



PLANT DIVERSITY AND CONSERVATION IN VIETNAM

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A topographic map of Vietnam and its surrounding region in Southeast Asia. The map uses color to represent elevation, with green for lower elevations and brown for higher elevations. A yellow outline highlights the borders of Vietnam and its neighboring countries. The map shows the extensive mountainous terrain of Vietnam, particularly in the north and west, and the coastal plains along the Gulf of Tonkin and the South China Sea. The surrounding region, including parts of Laos, Cambodia, and the Malay Peninsula, is also visible.

Vietnam is situated in Southeast Asia.

The total land area of Vietnam covers about 330,000 sq. km.

Three quarters of the country are mountainous.

Forest covers about 41.65% of total country

Population: 94 million

54 ethnic groups



Vietnam has a globally significant proportion of rare and endemic species of plants and animals. An estimated 15,000 plant species with about 7% of known plants are endemic.



Over 5000 plant species are used by people for food, medicines, timber, oil, and other uses.

**2018: The forest cover 41.65%
14.49 million ha).**



Natural forest 10.25 million ha



Plantation 4.24 million ha

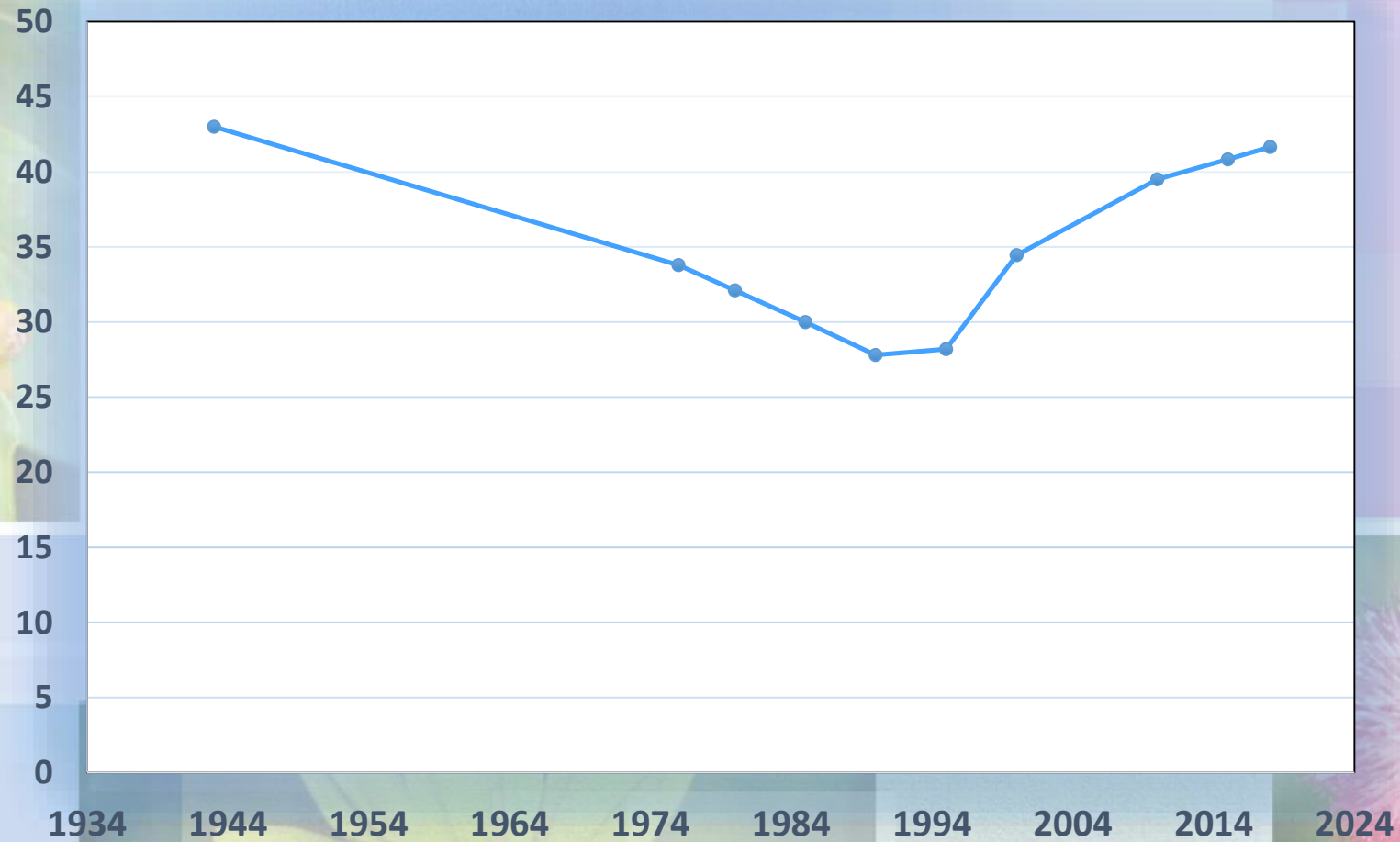


FOREST IN VIETNAM

Year	Area (1,000 ha)			Coverage (%)
	Natural	Plantation	Total	
1943	14,300	0	14,300	43.0
1976	11,077	92	11,169	33.8
1980	10,186	422	10,608	32.1
1985	9,308	584	9,872	30.0
1990	8,430	745	9,175	27.8
1995	8,252	1,050	9,302	28.2
2000	9,444	1,491	11,314	34.45
2010	10,350	3,008	13.358	39.5%
2015	10,30	3.20	13.50	40.84
2018	10,25	4,24	14,49	41,65

