

Implementation of the Global Strategy for Plant Conservation in Indonesia



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and S. R. Ariati



Global Strategy for Plant Conservation (GSPC) 2011 – 2020: updating information on national implementation in Indonesia



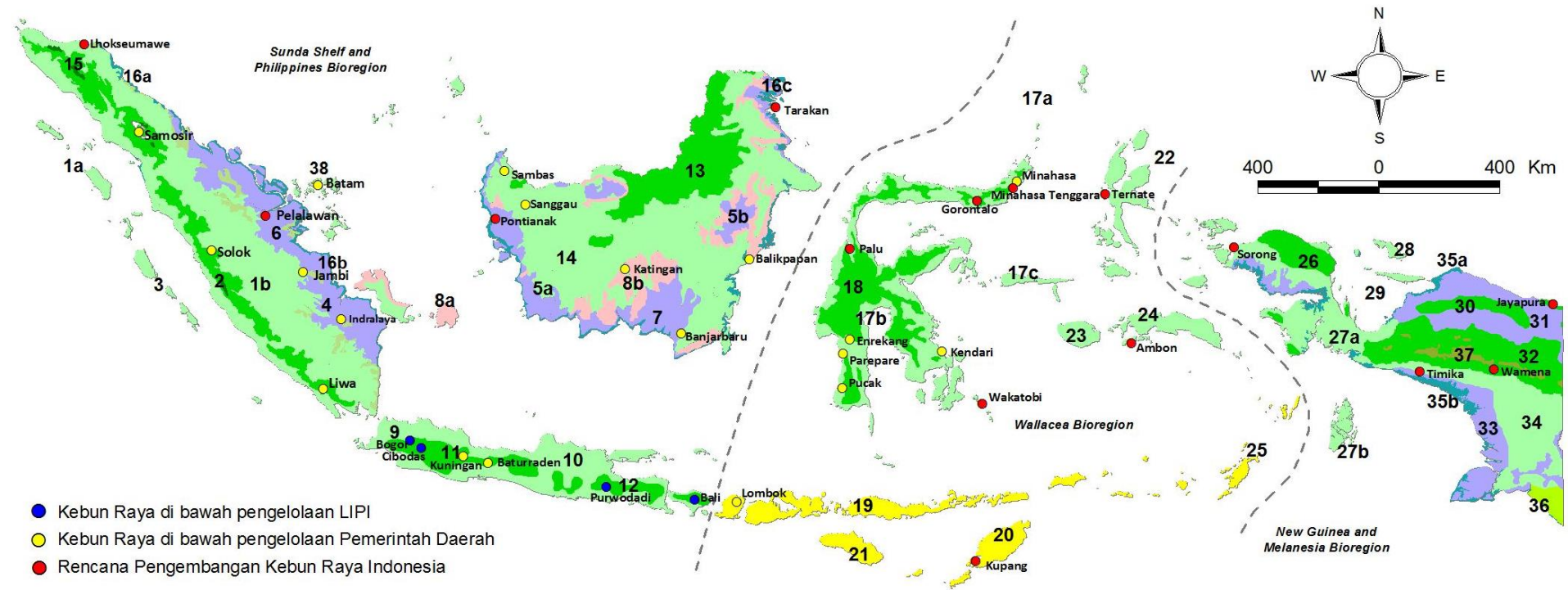
Dr. Didik Widyatmoko
Bogor Botanic Gardens - LIPI

National Focal Point of GSPC-CBD
ID: 6504 since 8 May 2014



Indonesia

An Ecoregion Concept



- Kebun Raya di bawah pengelolaan LIPI
- Kebun Raya di bawah pengelolaan Pemerintah Daerah
- Rencana Pengembangan Kebun Raya Indonesia

LEGEND:

