New localities of 255 orchid species (Orchidaceae), which belong to 77 genera, are reported in the paper. All discoveries are based on herbarium materials collected on the territory of Vietnam during field works of 1999–2004 years as well as on herbarium and living samples that were found in Herbaria and private collections in Vietnam. Among reported orchids 16 species \( (\text{Cymbidium devonianum}, \text{C. mastersii}, \text{Cyrtosia nana}, \text{Dendrobium falconeri}, \text{D. jenkinsii}, \text{D. trigonopus}, \text{D. umbonatum}, \text{Hetaeria nitida}, \text{Liparis tenuis}, \text{Peristylus holltumi}, \text{Stereochilus brevirachis}, \text{Thrixspermum sutepense}, \text{Vanda alpina}, \text{V. cristata}, \text{V. petersiana}, \text{Zeuxine flava}) \) were found in Vietnam at first. Such species are marked with a sign (*). They represent new additions to the orchid flora of the country. One nomenclature combination in rank of variety \( (\text{Dendrobium capillipes var. braianense}) \) is proposed.


Field studies of the flora and vegetation according to mentioned investigation programs were connected with extensive collection of herbarium materials, which represent voucher materials for all published reports of species localities. Duplicate sets of collected voucher herbarium samples are housed mainly at Herbaria of the
Institute of Ecology and Biological Resources of Academy of Sciences and Technology of Vietnam (HN), Cuc Phuong National Park, Komarov Botanical Institute of the Russian Academy of Science (LE) and Missouri Botanical Garden (MO).

The orchid names in the list are arranged in alphabetic order. Abbreviated and unified text of herbarium labels are reported for each collecting numbers. In the text are used next standard abbreviations: prov. (province), distr. (district), mun. (municipality), vic. (vicinity, vicinities), elev. (elevation, elevations), mt. (mountain, mountains), N.P. (National Park). The names of orchid species and genera reported for Vietnam at first are marked with asterisk (*). Prefixes at the collecting numbers represent next abbreviations:

- **CBL** – Caobang Limestone (collections on program of U.S.A. National Geographic Society "Limestone flora of Cao Bang province of North Viet Nam", Principal Investigator Dr. Nguyen Tien Hiep),
- **CPNP** – collections in Cuc Phuong National Park (commonly without indication of collectors),
- **DDS** – Dr. Djaja Doel Soejarto (collections according to International Cooperative Biodiversity Groups program with this person as Principal Investigator),
- **DKH** – Dr. D. Harder (collections according to expeditions with this person as Principal Investigator),
- **HAL** – Dr. Nguyen Tien Hiep, Prof. L. Averyanov, Prof. Phan Ke Loc (collections in collaborative explorations of these persons),
- **LX-VN** – collections of Soviet-Vietnamese Expedition (commonly without exact indication of collectors),
- **NMC** – collections of staff member of Cuc Phuong National Park – Mr. Nguyen Manh Cuong on the territory of the national park,
- **NTH** – Dr. Nguyen Tien Hiep (collections in expeditions with this person as Principal Investigator),
- **P** – Prof. Phan Ke Loc (collections in expeditions with this person as Principal Investigator),
- **VH** – Vietnamese Highlands (collections on program of U.S.A. National Geographic Society "Flora of Highlands of South Vietnam", Principal Investigator Prof. L. Averyanov).

Few other occasional herbarium collections of different collectors housed in Herbaria of the Institute of Ecology and Biological Resources (HN) and Cuc Phuong National Park were also included in the paper.

**New data for distribution of rare orchid species in Vietnam**

1. *Acampe* Lindley
   1.1. *A. rigida* (J.E. Sm.) P. Hunt

**N. Vietnam, Quang Ninh** prov., Ha Long Bay, Dau Go Cave, 20°54'650"N 107°01'149"E. 16 February 2003, *N.X. Tam, P.V. The, NTH 5487*. 
2. Acanthephippium Blume

2.2. A. striatum Lindley


3. Aerides Lour.

3.3. A. crassifolia Parish ex Burb.


3.4. A. odorata Lour.


4. Anoectochilus Blume

4.5. A. calcareus Aver.


4.6. A. roxburghii (Wallich) Lindley

5. Anthogonium Lindley

5.7. A. gracile Wallich ex Lindley


6. Aphyllorchis Blume


N. Vietnam, Nghe An prov., Quy Chau distr., Dien Lam mun., on the trail to Phu Lon peak through Muc Pan locality, 19°23'34.9"N 104°52'39.9"E, at elev. about 800 m. Primary closed evergreen tropical seasonal broad-leaved submontane forest on shale, sandstone and rhyolite deep soil. Saprophytic herb up to 0.5 m tall. Flowers yellowish with violet traces. 19 February 2004, P.K. Loc, V.M. Son, L.T. An et al., HLF 3102.

6.9. A. montana Reichenb. f.


7. Apostasia Blume

7.10. A. odorata Blume

N. Vietnam, Ha Tinh prov., Huong Son distr., Son Hong mun., around point 18°34'06"N 105°11'40"E. Primary broad-leaved dry closed evergreen forest on very steep mt. slopes of Khe Sinh stream canyon and along ridge composed with shale at elev. 800–1100 m near Laotian border. Terrestrial herb 20 cm tall. Flowers yellow. 11 May 2004, P.K. Loc, L. Averyanov, P.V. The et al., HAL 5337. N. Vietnam, Ha Tinh prov., Huong Son distr., Son Kim mun., Rao Bun stream around 18°25'18"N 105°13'15"E. Primary and secondary broad-leaved evergreen closed wet forest on very steep shale slopes of river canyon at elev. 200–300 m. Terrestrial herb in shady slope. Flowers yellow. Rare. 6 May 2004, P.K. Loc, L. Averyanov, P.V. The et al., HAL 5157. N. Vietnam, Lao Cai prov., Van Ban distr., Liem Phu mun., Khuoi Ngoa village, 21°58'08"N 104°21'00"E at elev. 600–1100 m. Primary forest with Fokienia hodginsii on quartzite and limestone. Herb up to 0.8 m tall. Occasional. 21 February 2001, D. Harder, L. Averyanov, P.K. Loc, DKH 6626. N. Vietnam, Lao Cai prov., Van Ban distr., Nam Xe mun., Nam Xi Tan village. Secondary forest at top of ridge on eroded granite, 22°02'57"N 103°58'35"E at elev. 700–1100 m. Herb up to 0.4 m tall. Occasional. 26 February 2001, D. Harder, P.K. Loc, N.T. Hiep et al., DKH s.n. S. Vietnam, Thua Thien Hue prov., Phu Loc distr., Bach Ma N.P., N slope of Bach Ma mt. system, to the N of point 16°11'50"N 107°50'44"E at elev. 600–1000 m. Mixed and broad-leaved evergreen primary closed wet mt. forest with Shorea stellata and

7.11. A. wallichii R. Br.


8. Appendicula Blume

8.12. A. cornuta Blume


8.13. A. hexandra (Koenig) J.J. Sm.


9. **Arundina** Blume


10. **Biermannia** King et Pantl.

10.15. *B. calcarata* Aver.


11. **Bulbophyllum** Thouars


11.17. *B. andersonii* (Hook. f.) J.J. Sm.

June 2004, L. Averyanov, P.K. Loc, P.V. The et al., HAL 5549.

11.18. **B. arcuatilabium** Aver.

**N. Vietnam, Thanh Hoa** prov., **Ba Thuc** distr., Lam Xa mun., Lang Trang village, around point 20°20'02"N 105°12'39"E. Remnants of primary broad-leaved evergreen seasonal forest along rocky tops of remnant mt. composed with solid crystalline marble-like highly eroded limestone at elev. 500–550 m. Epiphyte. Locally common. 15 October 2003, L. Averyanov, N.T. Hiep, D.T. Doan et al., HAL 4356.


**N. Vietnam, Hoa Binh** prov., **Mai Chau** distr., Pa Co mun., 20°44'33" N 104°53'54" E at elev. 1150–1250 m. In logged primary closed evergreen tropical seasonal coniferous submontane forests with *Pinus fenzelian*a on top ridges of limestone mt. Rare epiphyte. 2 December 2003, P.K. Loc, P 10659.

11.20. **B. delitescens** Hance


11.22. **B. insulsum** (Gagnepain) Seidenf.


11.23. **B. longibrachiatum** Z.H. Tsi


N. Vietnam, Bac Kan prov., Na Ri distr., Liem Thuy mun., Na Bo village, around point 21°56'44"N 106°05'09"E, at elev. 300–700 m. Primary broad-leaved evergreen closed wet forest on very steep slopes and cliffs of rocky ridges and mesas composed with white solid marble-like crystalline limestone. Lithophytic and epiphytic creeping herb. Lateral sepals and petals dull yellow, central sepal dull pink-purple, lip light yellow. Common. 27 May 2004, L. Averyanov, N.T. Hiep, P.V. The et al., HAL 4911.

11.25. B. macranthum Lindley

S. Vietnam, Thua Thien Hue prov., Phu Loc distr., Bach Ma N.P., N slope of Bach Ma mt. system around point 16°13'53"N 107°49'02"E at elev. about 100 m. Broad-leaved evergreen wet secondary closed forest along rocky river valley and on river slopes. Creeping epiphyte on high trees. Flowers white with purple marks. Rare. 2 May 2003, N.T. Hiep, L. Averyanov, N.T. Vinh et al., HLF 1582.

11.26. B. nigrescens Rolfe


11.27. B. odoratissimum (J.E. Sm.) Lindley


11.28. B. poilanei Gagnepain

N. Vietnam, Ha Tinh prov., Huong Son distr., Son Hong mun., around point 18°34'06"N 105°11'40"E. Primary broad-leaved dry closed evergreen forest on very steep mt. slopes of Khe Sinh stream canyon and along ridge composed with shale at elev. 800–1100 m. near Laotian border. Epiphyte on high tree. Flowers dirty deep brown-violet. Rare. 11 May 2004, P.K. Loc, L. Averyanov, P.V. The et al., HAL 5336.

11.29. B. reptans (Lindley) Lindley


11.30. B. retusiusculum Reichenb. f.

N. Vietnam, Ha Giang prov., Vi Xuyen distr., Cao Bo mun., Tam Ve village, 1800–1900 m, 22°46'30"N 104°49'01"E. Closed mossy cloud primary broad-leaved forest. Epiphyte. Lip orange, sepals and petals brownish-red. Rare. 10 September 2000, D. Harder, P.K. Loc, N.Q. Hieu et al., DKH 5399.


11.31. B. sigaldiae Guillaumin

S. Vietnam, Kontum prov., Kon Plong distr., Hieu mun., Mang La forest enterprise, 14°39'N 108°25'E. Primary wet mossy mt. coniferous forest on sandstone with Pinus dalatensis, Fokienia hodginsii, Dacrydium elatum and Dacrycarpus imbricatus along ridge tops at elev. 1200 m. Creeping epiphyte up to 4 m lg. Leaves green, below with purple-violet tint. Not rare. 22 April 2000, L. Averyanov, P.H. Hoang, N.T. Vinh et al., VH 5571.


21 April 2000, L. Averyanov, P.H. Hoang, N.T. Vinh et al., VH 5533.

11.32. B. thaiorum J.J. Sm.

N. Vietnam, Ha Giang prov., Vi Xuyen distr., Cao Bo mun., Tam Ve village, 1200–1360 m, 22°46'03"N 104°49'42"E. Disturbed secondary, evergreen, broad-leaved forest. Epiphyte on mossy tree trunk. Net around pseudobulb brown, pedicel light yellow, tepals are clear cream, streaked in red-purple. Rare. 12 September 2000, D. Harder, P.K. Loc, N.Q. Hieu et al., DKH 5483.

