

ForestRe

Securing Forest Assets for Institutions

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ISSUES AND OPPORTUNITES FOR
INVESTING IN NATURAL TROPICAL FORESTS

6-8 August 2007, Chaophya Park Hotel, Bangkok, Thailand

1. ForestRe

- ❑ Status
- ❑ Insurance availability
- ❑ Mission

2. Contribution of insurance for investors

- ❑ Insurance benefits & investment
- ❑ Catastrophic risks & fire management
- ❑ Increasing risk factors
- ❑ Core products
- ❑ New product development & investors



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ForestRe Specialist Insurance



- ❑ established in 2005
- ❑ via Lloyd's 'paper' (A+ rated) 2007
 - 56 licences for direct 'local' insurance
- ❑ as a new dedicated mono-line forestry insurance company
- ❑ to insure:
 - natural forest
 - reafforestation & afforestation
 - plantations
 - tree crops &
 - biofuel feedstocks



Lloyd's of London building

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But why?



- ❑ International reinsurance capacity collapsed 2001/2, as investment returns failed to cross-subsidise poor underwriting performance
- ❑ reinsurers retreated to core business (motor, health, life, aviation etc.) rejecting the 'esoteric' niche lines like forestry
- ❑ Major forest plantation losses Chile and Australia (ACT - Canberra - fire) finally forced remaining reinsurers to retreat. Insurance capacity cut by >75% by end 2003

2007: International reinsurance capacity in hands of 4 companies

- ❑ SwissRe, PartnerRe, Scor, HannoverRe
- ❑ These now provide the only international capacity - up to ≈US\$25m per 'account' in total

What 'local' capacity?



Today in 2007 these main participants do **some** forestry insurance:

- ❑ Argentina: Las Buenos Aires
- ❑ Australia: Agricola
- ❑ Brazil: Sul America
- ❑ Canada: AFSC
- ❑ Chile: Cruz Del Sur (now Royal Sun Alliance), Mapfre
- ❑ China: PICC (People's Ins Company of China).
- ❑ France: Axa
- ❑ Indonesia: Assuransi Central Asia
- ❑ Japan: Sumitomo, Zenmoriren
- ❑ Malaysia: Multi Artha Aliasindo (MAA)
- ❑ New Zealand: NZI
- ❑ Norway: Skogbrand
- ❑ South Africa: Saffire, Agricola
- ❑ Spain: Mapfre, recently ('05) Agroseguros
- ❑ UK: Catlin Syndicate (1 UK Scheme)

Government Subsidies?

Spain - forestry & crops

- ❑ Agroseguro Programme, basic fire cover for re-forestation / small woodlots since 2005 nationally, since 1996 in Cataluna
- ❑ premiums paid by growers qualify for premium subsidies
 - ❑ Commercial plantations are excluded
 - ❑ companies need to use international insurance markets

Chile - none for forestry

- ❑ 50% premium subsidies but for crops only
- ❑ forestry use commercial insurance & reinsurance markets

