



Invasive Alien Species Monitoring and Management in China

Xu Jing

**Chinese Research Academy of
Environmental Sciences**





Table of Contents

- IAS Management & Monitoring Statues
- Examples: National IAS Investigations
- Constraints & Problems





Background

Article 7. Identification and Monitoring

- (c) Identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques; and
- (d) Maintain and organize, by any mechanism data, derived from identification and monitoring activities pursuant to subparagraphs (a), (b) and (c) above.

Article 8. In-situ Conservation

- (h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species;





Background

Transportation



Nature distribution





IAS Management Mechanisms

- **China IAS Core Principle**

- Pre-prevention

- Prevention & Controlling

- Government sectors organize IAS prevention & controlling according their duty

- **Organizations**

- **National Invasive Alien Species Prevention & Controlling Working Group**

- Members: Ministry of Science & Technology (MST), Ministry of , Ministry of Agriculture (MA), Ministry of Environmental Protection (MEP), State Customs, General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), State Oceanic Administrative (SOA), the Chinese Young Pioneers Working Committee (CYPWC)





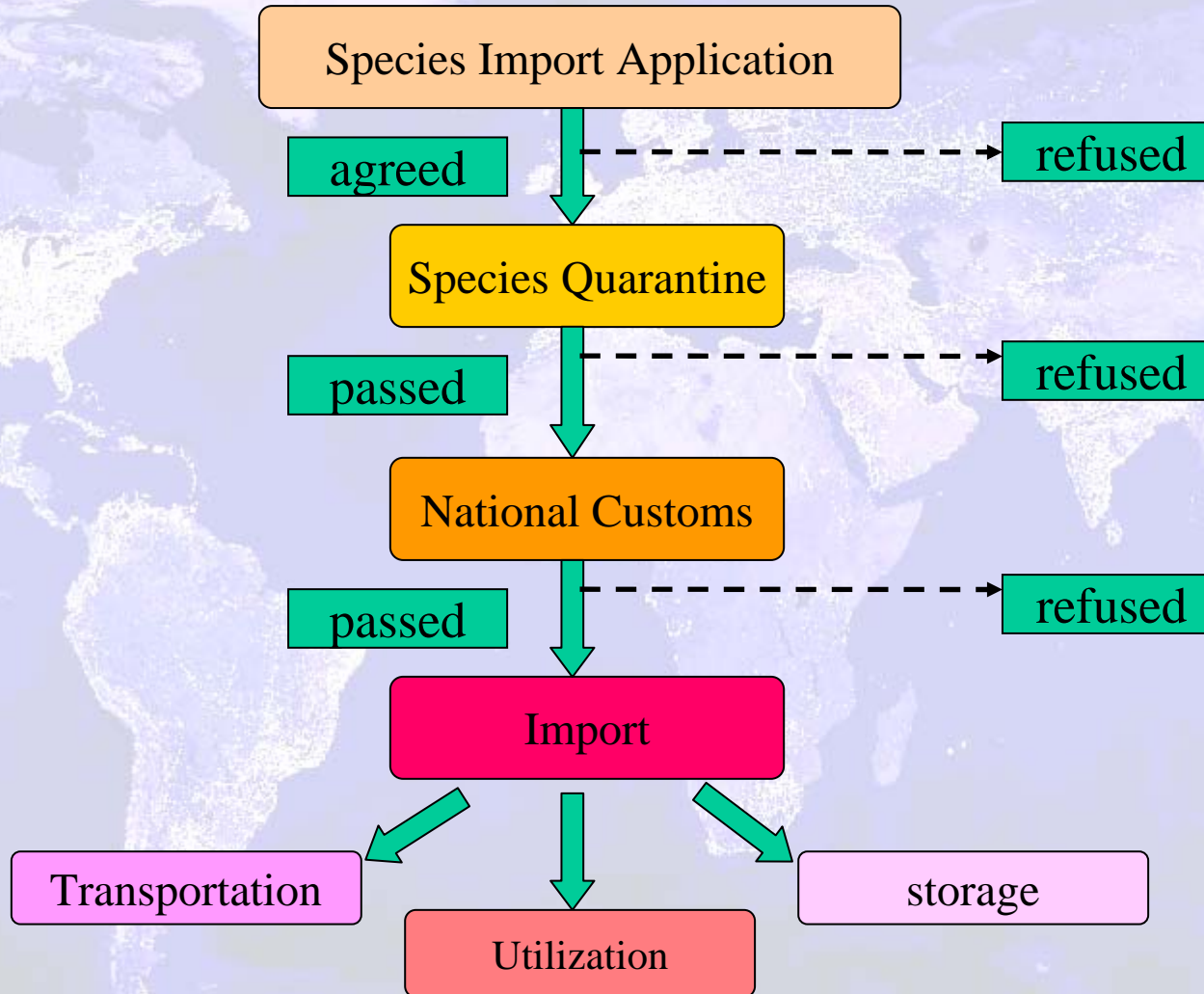
IAS Management Mechanisms

- Legislations
 - **7** Laws: Agriculture Seeds, Grasslands Protection, Marines, Wild Animals, Plant Quarantine, Customs, etc.
 - **9** National Legislations: livestock, lands & aquatic wild animals, experimental animals, wild plants, endangered species export, LMOs, species quarantine, etc.
 - **41** Regulations.