11.33. B. umbellatum J.J. Sm.


11.34. B. xylophyllum Parish et Reichenb. f.


12.35. *C. alismifolia* Lindley


12.36. *C. argenteo-striata* C.Z. Tang et S.J. Cheng

**N. Vietnam, Ha Giang** prov., **Quan Ba** dist., Bat Dai Son mun., Bat Dai Son Protected Area, 23°09'01"N 105°00'10"E at elev. 870–900 m. Secondary forest on limestone ridge top. Leaves with longitudinal lighter variegation, flowers white become faded yellow to orange. Frequent. 12 February 2001, *D. Harder, P.K. Loc, DKH 6214*.

12.37. *C. densiflora* Lindley

**N. Vietnam, Ha Giang** prov., **Vi Xuyen** dist., Cao Bo mun., Tam Ve village, 22°46'12"N 104°49'33"E at elev. 1310 m. Closed evergreen submontane broad-leaved primary forest. Terrestrial herb 0.6 m tall, flowers yellowish-orange. Common. 9 September 2000, *D. Harder, P.K. Loc, N.Q. Hieu, DKH 5317*.

12.38. *C. lyroglossa* Reichenb. f.

**S. Vietnam, Kontum** prov., **Kon Plong** dist., Hieu mun., Mang La forest enterprise, 14°39'N 108°25'E. Primary wet mossy mt. coniferous forest on sandstone with *Pinus dalatensis, Fokienia hodginsii, Dacrydium elatum* and *Dacrycarpus imbricatus* along ridge tops at elev. 1200 m. Terrestrial herb in wet shady place. Rare, but locally abundant. 22 April 2000, *L. Averyanov, P.H. Hoang, N.T. Vinh, VH 5567*.


13. *Callostylis* Blume

13.40. *C. rigida* Blume


Averyanov L., Averyanova A. Rare species of orchids (Orchidaceae) in the flora of Vietnam
14. **Ceratostylis** Blume


14.42. *C. siamensis* Rolfe ex Downie


15. **Cheirostylis** Blume

15.43. *Ch. chinensis* Rolfe

**N. Vietnam, Bac Kan** prov., **Cho Don** distr., Ban Thi mun., Phia Khao village, Lung Li locality, 22°17'30"N 105°31'16"E. Primary broad-leaved evergreen closed wet forest on very steep slopes and cliffs of remnant mt. composed with highly eroded crystalline limestone near top of ridge at elev. 800–900 m. Lithophytic herb on mossy


15.44. Ch. marmorifolia Aver.


15.45. Ch. yunnanensis Rolfe

N. Vietnam, Quang Ninh prov., Ha Long Bay, Dau Go Cave around point 20°54'650N 107°01'149E, 16 February 2003, N.X. Tam, P.V. The, NTH 5468.

16. Cleisostoma Blume

16.46. C. crochetii (Guillaumin) Garay


16.47. C. fuersteinbergianum Kraenzlin

16.48. *C. paniculatum* (Ker-Gawler) Garay

*N. Vietnam, Son La* prov., Moc Chau distr., Van Ho mun., Hua Tat village, 20°46′13″N 104°46′12″E at elev. 1100–1300 m. Primary broad-leaved closed wet forest along limestone ridge and slopes near tops. 7 March 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 7420. *N. Vietnam, Son La* prov., Yen Chau distr., Muong Lum mun., Lum village, 21°00′17″N 104°29′08″E at elev. 1242 m. Primary vegetation with *Pinus fenzelianna* and *Calocedrus* sp. along limestone ridges. Frequent lithophyte. 3 March 2001, D. Harder, P.K. Loc, N.T. Hiep, L. Averyanov et al., DKH 7201.

16.49. *C. racemiferum* (Lindley) Garay


16.50. *C. rostratum* (Lodd.) Garay


16.51. *C. simondii* (Gagnepain) Seidenf.

*N. Vietnam, Son La* prov., Yen Chau distr., Muong Lum mun., Lum village, 21°00′17″N 104°29′08″E at elev. 1242 m. Primary vegetation with *Pinus fenzelianna* and *Calocedrus* sp. along limestone ridges. Epiphyte. 3 March 2001, D. Harder, P.K. Loc, N.T. Hiep, L. Averyanov et al., DKH 7202. *N. Vietnam, Thanh Hoa* prov., Ba Thuoc distr., Co Lung mun., Khuyn village, around point 20°26′31″N 105°14′55″E. Primary evergreen seasonal broad-leaved submontane forest on crystalline marble-like highly eroded limestone slopes of ridge near the top at elev. 700–800 m. Epiphyte. Not common. 18 September 2003, L. Averyanov, D.T. Doan, J. Regalado et al., HAL 3068.

16.52. *C. striatum* (Reichenb. f.) Garay

*N. Vietnam, Son La* prov., Moc Chau distr., Van Ho mun., Hua Tat village, 20°46′35″N 104°46′31″E at elev. 1400–1500 m. Primary evergreen, closed forest with *Pinus fenzelianna* and *Calocedrus* sp. on limestone ridge and cliffs. Common epiphyte. 6 March 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 7377.

16.53. *C. williamsonii* (Reichenb. f.) Garay

*N. Vietnam, Bac Kan* prov., Cho Don distr., Ban Thi mun., Phia Khao village, Lo Da locality 22°16′01″N 105°33′07″E. Primary closed evergreen dry coniferous forest with *Fokienia hodginsii* along tops of ridge composed with highly eroded crystalline limestone at elev. about 900 m. Epiphyte. 26 December 2002, P.K. Loc, L. Averyanov, N.T. Vinh et al., HLF 830a. *N. Vietnam, Bac Kan* prov., Cho Don distr., Ban Thi mun., Phia Khao village, around point 22°16′10″N 105°31′01″E at elev. 700–850 m. (Tang Gia mt.). Primary broad-leaved evergreen closed forest on very steep slopes and cliffs near and on tops of rocky ridge composed with solid marble-like stratified limestone. Epiphyte on high trees. Flowers yellowish with purple. Occasional.

17. *Coelogyne* Lindley
17.54. *C. ecarinata* C. Schweinf.
N. Vietnam, Ha Giang prov., Quan Ba distr., Bat Dai Son mun., Bat Dai Son protected area, 23°09'04"N 104°59'53"E at elev. 1150 m. Primary and secondary forest on limestone ridge. Occasional lithophytic short vine. 12 February 2001, D. Harder, N.T. Hiep, L. Averyanov et al., DKH 6236.

17.55. *C. fimbriata* Lindley

17.56. *C. huettnariana* Reichenb. f.
N. Vietnam, Ha Giang prov., Quan Ba distr., Bat Dai Son mun., Vach Da Khi Nghu Valley, Bat Dai Son Natural Reserve around point 23°09'128"N 104°59'73"E. Primary closed evergreen dry broad-leaved and mixed needle-leaved forest on steep slopes or tops of limestone mt. at elev. 1140 m. Common on ridge tops. 3 March 2003, T.V. Thao, N.S. Khang, VT 90.

17.57. *C. lockii* Aver.
N. Vietnam, Ha Giang prov., Quan Ba distr., Bat Dai Son mun., Chong To Te Valley, Bat Dai Son Natural Reserve around point 23°08'125"N 105°00'78"E. Primary closed evergreen dry broad-leaved and mixed needle-leaved forest on steep slopes or
tops of limestone mt. at elev. 1332 m. Common on tops. 28 February 2003, T.V. Thao, N.S. Khang, VT 66. **N. Vietnam, Ha Giang** prov., **Quan Ba** distr., Bat Dai Son mun., Chong To Te Valley, Bat Dai Son Natural Reserve around point 23°08′13.2″N 105°00′7.7″E. Primary closed evergreen dry broad-leaved and mixed needle-leaved, forest on steep slopes or top of limestone mt. at elev. 1294 m. Common on tops. 28 February 2003, T.V. Thao, N.S. Khang, VT 73. **N. Vietnam, Ha Giang** prov., **Vi Xuyen** distr., Phong Quang mun., Man village, 22°53′35″N 104°56′35″E at elev. 600–800 m. Secondary forest among limestone peaks and ridges. Abundant lithophyte. 15 February 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 6415.

17.58. *C. malipoensis* Z.H. Tsi

**N. Vietnam, Ha Giang** prov., **Quan Ba** distr., Bat Dai Son mun., Bat Dai Son Protected Area, 23°09′04″N 104°59′53″E at elev. 1150 m. Primary and secondary forest on limestone ridge. Occasional lithophyte. 12 February 2001, D. Harder, N.T. Hiep, L. Averyanov et al., DKH 6269.

18. *Collabium* Blume

18.59. *C. chinense* (Rolfe) Tang et F.T. Wang

**S. Vietnam, Thua Thien Hue** prov., **Xuan Loc** distr., Bach Ma N.P., along Dong Truoi ridge and S slopes around point 16°14′11″N 107°44′28″E. Broad-leaved evergreen primary closed forest on very steep granite slope at elev. 800–900 m. Creeping terrestrial and lithophytic herb on rocky, very steep shady wet slope. Leaves dull yellowish-green with dirty violet irregular spots to uniform dull violet. Tepals light green, lip white with purple-violet marks. Locally common. 7 May 2003, N.T. Hiep, L. Averyanov, N.T. Vinh et al., HLF 1738.

19. *Corymborkis* Thouars

19.60. *C. veratrifolia* (Reinw.) Blume

**N. Vietnam, Ninh Binh** prov., **Thanh Yen** distr., Cuc Phuong N.P., Yen Son, Thanh Hoa to Thung Nhu, Thung Lan, 20°29.0N, 105°60.0E. Secondary forest on limestone at elev. 142 m. Terrestrial herb 0.5–1 m tall. 9 December 2001, N.T. Hiep, NTH 5364.

20. *Cremastra* Lindley

20.61. *C. appendiculata* (D. Don) Makino

**N. Vietnam, Bac Kan** prov., **Cho Don** distr., Ban Thi mun., Phia Khao village, around point 22°15′52″N 105°32′01″E at elev. 800–900 m. (Po Luong mt.). Primary broad-leaved evergreen closed forest on very steep slopes and cliffs near tops of rocky ridge composed with solid marble-like stratified limestone. Terrestrial tuberiferous herb with coralloid rhizome. Flower buds dull pink-violet. Very rare. 21 May 2004, L. Averyanov, N.T. Hiep, P.V. The et al., HAL 4742a.

21. *Cryptochilus* Wallich

21.62. *C. lutea* Lindley

22. Cryptostylis R. Br.
22.63. C. arachnithes (Blume) Hassk.


23. Cymbidium Sw.
23.64. C. aloifolium (L.) Sw.


23.65. C. atropurpureum (Lindley) Rolfe


23.66. C. dayanum Reichenb. f.


23.67. C. devonianum Paxton*

S. Vietnam, Lam Dong prov., Dalat town, living collection in Institute of Tropical Biology (wild collected in Dalat town area). Flowers odorless, tepals olive-green, lip deep purple-violet, column green, anther light yellow. 16 April 2004, L. Averyanov, P.K. Loc, N.T. Hiep, HAL 4586 (Table 1, a).
23.68. **C. ensifolium** (L.) Sw.