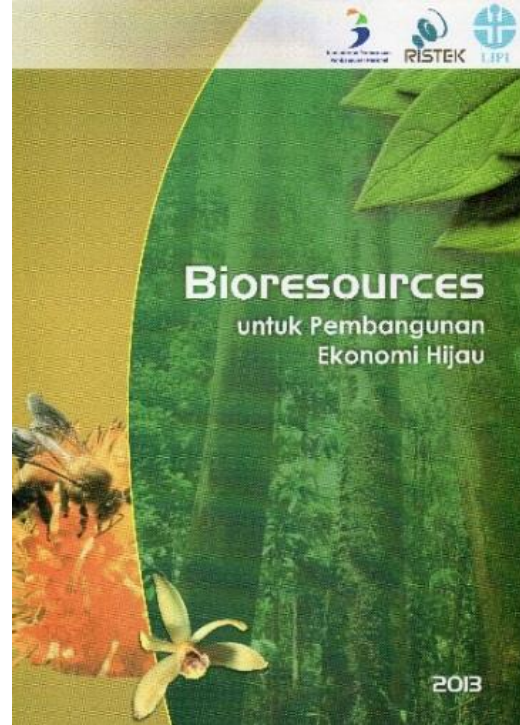
1	1a	Lowland Forest of Nias Islands	17	14	Lowland Rain Forest of Kalimantan	33	26	Mountain Rain Forest of Vogelkop
2	1b	Lowland Forest of Sumatra	18	15	Tropical Pine Forest of Sumatra	34	27a	Lowland Rain Forest of Vogelkop
3	2	Mountain Forest of Sumatra	19	16a	Mangrove Forest of Northern Sumatra	35	27b	Lowland Rain Forest of Aru Island
4	3	Rain Forest of Mentawai Islands	20	16b	Mangrove Forest of Southern Sumatra	36	28	Rain Forest of Biak-Numfoor Island
5	4	Peat Swamp Forest of Sumatra	21	16c	Mangrove Forest of Eastern Kalimantan	37	29	Rain Forest of Yapen Island
6	5a	Peat Swamp Forest of Western Kalimantan	22	17a	Lowland Forest of Sangihe-Talaud Islands	38	30	Mountain Rain Forest of Northern Papua
7	5b	Peat Swamp Forest of Eastern Kalimantan	23	17b	Lowland Forest of Sulawesi	39	31	Lowland Rain Forest & Freshwater Swamp Forest of Northern Papua
8	6	Freshwater Swamp Forest of Sumatra	24	17c	Lowland Forest of Banggai-Sula Islands	40	32	Mountain Forest of Central Papua
9	7	Freshwater Swamp of Southern Kalimantan	25	18	Mountain Rain Forest of Sulawesi	41	33	Freshwater Swamp Forest of Southern Papua
10	8a	Heath Forest of Bangka Belitung	26	19	Deciduous Forest of Lesser Sunda Islands	42	34	Lowland Rain Forest of Southern Papua
11	8b	Heath Forest of Kalimantan	27	20	Deciduous Forest of Timor & Wetar Islands	43	35a	Mangrove Forest of Northern Papua
12	9	Rain Forest of Western Java	28	21	Deciduous Forest of Sumba Island	44	35b	Mangrove Forest of Southern Papua
13	10	Rain Forest of Eastern Java	29	22	Rain Forest of Halmahera Island	45	36	Savannah & Grassland of Southern Papua
14	11	Mountain Rain Forest of Western Java	30	23	Rain Forest of Buru Island	46	37	Subalpine Grassland of Central Papua
15	12	Mountain Rain Forest of Eastern Java & Bali	31	24	Rain Forest of Seram Island	47	38	Rain Forest of Riau Island
16	13	Mountain Rain Forest of Kalimantan	32	25	Humid Deciduous Forest of Banda Islands			

Source: Olson *et al.* (2001) modified.



I. HOW IS GSPC BEING ADDRESSED:

- NATIONAL PLANT CONSERVATION STRATEGY EXISTED?
- IS PLANT CONSERVATION STRATEGY INCLUDED IN IBSAP?

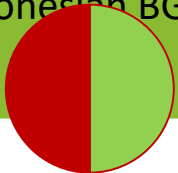


- IBSAP 2009 – 2014; 2015-2020 (updated)
- Plant Conservation strategy (sectoral): Botanic Garden Action Plan, Forest Management Strategy, Guidelines for National Conservation Strategy 2008 – 2018)
- Conservation of Indonesian bioresources is included in the Medium Term National Development Planning 2015 - 2019



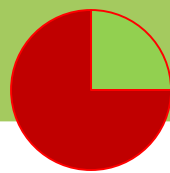
NATIONAL FLORA

- Indonesian Biodiversity Information Facilities (InaBIF) – 11 Flora Nodes so far – published 167,575 occurrences for validated data
- **Integrated Database** of Living Collections (SIGit for Indonesian BGs)

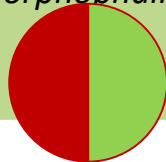


NATIONAL PLANT RED LIST

Indonesian Plant Red List (Serie I: 50 Species of Commercial Trees (Yulita *et al*, 2018)



- **Manuals, modules, guidebooks** for seedlings identification, collection management & education
- **Strategy & Action Plans** for 12 Indonesian threatened tree species (*in press*), 2 available (*Rafflesia* & *Amorphophallus*)



SCIENCE COMMUNICATION

II. PROGRESS IN OBJECTIVE I:

PLANT DIVERSITY IS WELL UNDERSTOOD, DOCUMENTED & RECOGNIZED (T₁, T₂, T₃)

NO PROGRESS

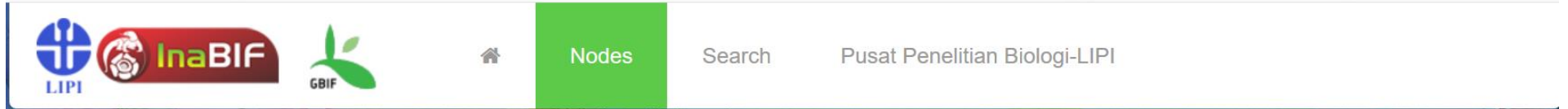
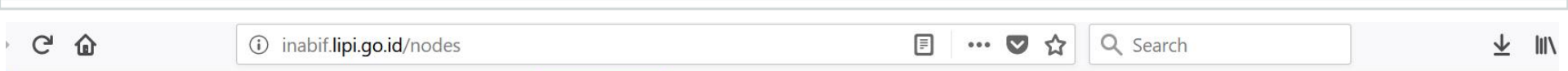