FOREST COVER IN VIETNAM

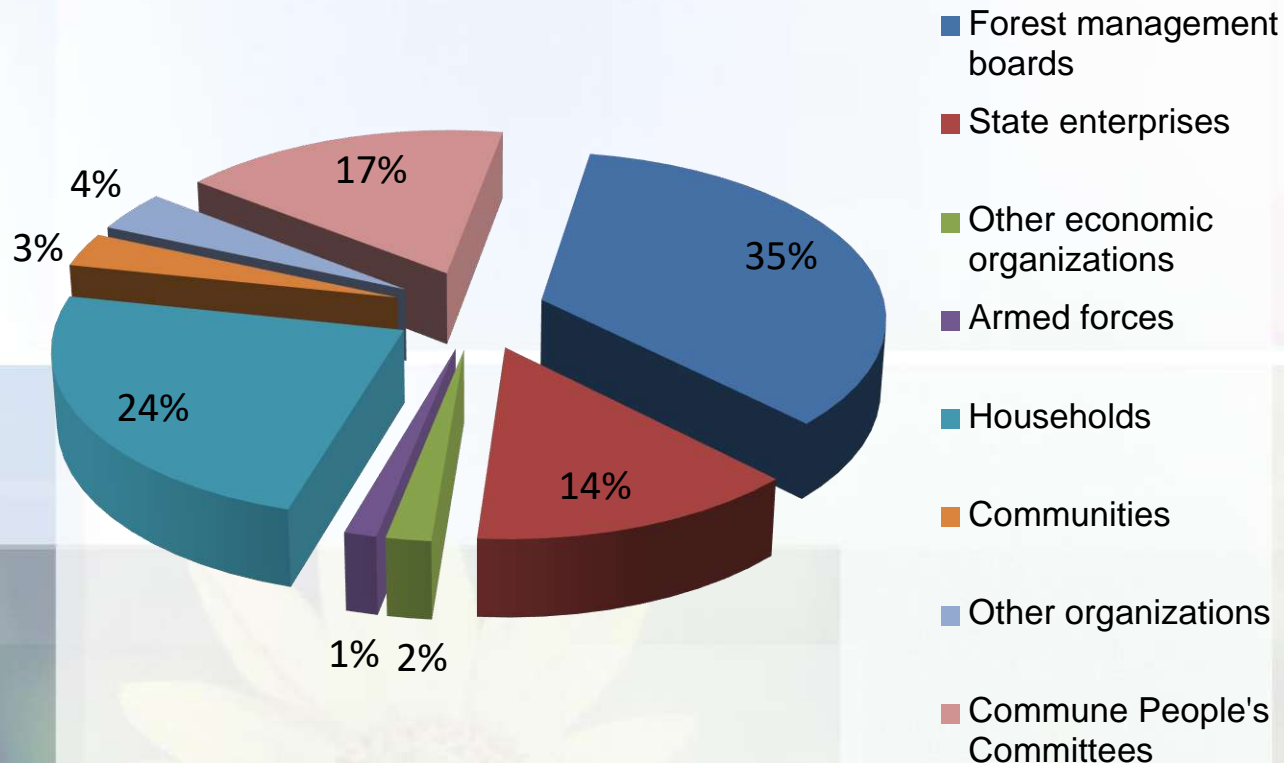
Forest cover



Forests in Vietnam

In 2019: 14.49 mil. ha, 41.65 % forest cover (MARD 2019).

To 2020: 16.2 mil. ha, 44% forest cover.

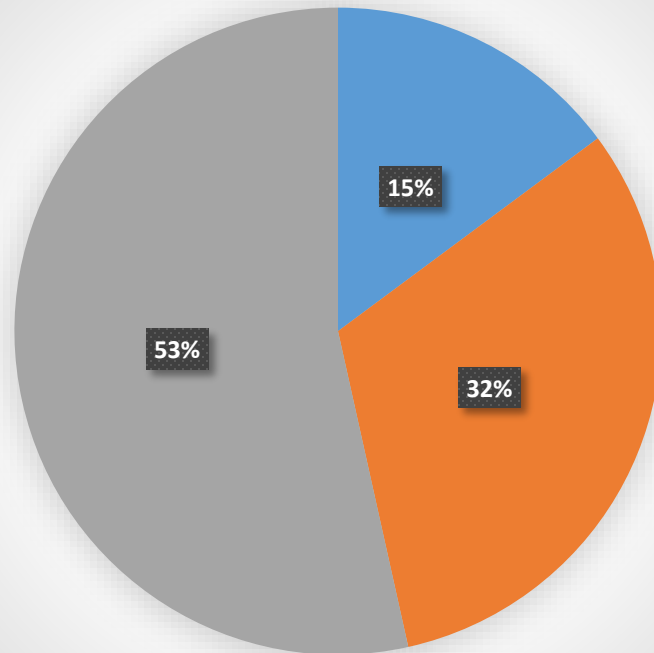


(Source: MARD, 2019)

Forests in Vietnam

Forest land divided into 3 categories:

- Special-Use Forest: 2.15 mil. ha;
- Protection Forest: 4.59 mil. ha;
- Production Forest: 7.75 mil. ha.



(Source: MARD, 2019)

Protected area system



Category of PAs	Year 2017		Year 2020	
	Number	Area (ha)	Number	Area (ha)
I. National Park	32	1,077,236	34	1,083,226
II. Conservation area (CA)	70	1,099,736	58	1,217,781
IIa. Nature reserve	59	1,060,959	44	1,112,988
IIb. Species/habitat CA	11	38,777	14	104,793
III. Landscape protection area	45	78,129	61	92,713
IV. Scientific research forest	20	10,652	9	10,838
Total	166	2,155,754	176	2,404,440

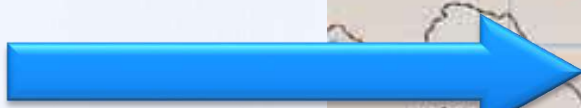
(Source: VNFOREST 2018)

Centers of Plant Diversity

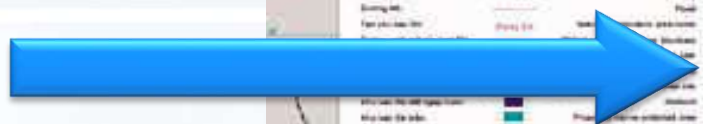
Hoang Lien Son Range



Truong Son Range



Central Highlands





Hoang Lien Son Range in northwest Vietnam with the highest peaks in the Indochina – Phan Xi Pan rising to 3,143 m. Its forests are the most diverse and most threatened in Vietnam. One third of the country's plant endemism is found in this region



Rhododendron ramsdenianum



Rhododendron sp.



Rhododendron sp.



Vaccinium sp.