**N. Vietnam, Son La prov., Yen Chau distr.**, Muong Lum mun., Lum village, 21°00′17″N 104°29′08″E at elev. 1242 m. Primary vegetation with *Pinus fenzeliana* and *Calocedrus* sp. on limestone ridges and ridge tops. Terrestrial herb among rocks. 3 March 2001, *D. Harder, P.K. Loc, N.T. Hiep, L. Averyanov et al.*, **DKH 7191**.

**N. Vietnam, Son La prov., Yen Chau distr.**, Muong Lum mun., Lum village, 21°00′17″N 104°29′08″E at elev. 1242 m. Primary vegetation with *Pinus fenzeliana* and *Calocedrus* sp. on limestone ridges and ridge tops. Terrestrial herb among rocks. 3 March 2001, *D. Harder, P.K. Loc, N.T. Hiep, L. Averyanov et al.*, **DKH 7191**.

**N. Vietnam, Son La prov., Yen Chau distr.**, Muong Lum mun., Lum village, 21°00′17″N 104°29′08″E at elev. 1242 m. Primary vegetation with *Pinus fenzeliana* and *Calocedrus* sp. on limestone ridges and ridge tops. Terrestrial herb among rocks. 3 March 2001, *D. Harder, P.K. Loc, N.T. Hiep, L. Averyanov et al.*, **DKH 7191**.

**N. Vietnam, Son La prov., Yen Chau distr.**, Muong Lum mun., Lum village, 21°00′17″N 104°29′08″E at elev. 1242 m. Primary vegetation with *Pinus fenzeliana* and *Calocedrus* sp. on limestone ridges and ridge tops. Terrestrial herb among rocks. 3 March 2001, *D. Harder, P.K. Loc, N.T. Hiep, L. Averyanov et al.*, **DKH 7191**.


23.69. **C. floribundum** Lindley

**N. Vietnam, Son La prov., Yen Chau distr.**, Muong Lum mun., Lum village, 21°00′17″N 104°29′08″E at elev. 1242 m. Primary vegetation with *Pinus fenzeliana* and *Calocedrus* sp. on limestone ridges and ridge tops. Rare lithophyte. 3 March 2001, *D. Harder, P.K. Loc, N.T. Hiep, L. Averyanov et al.*, **DKH 7175**.

23.70. **C. lancifolium** Hook.

**N. Vietnam, Son La prov., Moc Chau distr.**, Van Ho mun., Hua Tat village, 20°46′18″N 104°47′45″E at elev. 1300 m. Degraded limestone forest on rocky outcrops. Lithophytic herb in deep shade. Tepals light green with red-purple, labellum streaked red-purple. Rare. 6 October 2000, *D. Harder, P.K. Loc, N.T. Hiep et al.*, **DKH 5761**.

23.71. **C. mastersii** Griffith ex Lindley*

**N. Vietnam, Thanh Hoa prov., Ba Thuoc distr.**, Thanh Son mun., middle part of Pu Luong range, SE slopes of Phu Pha Phong peak around point 20°28′37″N 105°05′20″E along main ridge. Primary evergreen seasonal broad-leaved closed submontane forest on basalt at elev. 1600–1650 m. Epiphyte. Rare. 7 October 2003, *L. Averyanov, P.K. Loc, D.T. Doan et al.*, **HAL 4043** (Table 1, b).

23.72. **C. sanderae** Sander ex Rolfe

**N. Vietnam, Son La prov., Moc Chau distr.**, Long Luong mun., Sang Cai village, 20°45′51″N 104°51′26″E, 1300–1500 m. Primary wet broad-leaved, evergreen and semi-deciduous mossy forest along limestone ridge. Large epiphyte on *Livistona* sp. Flowers odorless, tepals white with light pink tint and finest purple-violet stripes, lip with white background and pink tint at basal part, yellowish at center, all over with red-purple stripes and marks, column purple-violet, anther white, keels dull light yellowish-brown. Not common. 8 March 2001, *D. Harder, P.K. Loc, L. Averyanov et al.*, **DKH 7506**.
24. *Cyrtosia* Blume

24.73. *C. integra* (Downie) Garay

**N. Vietnam, Bac Kan prov., Cho Don distr., Ban Thi mun., Phia Khao village, around point 22°17'31"N 105°31'51"E, Cau Muc mt. at elev. 800–900 m.** Primary broad-leaved evergreen closed forest on very steep slopes and cliffs near tops of rocky ridge composed with solid marble-like stratified limestone. Terrestrial achlorophyllous pink-brown saprophyte up to 0.6 m tall. Flowers light brown-yellow, lip yellow, column white. Fruits light brown-yellow with purple tint, juicy. Rare. 24 May 2004, L. Averyanov, N.T. Hiep, P.V. The et al., HAL 4874. **S. Vietnam, Thua Thien Hue prov., Phu Loc distr., Bach Ma N.P., Bach Ma mt., Hai Vong Dai peak, around point 16°11'46"N 107°51'45"E at elev. 1300–1350 m.** Mixed and broad-leaved evergreen primary closed mt. forest on steep granite slopes. Terrestrial saprophytic achlorophyllous herb with inflorescence up to 1.2 m tall on steep shady slope. Tepals light olive green, lip yellow with white center. Occasional. 18 April 2003, V.X. Phuong, L. Averyanov, N.X. Tam et al., HLF 934.

24.74. *C. nana* (Rolfe ex Downie) Garay*

**N. Vietnam, Ninh Binh prov., Cuc Phuong N.P., 20°19'21"N 105°38'39"E.** Herb 20 cm, stem pinkish, flowers yellowish-white, fruits pinkish-brown. 26 June 2002, N.M. Cuong et al., NMC 1665. **N. Vietnam, Thanh Hoa prov., Thach Thanh distr., Thanh Yen mun., Mo village, around point 20°17'36"N 105°35'54"E.** Primary evergreen seasonal broad-leaved lowland valley forest between limestone hills at elev. about 250 m. Achlorophyllous terrestrial mycotrophic herb 5–10 cm tall. Fruits juicy, reddish-pink. Rare. 9 January 2003, L. Averyanov, P.K. Loc, N.T. Vinh et al., HAL 2896 (Table 1, c).

25. *Dendrobium* Sw.

25.75. *D. aduncum* Wallich ex Lindley


25.76. *D. aphyllum* (Roxb.) C. Fischer


25.77. *D. capillipes* Reichenb. f.

N. Vietnam, Lai Chau prov., Muong Te distr., about 15 km to the E of Muong Te townlet, limestone mt. at elev. 800–1000 m. Epiphyte. Cultivated and flowered in Hanoi at 15 March 2003, P.K. Loc, P 10622.

25.78. *D. capillipes* Reichenb. f. var. *braianense* (Gagnepain) Aver., comb. nov. ¹

N. Vietnam, Lai Chau prov., Muong Te distr., about 15 km to the E of Muong Te townlet, limestone mt. at elev. 800–1000 m. Epiphyte. Cultivated and flowered in Hanoi at 15 March 2003, P.K. Loc, P 10623.


N. Vietnam, Ha Giang prov., Quan Ba distr., Can Ty mun., Ha Tung Sung Valley, Bat Dai Son Natural Reserve around point 23°05'808N, 105°01'020N. Primary closed evergreen dry broad-leaved and mixed needle-leaved forest on steep slopes or top of limestone mt. at elev. 900 m. 17 January 2003, T.V. Thao, N.S. Khang, VT 14.

25.80. *D. chrysanthum* Lindley

N. Vietnam, Son La prov., Moc Chau distr., Van Ho mun., Hua Tat village, 20°46'35''N 104°46'31''E at elev., 1400–1500 m. Primary evergreen, closed forest with *Pinus fenzeliana* and *Calocedrus* sp. on limestone ridge and cliffs. Lithophytic herb with shoots up to 1.5 m long. Very common. 6 March 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 7329. N. Vietnam, Thanh Hoa prov., Ba Thuoc distr., Thanh Son mun., SW macro slope of middle part of Pu Luong range around point 20°28'30''N 105°05'16''E. Primary evergreen seasonal broad-leaved closed submontane forest on basalt at elev. 1500–1550 m. Lithophyte on open mossy cliff. Flowers yellow, lip with chestnut spot. Not common. 10 October 2003, L. Averyanov, P.K. Loc, D.T. Doan et al., HAL 4314.

25.81. *D. chrysotoxum* Lindley


25.83. *D. dentatum* Seidenf.


25.84. *D. ellipsophyllum* Tang et F.T. Wang

S. Vietnam, Kontum prov., Kon Plong distr., Hieu mun., Mang La forest enterprise, 14°39'N 108°25'E. Primary broad-leaved and mixed evergreen dry mt. forest with *Dacrydium* and *Dacrycarpus* at elev. 1100–1200 m on sandstone. Epiphyte on high tree. Tepals white, light yellowish, lip light brownish-yellow, with brown keels. Rare. 21 April 2000, L. Averyanov, N.T. Vinh et al., VH 5528.


N. Vietnam, Lai Chau-Son La provinces. Broad-leaved forest on limestone at elev. about 1000 m. Flowers white, tepals with violet-purple tips, lip with deep purple-brown center bordered with bright yellow, apex purple-violet, column white, anther violet. Locally common. Cultivated and flowered in Hanoi. 21 May 2003, L. Averyanov, N.T. Hiep, HAL 2904 (Table 1, d).
25.86. *D. faulhaberianum* Schltr.


**N. Vietnam, Lai Chau** prov. Broad-leaved forest on limestone at elev. about 1000 m. Cultivated and flowered in Hanoi. Tepals white with violet light tint on toward the tips, lip white, with yellow center and pink-violet tint at apex. 21 May 2003, L. Averyanov, N.T. Hiep, HAL 2909. **N. Vietnam, Son La** prov., about 7 km to the W of Son La city, around 21°18’N 103°48’E at elev. 180 m. Primary evergreen closed forest with Pinus fenzeliana and Calocedrus sp. on limestone ridge and cliffs. Epiphyte. Locally abundant. 6 March 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 7379.

25.89. *D. hancockii* Rolfe

**N. Vietnam, Son La** prov., Moc Chau distr., Van Ho mun., Hua Tat village, 20°46’35”N 104°46’31”E at elev. 1400–1500 m. Primary evergreen closed forest with *Pinus fenzeliana* and *Calocedrus* sp. on limestone ridge and cliffs. Epiphyte. Locally abundant. 6 March 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 7379.

25.90. *D. henryi* Schltr.

**N. Vietnam, Ha Giang** prov., Vi Xuyen distr., Cao Bo mun., Tam Ve village, 22°45’52”N 104°51’E at elev. 1250 m. Degraded evergreen, broad-leaved forest on granite mt. Epiphyte and lithophyte. Flowers yellow, lip dark yellow. Rather common at elev. 950–1250 m. 8 September 2000, D. Harder, P.K. Loc, N.Q. Hieu et al., DKH 5305.

25.91. *D. jenkinsii* Wallich ex Lindley*

25.92. *D. kontumense* Gagnepain  

25.93. *D. lindleyi* Steudel  

25.94. *D. linguella* Reichenb. f.  
*N. Vietnam*, Ninh Binh prov., Cuc Phuong N.P. Primary forest on limestone mt., 20°18’03”N 105°40’15”E. Epiphytic herb 20 cm tall, flowers pinkish-white. 12 July 2002, *N.M. Cuong* et al., NMC 1671.