SLOW PROGRESS



SIGNIFICANT PROGRESS



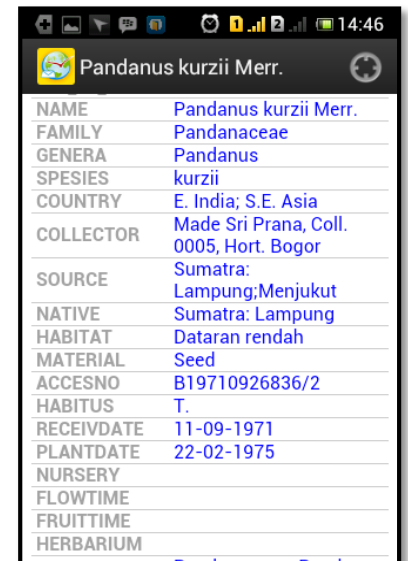
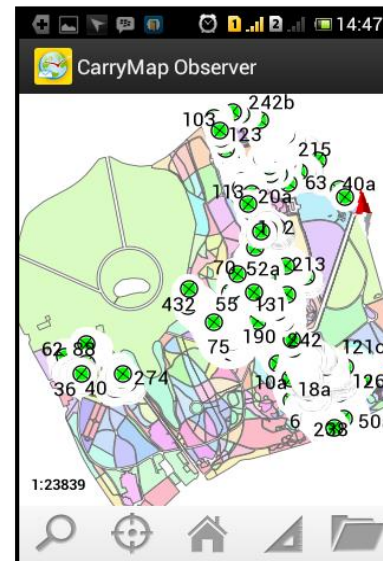
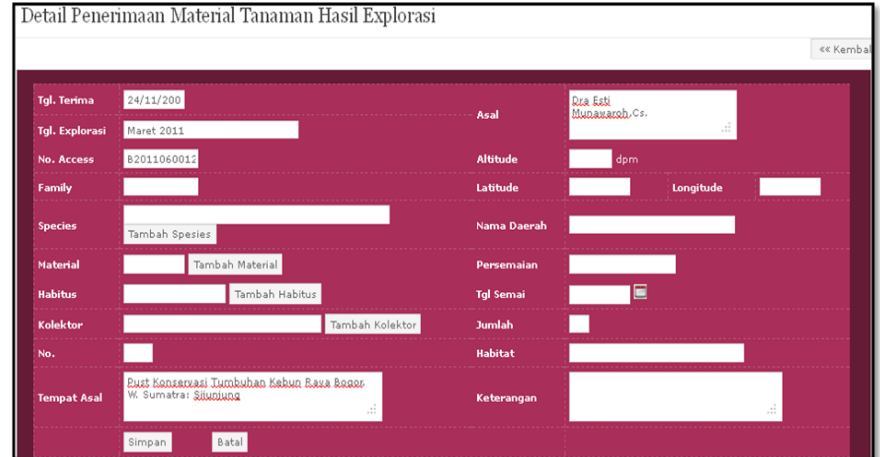
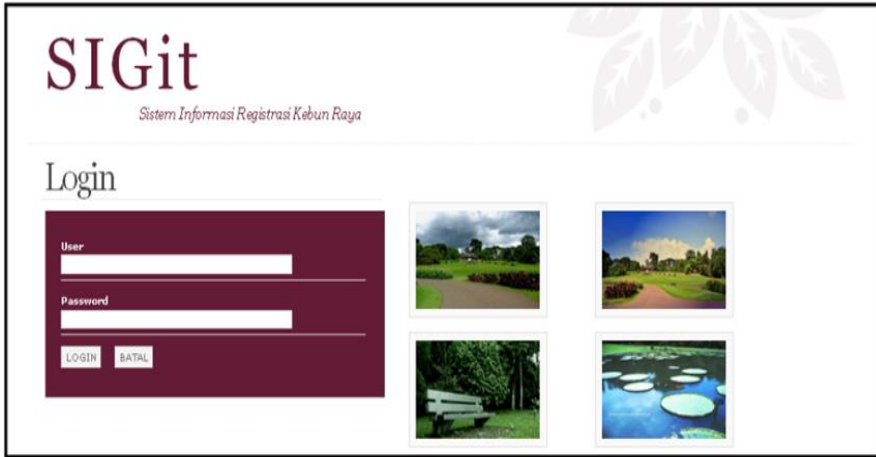


Indonesia Biodiversity Information Facility InaBIF

11 flora data nodes so far



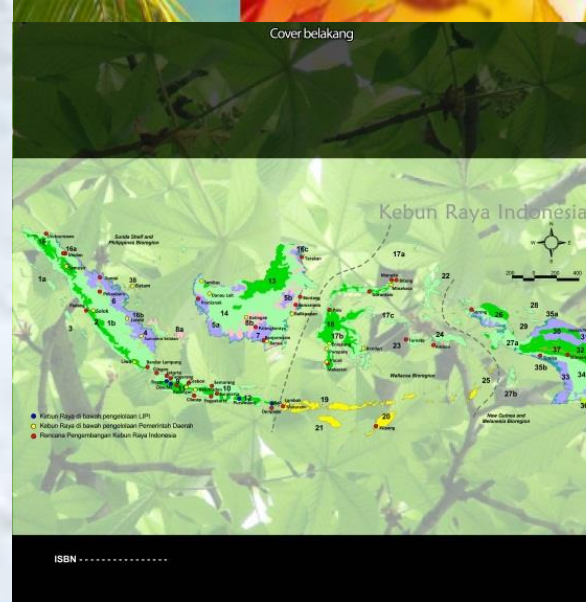
Database using GIS & Smartphone (SIGit) Bogor Botanic Gardens





