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Roundtable:

‘Addressing Wildland Fire Risk’

**Risk and Forest Loss Mitigation in
Private & Public Organisations**






Global Platform for Disaster Risk Reduction

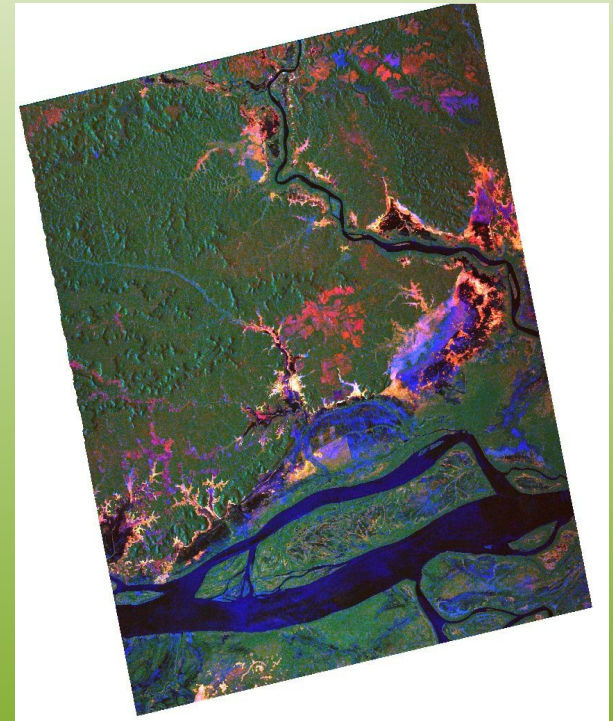
Third Session, Geneva, Switzerland 10 May 2011

ForestRe Ltd, 150 Minories, London EC3N 1LS

Agenda

Phil Cottle : Managing Director

-  **ForestRe; fire risk pricing**
-  **Nature of commercial losses**
-  **Fire: Trends, risk perception & reality**
-  **Insurance products mitigating losses**
-  **Recommendations**



**Forest Change detection
Brazil - PALSAR June 20th -
August 5th 2007 Source
SARMAP**

ForestRe & Forest Fires

- 🌲 Data about **commercial managed forest losses very difficult** to obtain without direct access to company
- 🌲 FRe search and collate **specific commercial loss data due to fire risk** – have done since 1993
- 🌲 Use data to Model fire risk in commercial forestry
 - 🌲 Timber & pulp
 - 🌲 Ecosystem services
 - 🌲 Biomass provision
 - 🌲 **Insurance capital providers**
- 🌲 **Design insurance to protect institutional Investors**