Australia & UK - none at all

- ❑ private insurance markets for both crops and forestry

USA - none for forestry

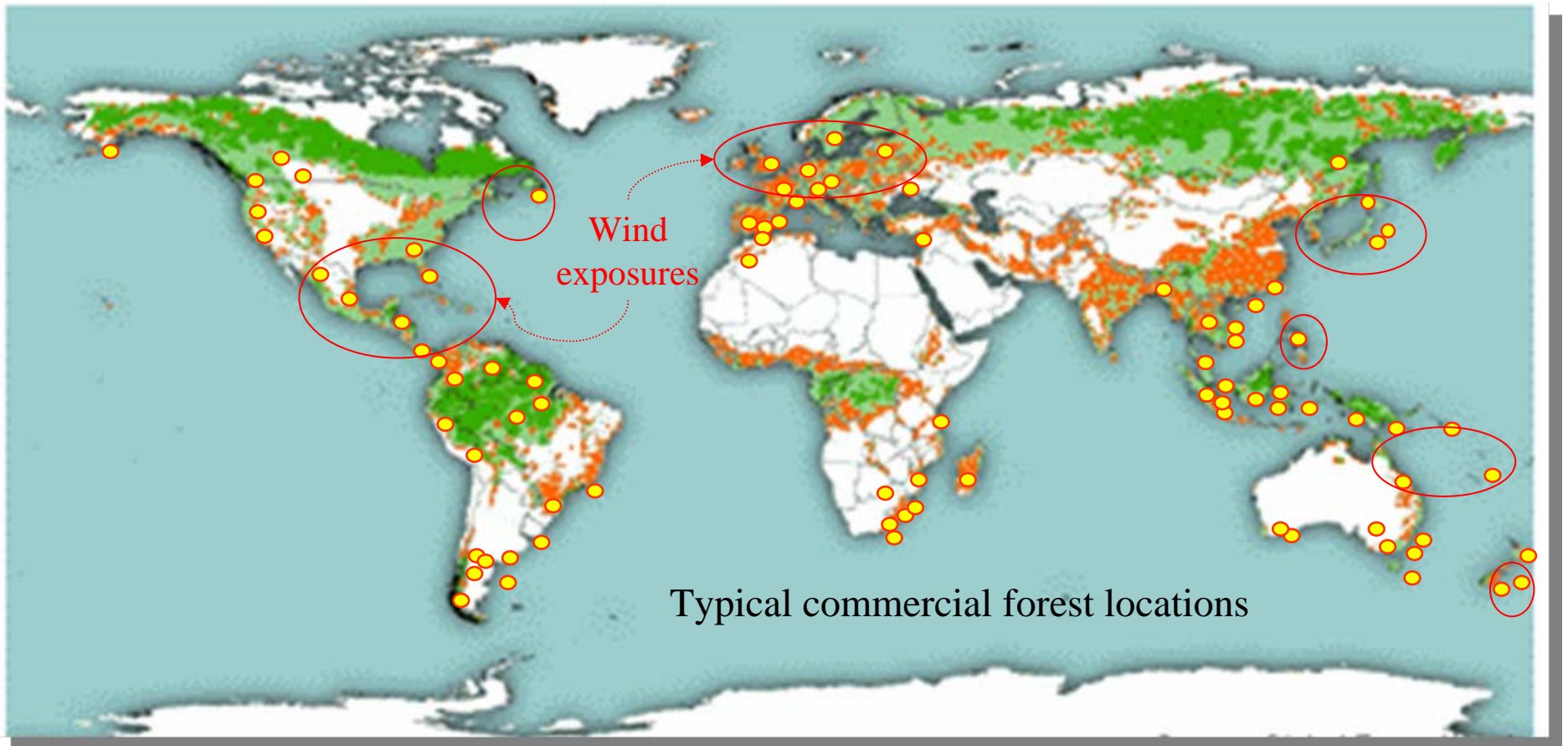
- ❑ Multi Peril Crop insurance program offers high levels of crop premium subsidies

Hence: ForestRe Mission



- ❑ to increase significantly the insurance capacity for forest & tree crop enterprises world wide
- ❑ to facilitate finance & investment into all forestry as an asset class supported by conventional and environmental revenue streams (water, carbon, biofuels...)
- ❑ to develop new forest investment insurance products

ForestRe Risk Research





Insurance Contribution to Investors

Insurance Facilitating Access to Credit



- ❑ Scalability: insurance from US\$ 0.5m to US\$ billions in value
- ❑ Insurance fulfils bank fiduciary obligations or investment criteria that mandate risk reduction
- ❑ working with EnviroMarket & DeRisk to provide a one-stop shop for transfer of perceived forestry risk
 - ❑ additional covers to material damage will include **political** risk insurance and others such as **credit** risk & **currency** exchange risk in due course.
- ❑ can use insured natural forest as collateral for other [forest] development (e.g. Brazilian forest raised US\$15m)

Insurance Benefits

- ❑ Use insurers' portfolios for risk manage your investment in early stages - Investor portfolios take time to build.
- ❑ Relatively quick to acquire for big and small players
- ❑ cheap; e.g. fire damage covers are about 2% on total values falling to 0.2% or less as enterprise values increase for natural perils
- ❑ whole schemes or global forest investment portfolios enable economies of scale, reducing premium spend
- ❑ beneficiaries can be the bank (loan repayment), company and/or growers for restitution
- ❑ protection of balance sheet & protection of future income flows
- ❑ **a cost-effective for managing risk of catastrophic loss.**

Insurers Can Provide Investment Catalyst



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How?