DEVELOPING STRATEGY AND ACTION PLAN FOR CONSERVING RAFFLESIA AND AMORPHOPHALLUS





Katalog Kebun Raya

HOME KATALOG MINGGU, 3 MARET 2013 | 20:46:51

Search Data Katalog

Family

Genus

Species

Garden Source

NO	GENUS	NAMES	FAMILY	GARDEN	SOURCE	COLLECTOR
1	Gendub		Acanthaceae	Bogor	Papua: CA.Hebron,Cydoops	Ir.IN.Lugrayasa cs. [L.G. 1412]
2	Gendub		Acanthaceae	Bogor	Papua: Kab.Jayapura,CA.Hebron,Cydoops	Ir.IN.Lugrayasa,cs. [L.G. 1412]
3	Andrographis	paniculata (Burm.f.) Nees	Acanthaceae	Bogor	Spontan in Hortus;Reported 08-01-1990	
4	Andrographis	paniculata (Burm.f.) Nees	Acanthaceae	Bogor	Pindahan dari vak XXI.B.A.2;Dipindah tgl. 15-05-1977	
5	Andrographis	paniculata (Burm.f.) Nees	Acanthaceae	Bogor	Java(W): Ciamis,Bantarsari,Cikapundung	Drs. Subekti Cs.(23)
6	Andrographis	paniculata (Burm.f.) Nees	Acanthaceae	Bogor	Propagation from XXIV.B.I. 2.	
7	Andrographis	paniculata (Burm.f.) Nees	Acanthaceae	Bogor	Plant from XXIV.B.I. 2.	
8	Microstrobilus	paniculatus (Nees) Bremek	Acanthaceae	Bogor	Irian Jaya: New Hollandia	

ISBN 978-979-799-507-2

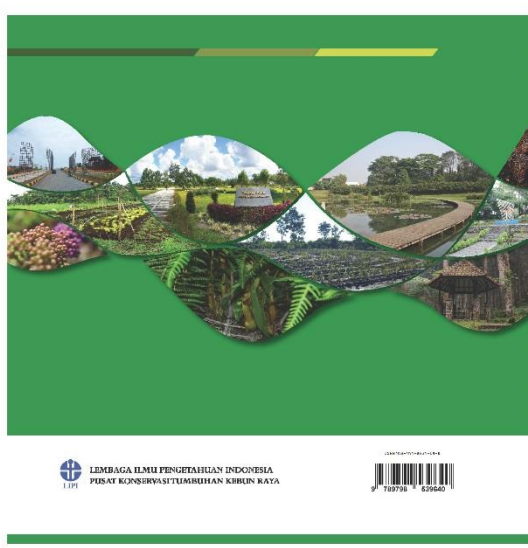
SPESES PRIORITAS
UNTUK KONSERVASI TUMBUHAN INDONESIA

SERI I
ARECACEAE, CYATHEACEAE, NEPENTHACEAE, ORCHIDACEAE

LEMBAGA ILMU PENGETAHUAN INDONESIA
PUSAT KONSERVASI TUMBUHAN KEBUN RAYA BOGOR - LIPI
2010



TRAINING MODULE FOR BOTANIC GARDENS MANAGERS



TRAINING MODULE FOR BOTANIC GARDENS TECHNICIANS



GSPC IMPLEMENTATION REPORT

JALUR TUMBUHAN OBAT

Dalam Etnomedisin di Kebun Raya Bogor

1



JALUR TUMBUHAN OBAT

Dalam Etnomedisin di Kebun Raya Bogor

2



JALUR TUMBUHAN OBAT

Dalam Etnomedisin di Kebun Raya Bogor

3



JALUR TUMBUHAN OBAT

Dalam Etnomedisin di Kebun Raya Bogor

4



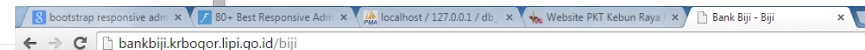
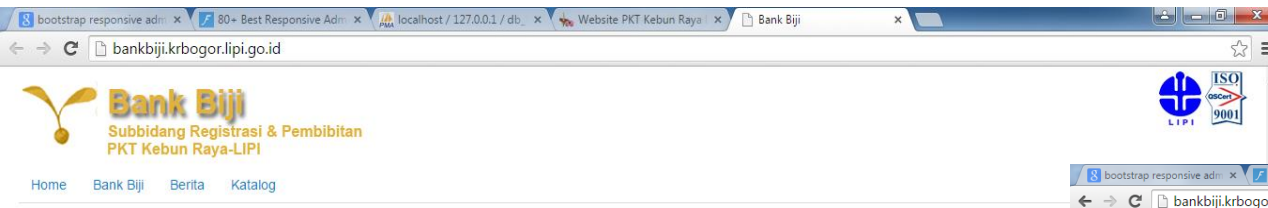
JALUR TUMBUHAN OBAT

Dalam Etnomedisin di Kebun Raya Bogor

5



- A series of practical guidebooks to recognize medicinal plants in Bogor Botanic Gardens and Indonesia
 - also used for public education program



— Link Terkait —



 KR Cibodas | UPT BKT KR Purwodadi | UPT BKT KR Eka Karya Bali |
 

— Berita terbaru —



Kunjungan PM Malaysia Abdullah Badawi

posted by admin on November 18, 2014
Kunjungan PM Malaysia Abdullah Badawi ke Unit B: PKT Kebun Raya Bogor LIPI pada tanggal 23 Juli 21



Kunjungan Delegasi dari Kew Botanic Gardens

posted by admin on November 18, 2014
Kunjungan delegasi dari Kew Botanic Gardens ke U Bank Biji PKT Kebun Raya Bogor LIPI pada tanggal April 2013



Pameran HUT KRB ke 196

posted by admin on November 18, 2014
Subbidang Seleksi dan Pembibitan (Unit Bank Biji) il berpartisipasi dalam pameran, dalam rangka HUT K 196 pada tanggal 18 Mei 2013 di lapangan PKT Kel Raya Bogor LIPI

[Berita Lengkap »](#)



