

Paper, packaging & forest products

Soils Compaction and Productivity A Forest Industry Perspective

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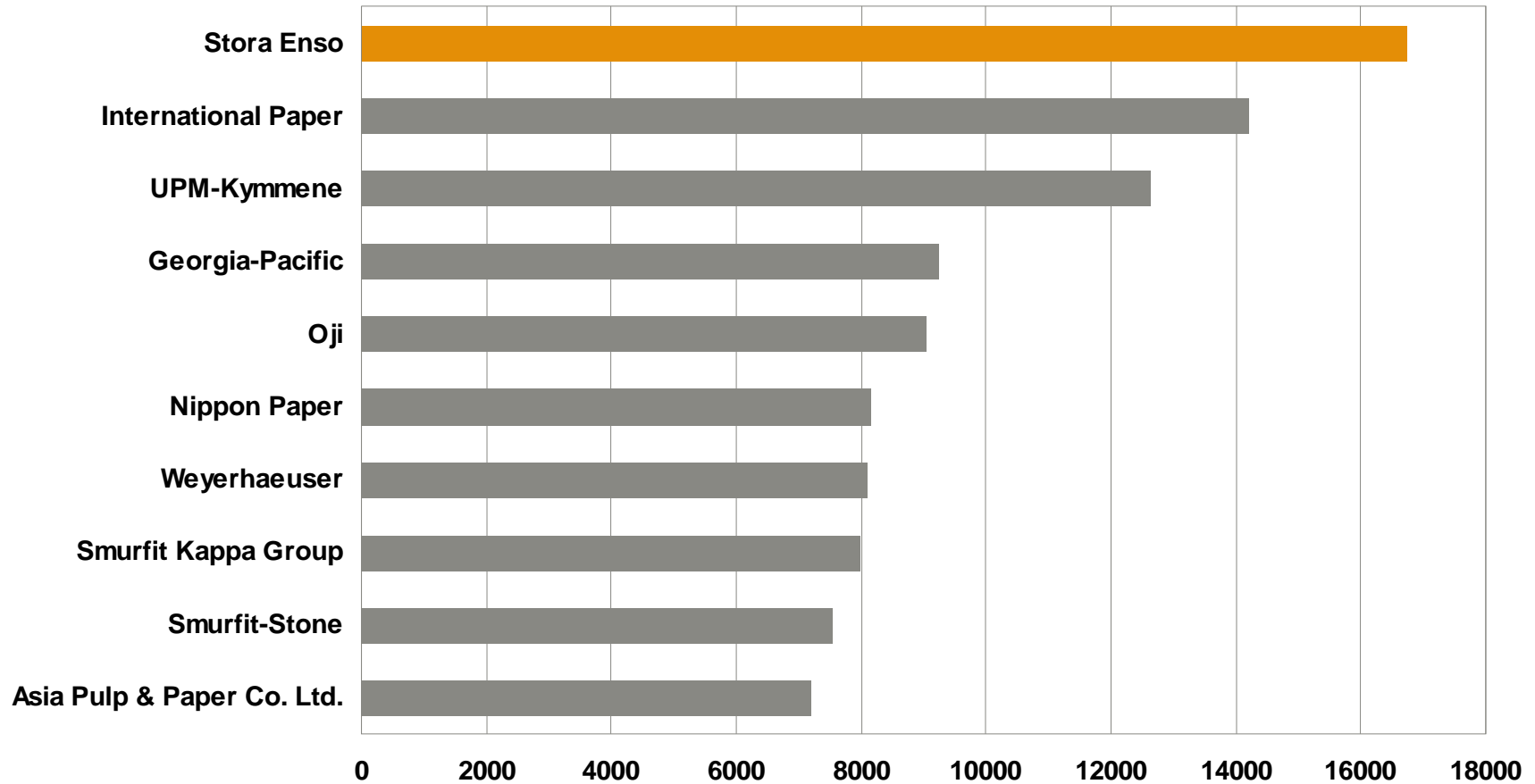
Stora Enso in Brief