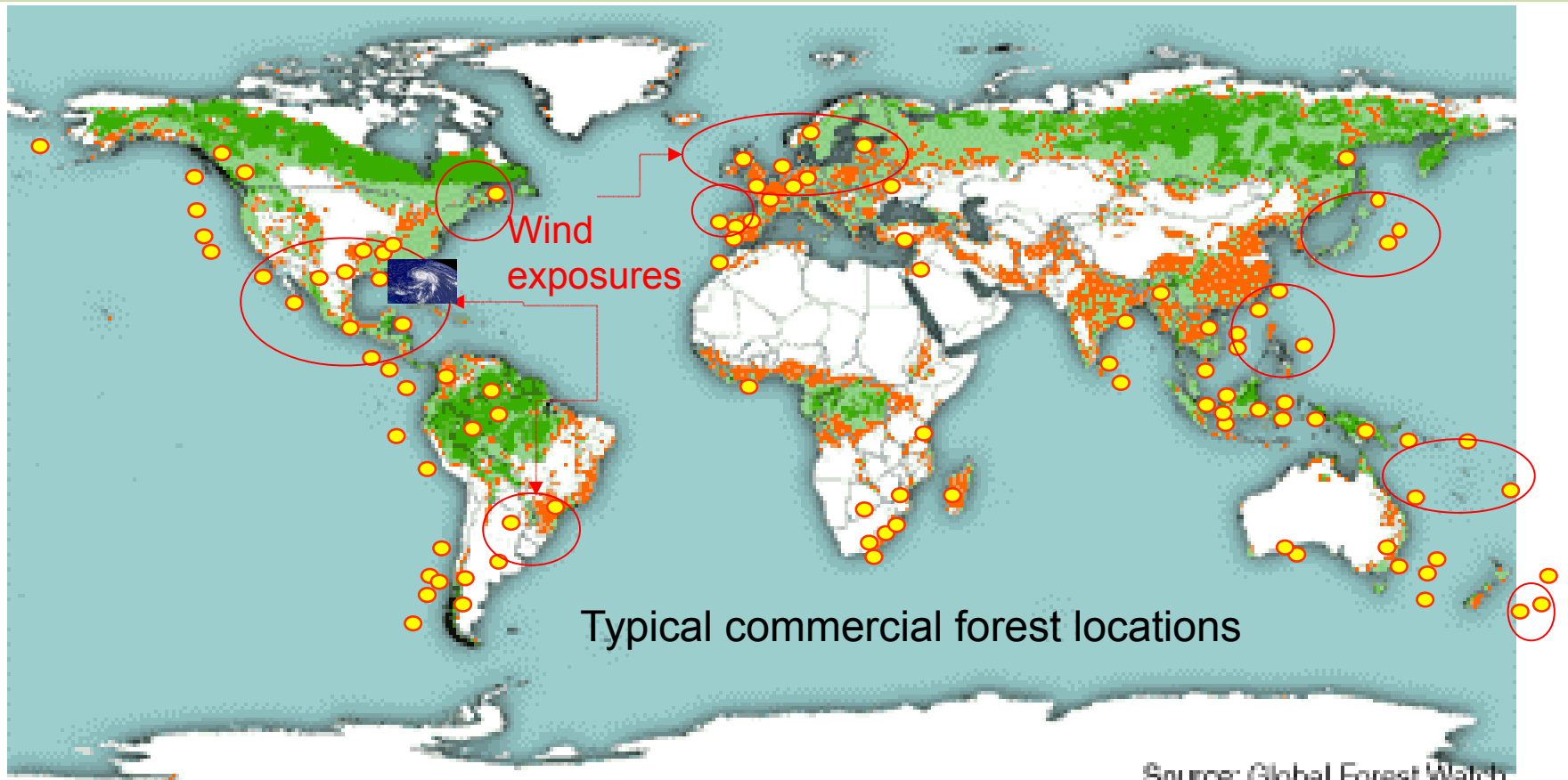


**Lloyd's insurance market
London**



Extensive Experience





***ForestRe have reviewed forest fire & wind risk in worldwide
'Value' of FRe portfolio as standing timber about \$4bn***










Financial Losses from Fire

Forests affected by fire, suffer financial losses due to:

Wood & Biomass Enterprises

-  **Fire fighting costs & liabilities**
-  **Timber volume losses & ...**
-  **Reduced growth rates following**
-  **Quality down-grades e.g.**
contamination as in cork, pulp
or energy content

Forest Carbon

-  **Carbon lost through emission**
-  **Reduced carbon sequestration**
-  **Reduced carbon stocks (REDD)**
-  **Lower income potential**
-  **Delayed income flow**
-  **Reputation as carbon supplier**
-  **Re-verification costs for registry**

Understand The Risks

Fire Risk & Trends, perception & reality



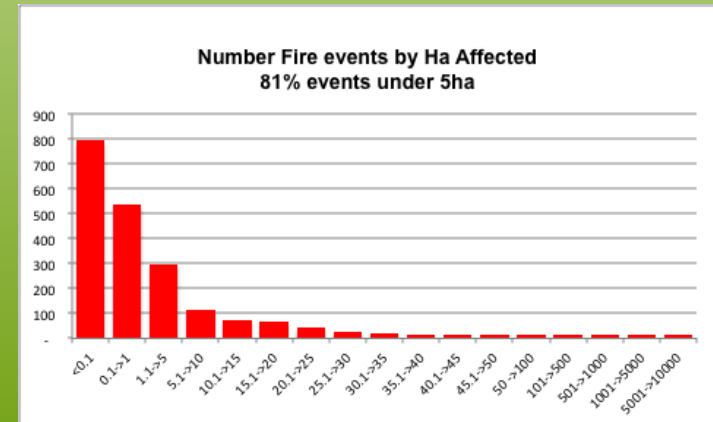
In severe and catastrophic forest fires, public fire services will focus on life and community property & not the forests.