China Species Import Process

Legislations





IAS Monitoring Network

China IAS
Monitoring Network

Ministry of Agriculture

Ministry of
Environmental Protection

State Forestry
Administration

General Administration
of Quality Supervision,
Inspection and Quarantine

State Oceanic
Administration

Agriculture Station

Environmental
Monitoring Station

Forestry Station

Quality Supervision,
Inspection and Quarantine
Agency at Boundary Port

Regional Oceanic Bureau

Protected Areas,
Ecological Function Zone,
etc.



Agriculture Ecosystems



Forest Ecosystems



Agriculture Ecosystems



Marine Ecosystems





National Invasive Alien Species Investigations





CHINA IAS INVESTIGATIONS

- Ministry of Environmental Protection
 - 2001-2003 National IAS Investigation
 - 2006 Typical National Protected Areas IAS Investigation
 - 2008 Typical Provinces IAS Investigation
 - 2009 International Biodiversity Day





2001-2003 National IAS Investigation





2003 INVESTIGATION

- When: December, 2001 - October, 2003
- Where: Lands, Freshwater and Marine Ecosystems of China

- Who: Experts from



- Whom: Micro-organisms, invertebrates, vertebrates, reptiles, fishes, birds, mammals, weeds, trees and other marine organisms.





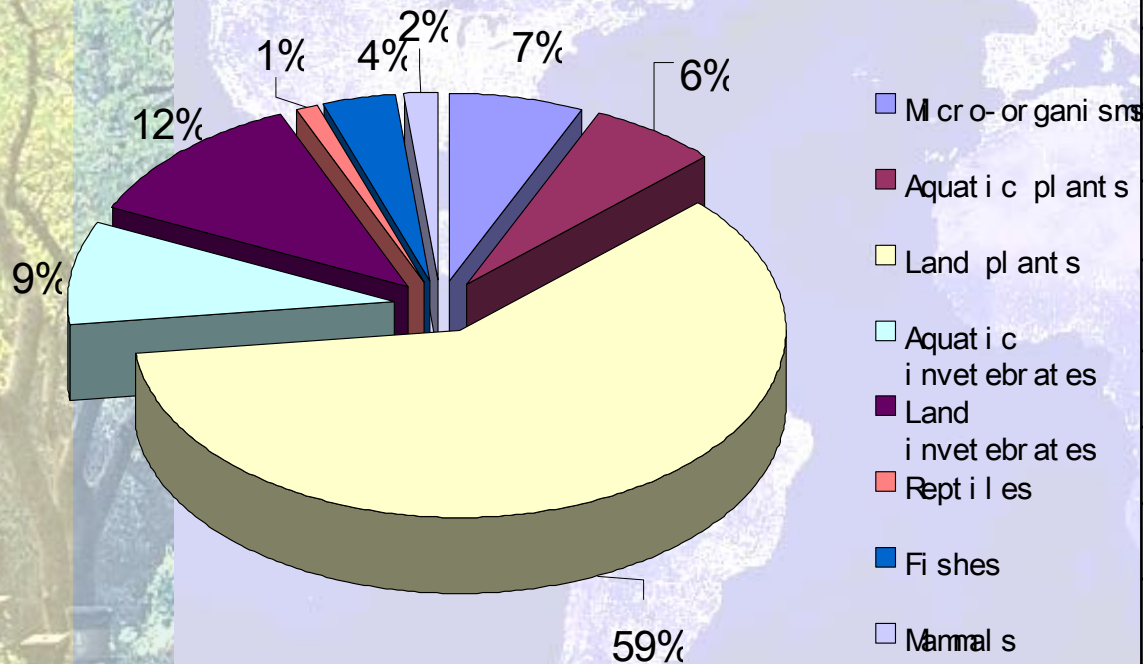
2003 INVESTIGATION

- Index
 - Scientific Name
 - Chinese Name
 - English Name
 - Taxonomy
 - Biology
 - Population
 - Distribution
 - Economy & Ecology Impact
 - Appearing time and location
 - Transportation
 - Invasion media
 - Habitats
 - Tropic level
 - Life history
 - Potential invasive areas
 - Origin
 - Prevention & controlling measures
 - Pictures
 - Other information



RESULTS (2003)