- A world leader
 - 16.9 million tonnes of paper and board
 - 7.7 million m³ of sawn and processed wood products
- Four main divisions
 - Stora Enso Publication Paper, Stora Enso Fine Paper, Stora Enso Packaging Board and Stora Enso Forest Products
- Sales EUR 13.2 billion
- Approximately 46,000 employees in more than 40 countries
- Market capitalization EUR 9.3 billion (31 Dec 2005)
- Shares listed on Helsinki, Stockholm and New York stock exchanges

Leading Producers of Paper and Board

April 2006

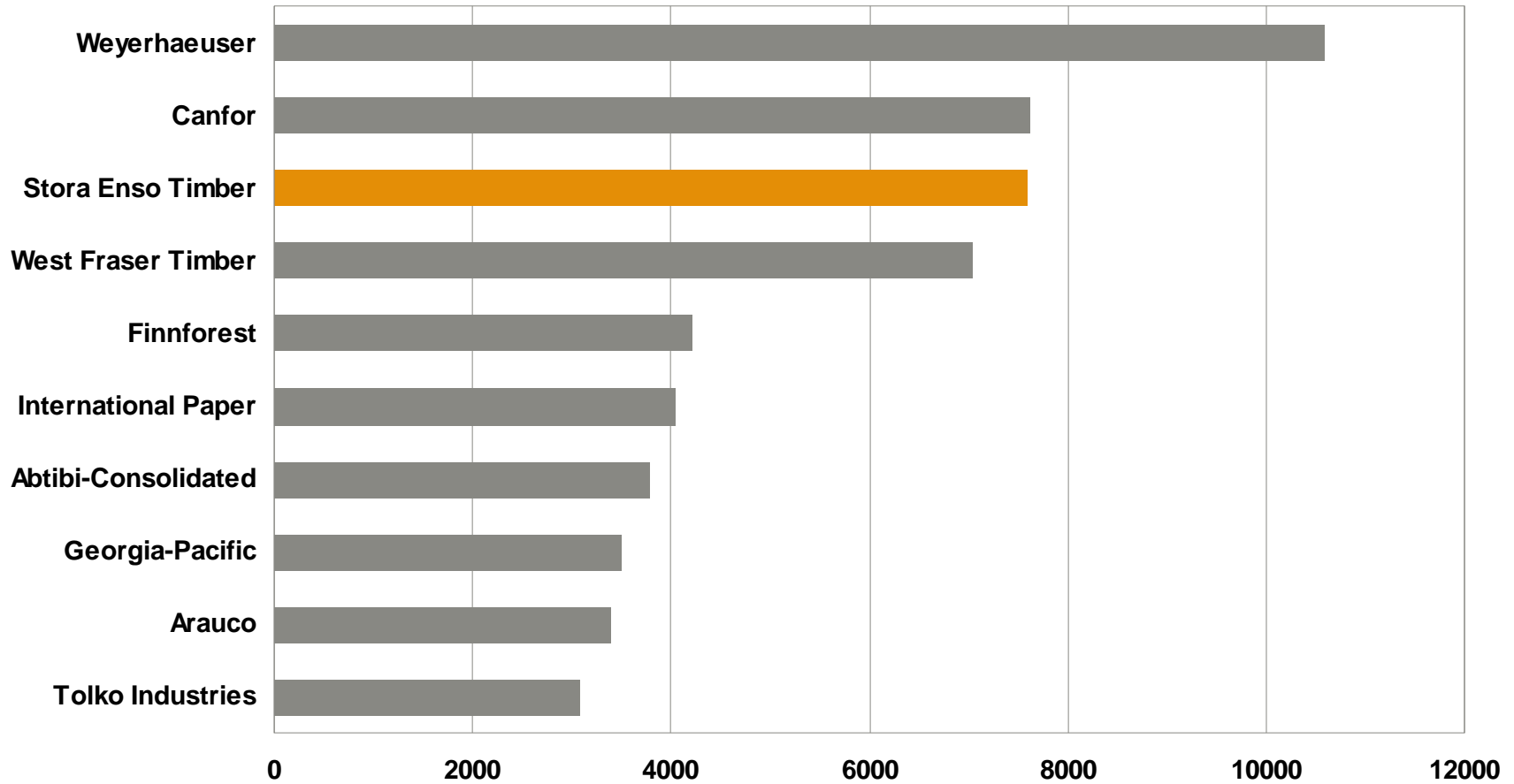


Source: Jaakko Pöyry Consulting

Capacity in 1 000 tonnes

Largest Sawn Timber Producers

April 2006

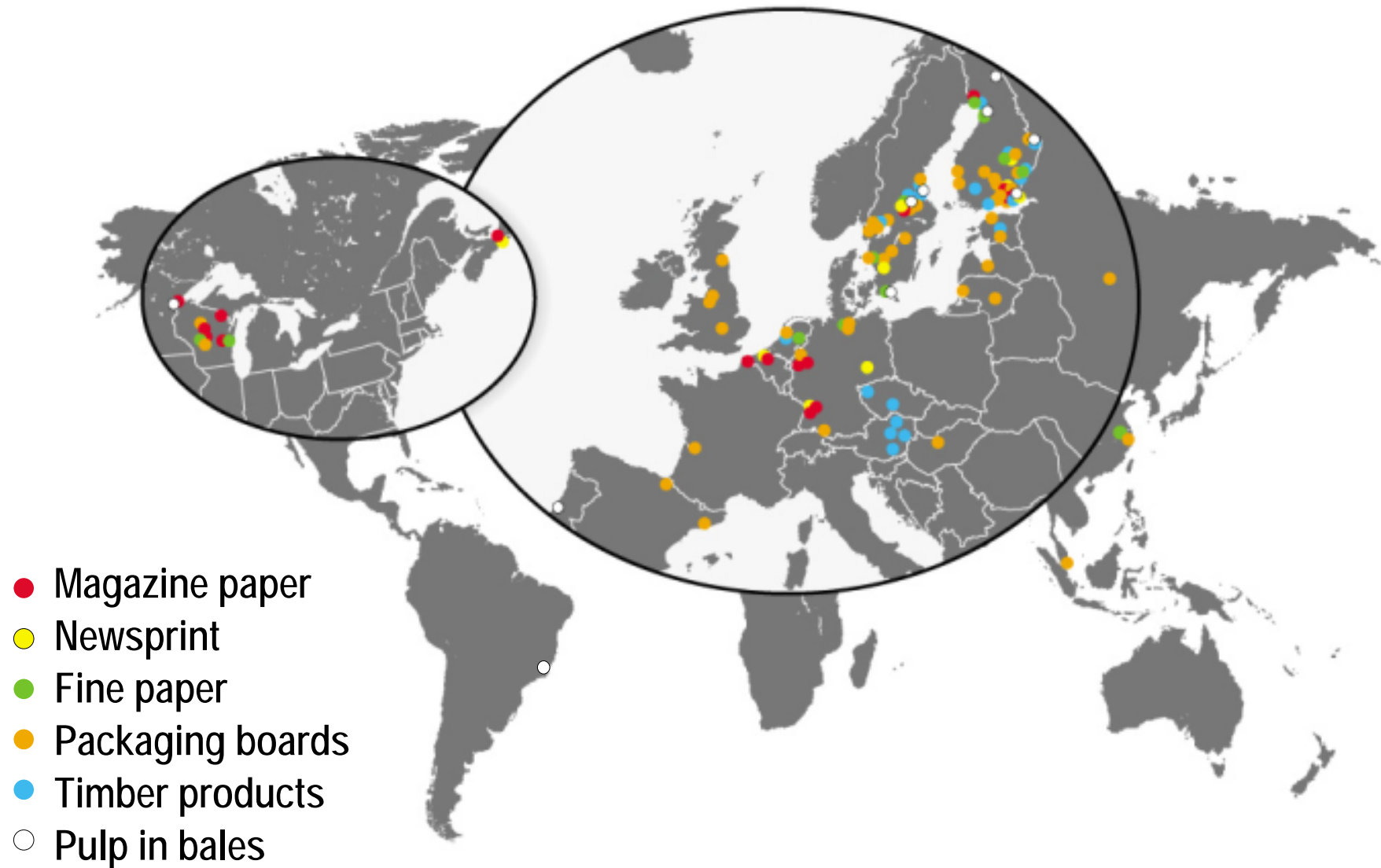


Source: Stora Enso

Note: North American volumes converted from board feet on 2x6 basis
(conversion 1000 mbft = 1.62 m³)