Rhododendron basilicum



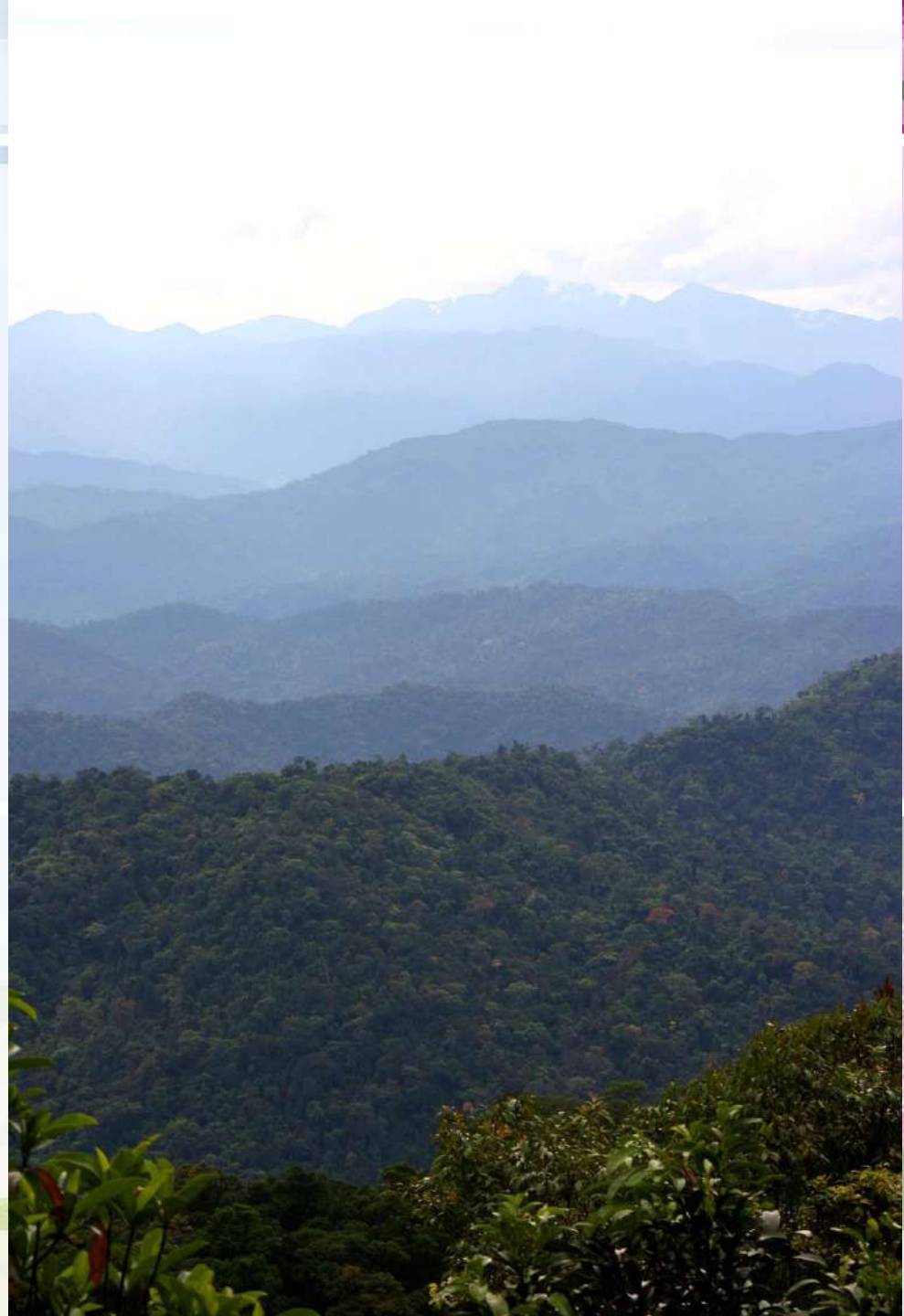
Rhododendron ciliicalyx



Saola (Pseudoryx nghetinhensis)

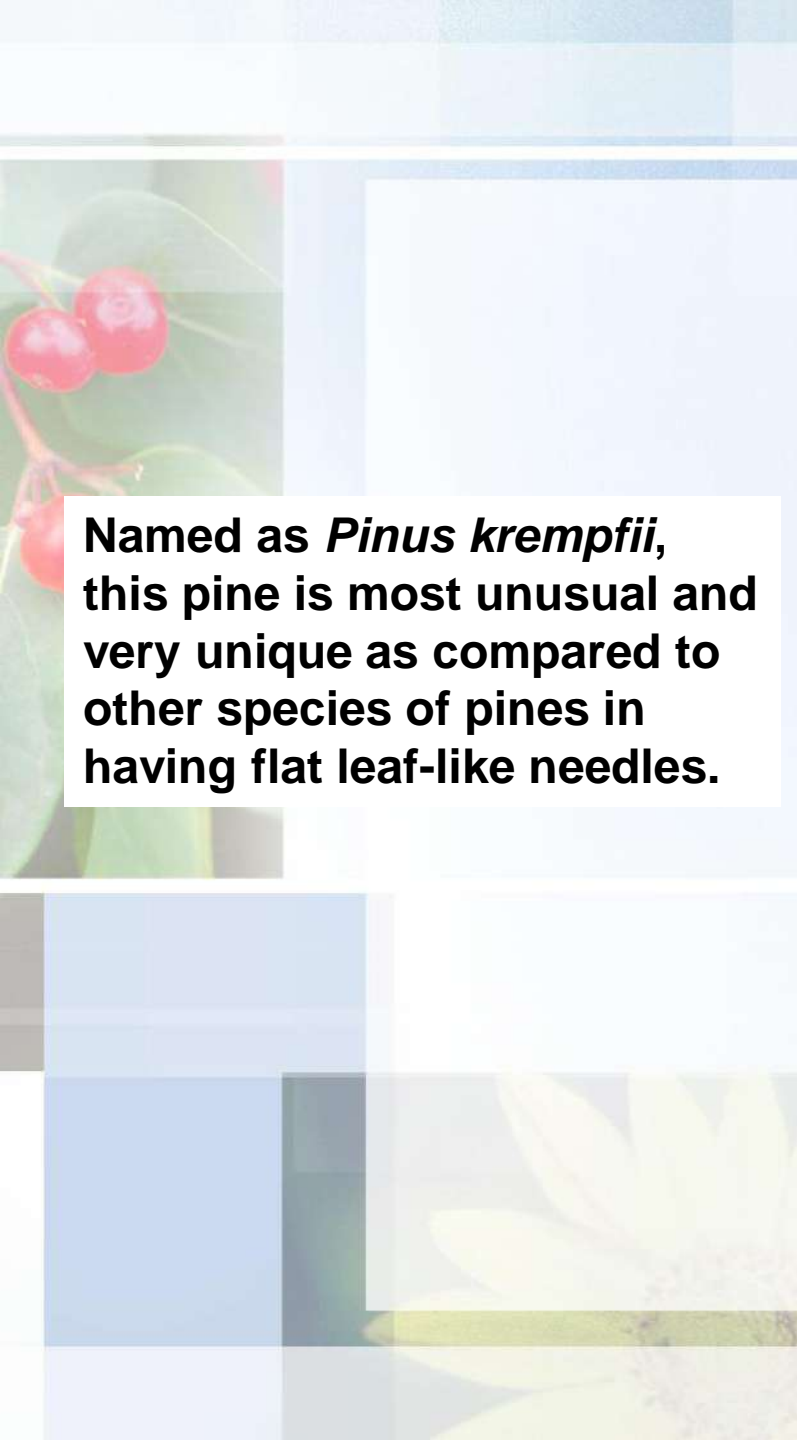
Truong Son (Annamite) Range forms a natural border between the extensive lowland, moist evergreen forests of Vietnam and the drier monsoon forests of Laos.