25.95. *D. loddigesii* Rolfe  

25.96. *D. longicornu* Lindley  

25.97. *D. moschatum* (Ham.-Buch.) Sw.  
25.98. *D. nobile* Lindley

**N. Vietnam, Thanh Hoa** prov., *Ba Thuoc* distr., Co Lung mun., Eo Dieu village, around point 20°25'56"N 105°14'12"E. Primary evergreen seasonal broad-leaved and coniferous submontane forest on crystalline marble-like highly eroded limestone, very steep upper slopes and tops of limestone rocky ridge at elev. 800–850 m. Epiphyte. Occasional. 23 September 2003, L. Averyanov, D.T. Doan, J. Regalado et al., HAL 3341.


25.100. *D. spathella* Reichenb. f.

**N. Vietnam, Ha Giang** prov., *Vi Xuyen* distr., Minh Tan mun., Ban Ngay village, 23°00'37"N 104°54'46"E at elev. 225–620 m. Primary forest with *Burrettiodendron* on limestone ridge on exposed rocks above river. Occasional epiphyte with stem to 0.4 m long. 17 February 2001, D. Harder, P.K. Loc, N.T. Hiep et al., DKH 6475.

25.101. *D. suzukii* Yukawa


25.98. *D. nobile* Lindley


25.100. *D. spathella* Reichenb. f.

**N. Vietnam, Ha Giang** prov., *Vi Xuyen* distr., Minh Tan mun., Ban Ngay village, 23°00'37"N 104°54'46"E at elev. 225–620 m. Primary forest with *Burrettiodendron* on limestone ridge on exposed rocks above river. Occasional epiphyte with stem to 0.4 m long. 17 February 2001, D. Harder, P.K. Loc, N.T. Hiep et al., DKH 6475.

25.101. *D. suzukii* Yukawa


25.98. *D. nobile* Lindley


25.100. *D. spathella* Reichenb. f.

**N. Vietnam, Ha Giang** prov., *Vi Xuyen* distr., Minh Tan mun., Ban Ngay village, 23°00'37"N 104°54'46"E at elev. 225–620 m. Primary forest with *Burrettiodendron* on limestone ridge on exposed rocks above river. Occasional epiphyte with stem to 0.4 m long. 17 February 2001, D. Harder, P.K. Loc, N.T. Hiep et al., DKH 6475.

25.101. *D. suzukii* Yukawa

25.102. *D. trigonopus* Reichenb. f.*

**N. Vietnam, Son La prov.**, about 7 km to the W of Son La city, around 21°18'N 103°48'E at elev. 700–800 m. Epiphytic, in the closed evergreen tropical seasonal broad-leaved submontane forest on limestone. Flowers yellow. Cultivated and flowered in Hanoi. 9 March 2004, *T.T. Anh, P.K. Loc, P-10701; HAL s.n.* (Table 1, e).

25.103. *D. truncatum* Lindley

**N. Vietnam, Ha Tinh prov., Huong Son distr., Son Hong mun.,** around point 18°34'06"N 105°11'40"E. Primary broad-leaved evergreen forest on steep mt. slopes composed with granite along Khe Van stream at elev. 400–450 m. Epiphyte. Flowers white, lip with purple nerves. Very common. 8 May 2004, *P.K. Loc, L. Averyanov, P.V. The et al., HAL 5197.*


**N. Vietnam, Lai Chau prov.** Broad-leaved forest on limestone at elev. about 1000 m. Flowers white, lip with light yellow center and purple nerves at the base, menthum with pink-violet tint, column and anther white. Not common. Cultivated and flowered in Hanoi. 21 May 2003, *L. Averyanov, N.T. Hiep, HAL 2906 (Table 1, f).*

25.105. *D. uniflorum* Griffith


25.106. *D. wardianum* Warner

**N. Vietnam, Son La prov.,** about 7 km to the W of Son La city, around 21°18'N 103°48'E at elev. 700–800 m. Epiphytic, in closed evergreen tropical seasonal broad-leaved submontane forest on limestone. Cultivated and flowered in Hanoi. 9 March 2004, *T.T. Anh, P.K. Loc, P-10701A.*


**N. Vietnam, Ha Tinh prov., Huong Son distr., Son Kim mun., Rao Bun stream** around point 18°23'39"N 105°15'12"E. Primary broad-leaved evergreen closed forest on very steep mt. slopes composed with shale at elev. 350–450 m. Small achorophyllous gray-yellowish saprophyte. Flowers white, light fragrant, lip with white, finely gray spotted callus above and with yellow-brown spot below. Occasionally common. 3 May 2004, *P.K. Loc, L. Averyanov, P.V. The et al., HAL 5040. S. Vietnam, Thua Thien Hue prov., Phu Loc distr., Bach Ma N.P., N slope of Bach Ma mt. system, to the N of point 16°11'50"N 107°50'44"E at elev. 400–600 m. Mixed and broad-leaved evergreen primary closed wet mt. forest with *Shorea stellata* and *Dacrycarpus imbricatus* along narrow ridge and on very steep sandstone/shale slopes. Terrestrial achorophyllous saprophyte on very steep rocky slope along waterfall cliff. Flowers white, lip at face with callus with finest gray marks, behind with large orange-brown central spot. Rare.

5 May 2003, N.T. Hiep, L. Averyanov, N.T. Vinh et al., HLF 1829.

27. **Didymoplexis** Griffith
27.108. *D. pallens* Griffith


27.109. **D. vietnamica** Ormerod

**N. Vietnam, Cuc Phuong** N.P. Forest on limestone 30–40 m tall. Saprophytic herb; stems purple; fruit capsule purple-brown. 1 April 1997, Henk van der Werff, Bruce Gray, N.K. Dao, 14201.

28. **Epigeneium** Gagnepain

**N. Vietnam, Ha Giang** prov., Vi Xuyen distr., Phong Quang mun., Man village, 22°53′35″N 104°56′35″E at elev. 600–800 m. Secondary vegetation on limestone ridge and small limestone peaks. Occasional creeping lithophytic vine, very common on top of ridge. 15 February 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 6403. **N. Vietnam, Lao Cai** prov., Van Ban distr., Nam Xe mun., Nam Xi Tan village, 22°02′57″N 103°58′35″E at elev. 700–1120 m. Secondary forest at top of ridge on eroded granite. Epiphytic vine to 1 m long. Abundant. 26 February 2001, D. Harder, P.K. Loc, N.T. Hiep et al., DKH 6900. **N. Vietnam, Son La** prov., Moc Chau distr., Van Ho mun., Hua Tat village around point 20°46′18″N 104°47′45″E at elev. 1200–1350 m. Rocky outcrops on degraded limestone mt. Occasional epiphyte with stems to 5 m. Sepals yellow-orange, labellum inside spotted in deep red-purple. 6 October 2000,
D. Harder, P.K. Loc, N.T. Hiep et al., DKH 5760. N. Vietnam, Son La prov., Moc Chau distr., Van Ho mun., Hua Tat village, 20°46′35″N 104°46′31″E at elev. 1400–1500 m. Primary evergreen, closed forest with *Pinus fenzeliana* and *Calocedrus* sp. on limestone ridge and cliffs. Creeping lithophytic and epiphytic vine 1–2 m long. Abundant. 6 March 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 7373.

28.111. *E. chapaense* Gagnepain


**N. Vietnam, Nghe An** prov., **Con Cuong** distr., Binh Chuan mun., ridge of Pu Pha Cau limestone mt., 19°18′13.3″N, 104°53′50.2″E at elev. 1100–1250 m. Epiphyte in Fokienia forest. Flowers white. 26 February 2004, V.M. Son, N.T. Vinh, HLF 3139. **N. Vietnam, Son La** prov., **Moc Chau** distr., Van Ho mun., Hua Tat village, 20°46′35″N 104°46′31″E at elev. 1400–1500 m. Primary evergreen, closed forest with *Pinus fenzeliana* and *Calocedrus* sp. on limestone ridge and cliffs. Lithophyte and epiphyte. Tepals white with pink tint, lip with yellow spot at the center and brownish-purple keels. Abundant. 6 March 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 7360; DKH 7373a.


29.113. *E. roseum* (D. Don) Lindley

**N. Vietnam, Ha Tinh** prov., **Huong Son** distr., Son Hong mun., around point 18°34′06″N 105°11′40″E. Primary broad-leaved evergreen forest on steep mt. slopes composed with granite along Khe Van stream at elev. 400–450 m. Terrestrial achlorophyllous white tuberiferous saprophyte. Flowers white, lip white, sometimes with fine light pink marks. Occasional. 8 May 2004, P.K. Loc, L. Averyanov, P.V. The et al., HAL 5214.
30. *Eria* Lindley
30.114. *E. boniana* (Gagnepain) Tang et F.T. Wang


**N. Vietnam, Ha Giang** prov., **Vi Xuyen** distr., Minh Tan mun., Ban Ngay village, 23°00′37″N 104°54′46″E at elev. 225–620 m. Primary forest with *Burretiodendron* on limestone ridge on exposed rocks above river. Occasional epiphyte on tall tree. 17 February 2001, *D. Harder, P.K. Loc, N.T. Hiep et al.*, **DKH 6478**.


30.117. *E. coronaria* (Lindley) Reichenb. f.

**N. Vietnam, Ha Giang** prov., **Quan Ba** distr., Can Ty mun., Ha Tung Sung Valley, Bat Dai Son Natural Reserve around point 23°05′80″N 105°01′02″E. Primary closed evergreen dry broad-leaved and mixed needle-leaved, forest on steep slopes or top of limestone mt. at elev. 1060 m. Lithophytic herb on steep slopes. Common. 12 January 2003, *T.V. Thao, N.S. Khang*, **VT 4**. **N. Vietnam, Son La** prov., **Moc Chau** distr., Van Ho mun., Hua Tat village, 20°46′35″N 104°46′31″E at elev. 1400–1500 m. Primary evergreen, closed forest with *Pinus fenzeliana* and *Calocedrus* sp. on limestone ridge and cliffs. Lithophyte. Abundant. 6 March 2001, *D. Harder, P.K. Loc, L. Averyanov et al.*, **DKH 7362**. **N. Vietnam, Son La** prov., **Yen Chau** distr., Muong Lum mun., Lum village, 21°00′17″N 104°29′08″E at elev. 1242 m. Primary vegetation with *Pinus fenzeliana* and *Calocedrus* sp. along limestone ridges. Frequent lithophyte. New shoots with bright red-purple spots on new leaves and bracts. 3 March 2001, *D. Harder, P.K. Loc, N.T. Hiep, L. Averyanov et al.*, **DKH 7169**.
30.118. *E. foetida* Aver.

**N. Vietnam, Ha Giang** prov., **Quan Ba** distr., Bat Dai Son mun., Bat Dai Son Protected Area, 23°09′04″N 104°59′53″E at elev. 1150 m. Primary and secondary forest on limestone ridge top. Occasional epiphyte. 12 February 2001, *D. Harder, N.T. Hiep, L. Averyanov et al., DKH 6260*. **N. Vietnam, Ha Giang** prov., **Quan Ba** distr., Can Ty mun., Bat Dai Son Natural Reserve around point 23°06′84″N 104°59′13″E. Primary closed evergreen dry broad-leaved and mixed needle-leaved forest on steep slopes or tops of limestone mt. at elev. 1128 m. Epiphytic herb on steep slopes. Common, on top with *Xanthocyparis vietnamensis* and *Pseudotsuga sinensis*. 25 January 2003, *T.V. Thao, N.S. Khang, VT 48*. **N. Vietnam, Son La** prov., **Moc Chau** distr., Van Ho mun., Hua Tat village, 20°46′35″N 104°46′12″E at elev. 1100–1300 m. Primary broad-leaved closed wet forest along limestone ridge and slopes near tops. Epiphyte. Flowers with sweetish unpleasant smell, dull yellow, tip of the lip deep yellow. Very common. 7 March 2001, *D. Harder, P.K. Loc, L. Averyanov et al., DKH 7394*.