Capacity in 1 000 m³

Stora Enso Operations



Harvesting Eucalyptus at Veracel



Bio Fuel Harvesting



Concerns for Sustainable Development



Sustainability What Does it Mean?

Sustainability means taking a longer perspective approach 'our children shall have the same opportunities as we had'

- Economic: viable business, profit making, investing and renewing
- Natural Resources: avoiding depletion, preserve ecological values, etc.
- People: Corporate Social Responsibility

Sustainability – must balance all three components to survive long term

Elements of Soils Compaction and Productivity Standards

- Environmental Sustainability Criteria
 - Protects resource quality and productivity
 - Identify and minimize key impacts (focus)
 - Easy to understand - Simply measured and monitored



Elements of Soils Compaction and Productivity Standards

- Economic Sustainability Criteria
 - Uses cost effective practices
 - Minimizes disruption to logger productivity and wood flow
 - Compatible with landowners objectives
 - Simple integration with Timber Sale contracts
 - Offers options and flexible solutions
 - Shuts down a job only as a last resort



Elements of Soils Compaction and Productivity Standards

- Social Sustainability Criteria
 - Considers aesthetics and other “soft” issues
 - Involves all parties in the process, landowner, logger, trucker, and forester
 - Complies with all legal requirements
 - Maintains and strengthens the social acceptance to harvest forest fiber



Challenge - Mixed Hardwood Operability Issues

- Stora Enso consumes 900,000 cords of Hardwood a year
- Cutting/Skidding aspects have potential to cause significant impacts
- Generally managed and regenerated through thinnings.
 - Higher production costs
 - Residual stand sensitive to damage
- Grows primarily on mesic and wet-mesic soils
 - Operations limited to winter or dry summer conditions



Development of SE Rutting Policy

- As a result of EMS monitoring in 2002 – needed a definition of “excessive rutting”
- Wanted to use a simple approach
- Examined literature, talked with experts, and SE personnel in Nova Scotia and Sweden.
- Looked at past occurrences
- Used a model of continual improvement



Development of SE Rutting Policy Avoidance Techniques

- Avoid sharp turns
- Avoid trafficking through depressions
- Operate on slash mats
- Work on firm or frozen ground
- Monitor temperature and time your operations accordingly.
- Reduce load size
- Delay forwarding until conditions improve, switch functions on dual machines
- Shift to better ground if possible.
- Cease operations only if nothing else can be done



Rutting Limitations for Skid Trails

Our three types of rutting limitations associated with use and conditions are:

- Primary high volume trails
 - Located on high ground
 - Rut depth cannot exceed 10 inches for more than 66 feet in length
- Secondary one to two pass trails
 - Located on high ground
 - Depth cannot exceed 6 inches for more than 99 feet in length
- Lowland trails
 - Located on any lowland site
 - Depth can be no greater than 6 inches for more than 300 feet in length



Any rut causing siltation to a water body fails

Roads and Landings

- There are no rutting limitations as long as all BMPs for water quality are followed and roads and landings are returned to original condition or better.



Wheel Rutting Standard Exceptions

- We may authorize contractors to exceed the rutting limitations provided the contractor has taken all reasonable action to minimize rutting.
- Landowners can determine more stringent rut limitations which we will follow.
- All ruts exceeding the standards are restored unless it will cause more problems
- We report and document all occurrences and exceptions