It is a crossroad for interchange of Himalayan and Indo-Malayan influences that accounts for its high diversity and endemism.

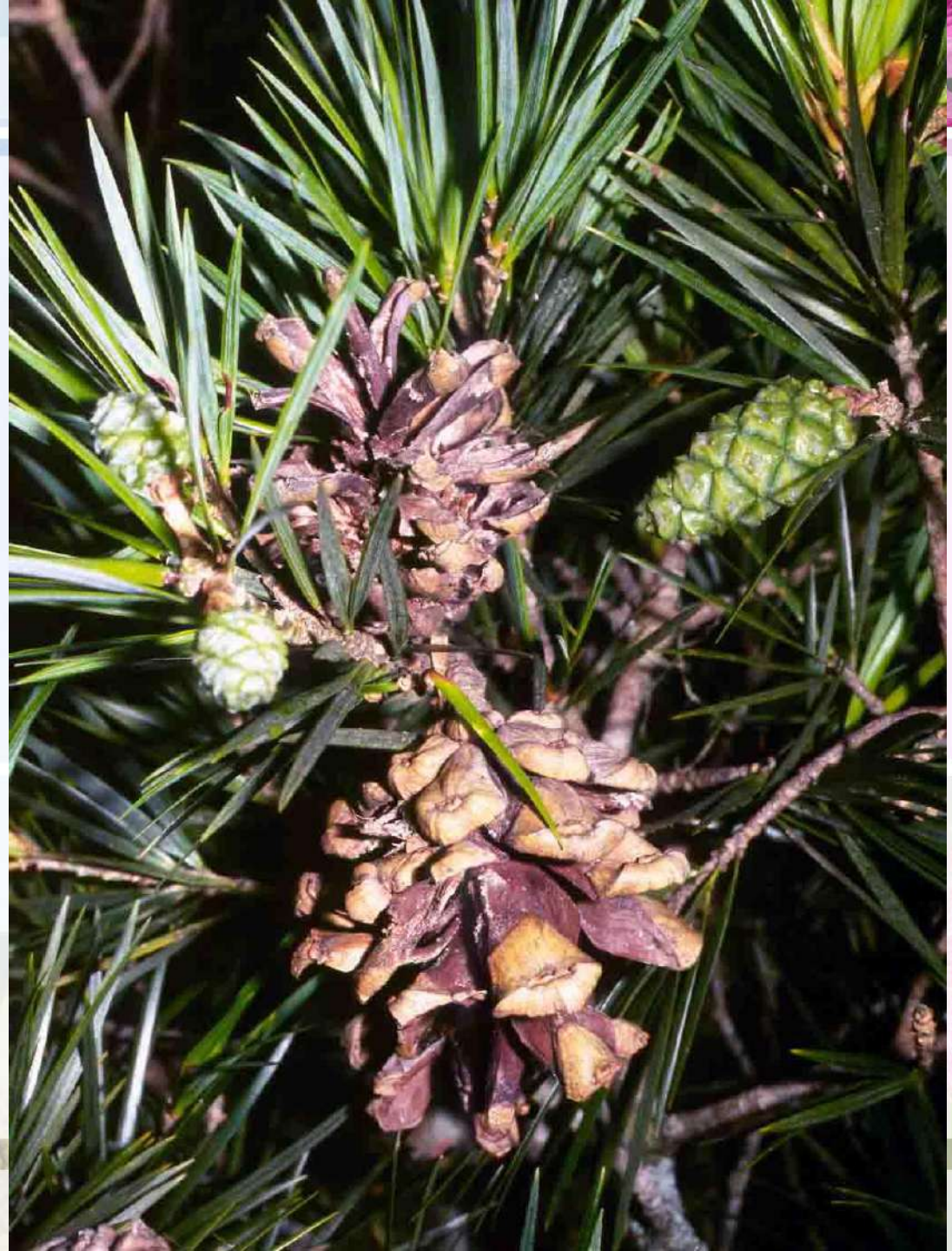


Central Highlands is dissected by relatively level plateaus, where average elevations are mostly from 500 to 1500 m above sea level.





Named as *Pinus krempfii*, this pine is most unusual and very unique as compared to other species of pines in having flat leaf-like needles.



Gymnosperm:

8 Families, 21 genera and 69
species



Keteleeria davidiana (Bertr.) Beissen





***Taxus chinensis* (Pilg.) Rehder (Taxaceae)**



Abies delavayi Franchet ssp. *fansipanensis*



27 species (15%
of the world)



Dipterocarpaceae

6 genera and 44 species





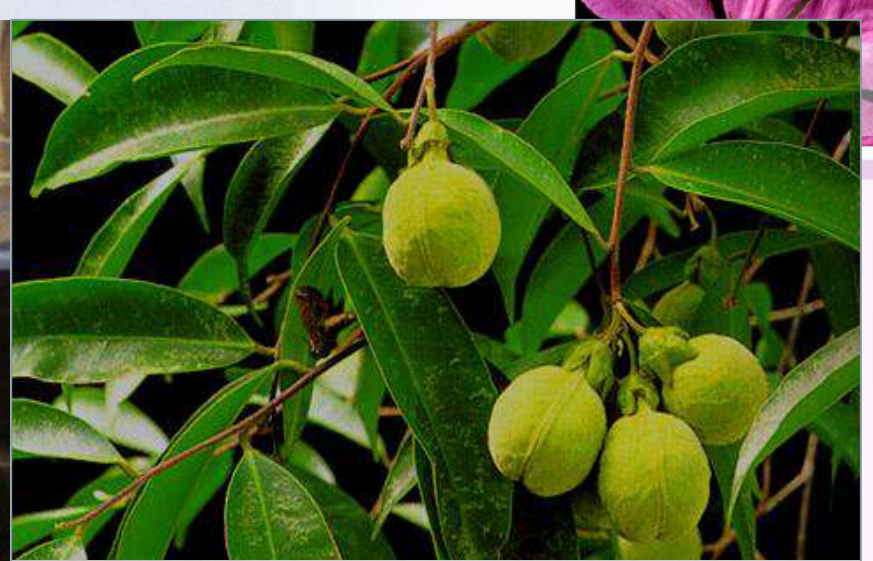
Paphiopedilum callosum



Dalbergia tonkinensis Prain



Panax vietnamensis





170.000 ha.