30.119. *E. gagnepainii* A. Hawkes et A.H. Heller

**S. Vietnam, Kontum** prov., **Kon Plong** distr., Hieu mun., Mang La forest enterprise, 14°39′N 108°25′E. Primary evergreen broad-leaved wet forest on steep mt. slopes on sandstone and gneiss at elev. 1000–1200 m. Lithophyte in shady wet place along stream. Not common. 15 April 2000, *L. Averyanov, P.K. Loc, P.H. Hoang, N.T. Vinh et al., VH 5156*.

30.120. *E. lactiflora* Aver.


30.121. *E. lasiopetala* (Willd.) Ormerod


30.122. *E. paniculata* Lindley

30.123. *E. pannea* Lindley


30.124. *E. pusilla* (Griffith) Lindley


**N. Vietnam, Son La** prov., **Moc Chau** distr., Van Ho mun., Hua Tat village, 20°46'13"N 104°46'12"E at elev. 1100–1300 m. Primary broad-leaved closed wet forest along limestone ridge and slopes near tops. Epiphyte and lithophyte. Not rare. 7 March
2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 7421.

30.126. *E. sutepensis* Rolfe ex Downie

**N. Vietnam, Ha Giang** prov., **Vi Xuyen** distr., Minh Tan mun., Ban Ngay village, 23°00′37″N 104°54′46″E at elev. 225–620 m. Primary forest with *Burretiodendron* on limestone ridge on exposed rocks above river. Occasional epiphyte on large tree. 17 February 2001, D. Harder, P.K. Loc, N.T. Hiep et al., DKH 6469.

30.127. *E. thao* Gagnepain


31. *Erythrodes* Blume


32. *Erythrorchis* Blume

32.129. *E. ochobiensis* (Hayata) Garay


33. *Flickingeria* A. Hawkes

33.130. *F. angustifolia* (Blume) A. Hawkes

**N. Vietnam, Ha Tinh** prov., **Huong Son** distr., Son Hong mun., around point 18°34′06″N 105°11′40″E. Primary broad-leaved dry closed evergreen forest on very steep mt. slopes of Khe Sinh stream canyon and along ridge composed with shale at elev. 800–1100 m. near Laotian border. Epiphyte on high trees. Flowers dull yellow, lip dull yellow with two deep purple-violet keels. Common. 11 May 2004, P.K. Loc, L. Averyanov, P.V. The et al., HAL 5338. **N. Vietnam, Lao Cai** prov., **Van Ban** distr., Nam Xe mun., Khau Co Pass, 22°02′35″N 103°57′23″E at elev. 1150 m. Degraded forest on granite substrate. Epiphyte. 27 February 2001, D. Harder, N.T. Hiep, L. Averyanov et al., DKH 6994. **S. Vietnam, Kontum** prov., **Kon Plong** distr., Hieu
mun., Mang La forest enterprise, 14°39’N 108°25’E. Primary broad-leaved and mixed (with Dacrydium and Dacrycarpus) evergreen dry mt. forest at elev. 1100–1200 m on sandstone. Epiphyte on high tree. Not rare. 21 April 2000, L. Averyanov, P.H. Hoang, N.T. Vinh et al., VH 5534.


33.131. *F. fimbriata* (Blume) A. Hawkes

S. Vietnam, Kontum prov., Kon Plong distr., Hieu mun., Mang La forest enterprise, 14°39’N 108°25’E. Primary wet mossy mt. coniferous forest on sandstone (with *Pinus dalatensis*, *Fokienia hodginsii*, *Dacrydium elatum* and *Dacrycarpus imbricatus*) along ridge tops at elev. 1200 m. Epiphyte undershrub with shoots up to 1 m hg. Rare. 22 April 2000, L. Averyanov, P.H. Hoang, N.T. Vinh et al., VH 5570.

33.132. *F. fugax* (Reichenb. f.) Seidenf.

N. Vietnam, Ha Giang prov., Vi Xuyen distr., Phong Quang mun., Man village, 22°53’35”N 104°56’35”E at elev. 600–800 m. Secondary forest among limestone peaks and ridges. Occasional creeping lithophyte to 0.5 m tall. 15 February 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 6411.

34. *Galeola* Lour.

34.133. *G. nudifolia* Lour.

N. Vietnam, Ha Tinh prov., Huong Son distr., Son Hong mun., Song Con stream around point 18°34’06”N 105°11’40”E. Primary broad-leaved evergreen riparian forest with *Platanus kerrii* and *Duabanga grandiflora* on rocky river valley composed with shale and sandstone at elev. 200–250 m. Achororphyllous terrestrial yellowish-pink vine 2–3 m long. Flowers light yellow to yellow. Rare. 30 April 2004, P.K. Loc, L. Averyanov, P.V. The et al., HAL 5000.


35. *Gastrochilus* D. Don

35.134. *G. acutifolius* (Lindley) Kuntze

N. Vietnam, Ninh Binh prov., Cuc Phuong N.P. Primary evergreen seasonal broad-leaved lowland dry forest on steep rocky slope of limestone hills. 8 January

35.135. **G. bigibbus** (Reichenb. f. ex Hook. f.) Kuntze  
**N. Vietnam, Ninh Binh** prov., **Nho Quan** distr., Cuc Phuong N.P., 20°35.0N 105°60.0E. Primary forest on limestone at lower end of the slopes. 12 December 1999, **D.D. Soejarto, N.M. Cuong, N.T. Hiep, N.V. Du, DDS 11305a**.

35.136. **G. calceolaris** (J.E. Sm.) D. Don  
**N. Vietnam, Nghe An** prov., **Con Cuong** distr., Binh Chuan mun., ridge of Pu Pha Cau limestone mt., 19°18'13.3''N, 104°53'50.2''E at elev. 1100–1250 m. Epiphyte in *Fokienia* forest. Flowers bright yellow with brownish red traces; lip white fimbriate. 26 February 2004, **V.M. Son, N.T. Vinh, HLF 3138**. 
**N. Vietnam, Ninh Binh** prov., **Nho Quan** distr., Cuc Phuong N.P., 20°22'75''N 105°34'37''E. Dense somewhat wet forest remnants on slope at elev. 350 m. Lip delicate pink with darker pink margins and yellow center, petals and sepals dirty white with light brown dots. Epiphyte. 11 December 2000, **D.D. Soejarto, N.M. Cuong, T.Q. Bich, DDS 11729**. 
**N. Vietnam, Ninh Binh** prov., **Nho Quan** distr., Cuc Phuong N.P. Limestone forest. Epiphyte on *Streblus macrophyllus*. Labellum with point violet and yellow. 12 December 1999, **N.T. Hiep, NTH 4102**; 8 December 2001, **N.T. Hiep, NTH 5356**. 
**N. Vietnam, Son La** prov., **Yen Chau** distr., Muong Lum mun., On Oc village, 20°59'06''N 104°28'46''E at elev. 1468 m. Primary forest along limestone ridge tops. Epiphyte. Sepals and petals light green with dark purple spots, lip fringed in pure white, deep red near column, hypochile yellow with red spots, anther yellow. 4 March 2001, **D. Harder, P.K. Loc, N.T. Huong, DKH 7278**.

35.137. **G. intermedius** (Griffith ex Lindley) Kuntze  
**N. Vietnam, Ninh Binh** prov., **Nho Quan** distr., Cuc Phuong N.P., 20°35.0N 105°60.0E. Primary forest on limestone at lower end of the slopes. 12 December 1999, **D.D. Soejarto, N.M. Cuong, N.T. Hiep, N.V. Du, DDS 11305b**.

35.138. **G. intermedius** (Griffith ex Lindley) Kuntze  
**N. Vietnam, Ninh Binh** prov., Cuc Phuong N.P. Primary forest on limestone mt. peak. Epiphyte 20 cm long. Flowers dull yellow. 105°43'08''E 20°14'22''E. 1 December 1999, **N.M. Cuong, D.T. Kien, M.V. Sinh, NMC 718**. 
**N. Vietnam, Ninh Binh** prov., Cuc Phuong N.P. 1 February 2000, **N.T. Hiep, NTH 3061**.

35.139. **G. obliquus** (Lindley) Kuntze  
**N. Vietnam, Ninh Binh** prov., Cuc Phuong N.P. Primary evergreen seasonal broad-leaved lowland dry forest on steep rocky slope of limestone hills. 8 January 2003, **L. Averyanov, P.K. Loc, N.M. Cuong, N.T. Vinh, HAL 2898**. 
**N. Vietnam, Ninh Binh** prov., Cuc Phuong N.P. In the limestone forest. 20°17'N 105°35'E. Epiphyte on tree (*Streblus macrophyllus*), labellum with dots violet and yellow. 8 December 2001, **N.T. Hiep et al., NTH 5356**.

36. **Geodorum** Jackson  
36.140. **G. recurvum** (Roxb.) Alston

37. Goodyera R. Br.
37.141. G. foliosa (Lindley) Benth.

37.142. G. fumata Thwaites
N. Vietnam, Ninh Binh prov., Nho Quan distr., Cuc Phuong N.P., 20°01'00"N 105°36'00"E. Primary tropical rainforest on hillsides at elev. 400 m. Succulent terrestrial herb on dark forest floor. Flowers dull orange-brown. 18 December 1999, D.D. Soejarto, N.T. Hiep et al., DDS 11264.

37.143. Goodyera hispida Lindley

37.144. G. viridiflora (Blume) Blume
N. Vietnam, Bac Kan prov., Cho Don distr., Ban Thi mun., Phia Khao village, Lung Li locality, 22°17'30"N 105°31'16"E. Primary broad-leaved evergreen closed wet forest on very steep slopes and cliffs of remnant mt. composed with highly eroded crystalline limestone near top of ridge at elev. 900–1000 m. Terrestrial herb. Leaves uniform green. Rare. 25 December 2002, P.K. Loc, L. Averyanov, N.T. Vinh et al., HLF 768.

38. Habenaria Willd.
38.145. H. ciliolaris Kraenzlin
N. Vietnam, Ninh Binh prov., Nho Quan distr., Cuc Phuong N.P., 20°29.0N,
105°59.0E. Open place in secondary forest at elev. 113 m. Terrestrial herb, 0.5 m high, tuber round, white, succulent. 8 December 2001, N.T. Hiep, NTH 5355.

38.146. *H. dentata* (Sw.) Schltr.


38.147. *H. medioflexa* Turrill


39. *Hetaeria* Blume

39.148. *H. affinis* (Griffith) Seidenf. et Ormerod


**N. Vietnam**, Son La prov., Yen Chau distr., Muong Lum mun., Lum village, 21°00’17”N 104°29’08”E at elev. 1242 m. Primary vegetation with *Pinus fenzeliana* and *Calocedrus* sp. along limestone ridges. Rare among rocks on decayed mossy wood. Stem stiff green with purple tint, leaves green, peduncle light green with white tomentum, sepals green, petals green, white at base, at tip and on lobes, two light green spots at center of lip. 3 March 2001, D. Harder, P.K. Loc, N.T. Hiep, L. Averyanov et al., DKH 7225.