Major losses due to **multiple extreme coincident / sequential loss events**

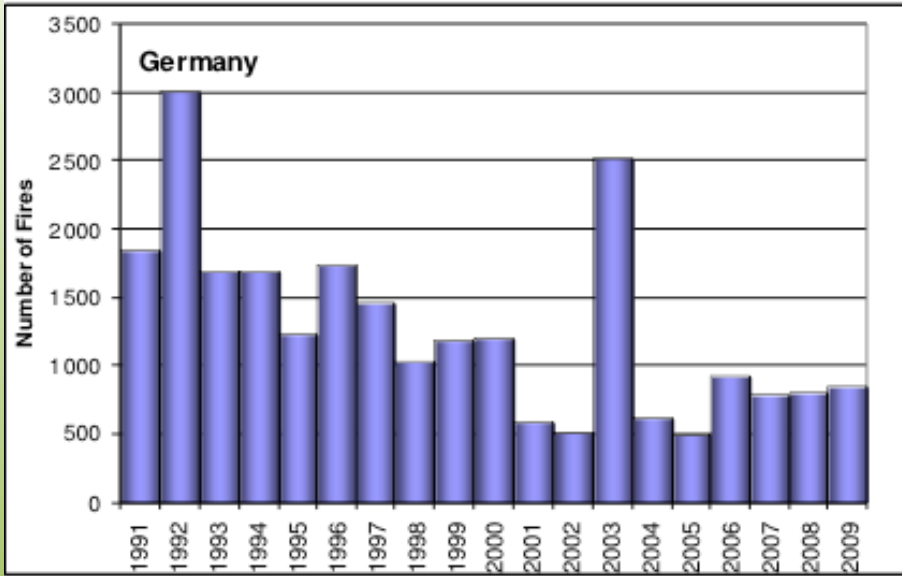
Less than 2% of fire events cause >85% of commercial losses

LESSON – Prevent large fires & you prevent significant losses

=> rapid fire attack needed



Rising Forest Fire losses – example



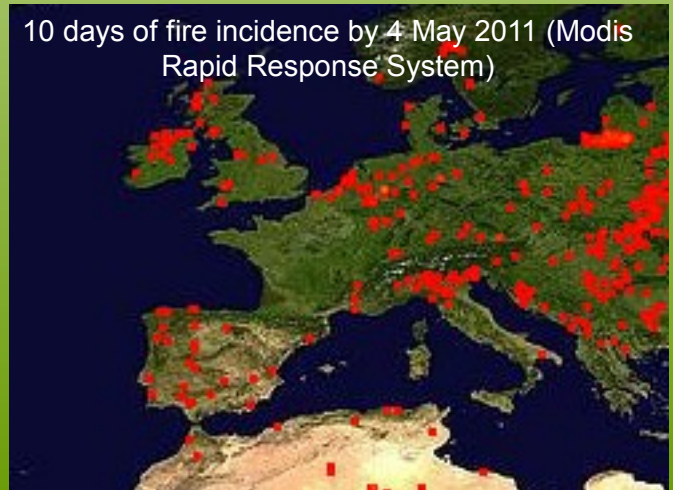
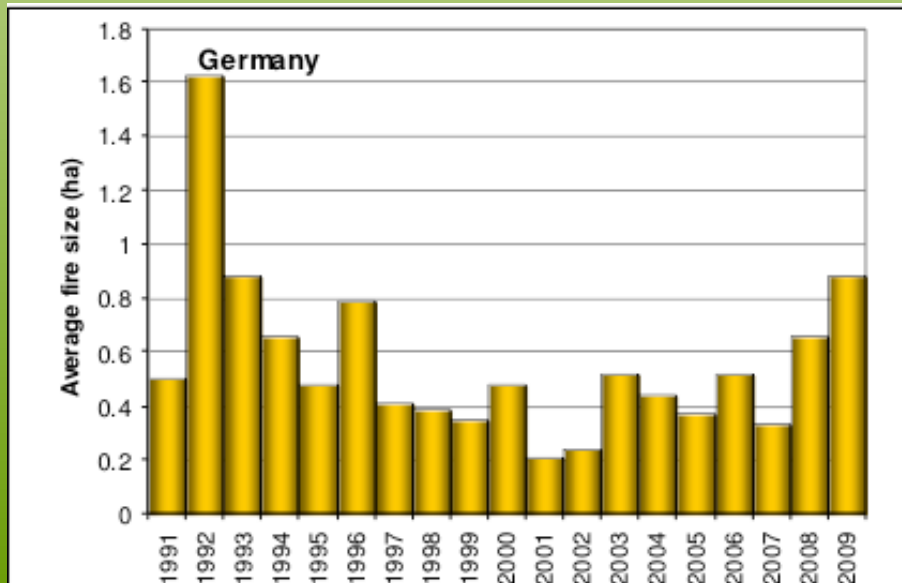
Germany 1991 – 2009

The trend is global having significantly more fire events in recent years and increasing mean fire sizes.