Species

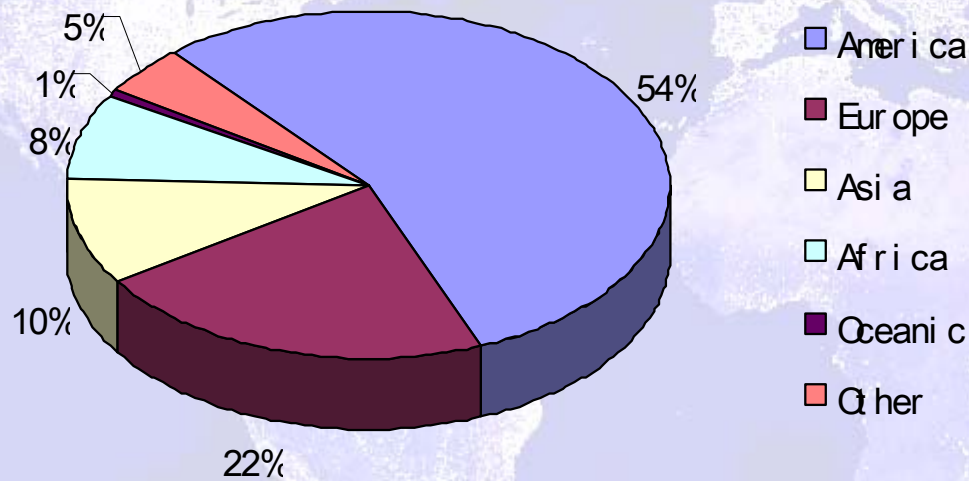


IAS Taxa	Species	Percentage
Micro-organisms	19	6.7
Aquatic plants	18	6.4
Plants	170	60
Aquatic invertebrates	25	8.8
Land invertebrates	33	11.7
Reptiles	3	1.1
Fishes	10	3.5
Mammals	5	1.8
SUM	283	100



RESULTS (2003)

- Origin



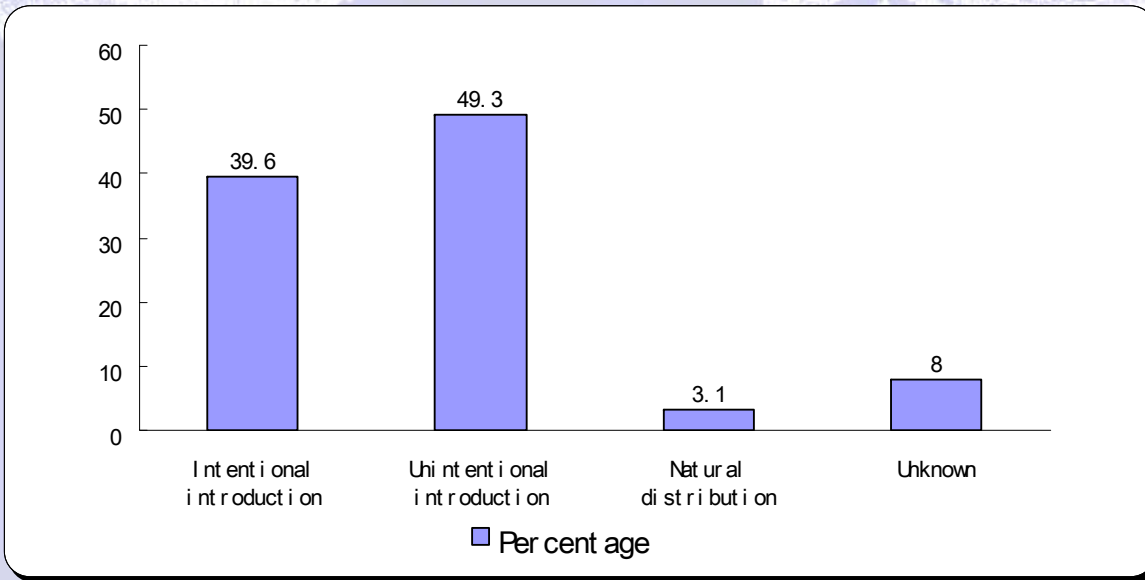
Source	Frequency	Percentage
America	178	55.1
Europe	70	21.7
Asia	32	9.9
Africa	26	8.1
Oceanic	2	0.6
Other	15	4.6
Total	323	100





RESULTS (2003)

