



Bark beetles and storm fellings in central Europe. Effects on the market today and tomorrow

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Photo: Julian Stratenschulte



Germany

- in the center of Europe
- in the center of the forest crisis



Forestry Statistics Overview



Sweden - Germany

| | | | |
|---|------|--|--|
| Inhabitants | | | |
| Area, km² | | | |
| Area, 1000 ha | | | |
| Forest Area, 1000 ha | 2015 | | |
| Forest Area, % | | | |
| Growing Stock on Forest, million m3 over bark | 2015 | | |
| Removals, 1000 m3 under bark | 2012 | | |
| Gross Value Added in Forestry, million Euro/ECU | 2010 | | |
| Employment in Forestry, 1000 persons | 2010 | | |
| Wood consumption, m3 round wood equivalent per 1000 population | 2012 | | |
| Exports of forest products, million Euro/ECU | 2012 | | |
| Imports of forest products, million Euro/ECU | 2012 | | |

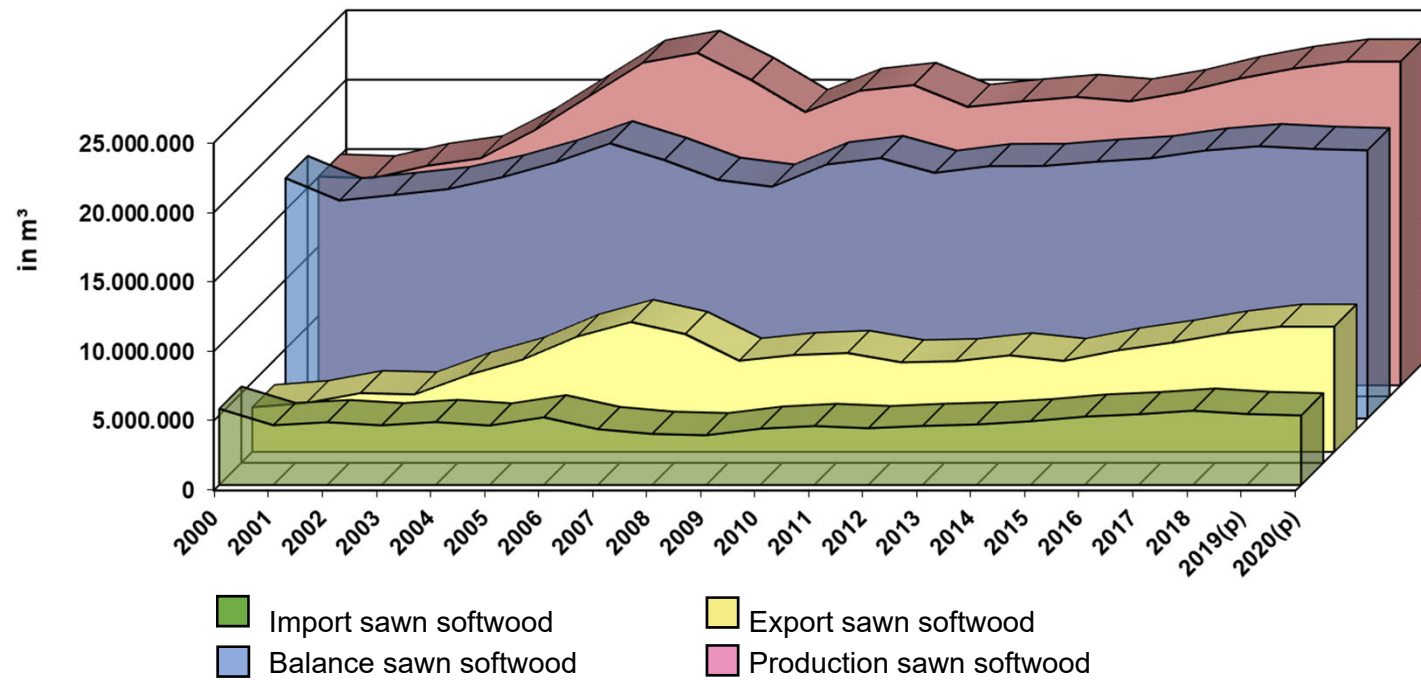
Source: FAO Country report

| | | | |
|---|------|--|--|
| Removals of industrial roundwood(1,000 m3) | 2017 | | |