Results for most countries EU and non-EU will show similar trends

Source:

'Forest Fires in Europe 2009' European Commission Joint Research Centre 2010





Evidence - Increasing Risk Frequency

***Forest managers base their perception of risk on PAST events.
Actual risk is related to the FUTURE.***

Evidence?

The results of a 2009 study of unusual temperature events showed that:





‘What was historically [in the year 2000 for the UK] a . . .10-year event now occurs every 2.7 years, a 20-year event occurs every 4.3 years, and the **return period for a 100-year event is just 12.5 years.**’

i.e, the ‘100 year event’ - from 1% probability to about 8%

Dlugolecki, A. et al. (2009), “Coping with Climate Change : Risks and opportunities for Insurers.” Chartered Insurance Institute, London/CII_3112

Risk Perception & Reality

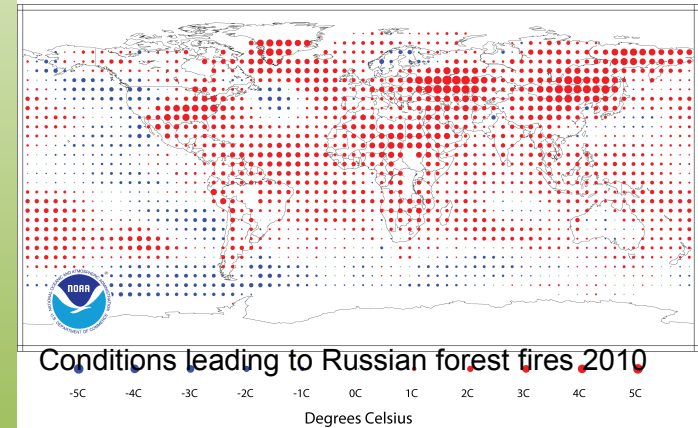
For commercial and municipal forestry

-  Risk perception is **retrospective averages**
-  Actual risk based on **future temperature trends**
-  The 'average' loss rate hides huge volatility and leads to over-confidence
-  Catastrophes ('cat') severely reduces investment returns & sustainability

Temperature Anomalies June 2010

(with respect to a 1971-2000 base period)

National Climatic Data Center/NESDIS/NOAA



Understanding risk



Enables management of
the 'known unknowns'



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Risk Themes – Fire & Investors

- 🌲 Unlike hurricane/typhoon, ice or snow risks, **large fires may be prevented** no matter what the cause
- 🌲 **Loss modelling can generate risk profiles** for commercial managers, financiers and investors, for resource planning
- 🌲 Of all forest types, **commercially managed forests have the lowest risk** often by factor of 10 – 20 times less than wildfire area losses
- 🌲 Commercial forest investment should be part of **national forest fire planning**
- 🌲 Thus – governments should **incentivise commercial forestry** at medium to large scale
- 🌲 **Issue:** 85% forest sector are small and mediums sized enterprises – few resources