Bank Biji

Spesies	Family/Suku	Stok (Kg)
<input type="text"/>	<input type="text"/>	<input type="text"/>
Actinorhynchus calapparia (Blume) H.A. Wendl. & Drude ex S	Arecaceae	2Kg
Adenantha pavonina L.	Leguminosae	3.15Kg
Aglaia elliptica Blume	Meliaceae	0.74Kg
Alphanes erosa (Linden) Burret	Arecaceae	0.17Kg
Albizia saponaria (Lour.) Blume ex Miq.	Leguminosae	0.03Kg
Albizia sp	Leguminosae	0.33Kg
Albizia sp	Leguminosae	0.68Kg
Aleurites moluccana (L.) Willd.	Euphorbiaceae	3Kg
Alphonsea javanica Scheff.	Annonaceae	0.06Kg
Alphonsea teijsmannii Boerl.	Annonaceae	0.5Kg



III. HOW WE IDENTIFIED INFORMATION GAPS AND HOW ARE THESE BEING ADDRESSED:

ANALYSIS ON GAPS OF ECOLOGICAL REPRESENTATIVENESS AND MANAGEMENT OF PROTECTED AREAS IN INDONESIA



MARCH, 2012

- In 2012 analysis on gaps of ecological representativeness and management of protected areas in Indonesia was published, both terrestrial and marine.
- Priority issues which need to be handled were also addressed.
- Some recommended strategies and action are ongoing.

(e.g. poorly surveyed areas, taxonomic groups that require revision, monitoring of utilized plants)

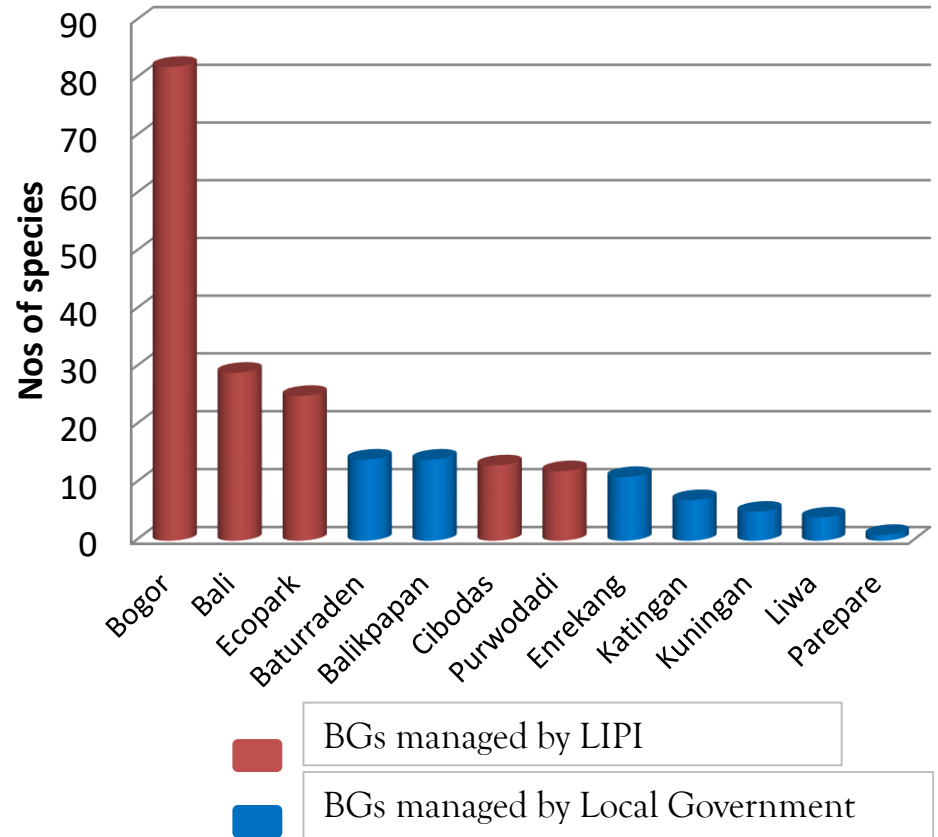
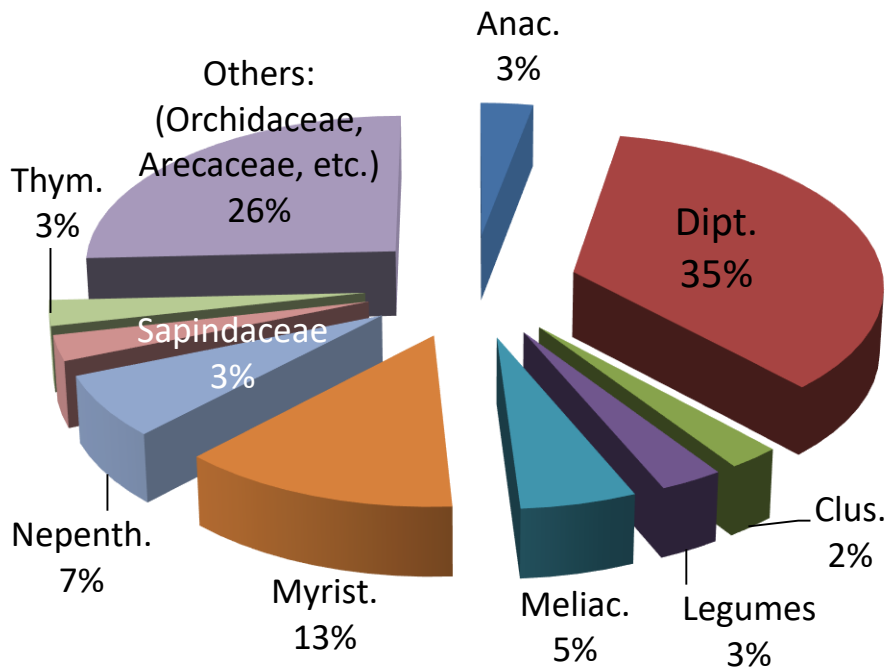