Discovery of new plant taxa





New genera from Vietnam (1990-2017)

1. *Xanthocyparis* (Cupressaceae)
2. *Caobangia* (Dryopteridaceae)
3. *Kontumia* (Dryopteridaceae)
4. *Vietorchis* (Orchidaceae)
5. *Zeuxinella* (Orchidaceae)
6. *Hamularia* (Orchidaceae)
7. *Ascocentropsis* (Orchidaceae)
8. *Christensonia* (Orchidaceae)
9. *Parapteroceras* (Orchidaceae)
10. *Xyloselinum* (Apiaceae)
11. *Grushvitzkya* (Araliaceae)
12. *Metapanax* (Araliaceae)
13. *Vietnamia* (Asclepiadaceae)
14. *Vietnamochloa* (Poaceae)
15. *Fosbergia* (Rubiaceae)
16. *Rubovietnamia* (Rubiaceae)
17. *Vidalasia* (Rubiaceae)
18. *Distichochlamys* (Zingiberaceae)



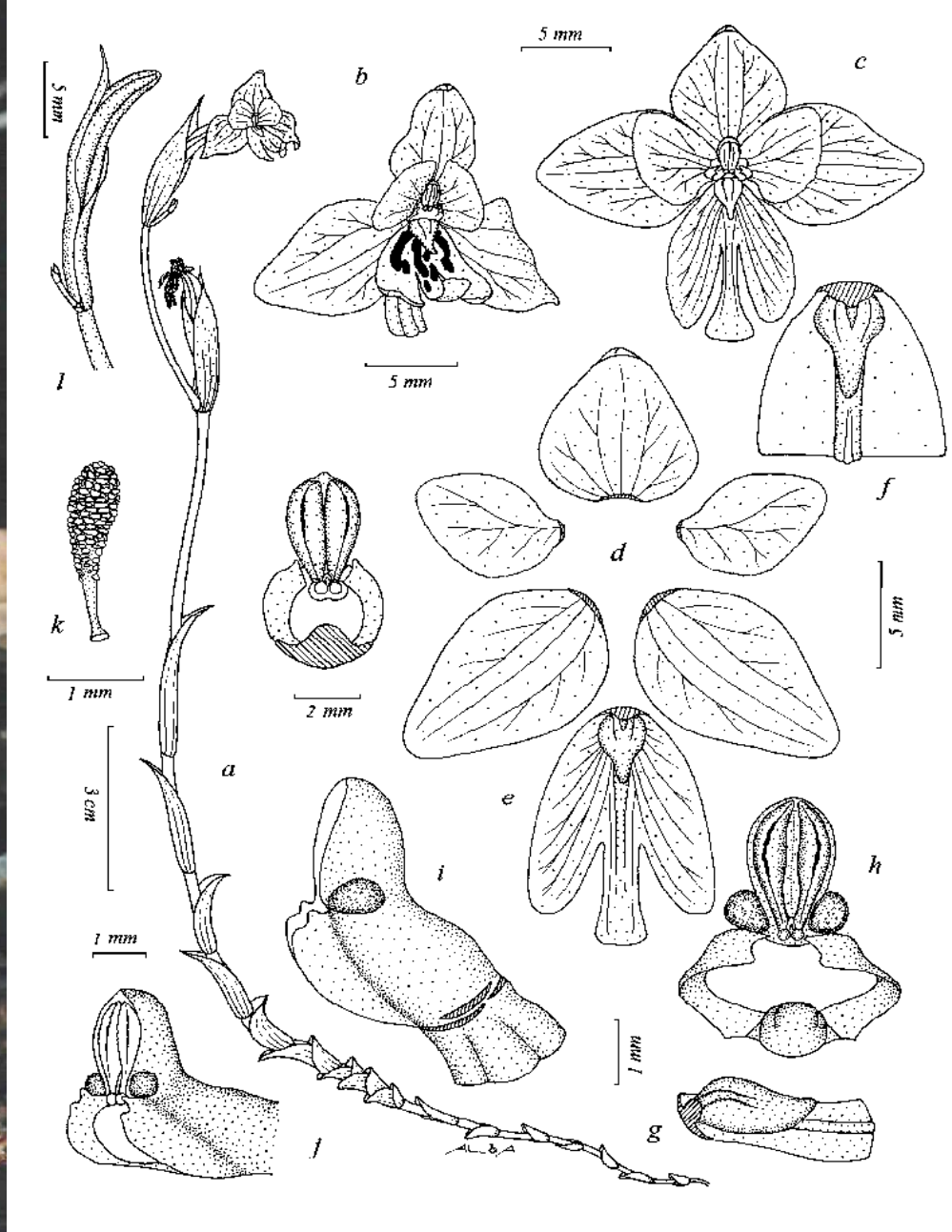
***Xanthocyparis vietnamensis* A. Farjon & T.H. Nguyen in Novon 12(2): 179-189 (2002).**



***Xanthocyparis vietnamensis* A. Farjon & T.H. Nguyen in Novon 12(2): 179-189 (2002).**



***Kontumia heterophylla* S.K. Wu & P.K. Lo
in Novon 15(1): 245-247.**



***Vietorchis aurea* Aver. & Averyanova**

Number of new species (1990-2017)

<u>Family</u>	<u>Count</u>	<u>Authors</u>
Annonaceae	35	Nguyen Tien Ban, Weeras. & Saunders
Apiaceae	2	Pimenov & Kljuykov
Apocynaceae	2	D. J. Middleton
Araceae	30	Hetterscheid, N.V.Du, P.C. Boyce
Araliaceae	10	J. Wen & Lowry, J. Wen & P.K. Loc, C.B. Shang, Skvortsova & Aver.
Arecaceae	31	A.J. Henderson, N.K. Ban & N.Q. Dung, J. Dransf., Barfod. & Boschs., Spanner et al., T.E. Evans & T.P. Anh, Kiew & T.H. Nguyen
Asclepiadaceae	2	T.B. Tran & Livsh., P.T. Li
Balsaminaceae	1	Kiew & T.H. Nguyen
Simaraubaceae	1	H. V. Sam & Noot.