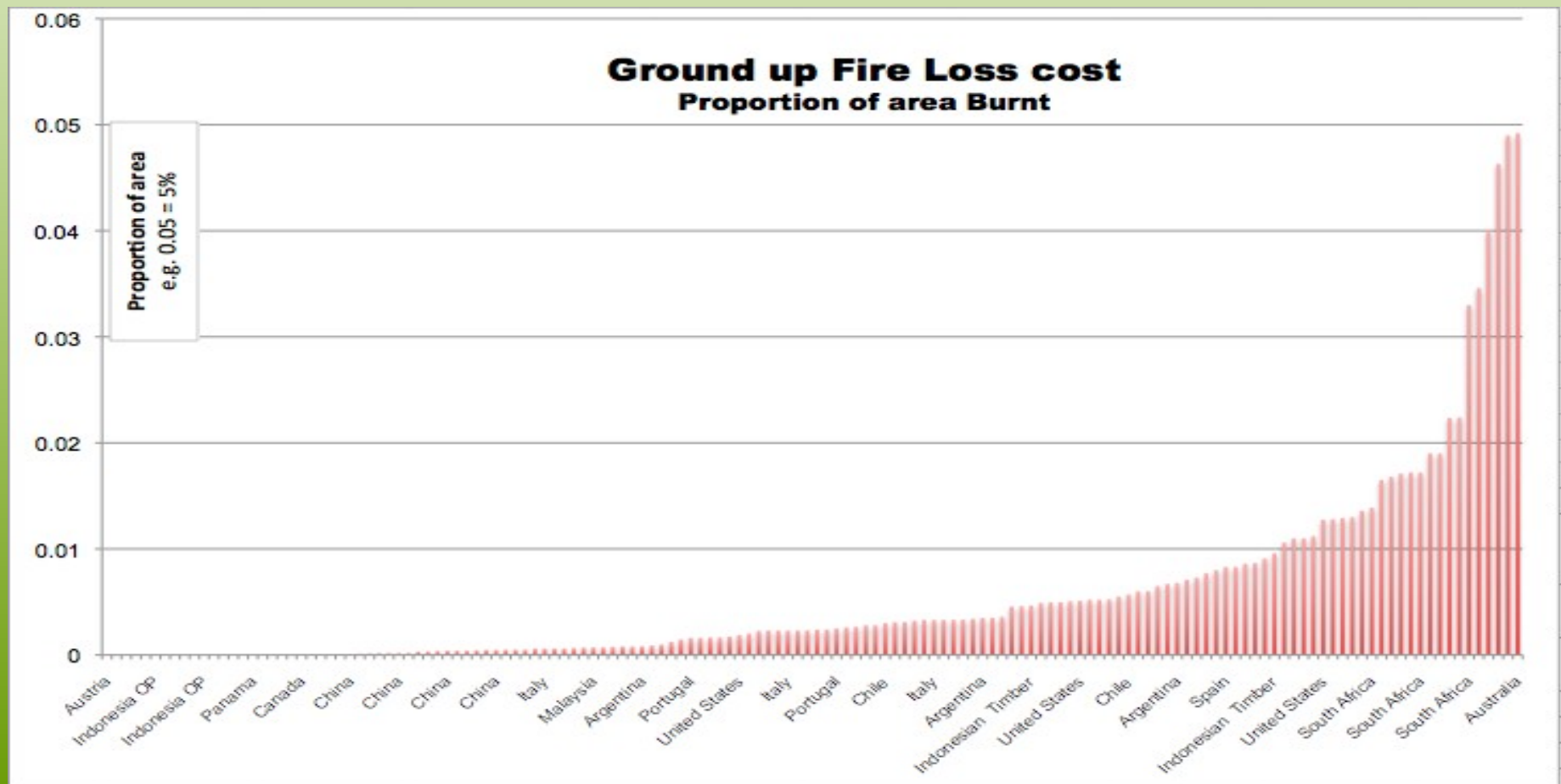


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Understand the 'Average' Loss?