- ❑ secure investors' / banks' funds in the projects
- ❑ reduce risk of failure
- ❑ increases viability of lower IRR projects
- ❑ raises project market profile and quality
- ❑ raises security of environmental products & services
- ❑ hence raises liquidity



Insurers do this by:

- ❑ assess & model risk profile for probability of achieving targets
- ❑ comprehensive project overview linked to enhanced management capacity
- ❑ a multi-line, multi-year approach
- ❑ forms a proactive strategic partnership with investor

Satellites for Risk Management

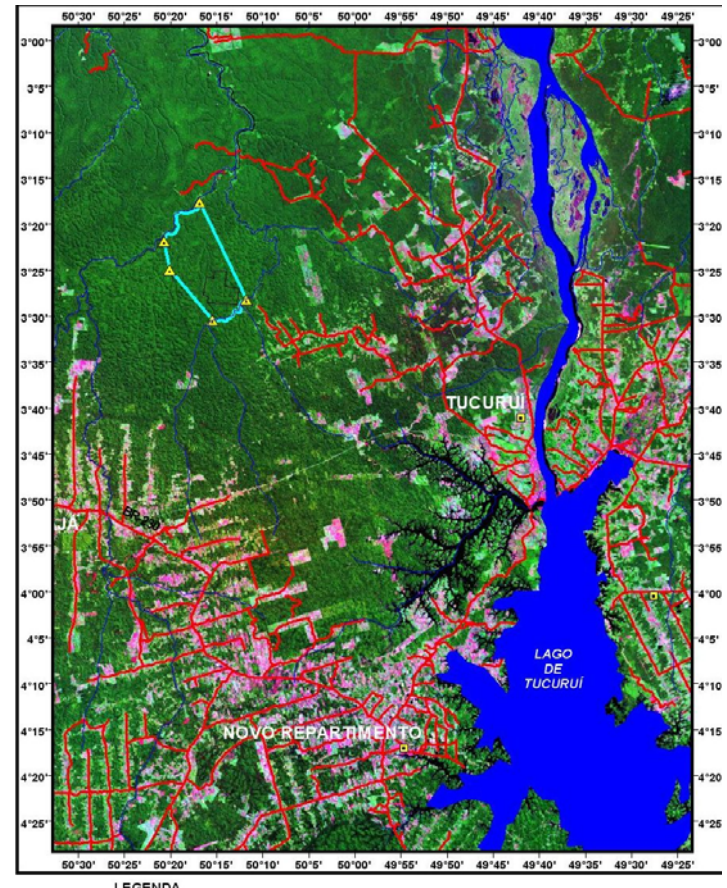


Insurers use earth observation satellites for natural forests to:

- ❑ monitor fire activity & forest health
- ❑ road access
- ❑ loss of tree cover (holes)
- ❑ land invasion and tree felling
- ❑ commercial illegal logging

React to observations to:

- ❑ inform forest managers
- ❑ local authorities
- ❑ accumulate data on losses for better risk pricing





Catastrophic production risks:

- ❑ fire
- ❑ hurricane
- ❑ drought

Impact of these production risks depends on portfolio size, spread, species, enterprise types

Notes

- ❑ fire risk impact inversely related to tree age
- ❑ limited insurance availability for wind, unless in a balanced portfolio
- ❑ systemic impact of drought risks, difficult to insure unless designed as a trigger type product as 2006 Ethiopian drought cover by Axa Re.

Nature of Catastrophic Risks



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□ Infrequent

- Insurers now estimate exposure up to a 250 year return period for accurate risk pricing (data dependent)
- Losses due to 20 - 50 yr events add significantly to the average value of expected losses