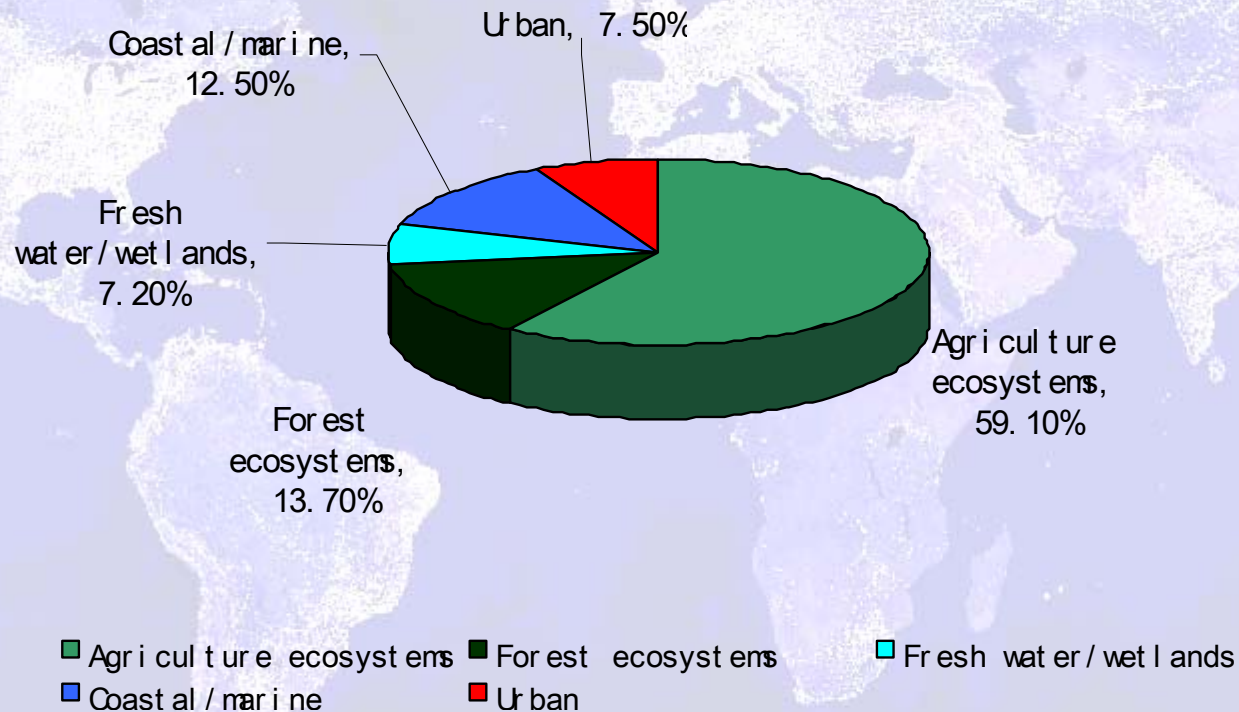
- Invasion pathway





RESULTS (2003)

- Affected ecosystems



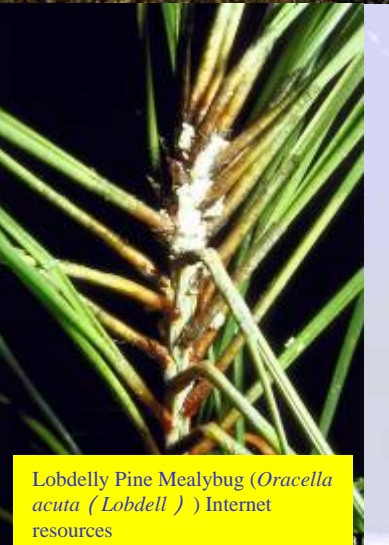
1200 trillion RMB Social & Economic Loss per year!!!