Average is simply one very crude measure of risk

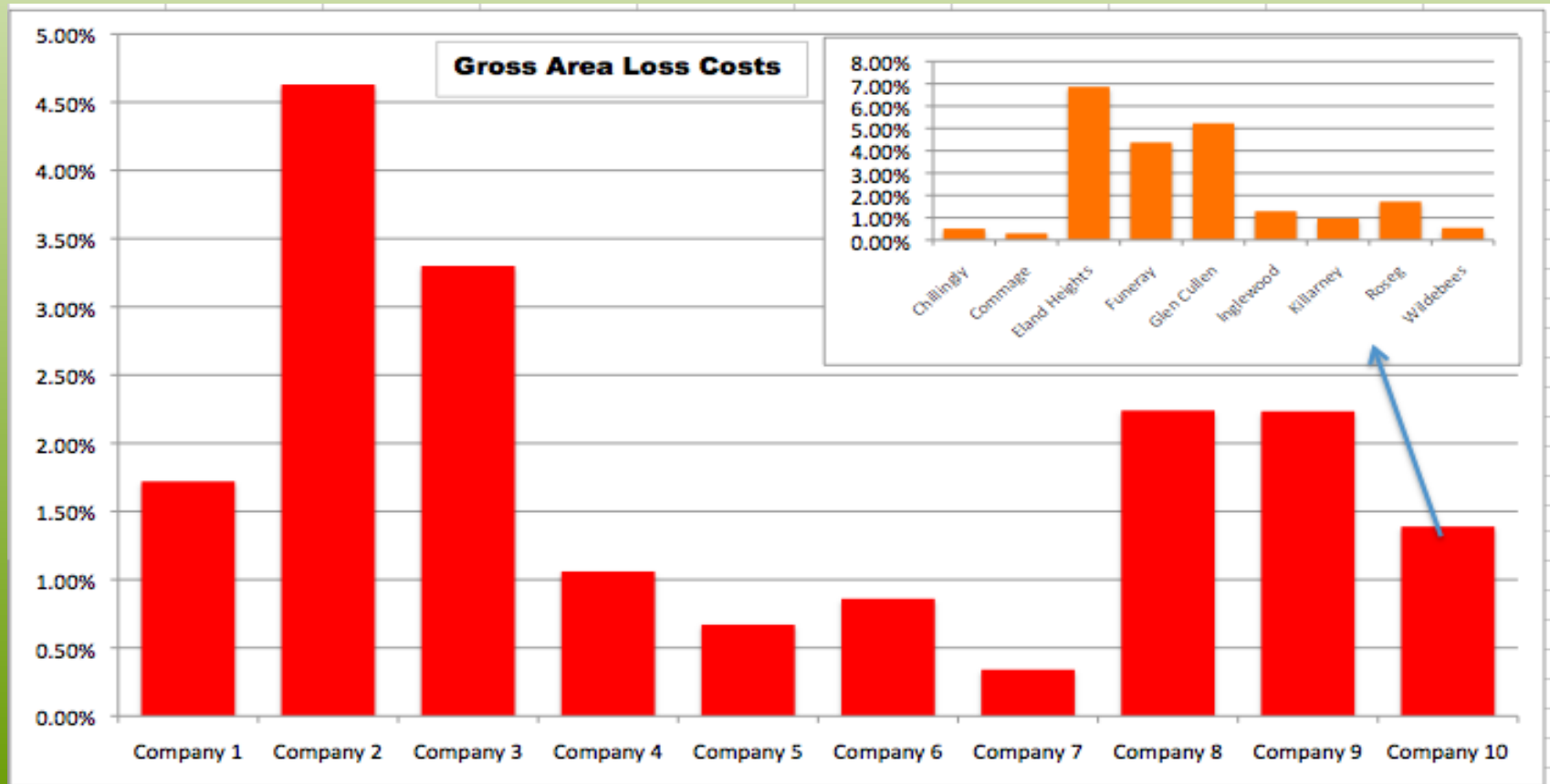
Here is a range of mean annual **average** losses for some forestry **companies** worldwide – a sample of several thousand data points



Volatility lies within the 'Average'

Average hides a lot of variability within the region


Here is a range of annual AVERAGE fire losses for ten companies in South Africa – then inset is the range of average losses within one Company's (#10) estate