□ Severe

Example Australia

Pre-loss annual mean

= 1.17%

Post-loss mean

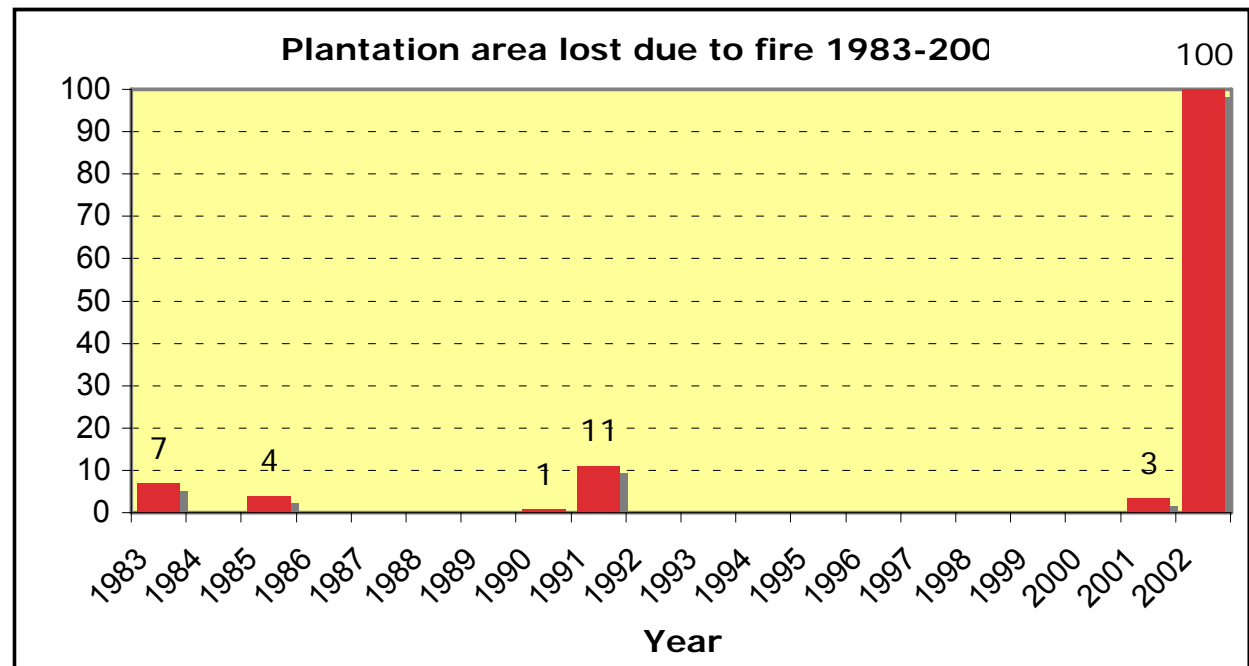
=4.92%

....Called the

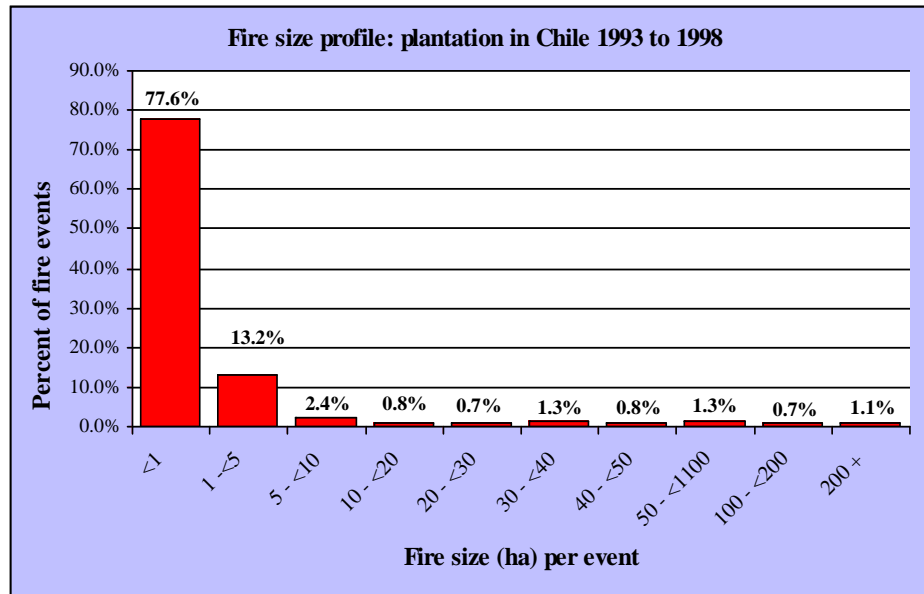
'Loss cost'

Cat Loading = 420%

over this period.