Number of new species (1990-2017)

<u>Family</u>	<u>Count</u>	<u>Authors</u>
Begoniaceae	10	H.Q. Nguyen, Kiew, H.Q. Nguyen & Tebbitt C.I. Peng, Y.M. Shui
Burmanniaceae	2	K. Larsen & Aver.
Commelinaceae	2	Aver., Faden
Convallariaceae	32	Tillich, Aver. & Tillich, Arnautov & Bogner, Brauchler, N. Tanaka
Convolvulaceae	1	Deroin
Cornaceae	1	H. Zhu
Crassulaceae	2	Byalt, H. Ohba
Cucurbitaceae	1	De Wilde & Duyfjes
Cupressaceae	1	Aver., T.H. Nguyen & P.K. Loc
Cycadaceae	10	K.D. Hill, T.H. Nguyen, P.K. Loc
Dryopteridaceae	3	A.R. Smith & X.C. Zhang, S.K. Wu & P.K. Loc

Number of new species (1990-2017)

<u>Family</u>	<u>Count</u>	<u>Authors</u>
Cyperaceae	2	N.K. Khoi
Ericaceae	2	G.Argent & D.Chamberlain, Vander Kloet
Euphorbiaceae	15	N.N. Thin
Fabaceae	6	P.K. Loc, C.Niyomdham
Gentianaceae	8	S. Hul
Gesneriaceae	8	Kiew & T.H. Nguyen, Z.R. Xu, D.J. Middleton & N.S. Ly
Icacinaceae	2	J.-F.Villiers
Lamiaceae	14	Suddee & A.J. Patton
Lauraceae	1	van der Werff & N.K.Dao
Melanthiaceae	1	J.M.H. Shaw
Moraceae	1	T.H. Nguyen
Myrsinaceae	34	C.M. Hu & J.E. Vidal

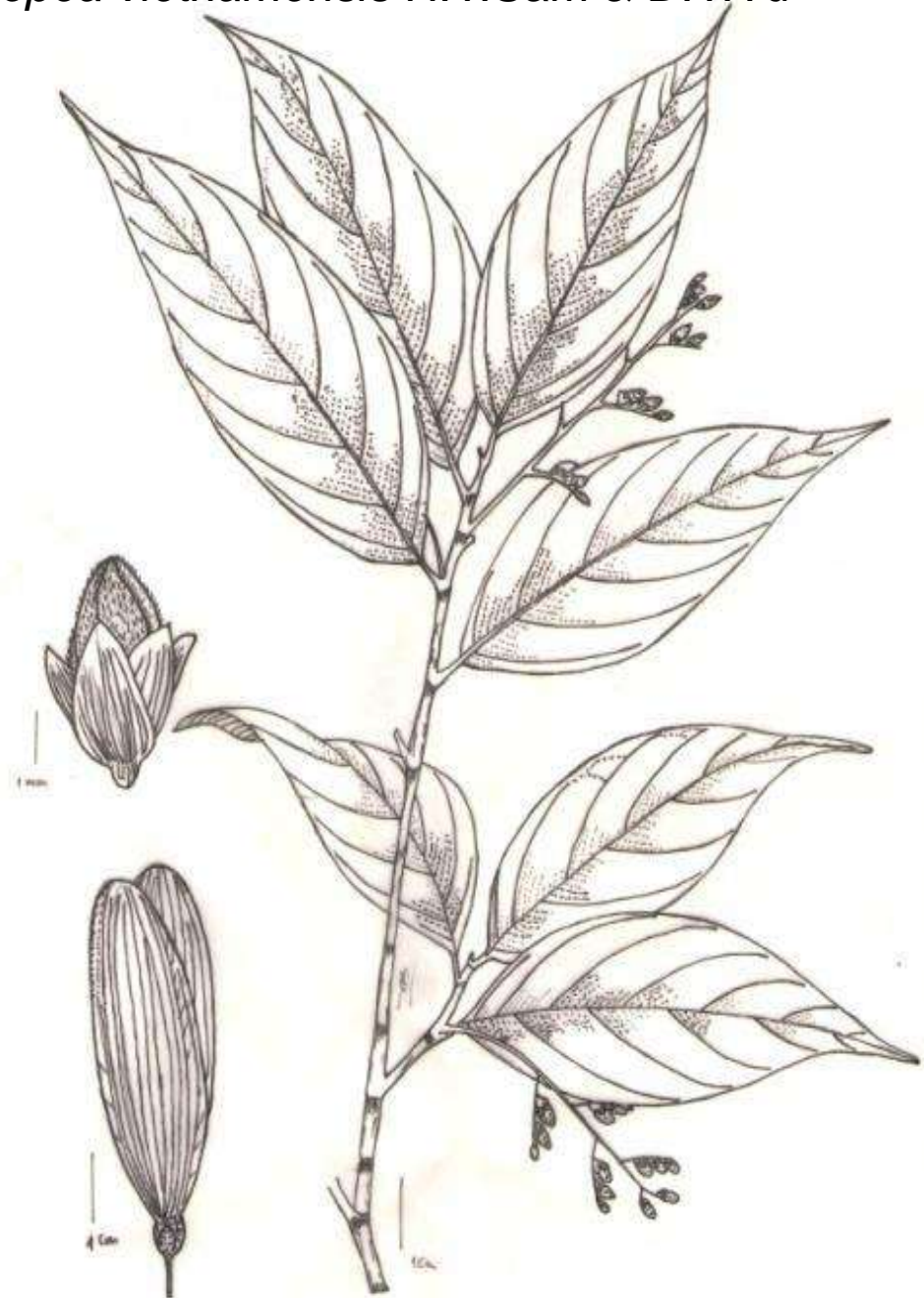
Number of new species (1990-2017)

<u>Family</u>	<u>Count</u>	<u>Authors</u>
Nyssaceae	1	Aver. & T.H. Nguyen
Oleaceae	1	P.S. Green
Orchidaceae	100+	Aver., Averyanova, Ormerod, et al.
Pinaceae	2	Businsky
Poaceae	2	J.F. Veldkamp
Primulaceae	1	Y.M. Shui & M.D. Zhang
Ranunculaceae	1	V.P. Serov
Rubiaceae	9	Tirvengadam, H. Zhu
Theaceae	14	Tran Ninh, J.C. Rossman, N. Hakoda
Thymelaeaceae	2	J.J. Halda, K. Le Cong & Kessler
Triuridaceae	2	Aver.
Zingiberaceae	8	M. Newman, K. Larsen
Dipterocarpaceae	1	H.V.Sam & D.V.Vu



Ailanthus vietnamensis H.V.Sam & Noot.