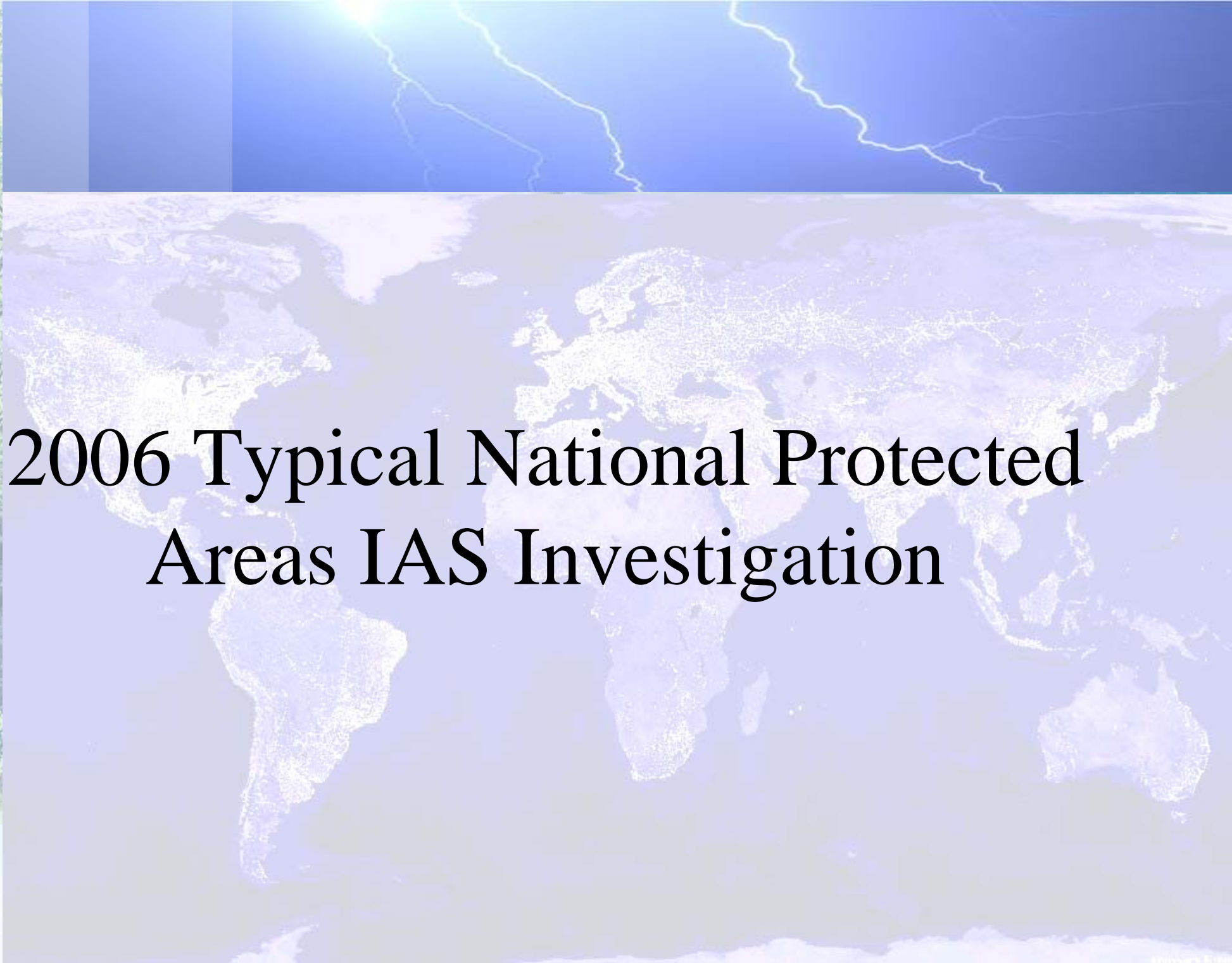




RESULTS (2003)

- 1st China Invasive Alien Species Name List
 - Released by State Environmental Protection Administrative (SEPA) and Chinese Academy of Sciences (CAS) in 2003
- 1st China IAS (16 species)



