, Phu Tho, Ha Tinh, Khanh Hoa, Gia Lai, Lam Dong provinces. Also in Laos and China (S Yunnan). Sparsely in thin forests, at (300)800 - 1500 m alt. **In Bavi NP**, it is cultivated around the office of Bavi NP and in the code 400 m alt.

Notes: Dandy put the name *M. phuthoensis* on the label of some specimens in P and it was placed as synonym of *M. chevalieri* Dandy in

Gagnep. in H. Humbert, Suppl. Fl. Indo-Ch. 1: 36. 1938. This species needs to be paid more attention.

Figure 3. Types and photos of *Manglietia phuthoensis* (left) and *Manglietia conifera* (right)

(6) *Manglietia conifera* Dandy (Fig. 3)

in J. Bot. 68: 205. 1930; Gagnep. in H. Humbert, Suppl. Fl. Indo-Ch. 1: 33. 1938; Chen & Noot. in Ann. Missouri Bot. Gard. 80(4): 1034. 1993, p.p. excl. syn *M. glaucifolia* Y.W. Law & Y.F. Wu & *M. ovoidea* Hung T. Chang & B.L. Chen; D. G. Frodin & R. Govaerts, World Checklist Bibliogr. Magnoliaceae: 50. 1996, p.p. excl. syn *M. glaucifolia* Y.W. Law & Y.F. Wu & *M. ovoidea* Hung T. Chang & B.L. Chen; H. H. Pham, Ill. Fl. Vietn.1: 283.1991; Ill. Fl. Vietn.1: 230.1999; T. B. Nguyen in Checklist Pl. Sp. Vietn. 2: 10. 2003; Law & Xia in Fl. Yunnan. 16: 6. 2006; Xia et al. in Fl. China 7: 60. 2008. -- *Manglietia glauca* auct. non Blume: Finet & Gagnep. in Bull. Soc. Bot. France 52 (Mém. 4): 34, pl. 4b. 1906; in M. H. Lecomte, Fl. Indo-Ch. 1: 35. 1907. -- *Magnolia conifera* (Dandy) V. S. Kumar in Kew Bull 61(2): 183. 2006. TYPE: Vietnam. Ha Tay (Hanoi), Bavi Mts., alt. 800 - 1200 m,

2 June 1918, Fleury in Chevalier 37817 (HT: P!; IT: P!).

Mangleitia chingii Dandy in J. Bot. 69: 232. 1931; Law in Fl. Reip. Pop. Sin. 30(1): 92. 1996; Law et al., Magn. China: 130. 2004. *M. conifera* subsp. *chingii* (Dandy) V. S. Kumar in Kew Bull. 61(2): 183. 2006. TYPE: China. Guangxi, alt. 790 m, 3 November 1928, R. C. Ching 8390 (HT: BM; IT: A, K!, NY!, PE!).

Manglietia tenuipes Dandy in J. Bot. 69: 232. 1931. TYPE: China. Guangxi, alt. 1460 m, 25 Aug. 1928, R. C. Ching 7117 (HT: BM; IT: NY!).

Vern.: Mỡ ba vì

Trees, 15 - 20 m tall, 30 cm in diam. Bark gray and smooth. Vegetative buds and young twigs reddish brown pubescent. Stipular scar 1/3 - 1/2 as long as petiole. Leaf blade obovate to narrowly obovate-elliptic to oblong-elliptic to elliptic, leathery, abaxially appressed brown puberulous when young, glabrescent, adaxially glabrous, green; base narrowly cuneate to cuneate, apex shortly acuminate to rotund; secondary veins 13 - 17 on each side of midvein, slender. Peduncle 2.5 - 5.5 cm long, slender, erect or slightly pendulous, with 1 bract scar basal to tepals; pedicle absent. Flower terminal, solitary, white in gerneral; tepals 9 or 11, 3 per whorl, glabrous, 3 outer tepals usually greenish, oblong. Stamens reddish. Gynoecium ovoid, glabrous, greenish, exserted from androecium. Fruit short ovoid, Seeds 3 - 4 or more per carpel, ovoid. Fl. May-Jun, fr. Sep-Oct.

Distribution and ecology: Vietnam. Hanoi, Lao Cai, Quang Ninh, Tuyen Quang, Vinh Phuc, Lam Dong provinces. Also in China (N Guangdong, Guangxi, SE Guizhou, S Hunan, SE Yunnan) and Laos. Growing in evergreen broad-leaved forest, at 700 - 1300 m alt. **In Bavi NP**, it is found from the code 800 m alt. along the main path to the code 1100 m alt. and more abundance in Bac Ho Temple.

Notes: This species is very distinct, easily recognized by its long peduncle while the pedicle is absent.

(7) *Magnolia* aff. *fistulosa* (Finet & Gagnep.) Dandy

in Fl. China 7: 62. 2008, excl. syn. *M. phanerophlebia* B. L. Chen.