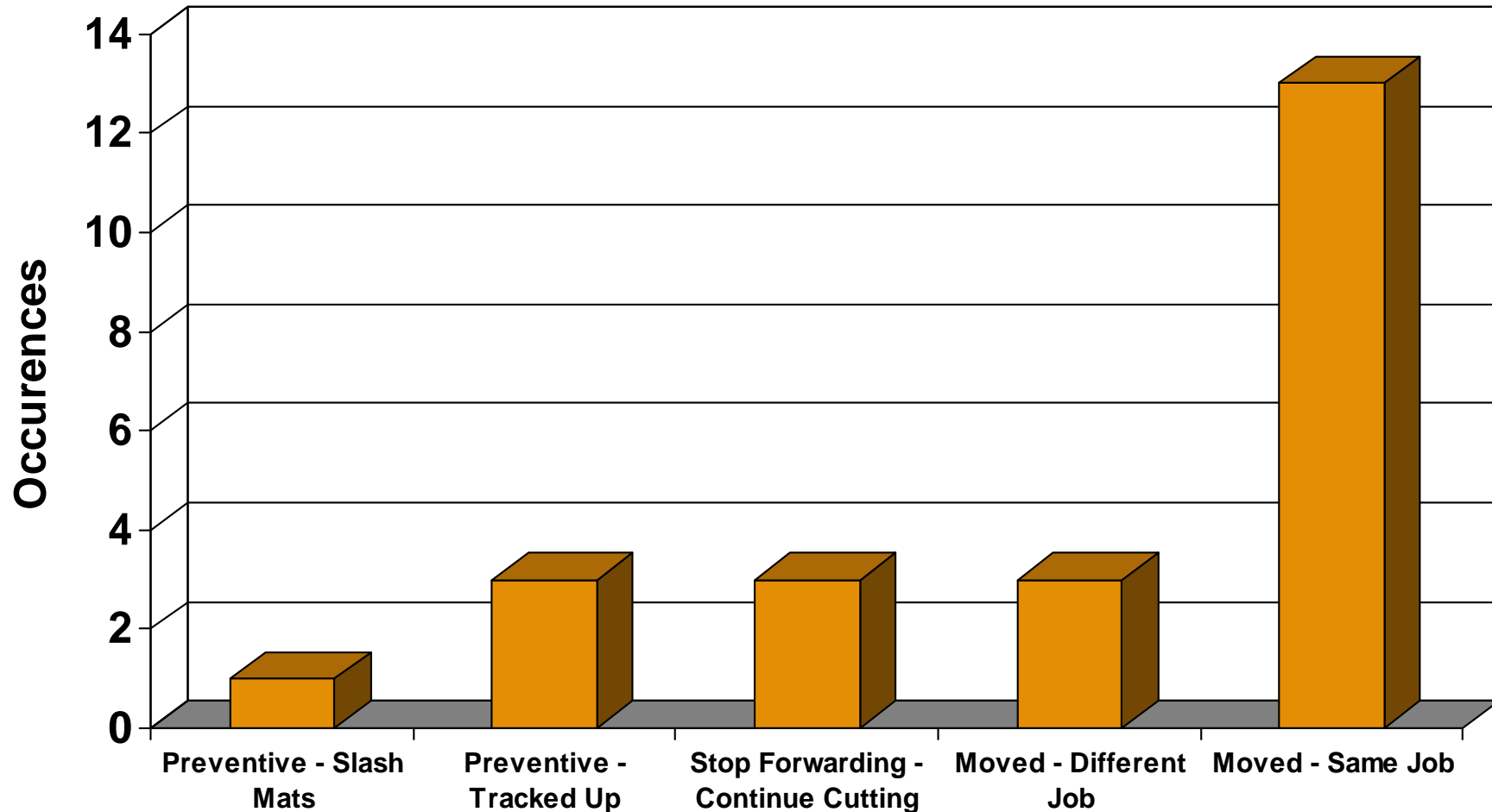


Monitoring Results

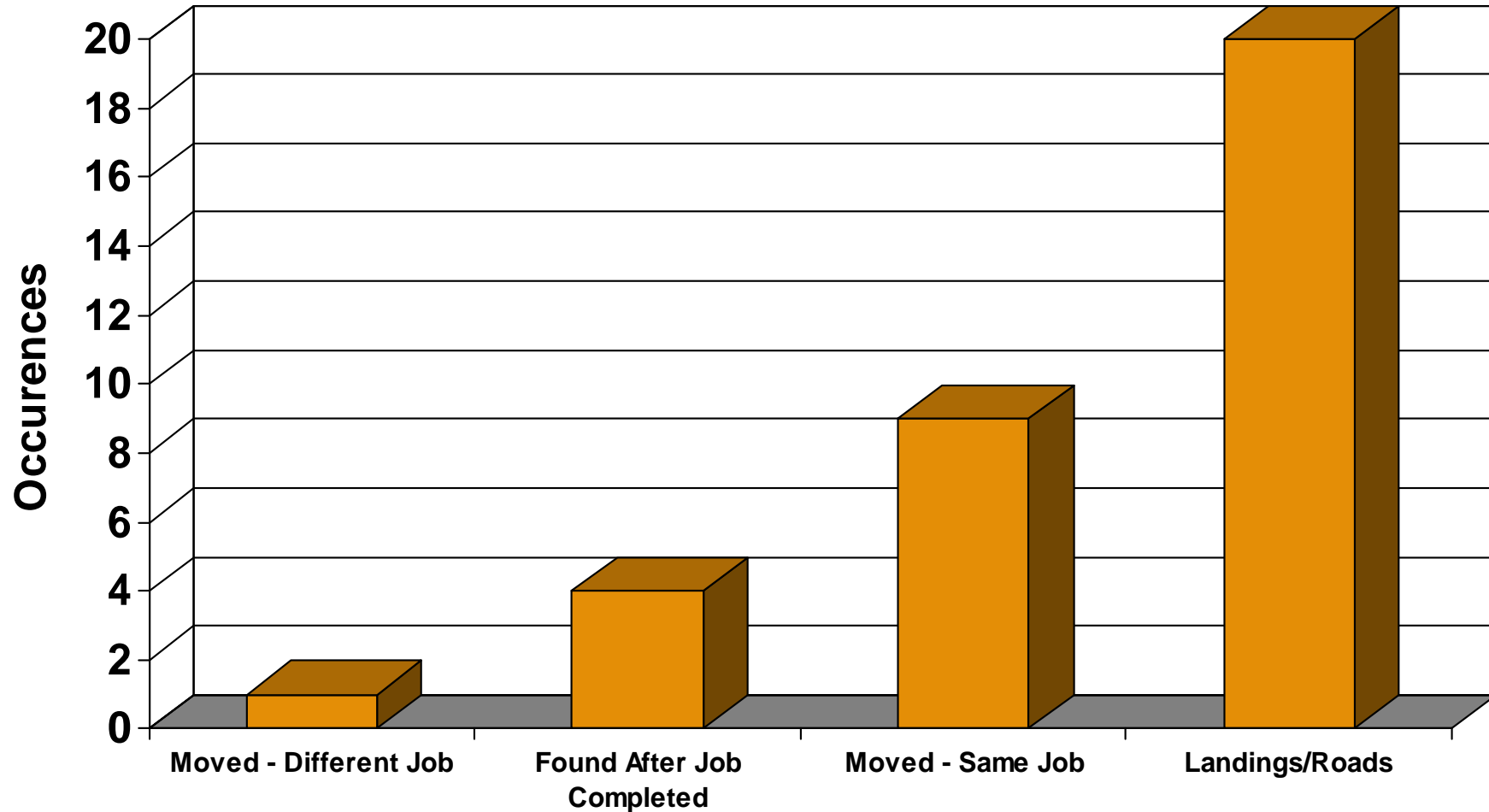
- Since January 2003:
 - 1.1 million cords produced under the standard from company controlled stumpage
 - 1,600 different landowners
 - 80 different contractors
 - 23 Environmental Incidence Reports
 - 34 Corrective Action Requests