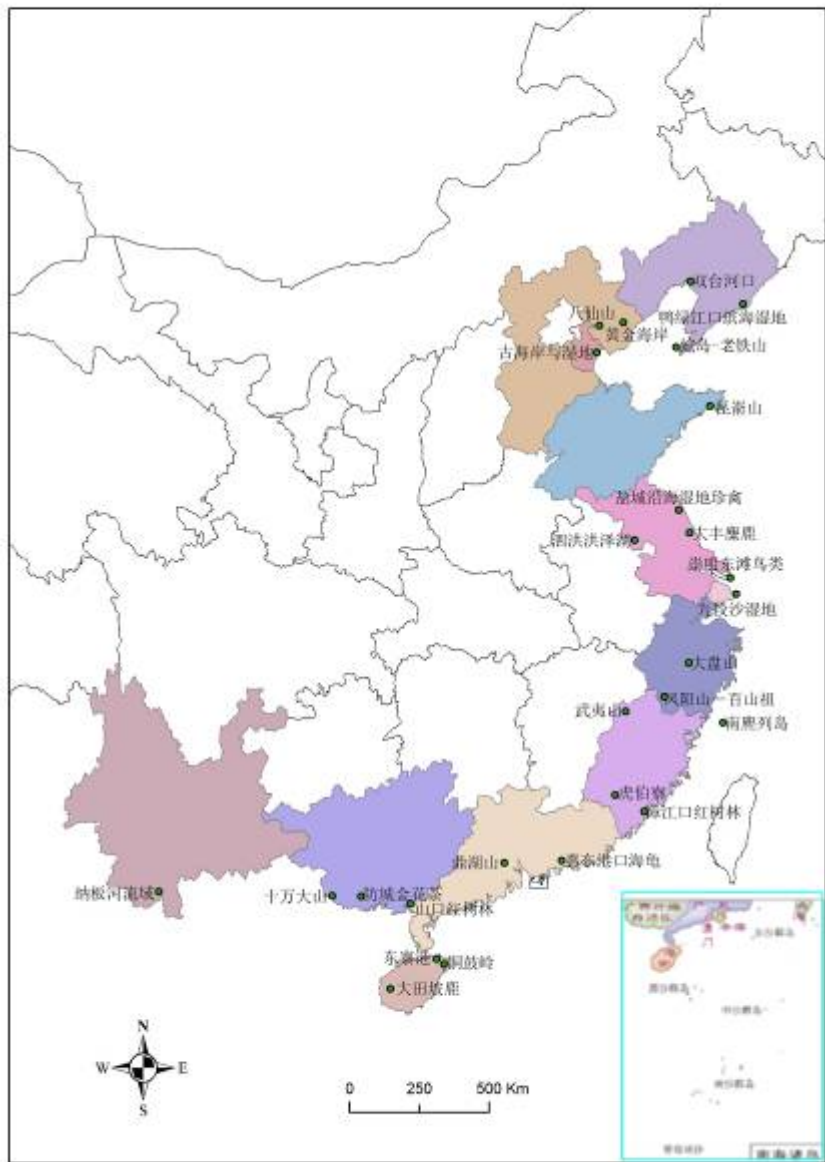


2006 Typical National Protected Areas IAS Investigation



2006 INVESTIGATION

附图一：中国27个实地调查的典型自然保护区分布图



制图：国家环保总局南京环境科学研究所

序号	自然保护区名称	行政区域	面积 (公顷)	级别	类型	部门	调查时间
1	八仙山	天津蓟县	1049	国家级	森林生态	林业	2006年5月
2	古海岸与湿地	天津市	99000	国家级	海洋海岸	海洋	2006年5月
3	昌黎黄金海岸	河北秦皇岛	30000	国家级	海洋海岸	海洋	2006年6月
4	双台河口	辽宁盘锦市	80000	国家级	野生动物	林业	2006年5月
5	鸭绿江口滨海湿地	辽宁丹东市	108057	国家级	海洋海岸	环保	2006年5月
6	蛇岛-老铁山	辽宁大连市	14595	国家级	野生动物	环保	2006年5月
7	崇明东滩鸟类	上海崇明县	24155	国家级	野生动物	林业	2006年7月
8	九段沙湿地	上海浦东新区	42020	国家级	内陆湿地	环保	2006年7月
9	盐城沿海湿地珍禽	江苏盐城市	453000	国家级	野生动物	环保	2006年6月
10	大丰麋鹿	江苏大丰市	2667	国家级	野生动物	林业	2006年6月
11	泗洪洪泽湖	江苏泗洪县	49365	省级	内陆湿地	环保	2006年4月
12	大盘山	浙江磐安县	4558	国家级	野生植物	环保	2006年5月
13	南麂列岛	浙江平阳县	19600	国家级	海洋海岸	海洋	2006年8月
14	凤阳山 - 百山祖	浙江庆元县	24713	国家级	森林生态	林业	2006年8月
15	虎伯寮	福建南靖县	2650	国家级	森林生态	林业	2006年8月
16	武夷山	福建武夷山市	56527	国家级	森林生态	林业	2006年8月
17	漳江口红树林	福建云霄县	2360	国家级	海洋海岸	林业	2006年8月
18	鼎湖山	广东肇庆市	1133	国家级	森林生态	其他	2006年8月
19	惠东港口海龟	广东惠东市	800	国家级	野生动物	农业	2006年8月
20	昆嵛山	山东烟台市	15417	省级	森林生态	林业	2006年6月
21	铜鼓岭	海南文昌市	4400	国家级	海洋海岸	环保	2006年9月
22	东寨港	海南海口市	3337	国家级	海洋海岸	林业	2006年9月
23	大田坡鹿	海南东方市	1314	国家级	野生动物	林业	2006年9月
24	防城金花茶	广西防城港市	9195	国家级	野生植物	环保	2006年9月
25	十万大山	广西上思县	58277	国家级	森林生态	林业	2006年9月
26	山口红树林	广西合浦县	8000	国家级	海洋海岸	海洋	2006年9月
27	纳板河流域	云南景洪市	26100	国家级	森林生态	环保	2006年9月