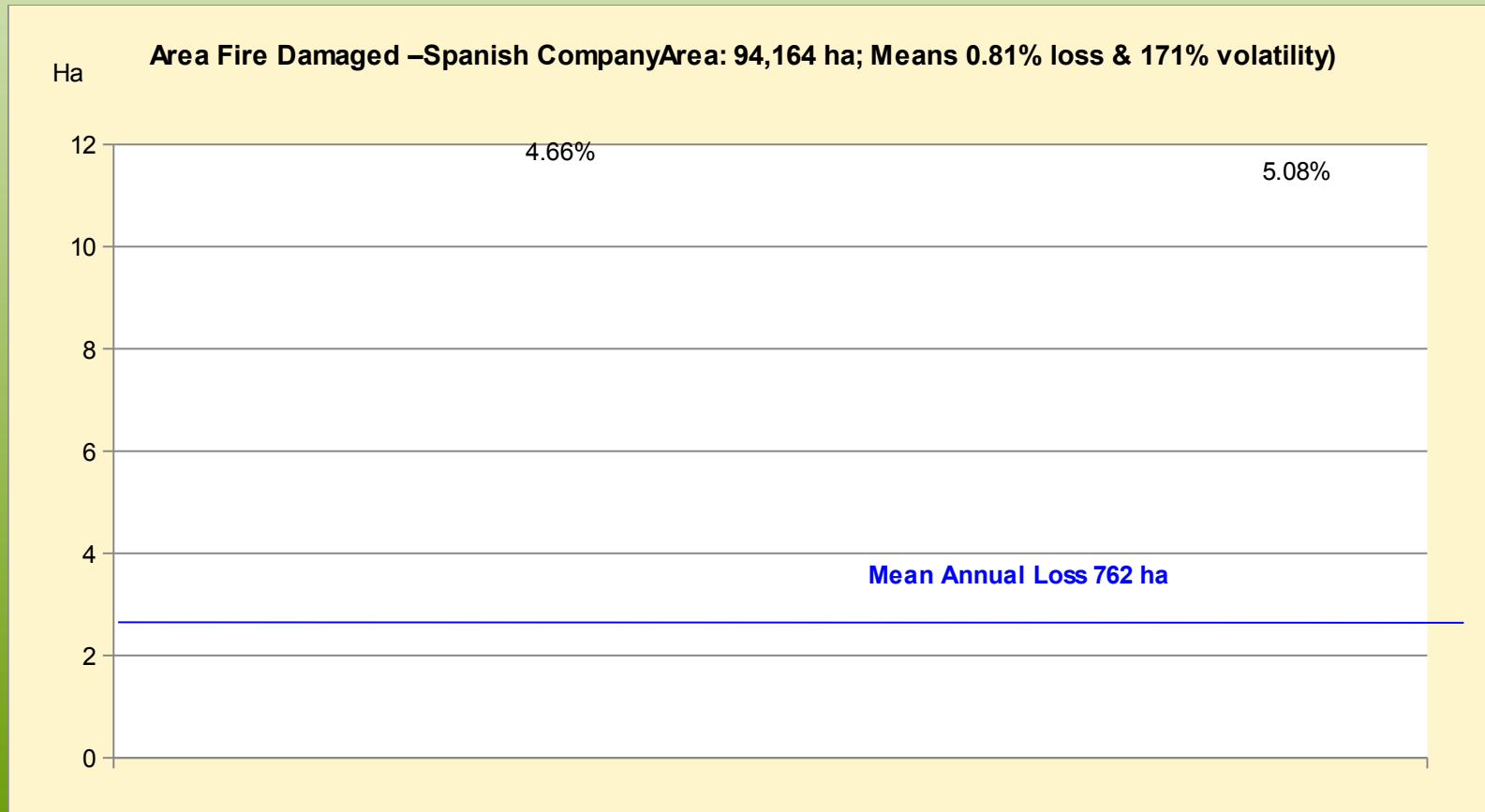




The 'Average' Hides Catastrophes

Average hides catastrophe losses within company's performance

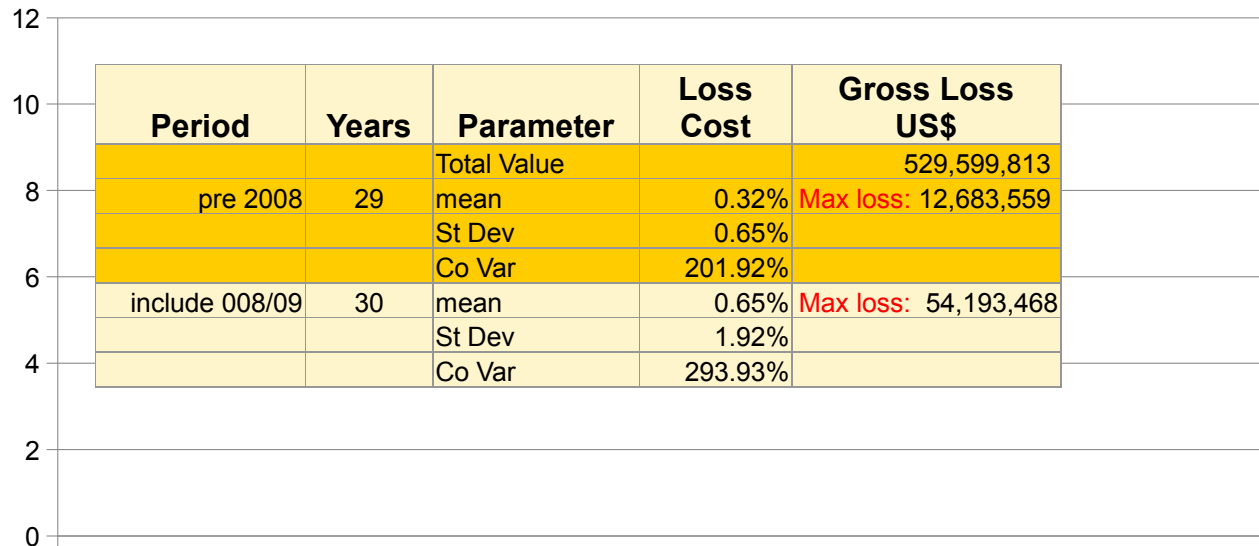
 Here are the annual ACTUAL gross losses for a single company in the Spain with a wide in-country spread of estates.



The best Fire Management Can Fail

This company thought they could control fire & chose not to insure in their worst year.