| Industrial Roundwood export (1,000 m3) | 2017 | | |
| Industrial Roundwood import (1,000 m3) | 2017 | | |
| Industrial roundwood apparent consumption (1,000 m3) | 2017 | | |
| Production of sawn softwood (1,000 m3) | 2017 | | |
| Exports sawn softwood (1,000 m3) | 2017 | | |
| Imports of sawn softwood (1,000 m3) | 2017 | | |
| Sawn softwood apparent consumption (1,000 m3) | 2017 | | |
| m3 per 1000 inhabitants 2017 | 2017 | | |

Source: UNECE/FAO TIMBER database, 2018

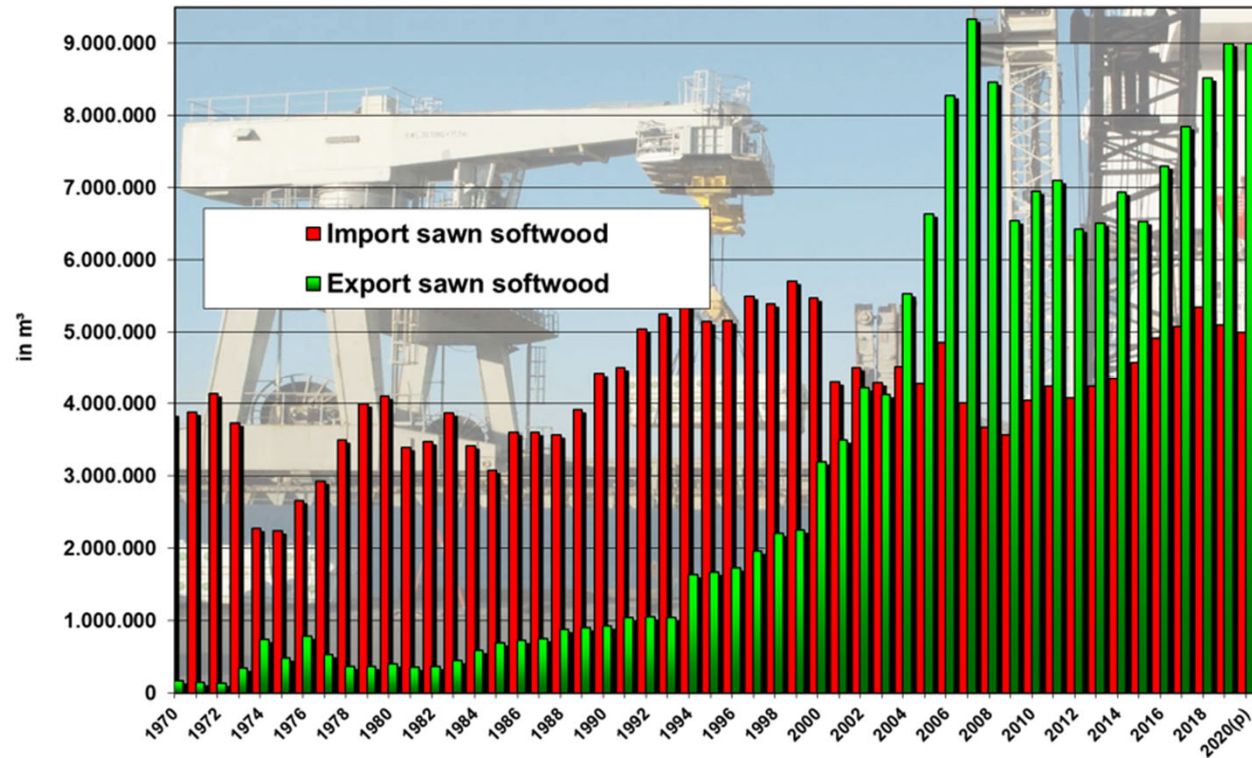
| |  |  |
|--|---|---|
| | Sweden | Germany |
| | 10.183.000 | 82.928.000 |
| | 447.430 km ² | 357.580 km ² |
| | 44.743,0 | 35.758,0 |
| | 28.073,0 | 11.419,0 |
| | 62,7 | 31,9 |
| | 2.988,5 | 3.663,0 |
| | 69.500,0 | 52.338,1 |
| | 3.719,4 | 2.400,0 |
| | 28,1 | 41,8 |
| | | |
| | 2.796,4 | 1.727,4 |
| | 11.775,4 | 15.039,7 |
| | 1.811,5 | 13.882,2 |
| | | |
| | 68.469,6 | 43.561,6 |
| | | 3.963,3 |
| | 7.695,3 | 8.680,6 |
| | 75.387,0 | 48.278,9 |
| | 18.310,0 | 22.050,3 |
| | 13.110,7 | 7.519,1 |
| | | 4.738,0 |
| | 5.684,8 | 19.269,2 |
| | 597,2 | 235,2 |