2006 INVESTIGATION



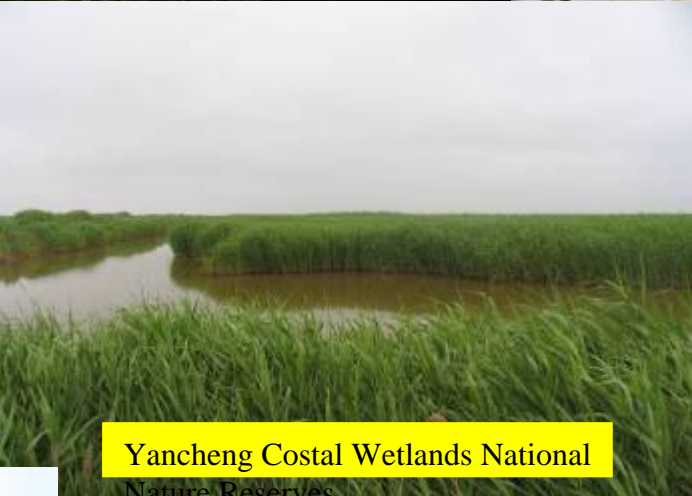
Huboliao Nature Reserves



Habitats in Kun Lun Mt. National Nature Reserves



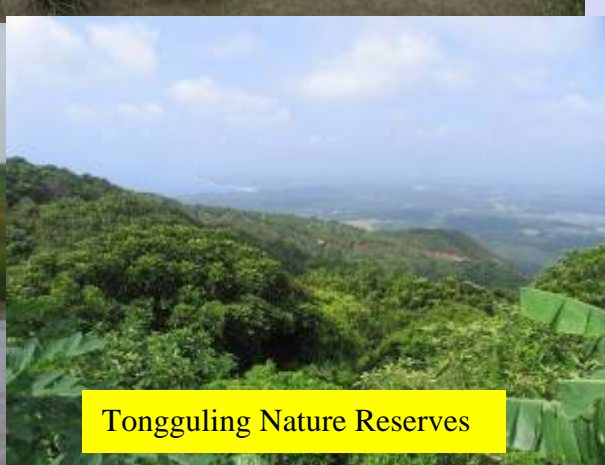
Dongtan Wetland, Chongming, Shanghai



Yancheng Costal Wetlands National Nature Reserves



Jiu Duan Sha Wetlands Nature Reserves



Tongguling Nature Reserves





菊科野塘蒿



菊科微甘菊



菊科小飞蓬



菊科羽芒菊



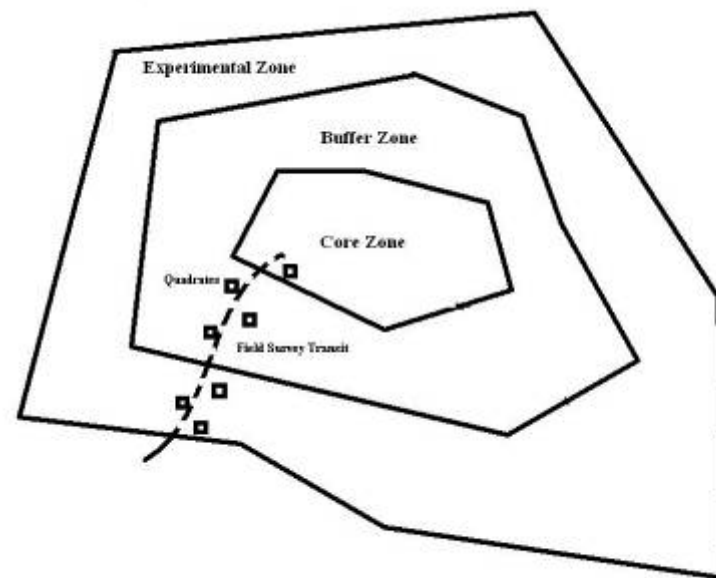
2006 INVESTIGATION

- Methods

- Transits: Daily Checking Route of nature Reserves

- Quadrates: $1 \times 1\text{m}$ or $2 \times 2\text{m}$ in where IAS abundant

- Index: Population, coverage species abundance, etc.





RESULTS (2006)

- Affected habitats

➔ IAS are mainly found in **EXPERIMENTAL** and **BUFFER ZONE**, often along roadsides, barren land, grasslands, rural buildings, arable lands, dykes, secondary forests edge, mudflat & wetlands, etc.



飞机草入侵东寨港保护区红树林



崇明东滩保护区加拿大一枝黄花对芦苇的入侵

盐城保护区互花米草入侵碱蓬群落



薇甘菊入侵惠东港口海龟保护区



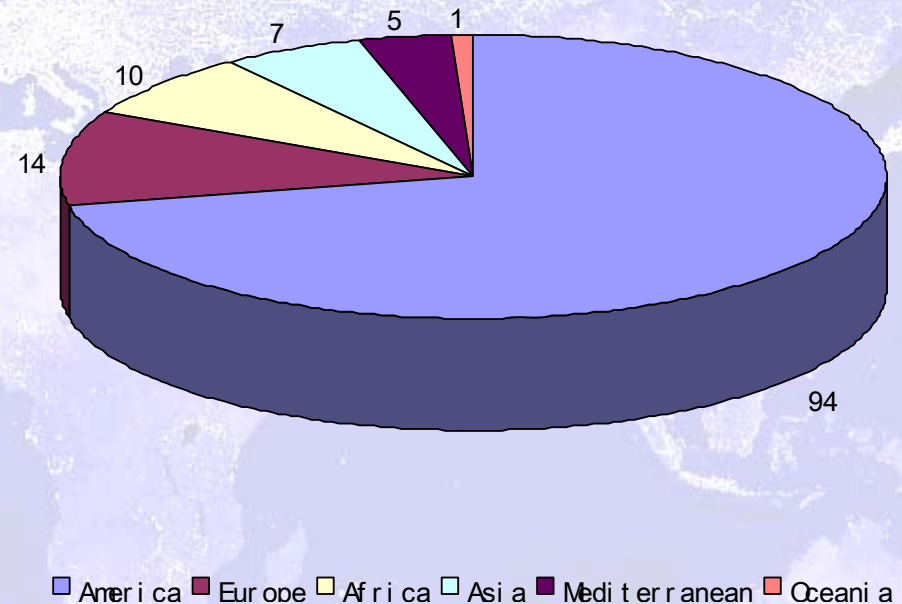
大田坡鹿保护区内飞机草入侵





RESULTS (2006)