IV. INFORMATION AVAILABLE ON THE NUMBERS OF THREATENED PLANTS IN CONSERVATION PROGRAMMES – IN SITU/EX SITU (T5, T7, T8)

- 29% Indonesian threatened plants collected *ex situ* (Collection Database of the Indonesian Botanic Gardens, 2018)
- Plant collection at Indonesia BGs → 37 BGs, in 18 Provinces, 17 ecoregions → 101,578 ha and 104,586 specimens planted as the Garden’s collections, 117,362 specimens at the Garden’s nurseries
- Reintroduction of 15 species in 4 national parks (Bukit Tiga Puluh NP, Mt Halimun NP, Ujung Kulon NP, Tangkuban Perahu Nature Reserve)
- 54 National Parks, 214 Nature Reserves, 79 Wildlife Sanctuary, Nature Tourism Park (TWA) 131, Forest Park (Tahura) 34, Game Park (TB) 11, KSA/KPA 29 → 27,140,384 ha (2017)

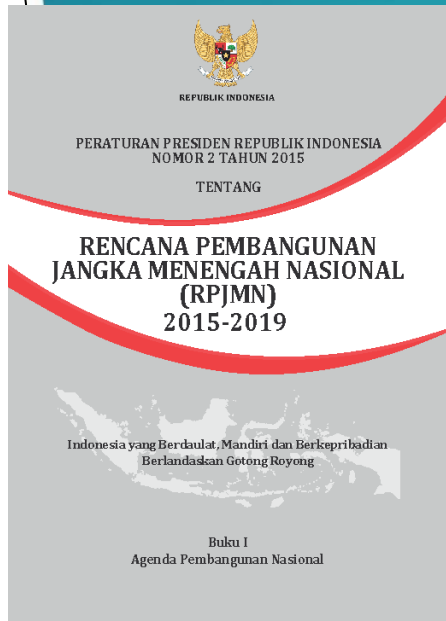


Indonesian Threatened Plant Species Collected in Botanic Gardens



ESTABLISHING NEW BOTANIC GARDENS IN INDONESIA

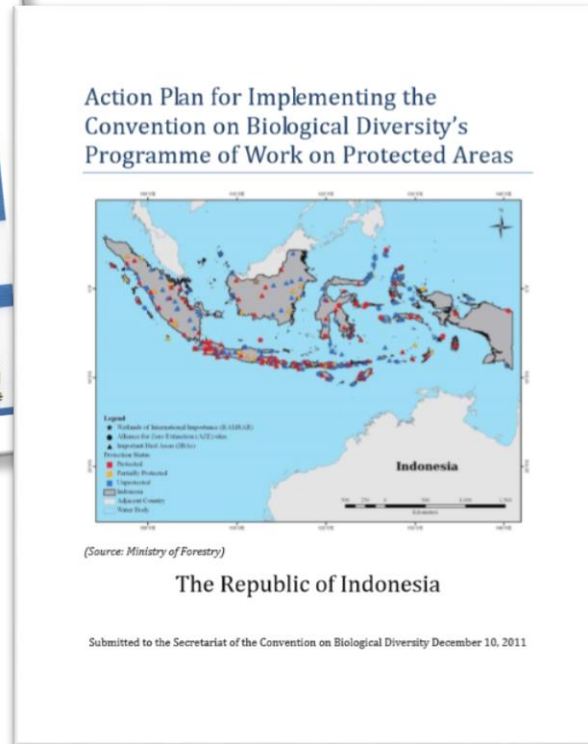
- ❖ NATIONAL PRIORITY PROGRAM
- ❖ Included both in **Middle-Term National Development Plan 2010-2014 and 2015-2019**
- ❖ Under **Presidential Regulation No. 93/2011 on Botanic Gardens**



Reintroduction of the endemic Javanese palm *Pinanga javana*



V. NATIONAL INVENTORY OF PROTECTED AREAS & ITS COVERAGE ON ALL ECOLOGICAL REGIONS (T₄):



TARGET 4 (SECURED IMPORTANT PLANT AREAS):

- **17 ecoregions secured** through new botanic gardens establishment program
- **552 units** of terrestrial conservation areas (82.3% of total conservation areas in Indonesia)
- **54 national parks** (59,8% of total conservation areas)