Quality of Fire Management Chile Region VIII vs Sumatra



Fire management

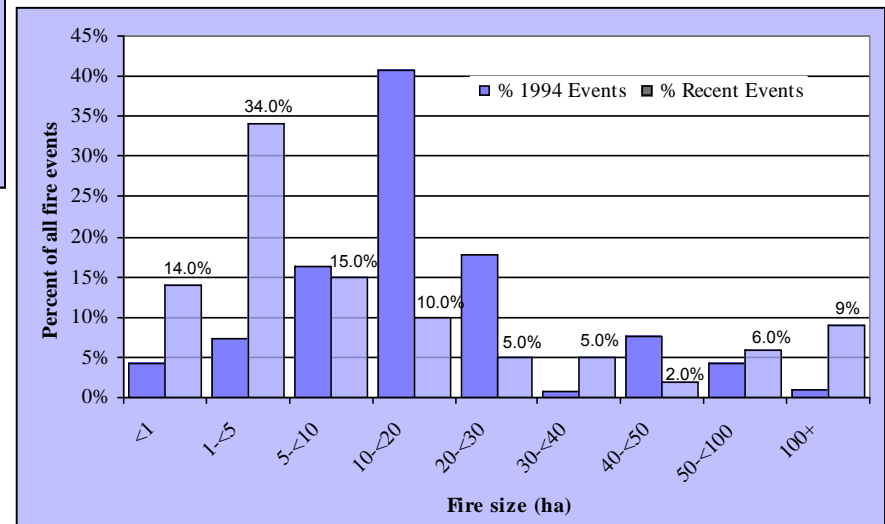
Comparison for similar-sized plantations of fire size per event for Region VIII Chile, and South Sumatra.

Chile has far higher fire risk yet manages that risk better than the exemplified Sumatra plantation below.

Fire fighting response times & control

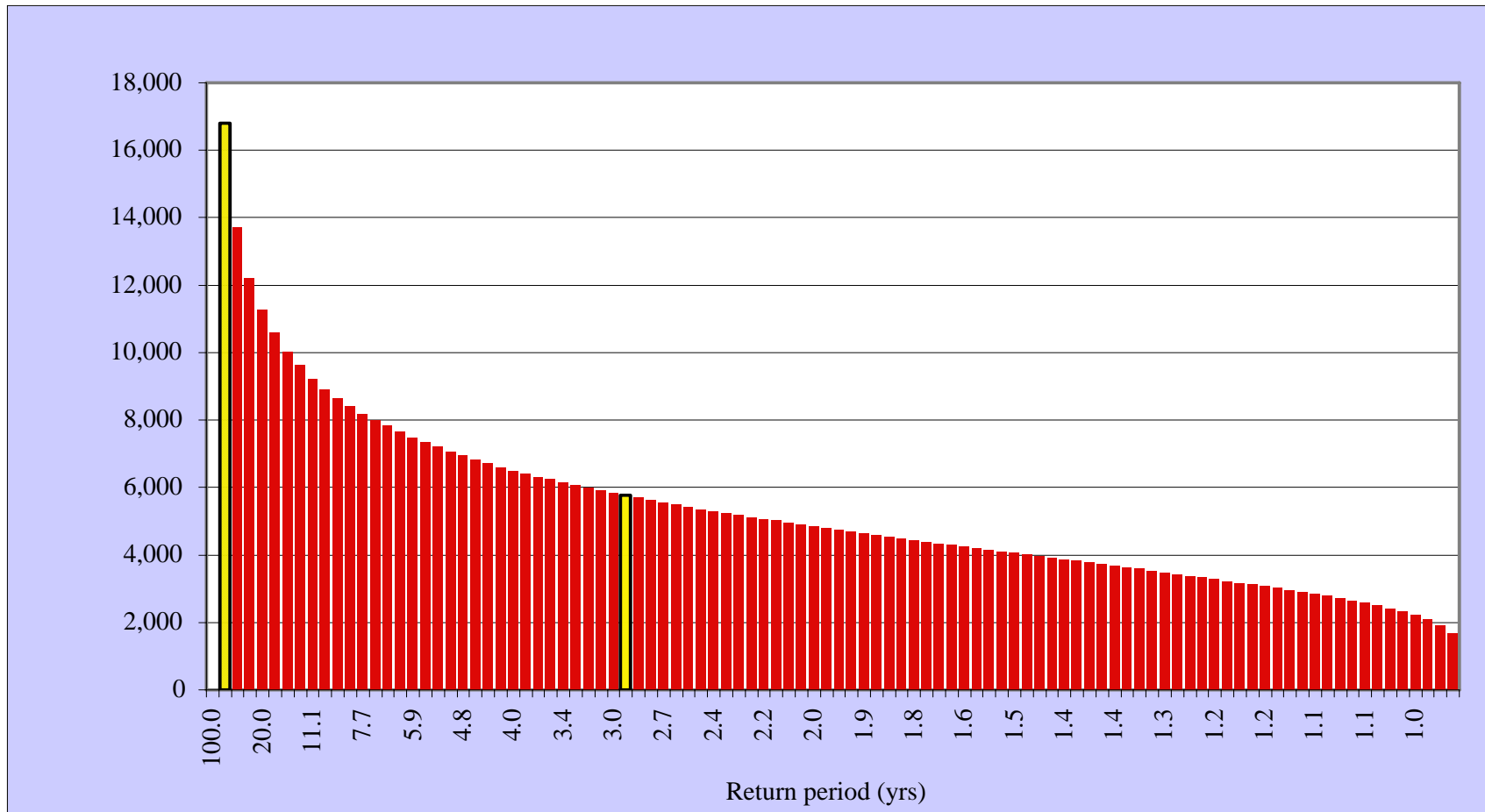
Chile pine plantations: 91% fires under 5ha