Balance of sawn softwood



Source: DeStatis.
Production and
Foreign Trade.
Summary DeSH

Import and Export of sawn softwood



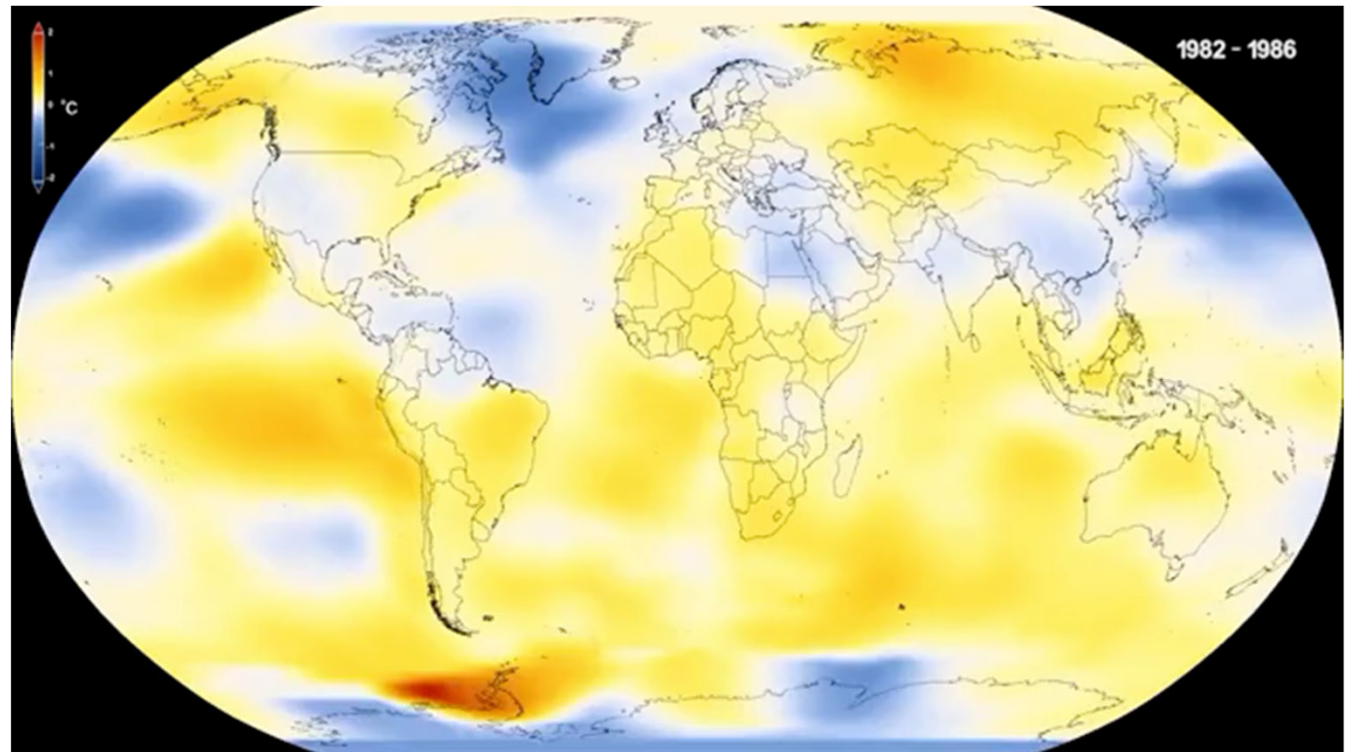
Source: DeStatis,
Foreign Trade.