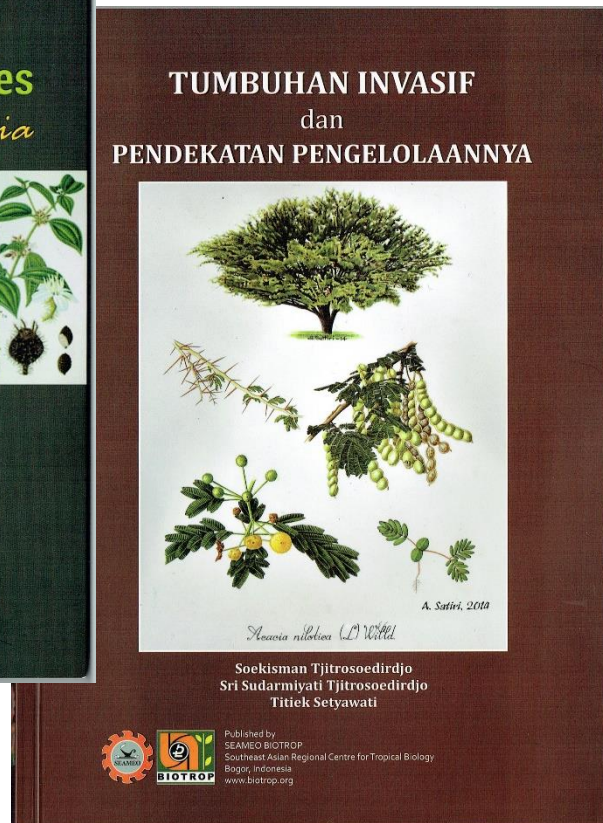
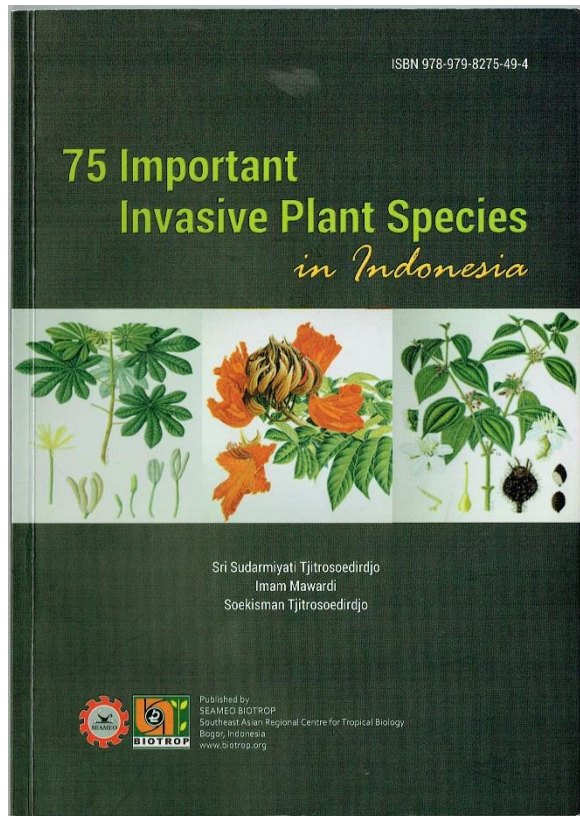
VI. CROP WILD RELATIVE SPECIES PROTECTION (T₉):

- Have crop wild relative species been identified for Indonesia?
 - Ongoing
- What project are in place to protect them?
 - Germ plasm Garden (Kebun Plasma Nutfah), Alternative Functional Food Program, Rejuvenile Program for Crops and Cereals
- Provide an update on what work is underway to protected indigenous crop species & traditional agricultural landraces
 - No sufficient data available

VII. ACTIONS TO MONITOR AND CONTROL INVASIVE SPECIES (T10):

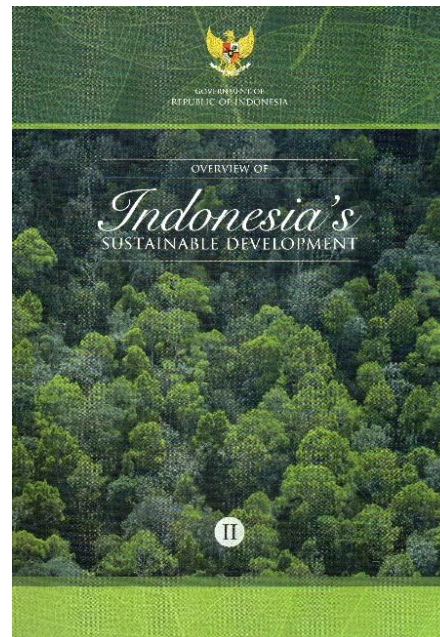
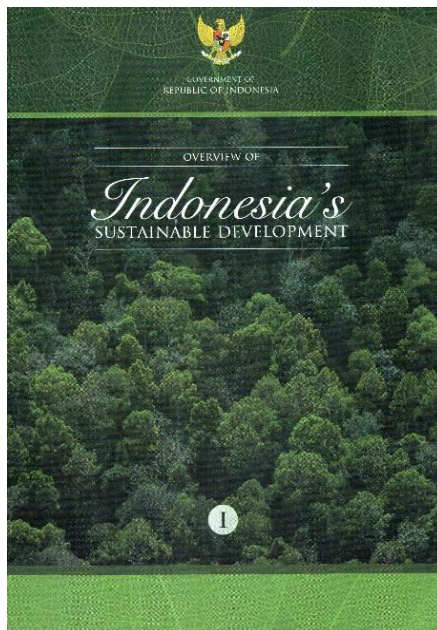


- UNEP GEF Invasive Alien Species
- Website invasive alien species www.biotrop.org/database (updating process)
- In preparation: Legal document for IAS Management : P94/2016 Permenlhk
- **Pilot site and research?**
 - Bukit Duabelas NP (Biotropia 2015) and Baluran NP (2013)
 - On going project at Mt GGP NP (restoration site), Bamboo at Mt GGP NP (soon published), BBS NP (Biotropia 2013), Bantimurung NP – Risk Analysis of IAS *Spathodea*, Ujung Kulon NP (eradication of *Arenga obtusifolia*)
- Upcoming program: Campaign and multi media → Android application
- Quarantine procedures --> TOT for Quarantine Staff



VIII. MONITORING PLANT RESOURCES FOR SUSTAINABLE USE (T₁₁, T₁₂)

- Overview for sustainable development
- Information system
<http://biogen.litbang.deptan.go.id/plasmanutfah/> and provides materials for research, foods, agricultural purposes





IX. LINKAGES BETWEEN THE ENVIRONMENT, FORESTRY AND AGRICULTURE SECTORS IN PLACE AND HOW TO SHARE INFORMATION BETWEEN THESE SECTORS FOR REPORTING PURPOSES

- List of such networking/program is available
- National and sectoral regulations are available
- Strengthening dissemination program and focus group discussions across stakeholders