Sumatra Acacia plantation: 13% to 48% fires under 5ha. INDICATES poor fire management, skills and resources



Modelled A Mangium loss Scenarios - Sumatra 2004

300,000ha Exposed area: Modeled projected annual losses & frequency for Sumatra plantation: 100 yr event => 16,500ha (limited data) (3 X the modeled 100yr Chile loss)



Pricing Forest Fire Risk

Example: Large Forest

- ❑ 300,000ha Exposed area for Acacia mangium: (US\$1bn)
- ❑ Not all this can burn: say maximum 16,000ha (US\$48m)
- ❑ Company can retain: (“excess”) say US\$5m per year
- ❑ Insurance cover required only for (US\$48- \$5 =) US\$43m)

Smaller forest Values

- ❑ Area 20,000ha
- ❑ Worst case annual loss agreed at 5,000ha
- ❑ Buy insurance for value of 5,000ha only
- ❑ Premium charged is NOT pro-rata but according to **probability** of losing that 5000ha (higher probability than losing all 20,000ha)

Pricing Forest Fire Risk



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Example Fire Premium Rates

Forest Acacia Values US\$	Net premium rates %
5,000	3.00
160,000	3.00
1,280,000	2.00
2,560,000	2.00
5,120,000	1.20
10,240,000	1.02
20,480,000	0.90
40,960,000	0.60
81,920,000	0.60
163,840,000	0.40
327,680,000	0.30
655,360,000	0.18
1,310,720,000	0.13

Notes

Scheme only
Scheme only
Individual

Other insurance pricing factors

Risk Zone (e.g. fire)

Protection measures

Retained risk (excess)

Forest type:

- Natural
- plantation pulp
- plantation oil Palm
- Fruit trees etc

Factors in Increasing Risk



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□ **Climate change**

- higher temperatures
- greater climatic variability
- impact on natural cycles - El Niño (Southern oscillation index)

□ **Forest & development policies**

- increases access to forested areas
- greater access => greater risk from people
- increases in fire and illegal felling / logging

ForestRe Core Products

- ❑ Loss of insured interest such as growing trees
 - due to fire & allied perils
- ❑ fire fighting cost protection
- ❑ business interruption
 - increased costs of working
 - process plant overheads
- ❑ optional protection from:
 - Wind storm
 - hail, snow



Source: CSIRO Australian Bush fire

New Product Development

- ❑ Insurance wraps for forestry investment instruments
- ❑ Certified emission reductions for 'permanence' as defined (CER)
 - compliant markets within Kyoto and EU trading scheme (EU ETS)
 - voluntary compliance
- ❑ Watershed environmental services:
 - water quality and flows
 - salinity credits



Source:

Sumitomo Forestry Co. Ltd, Tokyo: Japanese Forestry

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THANK YOU