39.150. *H. nitida* Ridley*

**N. Vietnam**, Ha Giang prov., Quan Ba distr., Can Ty mun., Tia Sung Valley, Bat Dai Son Natural Reserve around point 22°05’792N 105°01’010E. Primary closed evergreen dry broad-leaved and mixed needle-leaved forest on steep slopes of remnant limestone mt. at elev. 1220 m. 20 January 2003, N.T. Hiep, T.Q. Thao, NTH 5420G (Table 1, g).

40. *Kingidium* P. Hunt

40.151. *K. deliciosum* (Reichenb. f.) Sweet

**S. Vietnam**, Thua Thien Hue prov., Phu Loc distr., Bach Ma N.P., N slope of Bach Ma mt. system around point 16°13’53”N 107°49’02”E at elev. about 100 m. Broad-leaved evergreen wet secondary closed forest along rocky river valley and on river slopes. Epiphyte in shady place. Locally very common. 2 May 2003, N.T. Hiep, L. Averyanov, N.T. Vinh et al., HLF 1584.

41.152. *L. aurita* Ridley

_N. Vietnam, Thanh Hoa_ prov., _Ba Thuoc_ distr., Thanh Son mun., SW macro slope of middle part of Pu Luong range around point 20°28'30"N 105°05'16"E. Primary evergreen seasonal broad-leaved closed submontane forest on basalt at elev. 1500–1550 m. Epiphyte. Flowers light yellowish-green. Occasional. 10 October 2003, *L. Averyanov, P.K. Loc, D.T. Doan et al., HAL 4273.*


41.154. *L. balansae* Gagnepain


41.155. *L. bootanensis* Griffith

41.156. *L. conopea* Aver.


41.158. *L. dendrochiloides* Aver.


41.159. *L. distans* C.B. Clarke


41.160. *L. emarginata* Aver.

*N. Vietnam, Hoa Binh* prov., *Mai Chau* distr., Pa Co mun., Xa Linh village area, approximately 1.5 km to SW of village center. Limestone forest with bamboo on top of ridge between 20°44’04”N 104°55’57”E at elev. 1093 m and 20°43’57”N 104°55’53” at elev. 1232 m. Occasional lithophyte. 10 December 2002, *D. Harder, N.T. Hiep, L. Averyanov et al.*, *DKH* 8104.


41.162. *L. mannii* Reichenb. f.


41.163. *L. nervosa* (Thunb.) Lindley


41.164. *L. pumila* Aver.

**N. Vietnam, Hoa Binh** prov., **Mai Chau** distr., Hang Kia mun., trail to one of taller peak in Pa Co. Logging forest on limestone between 20°45′37″N 104°53′37″E at elev. 1344 m to peak 20°45′41″N 104°53′59″ at elev. 1400 m. Rare epiphyte. 7 December 2002, *D. Harder, N.T. Hiep, L. Averyanov et al.*, DKH 7941. **N. Vietnam, Ninh Binh** prov., Cuc Phuong N.P. Primary evergreen seasonal broad-leaved lowland dry forest on steep rocky slope of limestone hills. 8 January 2003, *L. Averyanov, P.K. Loc, N.M. Cuong, N.T. Vinh, HAL 2902.

41.165. *L. stricklandiana* Reichenb. f.

**N. Vietnam, Ha Giang** prov., **Quan Ba** distr., Can Ty mun., Ha Tung Sung
Valley, Bat Dai Son Natural Reserve around point 23°05’808N 105°01’020E. Primary closed evergreen dry broad-leaved and mixed needle-leaved, forest on steep slopes or tops of limestone mt. at elev. 1090 m. Lithophytic herb on steep slopes. Common. 17 January 2003, T.V. Thao, N.S. Khang, VT 17. N. Vietnam, Ha Giang prov., Vi Xuyen distr., Phong Quang mun., Man village, 22°53’35”N 104°56’35”E at elev. 600—800 m. Secondary forest among limestone peaks and ridges. Frequent on rocks in shade. Flowers green to yellow-orange. 15 February 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 6398. N. Vietnam, Son La prov., Moc Chau distr., Van Ho mun., Hua Tat village, 20°46’35”N 104°46’31”E at elev. 1400—1500 m. Primary evergreen, closed forest with Pinus fenzeliana and Calocedrus sp. on limestone ridge and cliffs. Lithophyte. Very common. 6 March 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 7384; DKH 7385.

41.166. L. tenuis Rolfe ex Downie*
N. Vietnam, Ninh Binh prov., Cuc Phuong N.P. Primary evergreen seasonal broad-leaved lowland dry forest on steep rocky slope of limestone hills. 8 January 2003, L. Averyanov, P.K. Loc, N.M. Cuong, N.T. Vinh, HAL 2901 (Table 2, a).

41.167. L. viridiflora (Blume) Lindley
N. Vietnam, Son La prov., Yen Chau distr., Muong Lum mun., Lum village, 21°00’17”N 104°29’08”E at elev. 1242 m. Primary vegetation with Pinus fenzeliana and Calocedrus sp. along limestone ridges. Frequent lithophyte and epiphyte at lower elev. 3 March 2001, D. Harder, P.K. Loc, N.T. Hiep, L. Averyanov et al., DKH 7173.

42. Listera R. Br.
42.168. L. latilabris Gagnepain

43. Ludisia A. Rich.
43.169. L. discolor (Ker-Gawler) A. Rich.
N. Vietnam, Ha Giang prov., Quan Ba distr., Can Ty mun., Tia Sung Valley, Bat Dai Son Natural Reserve around point 22°05’792N 105°01’010E. Primary closed evergreen dry broad-leaved and mixed needle-leaved forest on steep slopes or top of

44. *Luisia* Gaudich.

44.170. *L. appressifolia* Aver.


44.171. *L. filiformis* Hook. f.


44.172. *L. morsei* Rolfe


44.173. *L. zollingeri* Rchb. f.

N. Vietnam, Thanh Hoa prov., Thach Thanh distr., Thanh Yen mun., Mo village, around point 20°17’36”N 105°35’54”. Remnants of primary evergreen seasonal broad-leaved lowland dry forest on steep rocky slope of limestone hills at elev. 300–350 m. Epiphyte with pendent shoots up to 0.5 m long near the top of hill. Occasional.

**N. Vietnam, Ha Tinh prov., Huong Son distr.**, Son Hong mun., around point 18°34'06"N 105°11'40"E. Primary broad-leaved dry closed evergreen forest on very steep mt. slopes of Khe Sinh stream canyon and along ridge composed with shale at elev. 800–1100 m. near Laotian border. Terrestrial creeping herb on steep shady slope. Tepals light brown, lip light yellow with purple marks. Occasional. 11 May 2004, *P.K. Loc, L. Averyanov, P.V. The et al.*, HAL 5339.


46. *Nephelaphyllum* Blume
46.175. *N. tenuiflorum* Blume


47. *Nervilia* Comm. ex Gaudich.
47.176. *N. aragoana* Gaudich.


**N. Vietnam, Thanh Hoa prov., Quan Hoa distr., Phu Le mun., Hang village, around point 20°31'33"N 105°05'06"E. Secondary and primary evergreen seasonal broad-leaved closed lowland forest on steep slopes of rocky ridge composed with

48. **Neuwiedia** Blume
48.178. **Neuwiedia balansae** Baillon ex Gagnepain


49. **Oberonia** Lindley
49.179. *O. ensiformis* (Sm.) Lindley


*N. Vietnam, Son La* prov., *Yen Chau* dist., Muong Lum mun., Lum village, 21°00'17''N 104°29'08''E at elev. 1242 m. Primary vegetation with *Pinus fenzeliana* and *Calocedrus* sp. along limestone ridges. Frequent lithophyte. Flowers all dull green, anthers yellow. 3 March 2001, D. Harder, P.K. Loc, N.T. Hiep, L. Averyanov et al., DKH 7198.

*N. Vietnam, Son La* prov., *Yen Chau* dist., Muong Lum mun., On Oc village, 20°59'06''N 104°28'46''E at elev. 1468 m. Primary forest along limestone ridge tops. Occasional lithophyte, locally frequent. 4 March 2001, D. Harder, P.K. Loc, N.T. Huong, DKH 7287.

49.180. *O. falcata* King et Pantl.


49.181. *O. jenkinsiana* Griffith ex Lindley


49.182. *O. kwangsiense* Seidenf.

**N. Vietnam, Ninh Binh** prov., **Nho Quan** distr., Cuc Phuong N.P., 20°24.0N 105°72.0E at elev. 600 m. Forest on limestone mt., near peak. Lithophyte. 20 December 1999, N.M. Cuong, NMC 780.

49.183. *O. longibracteata* Lindley

**S. Vietnam, Thua Thien Hue** prov., **Phu Loc** distr., Bach Ma N.P., SW slope of Bach Ma mt. system around point 16°11'22"N 107°50'48"E at elev. 750–850 m. Broad-leaved evergreen primary closed forest along very steep rocky slopes and bluffs of high waterfall faced to the S. Lithophyte on wet shady mossy cliff. Rare. 4 May 2003, N.T. Hiep, L. Averyanov, N.T. Vinh et al., HLF 1595.

49.184. *O. variabilis* Kerr


50. *Odontochilus* Blume

50.185. *O. lanceolatus* (Lindley) Blume

**N. Vietnam, Ha Giang** prov., **Vi Xuyen** distr., Cao Bo mun., Tam Ve village, 22°46'12"N 104°49'33"E at elev. 1310 m. Closed evergreen submontane broad-leaved primary forest. Lithophyte, near stream, sepals and petals greenish, lip yellow. Not common. 9 September 2000, D. Harder, P.K. Loc, N.Q. Hieu et al., DKH 5316.

51. *Panisea* (Lindley) Steudel

51.186. *P. tricallosa* Rolfe

**N. Vietnam, Hoa Binh** prov., **Mai Chau** distr., Pa Co mun., Xa Linh village area, approximately 1.5 km to SW of village center. Limestone forest with bamboo on top of ridge between 20°44'04"N 104°55'57"E at elev. 1093 m and 20°43'57"N

51.187. P. yunnanensis S.C. Chen et Z.H. Tsi


52. Paphiopedilum Pfitzer
52.188. P. appletonianum (Gower) Rolfe


52.189. P. concolor (Bateman) Pfitzer


52.190. P. dianthum Tang et F.T. Wang


52.191. *P. henryanum* Braem

N. Vietnam, Ha Giang prov., Quan Ba distr., Can Ty mun., Ha Tung Sung valley, Bat Dai Son Natural Reserve around point 23°05'808N 105°01'020E. Primary closed evergreen dry broad-leaved and mixed needle-leaved forest on steep slopes on top of limestone mt. at elev. 1160 m. Lithophytic herb on steep slopes. Very common, on top with Xanthocyparis vietnamensis and Pseudotsuga sinensis. 12 January 2003, T.V. Thao, N.S. Khang, VT 5. N. Vietnam, Ha Giang prov., Vi Xuyen distr., Phong Quang mun., Man village, Phong Quang Nature Reserve, 22°52'04"N 104°57'32"E at elev. 300–1050 m. Primary forest on limestone ridges and cliffs. Abundant on cliff face. 16 February 2001, D. Harder, L. Averyanov, DKH 6460.