LONG time series – gross fire loss volatility in Australia of global FMO plantations



This company insured until 2009

Fire management resources was considered to be adequate, and no insurance needed.

Review their risk model?

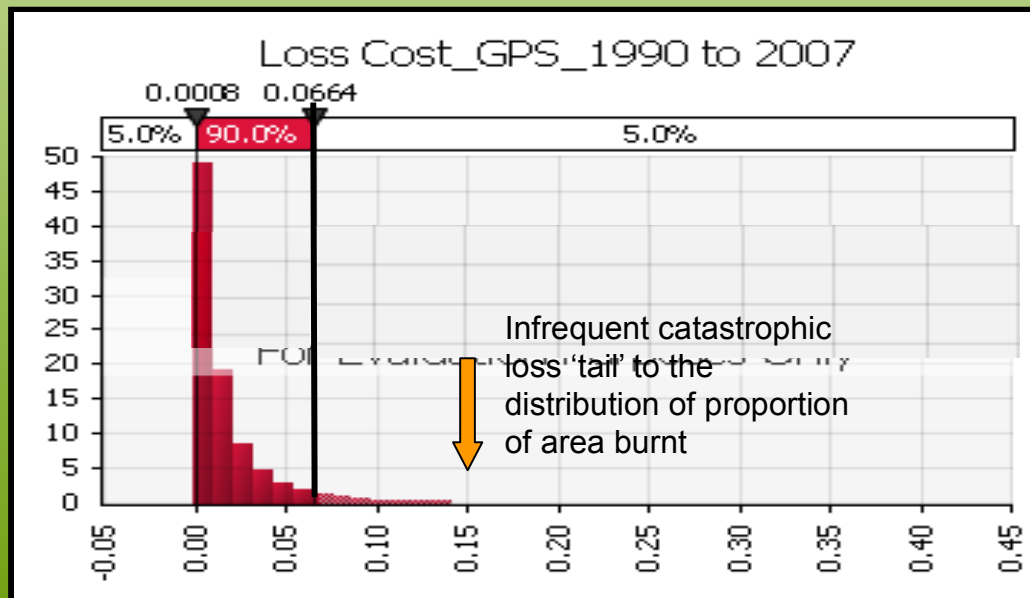
Modelling indicates the 'Tail'

Reviewing an example from an individual company

Chart showing % area of forested land lost to fire annually for a single company.

This company lost 15% of its productive area in 2003.

National average rate of loss was 2% per annum over 25 years.



A forest corporation in Portugal (125,000ha / 308,875 ac)

% company's forest area lost/yr	Return period Years
0.22	Mean
6.64	20
7.44	25
10.31	50
13.09	100
17.35	250



Can Insurance Mitigate Losses? YES

Link - insurance, fire losses & increase in forest investments

*Premise: insurance is **not** a substitute for good management but complementary to it.*

& Working with insurers improves risk management at all levels

Insurance Product	Buyers & Benefit
<p>Fire fighting costs cover</p> <p>e.g.</p> <p>Forest company – buys cover for say US\$500,000 of costs over deductible.</p> <p>Government can buy cover for costs exceeding the expected fire fighting budget. E.g. US\$200m excess of planned US\$150m</p>	<ul style="list-style-type: none">• Regional Governments with fire fighting resources can cap their operational expenditure on men and equipment in fire fighting• Reduce government contingency budgets• Forest owners can respond to the fire threat immediately, covering major costs by insurance• Insurers may insist on basic fire management standards as condition of cover
<p>Insurance of net present value of wood and non wood forest products</p>	<ul style="list-style-type: none">• Forest & investment managers can be protected from the commercial impact of a very major fire• Municipal forests can be similarly protected
<p>Carbon credit indemnity (like for like)</p>	<ul style="list-style-type: none">• Forestry carbon credits may add 10% to returns – value increases if lost carbon due to fires may be replaced by rated insurer

Recommendations

Premise

Managed commercial forestry & tree crops have far lower fire risk than state-managed or unmanaged forestry and should be encouraged by nations

1. **Fire risk modelling essential** for fire fighting resource planning
2. Large and small holder **private forestry investment should be incentivised** and assisted
4. **Co-ordinate public-private fire fighting resources** and planning on regional basis
5. **Insurance premium subsidies** benefit companies & governments
7. **Banks should ensure that all forest finance is insured** to encourage improved management standards
8. Mandatory Insurance as a investment requirement can ensure companies address risk.



www.forestre.com

THANK YOU

**Risk and Forest Loss Mitigation in
Private & Public Organisations**

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