X. INDIGENOUS KNOWLEDGE ON PLANTS BEING PROTECTED (T₁₃)

- Legal aspect: Draft “Sustainable Use of Tradisional Knowledge and Folklore” Act P2/2018; Minister of Interior Regulation; Perdirjen P6/KSDAE/SET/Kum.1/6/2018: KSA & KPA; P83/2016: Social Forestry; UU No. 29/2000: Plant Variety Protection (PVT)
- Database of Genetic Resource, Traditional Knowledge and Folklore has been developed since 2012
- Documentation:
 - Regulation: P2/Menlhk/Setjen/Kum.1/1/2018
 - Documentations are still scattered, compilation are still on going
- Area:
 - Biosphere Reserves in Indonesia → 14 Biosphere Reserves (per 2018)
- Industry
 - Traditional medicines and cosmetics; traditional herbal production (pabrik jamu tradisional)



XI. INFORMATION ON THE IMPORTANCE OF PLANTS INCORPORATED INTO EDUCATION AND PUBLIC AWARENESS PROGRAMMES (T14)

- Includes in formal curricula from Primary to High School
- Education program at botanic gardens: Teacher Training, Modules, School Gardening and Visits → more than 200,000 students per year, c. 2 million



School Gardening

(>600 school gardens, 1995 – 2018)





XII. CAPACITY TO CONSERVE NATIVE PLANT DIVERSITY



- **Is there sufficient capacity in your country to conserve your native plant diversity? If not, where are the main gaps?**
- Gaps: insufficient capacity to cover the whole diversity of plants in such large archipelago
 - Many remote areas and islands, limited access, low budget





XIII. WHAT MECHANISMS ARE IN PLACE TO MONITOR PROGRESS? DO YOU HAVE NATIONAL INDICATORS RELEVANT FOR THE GSPC TARGETS?

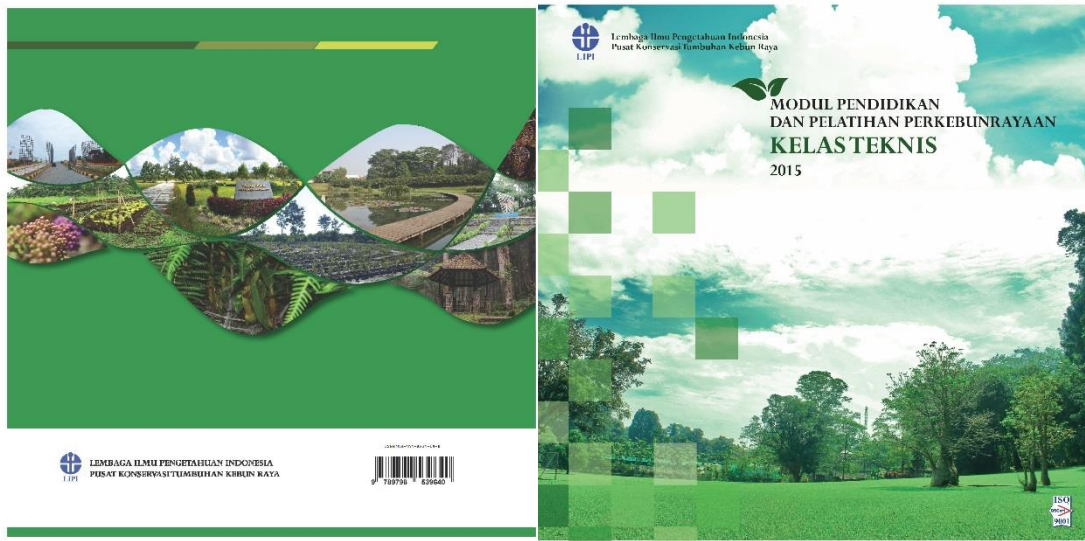
- GSPC NFP is working on building milestone and indicators
- Lesson learned from National Plant Conservation Strategy by other countries
- Stakeholder's group discussions and workshops on target implementation (NFP programs/activities) → working groups



Target 15 – Trained People

- ❖ 60 botanic garden technicians each year (from 2010 – 2017)

TRAINING MODULE FOR BOTANIC GARDENS MANAGERS



- ❖ 30 botanic garden managers each year (from 2010 – 2017)

TRAINING MODULE FOR BOTANIC GARDENS TECHNICIANS



TARGET 16 – NETWORKING



- ❖ South East Asia Botanic Gardens Network
- ❖ Indonesian Botanic Gardens Society (MAPI)
 - ❖ Bogor Botanic Gardens provides the Secretariat and Facilitation



SUMMARY OF THE GSPC IMPLEMENTATION IN INDONESIA

OBJECTIVE	1 – Knowledge			2 – Conservation				
	Target 1 – Online flora	Target 2 – Conservation status assessmt	Target 3 – Info, research	Target 4 – 15% ecoregion	Target 5 – 75% important areas	Target 6 – 75% production land	Target 7 – 75% conserved <i>in situ</i>	Target 8 – 75% <i>ex situ</i>
Progress								21,5%
OBJECTIVE	2 – Conservation		3 – Sustainable Use			4 – Education	5 – Capacity	
	Target 9 – 75% crops	Target 10 - IAS	Target 11 - CITES	Target 12 – Wild harvested	Target 13 - Wisdom	Target 14 - Education	Target 15 – Trained people	Target 16- Networking
Progress	Need data updates			Need data updates				

	Little progress towards target= <30%
	Average progress= 30-65%
	Good progress= 65-100%



THANK YOU

CENTER FOR PLANT CONSERVATION BOTANIC GARDENS - LIPI

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