The DeSH ...



- Members: **370 companies** with **13.500 employees**, representing **80%** of the German total sawmill production
- **85%** of the members produce **softwood**.
- **Further processing** (share of DeSH members of total German production):
 - **Pellets 33%**
 - **KVH 57%**
 - **BSH (glulam) 21%**
 - **Electricity 84%** (solid biomass)

Climate
change is
happening



Temperature change 1980 - 2017

Source: Wikimedia.org

Challenges for the sector

Source: Wald und Holz NRW



Overview of storms & bark beetle in Europe



Storms from autumn 2017 / bark beetle from 2018.

Estimates: 60-70 million m³ / 40-50 million m³

Bark beetle disturbances are projected to increase all across temperate Europe in the future.

The strongest relative short-term increase is expected in the Sub-Atlantic region of Europe, i.e. Germany, France, Denmark, the Netherlands, Belgium and Luxembourg.

**Germany:**

- The Ministry of the Environment now estimates that 180.000 hectares of forest are affected, 70.000 hectares more than in April. The last two years have generated 105 million m³ of damaged wood.

Switzerland:

- The bark beetle calamity in 2019 is at least as high as in 2018.

Czech Republic:

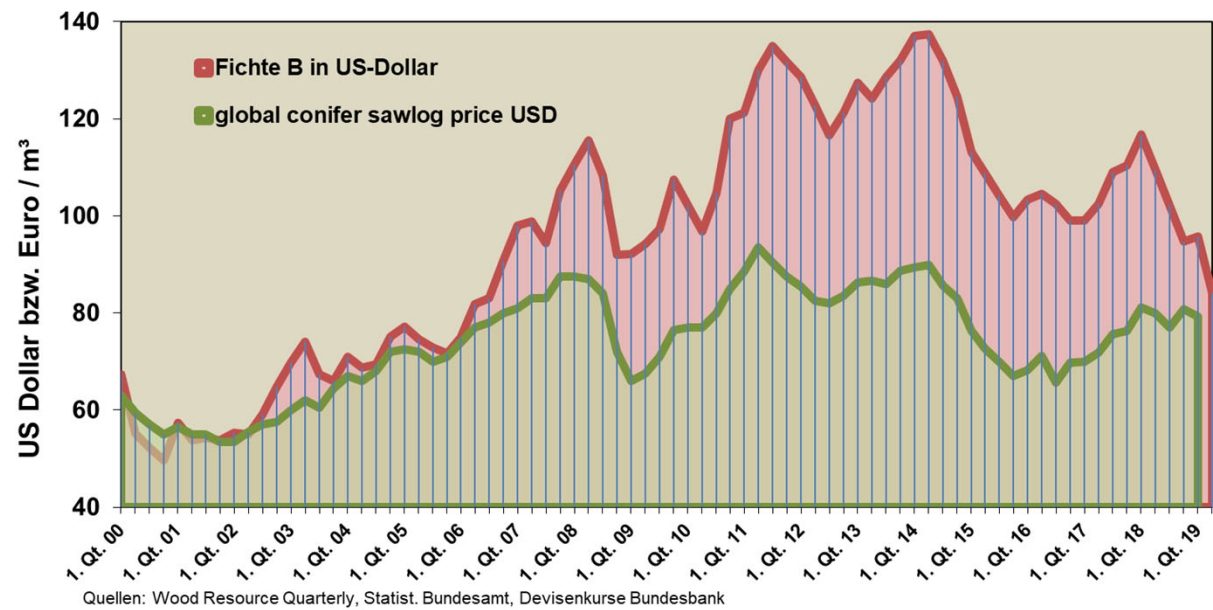
- Approximately 500.000 hectares of forest in the Czech Republic are potentially threatened by bark beetle infestation, according to the Ministry of Agriculture.
- The Czech State Forests estimate that the storm Mortimer caused 300.000 m³ of storm wood in the state forest.