52.192. *P. hirsutissimum* (Lindley ex Hook. f.) Pfitzer

N. Vietnam, Ha Giang prov., Quan Ba distr., Bat Dai Son mun., Bat Dai Son Protected Area, 23°09'04"N 104°59'53"E at elev. 1150 m. Primary and secondary forest on limestone ridge. Occasional lithophyte on shear limestone cliff. Scape dried with hairs. 12 February 2001, D. Harder, N.T. Hiep, L. Averyanov et al., DKH 6213. N. Vietnam, Son La prov., Yen Chau distr., Muong Lum mun., On Oc village, 20°59'06"N 104°28'46"E at elev. 1468 m. Primary forest along limestone ridge tops. Frequent lithophyte. Young buds and pedicle with dark purple hairs, buds purple tipped, petals deep purple, sepal dark green with purple and red-purple spots medially at base, lateral petals dark green at base with purple at lobe, labellum green and purple. 4 March 2001, D. Harder, P.K. Loc, N.T. Huong, DKH 7260.

52.193. *P. malipoense* S.C. Chen et Z.H. Tsi

52.194. *P. micranthum* Tang et F.T. Wang

**N. Vietnam, Ha Giang** prov., **Quan Ba** distr., Can Ty mun., Ha Tung Sung valley, Bat Dai Son Natural Reserve around point 23°05'808N 105°01'020N. Primary closed evergreen dry broad-leaved and mixed needle-leaved forest on steep slopes or top of limestone mt. at elev. 1160 m. Lithophytic herb on steep slopes. Very common. 12 January 2003, *T.V. Thao, N.S. Khang, VT 8. N. Vietnam, Ha Giang* prov., **Vi Xuyen** distr., Phong Quang mun., Man village, Phong Quang Nature Reserve, 22°52'04''N 104°57'32''E at elev. 300–1050 m. Primary forest on limestone ridges and cliffs. Occasional at ridge top. Leaves with dark purple spots below and lighter green mottling above. 16 February 2001, *D. Harder, L. Averyanov, DKH 6451.*

53. *Peristylus* Blume

53.195. *P. calcaratus* (Rolfe) Hu


53.196. *Peristylus goodyerioides* (D. Don) Lindley

**N. Vietnam, Cao Bang** prov., Trung Khanh distr., Ngoc Khe mun., Pac Nga village, around point 22°54'59''N 106°31'44''E at elev. 600–650 m. Secondary shrubs on very steep mossy rocky slope of N exposition of rocky ridge composed with light gray solid marble-like highly eroded crystalline limestone along Quy Son River valley. Terrestrial herb up to 0.5 m tall on open secondary middle-tall grassland (with *Imperata cylindrica*). Flowers fragrant, tepals light green, lip white with light greenish tint. Locally abundant. 15 June 2004, *L. Averyanov, P.K. Loc, P.V. The et al., HAL 5763.*

53.197. *P. holttumii* Seidenf.*

**S. Vietnam, Lam Dong** prov., around Dalat city. 23 September 2003, *N.V. Duy, 331* (Table 2, *b*).

54. *Phaius* Lour.

54.198. *Ph. indochinensis* Seidenf. et Ormerod


54.199. *Ph. mishmensis* (Lindley et Paxton) Rchb. f.


55. *Phalaenopsis* Blume

55.200. *Ph. gibbosa* Sweet

**N. Vietnam, Ha Tinh** prov., **Huong Son** distr., Son Hong mun., around point 18°34'06''N 105°11'40''E. Primary broad-leaved evergreen riparian forest with *Platanus kerrii* and *Duabanga grandiflora* along rocky Song Con river valley composed with shale and gray sandstone at elev. 250–300 m. Canopy epiphyte. Flowers yellow-white. Locally common. 7 May 2004, *P.K. Loc, L. Averyanov, P.V. The et al., HAL 5163.*
55.201. *Ph. lobbii* (Reichenb. f.) Sweet

**N. Vietnam, Ninh Binh** prov., **Nho Quan** distr., Cuc Phuong N.P., 20°26.0N 105°64.0E at elev. 200 m. Thua valley, Mo village. Primary forest on limestone mt. Epiphyte. 21 November 2000, *N.M. Cuong*, *NMC 1571*.


**N. Vietnam, Bac Kan** prov., **Cho Don** distr., Ban Thi mun., Phia Khao village, around point 22°16’10’’N 105°31’01’’E at elev. 700–850 m. (Tang Gia mt.). Primary broad-leaved evergreen closed forest on very steep slopes and cliffs near and on tops of rocky ridge composed with solid marble-like stratified limestone. Epiphyte. Tepals light yellow with purple-red marks, lip white, base and side-lobes with red-purple marks. Occasional. 22 May 2004, *L. Averyanov, N.T. Hiep, P.V. The et al.*, *HAL 4780*.

**N. Vietnam, Cao Bang** prov., **Thach An** distr., about 28 km to SE from Cao Bang town, 22°29’N 106°28’E. Primary evergreen broad-leaved closed forest on steep slopes of remnant limestone ridge at 300–450 m alt. Epiphyte in very wet shady place. Not common. 6 December 1998, *L. Averyanov, N.Q. Binh, N.X. Tam*, *CBL 961/1*.


56.203. *Ph. articulata* Lindley


56.204. *Ph. chinensis* Lindley


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Averyanov L., Averyanova A. Rare species of orchids (Orchidaceae) in the flora of Vietnam
56.205. *Ph. missionarium* Gagnepain

**N. Vietnam, Son La prov., Moc Chau distr.,** Van Ho mun., Hua Tat village, 20°46'35"N 104°46'31"E at elev. 1400–1500 m. Primary evergreen, closed forest with *Pinus fenzeliana* and *Calocedrus* sp. on limestone ridge and cliffs. Epiphyte and lithophyte. Abundant. 6 March 2001, D. Harder, P.K. Loc, L. Averyanov et al., *DKH* 7372.

56.206. *Ph. pallida* Lindley


56.207. *Ph. recurva* Lindley


56.208. *Ph. roseanae* Schltr.

**N. Vietnam, Ha Giang prov., Quan Ba distr.,** Can Ty mun., Ha Tung Sung Valley, Bat Dai Son Natural Reserve around point 23°05'808"N 105°01'020". Primary closed evergreen dry broad-leaved and mixed needle-leaved forest on steep slopes or top of limestone mt. at elev. 1160 m. Lithophytic herb on steep slopes. Very common on top with *Xanthocyparis vietnamiensis* and *Pseudotsuga sinensis*. 12 January 2003, T.V. Thao, N.S. Khang, VT 6. **N. Vietnam, Ha Giang prov., Vi Xuyen distr.,** Phong Quang mun., Man village, 22°53'35"N 104°56'35"E at elev. 600–800 m. Secondary vegetation on limestone ridge and small limestone peaks. Frequent on rocks at top. Lip with yellow spot, tepals all white. 15 February 2001, D. Harder, P.K. Loc, L. Averyanov et al., *DKH* 6348. **N. Vietnam, Bac Kan prov., Cho Don distr.,** Ban Thi mun., Phia
Khao village, Lung Li locality, 22°17’30”N 105°31’16”E. Primary broad-leaved evergreen closed wet forest on very steep slopes and cliffs of remnant mt. composed with highly eroded crystalline limestone near top of ridge at elev. 900–1000 m. Lithophytic herb on vertical shady cliffs. Flowers white, lip with yellowish-lemon central spot. Very common. 25 December 2002, P.K. Loc, L. Averyanov, N.T. Vinh et al., HLF 746.

56.209. Ph. rubra Lindley

56.210. Ph. yunnanensis Rolfe

57.211. P. angustata Lindley

58. Podochilus Blume
58.212. P. banaensis Ormerod

58.213. P. khasianus Hook. f.
N. Vietnam, Ha Giang prov., Vi Xuyen distr., Phong Quang mun., Man village, 22°53’35”N 104°56’35”E at elev., 600–800 m. Secondary vegetation on limestone ridge and small limestone peaks. Frequent lithophyte. 15 February 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 6349; DKH 6414. N. Vietnam, Thanh Hoa prov., Ba Thuoc distr., Co Lung mun., Khuyen village, around point 20°26’31”N 105°14’55”E. Primary evergreen seasonal broad-leaved and coniferous submontane forest on

58.214. *P. oxyystophyloides* Ormerod


59. **Renanthera** Lour.


**N. Vietnam, Ha Giang** prov., **Vi Xuyen** distri., Minh Tan mun., Ban Ngay village, 23°00’37”N 104°54’46”E at elev. 225–620 m. Primary forest with *Burrettiodendron* on limestone ridge on exposed rocks above river. Epiphyte on high tree. 17 February 2001, *D. Harder, P.K. Loc, N.T. Hiep et al., DKH 6504.*

59.216. *R. coccinea* Lour.


60. **Rhomboda** Lindley

60.217. *R. petelotii* (Gagnepain) Ormerod

**N. Vietnam, Son La** prov., **Moc Chau** distri., Long Luong mun., Sang Cai village, 20°45’51”N 104°51’26”E at elev. 1300–1500 m. Primary wet broad-leaved, evergreen and semi-deciduous mossy forest along limestone ridge. Lithophytic creeping herb in shady very steep slope. Leaves brown-green with median white stripe above, pink-violet beneath. Common. 8 March 2001, *D. Harder, P.K. Loc, L. Averyanov et...*
al., DKH 7452; DKH 7553. **N. Vietnam, Son La prov., Moc Chau distr., Van Ho mun., Hua Tat village, 20°46′50″N 104°47′45″E at elev. 1375 m. On degraded limestone mt. with rocky outcrops and few *Pinus fenzeliana* trees. Lithophyte in deep shade, leaves dark green with white stripe along midrib, abaxial surface pink. Rare. 7 October 2000, D. Harder, N.T. Hiep, N.Q. Hieu et al., DKH 5849. **N. Vietnam, Son La prov., Moc Chau distr., Van Ho mun., Hua Tat village, 20°46′35″N 104°46′31″E at elev. 1200–1250 m. Primary evergreen, closed forest on limestone ridge and cliffs of N exposition. Lithophytic and terrestrial herb among shady rocks. Leaves deep velvety green with white median stripe above, uniformly light green beneath. Not common. 5 March 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 7322. **N. Vietnam, Son La prov., Yen Chau distr., Muong Lum mun., Lum village, 21°00′17″N 104°29′08″E at elev. 1242 m. Primary vegetation with *Pinus fenzeliana* and *Calocedrus* sp. along limestone ridges. Occasional. Stem red to dark dull purple-red, leaves deep green above with white stripe medially. 3 March 2001, D. Harder, P.K. Loc, N.T. Hiep, L. Averyanov et al., DKH 7204.

60.218. **R. tokioi** (Fukuyama) Ormerod

**N. Vietnam, Ha Tinh prov., Huong Son distr., Son Hong mun., around point 18°34′06″N 105°11′40″E. Primary broad-leaved evergreen forest on steep mt. slopes composed with granite along Khe Van stream at elev. 400–450 m. Terrestrial creeping herb on shady rocky stream slope. Leaves light green with indistinct wide median silver stripe. Rare. 8 May 2004, P.K. Loc, L. Averyanov, PV. The, N.T. Vinh, HAL 5216.

61. **Robiquetia** Gaudich.

61.219. **R. succisa** (Lindley) Seidenf. et Garay

**N. Vietnam, Ninh Binh prov., Nho Quan distr., Cuc Phuong N.P., 20°21′00″N 105°36′00″E. Primary forest on limestone slope at elev. 365 m. Epiphyte. 18 November 1999, D.D. Soejarto, N.T. Hiep et al., DDS 11015.

62. **Schoenorchis** Reinw.

62.220. **S. gemmata** (Lindley) J.J. Sm.