- Species
 - ➔ 44 families 131 IAS, 119 plants & 12 animals;
 - ➔ 111 unintentional introduction, 84.7% of total;
 - ➔ Only 20 IAS are intentional introduced, 15.3%





2008 Typical Provinces IAS Investigation





2008 INVESTIGATION

- Target: Investigating the situation, Evaluating the damage and making the information available to public
- Range: Jiangsu, Zhejiang, Jiangxi and Liaoning Province
- Species: IAS in 1st and 2nd (may be published in 2009)
China IAS Name List



Cockroach (*Blattella germanica* Linnaeus), from website



Red Imported Fire Ant (*Solenopsis invicta* Buren), from website



Red swamp crayfish (*Procambarus clarkia* Girard), from website



Canadian goldenrod (*Solidago canadensis*), from website



coastal plain yellowtops (*Flaveria bidentis* (L.) Kuntze), from website





2009 International Biodiversity Day

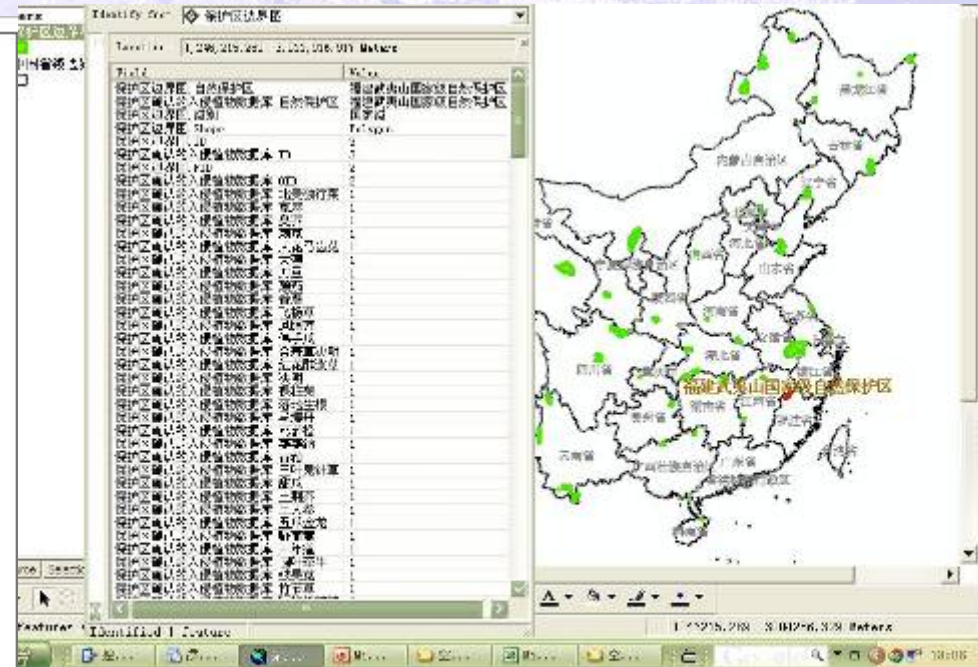
- Symposium on 22 May
- Photography Competition, 1 April—1 May
- Handbooks & Stamps, 1 April—1 May
- More activities on Province level, 22 May





IAS DATABASE

- Capital Normal University and The Nature Conservancy



Source: TNC presentation



Constraints & Problems





- Legislation System: **Specific IAS law on state level** is missing, many **gaps** between current legislations
- Coordination System: Coordination System is not perfect, many works needs to be done. Authorities' functions have **overlap** and **gaps**.
- Scientific Research: Official standards/rules/methods on **risk assessment, quarantine, environmental release, pre-caution, quick response** and **control** need improved.





Plans in the Future





- For Government Agency

- Release “*Invasive Alien Speices Controlling Law*” and other legislations
- Coordination System reform, more rights and duties should be given to MEP
- Public Awareness

- For Institutions

- International co-operation on IAS issues
- IAS investigations
- Establishing **ONE** integrated IAS monitoring systems
- Scientific standards/rules/methods research

- For Public

- reporting
- do not **BUY** or **FEEDING** them!





THANK YOU!