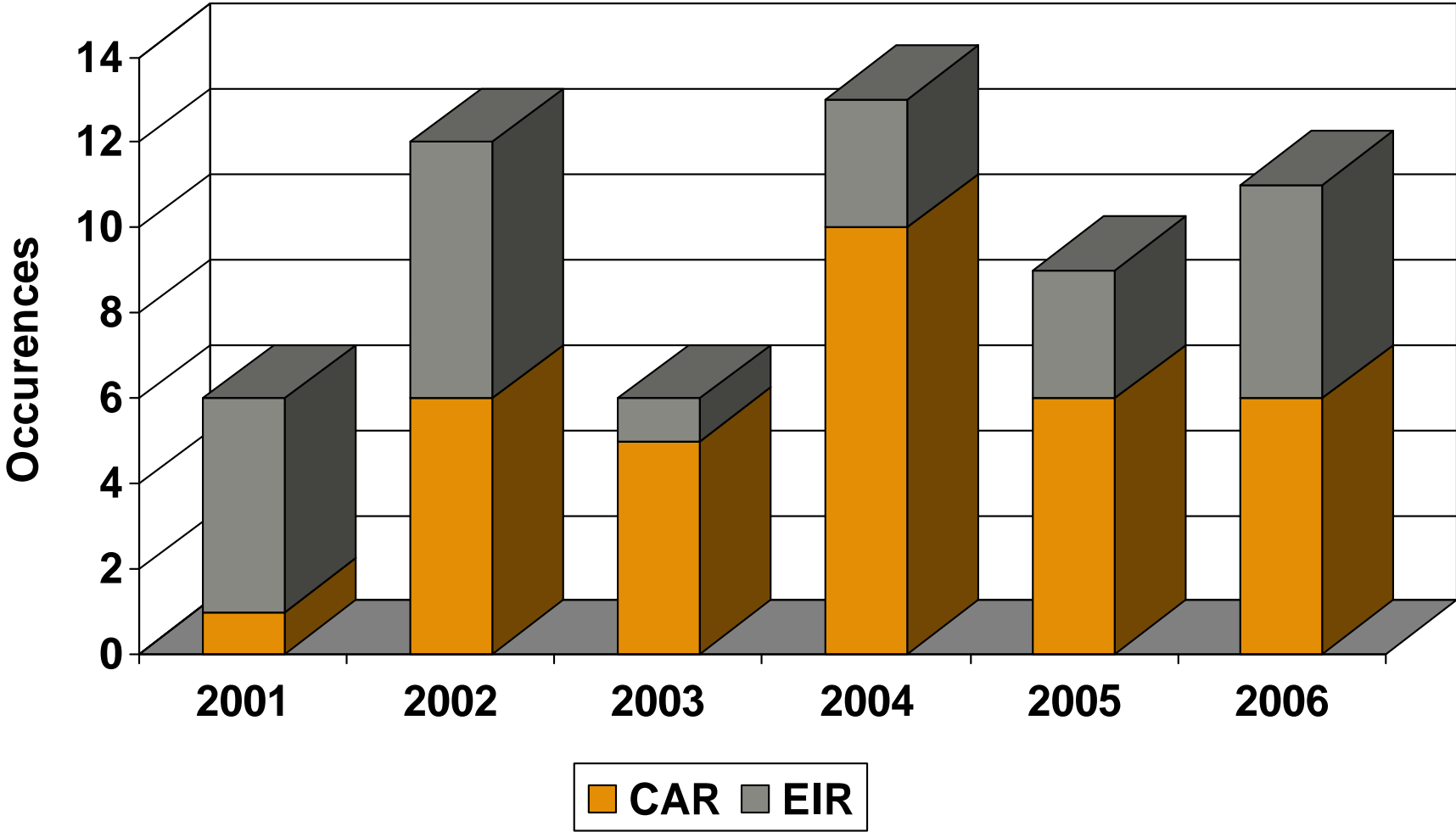
Environmental Incidence Report Related to Soil Disturbance. 2003 – 2006 (23)



Corrective Action Requests Related to Soil Disturbance. 2003 – 2006 (34)



EIR/CAR Reports Related to Soil Disturbance



Summary Perspective: Balancing Sustainability Components for Soil Disturbance

- Use simple procedures to minimize adverse environmental impacts
- Employ cost effective practices
- Maintain and strengthen the social acceptance to harvest forest fiber.