Vern.: Dạ hợp bộng

Evergreen shrubs or small trees, to 3-5 m tall. Totally glabrous. Stipular scar reaching apex of the petiole. Leaf blade obovate to elliptic, leathery, abaxially greenish, glabrescent, adaxially dark green and shiny; base cuneate and decurrent with 2 ridges into the petiole, apex acuminate, acumen 3 - 10 mm long; venation conspicuously elevated abaxially, specially on midvein, secondary veins 13 - 15 on each side of midvein, adaxially much impressed. Brachyblast erect or slightly recurved, glabrous, spathaceous bracts 3-5-7. Flower terminal, solitary, bisexual; tepals 9, outer tepals greenish, elliptic, fleshy; stamens numerous, cream in general, but violet on the top; gynoecium sessile, narrowly ovoid, exserted from androecium. Fruit ellipsoid, carpels dorsally dehiscent. Fl. Arp-May.

Distribution and ecology: Vietnam. Hanoi (Bavi NP) Provinces. Also in China (S Yunnan). Evergreen broad-leaved forests; 500 - 800 m. **In Bavi NP**, it is found along the path from the code 1100 m alt. to near Bac Ho Temple (not very common).

Notes: *L. fistulosa* is closely related to *M. phanerophlebia* B.L. Chen (Acta Sci. Nat. Univ. Sunyatseni 1: 107. 1988; TYPE: China: Yunnan: Maguan Xian, Gulinqing, 725 m, 4 April 1987, B.L. Chen & C.N. Mai 87T001; HT: SYS!; IT: L), but the latter differs mainly in being stipular scars over ½, longer petioles and totally cream in stamens.

Figure 4. Types and photos of *Magnolia* aff. *fistulosa*

4. CONCLUSION

- There are seven species, belonging to three genera of the family Magnoliaceae are found in Bavi NP: *Michelia alba, M. tonkinensis, M. foveolata, M. balansae, Magnolia* aff. *fistulosa, Manglietia phuthoensis,* and *M. conifera*, three of which are cultivated such as *Michelia alba, M. tonkinensis* and *Manglietia phuthoensis*.

- Information of taxonomic treatment, vernacular name, morphological character, basic distribution and ecology, and note are provided for each species

- Types and photos of these species as well as the key to genus and species are also given. This will be very useful for identification and a exact evidence for other sciences as species conservasion, biology, forestry, etc. in Bavi National Park.

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HIỆN TRẠNG CỦA HỌ NGỌC LAN (MAGNOLIACEAE) TẠI VƯỜN QUỐC GIA BA VÌ

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[1]Trường Đại học Lâm nghiệp

TÓM TẮT

Ngọc lan (Magnoliaceae) là một trong các họ nguyên thủy nhất của thực vật có hoa và có vai trò quan trọng trong nghiên cứu tiến hóa thực vật và các khoa học liên quan khác. Ở Việt Nam, họ này bao gồm khoảng 60 loài, trong tổng số khoảng 300 loài trên thế giới, phân bố rộng khắp từ Bắc vào Nam. Nhằm cung cấp thêm những hiểu biết về họ Ngọc lan ở những khu vực nhất định, chúng tôi chọn nghiên cứu về hiện trạng các loài của họ này tại Vườn quốc gia Ba Vì. Kết quả cho thấy có 07 loài thuộc 03 chi được xác định tại khu vực nghiên cứu, đó là: Ngọc lan hoa trắng (*Michelia alba*), Giổi ăn hạt (*M. tonkinensis*), Giổi lá láng (*M. foveolata*), Giổi bà (*M. balansae*), Dạ hợp bộng (*Magnolia* aff. *fistulosa*), Mỡ phú thọ (*Manglietia phuthoensis*) và Mỡ ba vì (*M. conifera*), 03 loài trong số trên là những loài không phải có phân bố tự nhiên tại khu vực: *Michelia alba, M. tonkinensis* và *Manglietia phuthoensis*. Đối với mỗi loài, những thông tin về xử lý phân loại, tên Latin và Việt Nam, mô tả đặc điểm hình thái, thông tin cơ bản về phân bố và sinh thái và những chú ý về mặt phân loại được cung cấp. Bên cạnh đó, các ảnh tiêu bản gốc và ảnh màu của mỗi loài cùng khóa tra phân loại cũng được trình bày nhằm giúp cho việc định danh loài. Đây sẽ là dữ liệu tốt giúp mở ra các hướng nghiên cứu tiếp theo cho các lĩnh vực như bảo tồn loài, sinh học, lâm học... tại Vườn quốc gia Ba Vì.

Từ khóa: Họ Ngọc lan, khóa tra phân loại, nhận biết thực vật, phân loại học, Vườn quốc gia Ba Vì.

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