**N. Vietnam, Ha Giang prov., Quan Ba distr., Can Ty mun., Bat Dai Son Natural Reserve around point 23°06′842″N 104°59′131″N. Primary closed evergreen dry broad-leaved mixed and needle-leaved forest on steep slopes or tops of limestone mt. at elev. 1108 m. Epiphytic herb on steep slopes. Common on top with *Pseudotsuga sinensis*. 25 January 2003, T.V. Thao, N.S. Khang, VT 50. **N. Vietnam, Son La prov., Moc Chau distr., Van Ho mun., Hua Tat village, 20°46′13″N 104°46′12″E at elev. 1100–1300 m. Primary broad-leaved closed wet forest along limestone ridge and slopes near tops. Epiphyte. Tepals purple-violet, lip white. Abundant. 7 March 2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 7410.

63. **Spathoglottis** Blume

63.221. **S. pubescens** Lindley

64. *Stereochilus* Lindley
64.222. *S. brevirachis* E.A. Christenson*

S. Vietnam, Lam Dong prov., Dalat town, living collection in Institute of Tropical Biology (wild collected in Dalat town area). Epiphyte. Flowers white with very light violet tint, lip mid lobe purple-violet, side lobes white, column yellow, anther white. 18 April 2004, L. Averyanov, P.K. Loc, N.T. Hiep, HAL 4589 (Table 2, c).

64.223. *S. dalatensis* (Guillaumin) Garay


65. *Taeniophyllum* Blume
65.224. *T. minimum* Gagnepain


65.225. *T. pahangense* Carr


66. *Tainia* Blume

N. Vietnam, Ha Tinh prov., Huong Son distr., Son Hong mun., around point 18°34'06"N 105°11'40"E. Primary broad-leaved evergreen forest on steep mt. slopes composed with granite along Khe Van stream at elev. 350–450 m. Terrestrial herb on very steep rocky stream slope. Tepals light brown-yellow, lip white with fine purple-violet marks. Not common. 8 May 2004, P.K. Loc, L. Averyanov, P.V. The et al., HAL 5183.


N. Vietnam, Lao Cai prov., Van Ban distr., Nam Xe mun., Nam Xi Tan village, 22°02'57"N 103°58'35"E at elev. 700–1120 m. Secondary forest at top of ridge on


**S. Vietnam, Thua Thien Hue** prov., **Phu Loc** distr., Bach Ma N.P., N slope of Bach Ma mt. system around point 16°13'53"N 107°49'02"E at elev. about 100 m. Broad-leaved evergreen wet secondary closed forest along rocky river valley and on river slopes. Epiphyte on high trees along river valley. Tepals white with purple-brown marks. Not common. 2 May 2003, N.T. Hiep, L. Averyanov, N.T. Vinh et al., HLF 1547.

68. *Thrixspermum* Lour.

68.231. *T. annamense* (Guillaumin) Garay

**S. Vietnam, Ninh Thuan** prov., **Ninh Hai** distr., Vinh Hai mun., SE slopes on Nui Chua mt. to SW of point 11°43'52"N 109°08'35"E at elev. 800–950 m. Primary evergreen dry forest on steep rocky mt. slopes composed with granite. Canopy epiphyte. Tepals white, lip white with reddish center. Rare. 4 April 2004, N.T. Hiep, P.K. Loc,
L. Averyanov, N.T. Vinh et al., HLF 4617.

68.232. **T. caleolus** (Lindley) Reichenb. f.

**N. Vietnam, Ha Giang** prov., **Quan Ba** distr., Bat Dai Son mun., Bat Dai Son Protected Area, 23°09'04"N 104°59'53"E at elev. 1150 m. Primary and secondary forest on limestone ridge. Occasional short vine to 1 m lg on rocks. 12 February 2001, *D. Harder, N.T. Hiep, L. Averyanov et al.*, DKH 6245.

68.233. **T. centipeda** Lour.

**N. Vietnam, Ninh Binh** prov., **Nho Quan** distr., Cuc Phuong N.P., 20°30.0N 105°59.0E, Epiphyte on *Randia* in open place in secondary forest at elev. 127 m. 10 December 2001, *N.T. Hiep, NTH 5382.*

68.234. **T. fleuryi** (Gagnepain) Tang et F.T. Wang


68.235. **T. fragrans** Ridley


68.236. **T. leucarachne** Ridley


68.237. **T. sutepense** (Rolfe ex Downie) Tang et F.T. Wang

**N. Vietnam, Bac Kan** prov., **Cho Don** distr., Ban Thi mun., Phia Khao village, around point 22°16'58"N 105°31'20"E at elev. 800–900 m. (Lung Chang and Lung Li mt.). Primary broad-leaved evergreen closed and coniferous (with *Pinus fenzeliana*) forest on very steep slopes and cliffs along tops of rocky ridge composed with solid marble-like stratified limestone. Epiphyte. Tepals light yellowish, lip light yellow-orange with reddish fine marks inside. Not rare. 20 May 2004, *L. Averyanov, N.T. Hiep, P.V. The et al.*, *HAL 4707* (Table 2, *d*).

69. **Trias** Lindley

69.238. **T. nasuta** (Reichenb. f.) Stapf


70. **Trichoglottis** Blume

70.239. **T. triflora** (Guillaumin) Garay et Seidenf.

71. **Trichotosia** Blume

71.240. **T. dasyphylla** (Parish et Reichenb. f.) Kraenzlin


71.241. **T. microphylla** Blume


71.242. **T. velutina** (Lodd. ex Lindley) Kraenzlin


72. **Tropidia** Lindley

72.243. **T. angulosa** (Lindley) Blume

N. Vietnam, Quang Ninh prov., Ha Long Bay, Dau Go Cave, around point 20°54'650''N 107°01'149''E. 18 March 2003, P.V. The, NTH 5621.

72.244. **T. curculigoides** Lindley

N. Vietnam, Lao Cai prov., Van Ban distr., Liem Phu mun., Khuoi Ngoa village, 21°58'08''N 104°21'00''E at elev. 520–1120 m. Primary and secondary forest with *Fokienia hodginsii* on quartzite and limestone. Occasional herb in shade. 21 February
2001, D. Harder, P.K. Loc, L. Averyanov et al., DKH 6538; DKH 6627.

73. **Vanda** Jones ex R. Br.

73.245. **V. alpina** Lindley*

**N. Vietnam, Lai Chau** prov. Broad-leaved forest on limestone at elev. about 1000 m. Tepals light green with brown tint along margin, lip white, with deep purple-violet inside surface of side lobes and purple-violet stripes on the epichile. Column and anther white. Cultivated and flowered in Hanoi. 21 May 2003, *L. Averyanov, N.T. Hiep, HAL 2907* (Table 2, e).

73.246. **V. concolor** Blume

**N. Vietnam, Ha Giang** prov., Quan Ba distr., Bat Dai Son mun., La Tan Va Valley, Bat Dai Son Natural Reserve around point 23°08'712N 105°00'348E. Primary closed evergreen dry broad-leaved and mixed needle-leaved forest on steep slopes or tops of limestone mt. at elev. 1158 m. Common on tops with *Garcinia fagraeoides, Nageia fleuriyi* and *Pseudotsuga sinensis*. 2 March 2003, *T.V. Thao, N.S. Khang, VT 83*.

73.247. **V. cristata** Wallich ex Lindley*

**N. Vietnam, Son La** prov., Thuan Chau distr., Co Ma site, about 45 km to the NWW from Son La city, around 21°22'N 103°27'E at elev. 800–900 m. Epiphyte in closed evergreen tropical seasonal broad-leaved submontane forest on limestone. 9 March 2004, *T.T. Anh, P.K. Loc, P-10700* (Table 2, f).

73.248. **V. petersiana** Schltr.*


73.249. **V. pumila** Hook. f.

**N. Vietnam, Son La** prov., Thuan Chau distr., Co Ma site, about 45 km to the NWW from Son La city, around 21°22'N 103°27'E at elev. 800–900 m. Epiphyte in closed evergreen tropical seasonal broad-leaved submontane forest on limestone. 9 March 2004, *T.T. Anh, P.K. Loc, P-10700A*.

74. **Vietorchis** Aver. et Averyanova

74.250. **V. aurea** Aver. et Averyanova


75. **Vrydagzynea** Blume

75.251. **V. albida** (Blume) Blume

**N. Vietnam, Ha Tinh** prov., Huong Son distr., Son Hong mun., around point 18°34'06"N 105°11'40"E. Primary broad-leaved evergreen forest on steep mt. slopes composed with granite along Khe Van stream at elev. 400–450 m. Terrestrial creeping
herb on shady rocky stream slope. Leaves uniform deep green. Locally common. 8 May 2004, P.K. Loc, L. Averyanov, P.V. The et al., HAL 5215.

76. *Zeuxine* Lindley
76.252. *Z. flava* (Wallich ex Lindley) Benth. ex Hook. f.*


76.253. *Z. nervosa* (Lindley) C.B. Clarke

**S. Vietnam, Nghe An** prov., **Quy Chau** distr., Dien Lam mun., on trail to the top 1148 m, 19°21'55"N 104°55'49"E at elev. about 900 m, north slope. Scattered in slightly logged primary closed evergreen tropical seasonal broad-leaved submontane forest on shale, sandstone and rhyolite on deep soil. Terrestrial herb. Flowers white. 17 February 2004, P.K. Loc, VM. Son, L.T. An et al., HLF 3095.

76.254. *Z. parviflora* (Ridley) Seidenf.


77. *Zeuxinella* Aver.

**N. Vietnam, Bac Kan** prov., **Ba Be** distr., Nam Mau mun., Ba Be N.P. around point 22°23'22"N 105°37'09"E. Fractionally logged primary evergreen closed broad-leaved forest on slopes composed with crystalline highly eroded marble-like limestone at elev. 300–400 m. Terrestrial herb among shady rocks. Leaves velvety black above, dull purple beneath. Rare. 23 December 2002, J. Regalado, N.T. Hiep, L. Averyanov et al., HLF 638. **N. Vietnam, Quang Ninh** prov., Ha Long Bay, Dau Go Cave, around point 20°54'650N 107°01'149E. 19 March 2003, P.V. The, NTH 5649.

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Permit for the collection and export of herbarium plant specimens were granted by the Ministry of Agriculture and Rural Development, Hanoi, through a letter dated September 15,
Table 1. New species of orchids in the flora of Vietnam.

Table 2. New species of orchids in the flora of Vietnam.

a – Liparis tenuis Rolfe ex Downie (HAL 2901); b – Peristylus holtumii Seidenf. (Duy 331); c – Stereochilus brevirachis E.A.Christenson (HAL 4589); d – Thrixspermum sutepense (Rolfe ex Downie) Tang et F.T.Wang (HAL 4707); e – Vanda alpina Lindley (HAL 2907); f – Vanda cristata Wallich ex Lindley (P-10700); g – Vanda petersiana Schltr. (HAL 4607A).

LITERATURE


РЕЗЮМЕ

В статье приводятся новые местонахождения 255 редких видов орхидных из 77 родов, собранных на территории Вьетнама во время полевых работ 1999–2004 годов, а также обнаруженных в гербариях и частных коллекциях СРВ. 16 видов (Cymbidium devonianum, C. mastersii, Cytrosia nana, Dendrobium falconeri, D. jenkinsii, D. trigonopus, D. umbonatum, Hetaeria nitida, Liparis tenuis, Peristylus holttumii, Stereochilus brevirachis, Thrixspermum sutepense, Vanda alpina, V. cristata, V. petersiana, Zeuxine flava) найдены во Вьетнаме впервые. Предложена одна номенклатурная комбинация в ранге разновидности (Dendrobium capillipes var. braianense).