Hopea vietnamensis H.V.Sam & D.V.Vu





Hopea vietnamensis H.V.Sam & D.V.Vu



Michelia xianianhei Q.N.Vu



Manglietia sapaensis N.H. Xia & Q.N. Vu

New discoveries for Vietnam flora (1990-2017)

	New species described	New records
Ferns	5	15
Cycads	10	9
Conifers	6	10
Dicots	257	128
Monocots	230	72
Total:	508	224

732 species = 4% increase
15,000 in the flora



CHALLENGES ON PLANT DIVERSITY CONSERVATION IN VIETNAM







Forest fire in Hoang Lien National Park (at 2700 m)



Invasive species

31 5 2007









**OPPORTUNITIES FOR PLANT
CONSERVATION IN VIETNAM**











PES
PFES
ABS




LEGAL DOCUMENTS ON PLANT DIVERSITY AND CONSERVATION IN VIETNAM



- Strategy of forest development from 2006-2020
- Law on biodiversity, 2008
- National biodiversity strategy to 2020, Vision to 2030
- Decree 177/CP, 2010
- National strategy on environment protection to 2020, Vision to 2030
- Law of Forestry 2017



**LEGAL DOCUMENTS ON PLANT DIVERSITY AND
CONSERVATION IN VIETNAM**



**Decision No. 1671/QD-TTg of 28th September 2015
approval of program on conservation and sustainable
use of genetic resources until 2025, vision toward 2030.**





THỦ TƯỚNG CHÍNH PHỦ

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Số: 1671/QĐ-TTg

Hà Nội, ngày 28 tháng 9 năm 2015

CÔNG THÔNG TIN ĐIỆN TỬ CHÍNH PHỦ

ĐẾN Giờ: ... 5 ...
Ngày: ... 30/9/15

QUYẾT ĐỊNH

**Phê duyệt Chương trình bảo tồn và sử dụng bền vững nguồn gen
đến năm 2025, định hướng đến năm 2030**

KT. THỦ TƯỚNG
PHÓ THỦ TƯỚNG



Wu Đức Đam

Wu Đức Đam



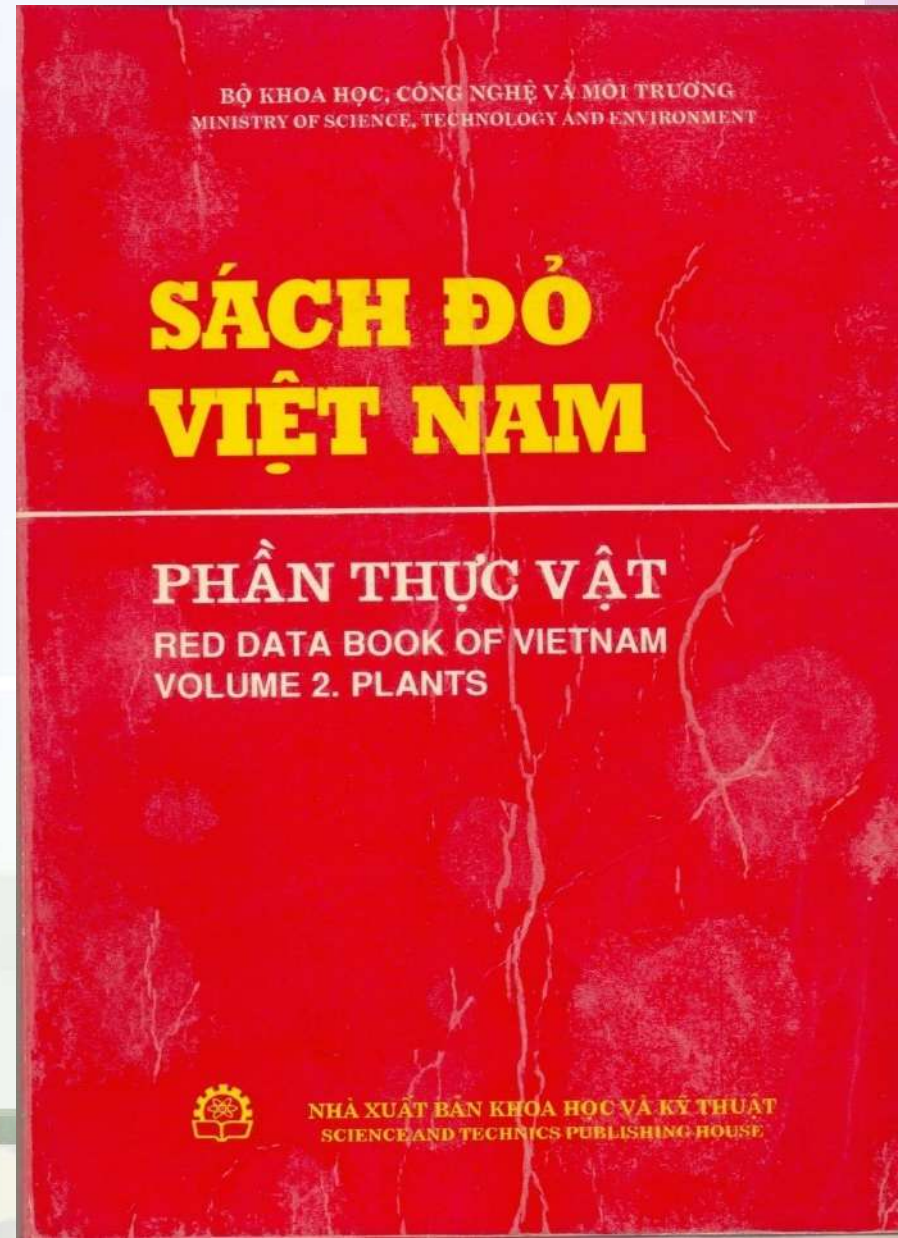
The background of the slide is a collage of various plant images. In the top left, there are several bright red berries on a green stem with leaves. In the top right, there is a close-up of a pink flower with a yellow center. In the bottom left, there is a yellow flower with many petals. In the bottom right, there is a pink, spiky flower head. The central text is overlaid on a light blue rectangular area.

THREATENED PLANT SPECIES IN VIETNAM

RED BOOK – PLANTS 1996



- **Total: 356 species**
- I. Magnoliophyta: 305 species**
- I.1. Magnoliopsida: 231 species**
- I.2. Liliopsida: 74 species**
- II. Pinophyta: 27 species**



RED BOOK 2007

Included 462 species

I. Magnoliophyta: 411
species

I.1. Magnoliopsida: 294
species

I.2. Liliopsida: 117 species

II. Pinophyta: 30 species
(12 Cycas)

SÁCH ĐỎ VIỆT NAM

PHẦN II. THỰC VẬT

VIETNAM RED DATA BOOK
PART II. PLANTS

NHÀ XUẤT BẢN KHOA HỌC TỰ NHIÊN VÀ CÔNG NGHỆ

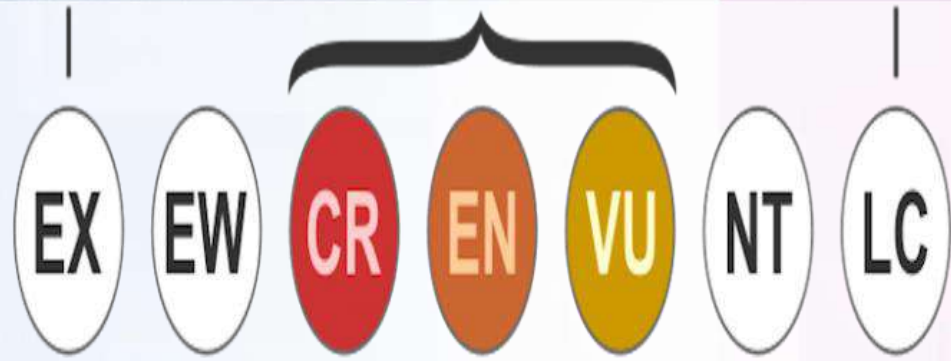
HÀ NỘI - 2007



Extinct

Threatened

Least Concern



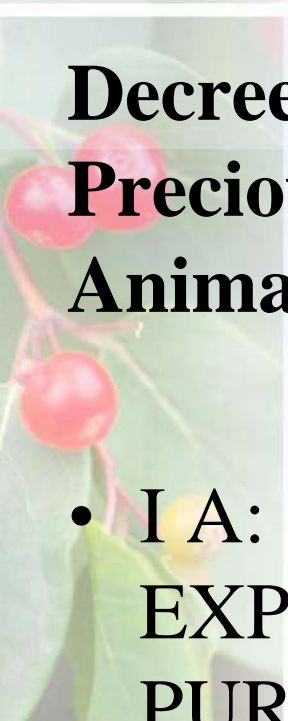


Vietnam: 1182 species (15.4.2019)

EW: 01 Species
CR: 51 Species
EN 84 Species
VU 107 Species

NT/LR 52 Species
LC 787 Species
DD 100 Species



Decree 32/CP 2006 (Management of Endangered, Precious, and rare Species of Wild Plants and Animals)

- 
- I A: 15 plant species (PROHIBITING EXPLOITATION AND USE FOR COMMERCIAL PURPOSES)
 - IIA: 37 plant species (RESTRICTING EXPLOITATION AND USE FOR COMMERCIAL PURPOSE)
- 
- 

The background features a grid of colored squares in shades of blue, green, and purple. Overlaid on this grid are several floral images: a pink flower in the top right, a cluster of red berries on a green leaf in the middle left, a large yellow flower in the bottom center, and a pink, spiky flower in the bottom right.

**LESSON LEARNED ON CONSERVATION
OF THREATENED PLANT SPECIES**

Dalbergia tonkinensis Prain



Dalbergia tonkinensis Prain







Keteleeria davidiana (Bertr.) Beissen



Keteleeria davidiana (Bertr.) Beissen



***Taxus chinensis* (Pilg.) Rehder (Taxaceae)**





Nageia fleuryi (Hickel) de Laub. (Podocarpaceae)





Chukrasia tabularis A Juss (Meliaceae)





CAYXANHGIANGUYEN.COM



Aquilaria crassna

Agarwood,
Aloyswood Oil



RED BOOK 2007



Not included in the RED BOOK 2007:

***Pinus krempfii*: EN**

***Dacrydium elatum*: VU**

***Nageia wallichianus*: VU**

***Podocarpus imbricatus*: VU**

***Podocarpus neriifolius*: VU**

***Podocarpus brevifolia*: VU**

***Amentotaxus hatuyenensis*: EN**

***Calocedrus rupestris*: EN**



RED BOOK 2007



Not included in the RED BOOK 2007:

Hopea cordata: CR Hopea reticulata: CR

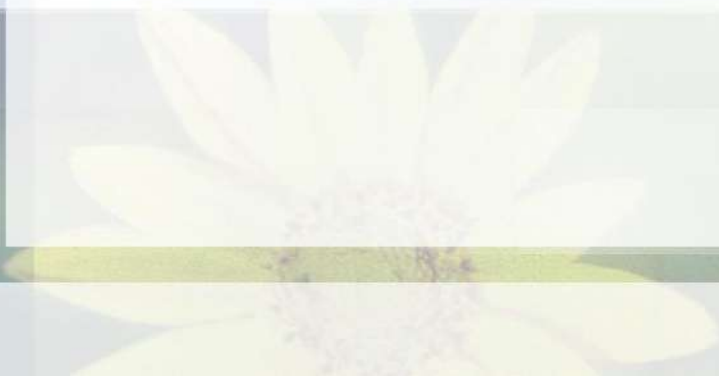
D. baudii: EN

D. costatus: EN

D. condorensis: VU

D. turbinatus: VU



Parashorea chinensis: VU ??



SUGGESTIONS FOR REDBOOK



CR species for Vietnam:

1. *Hopea cordata*: ca. 200 individuals
 2. *Hopea reticulata*: ca. 200 individuals
 3. *Taxus wallichiana*: ca. 250 individuals
 4. *Keteleeria davidiana*: 1 location
 5. *Diospyros salletii*: illegally over-exploited
 6. *Cinnamomum parthenoxylon*
- 
- 

1. LOSS OF SPECIES

- * *Glyptostrobus pensilis*: Only in Dac Lac: 270 tree
- * *Cupressus tonkinensis*: 40 trees
- * *Taxus wallichiana* : < 250 individuals
- *Hopea cordata* : ~ 200
- *Cinnamomum parthenoxylon*

THANK

YOU