France:

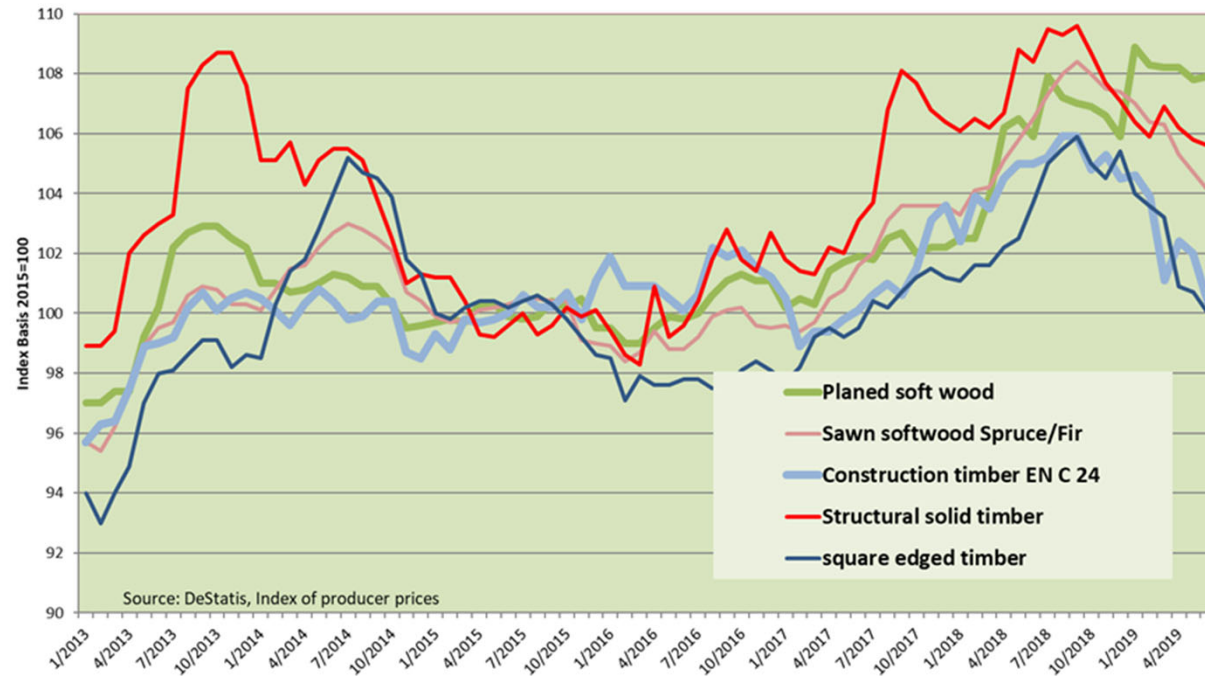
- French National Forests Office has announced that in the year 2018 - 2019, two million m³ of spruce were harvested in public forests, twice as much as a normal harvest, of which 60% of the trees are estimated to be infected with bark beetles.

Forest calamities – impact on wood market

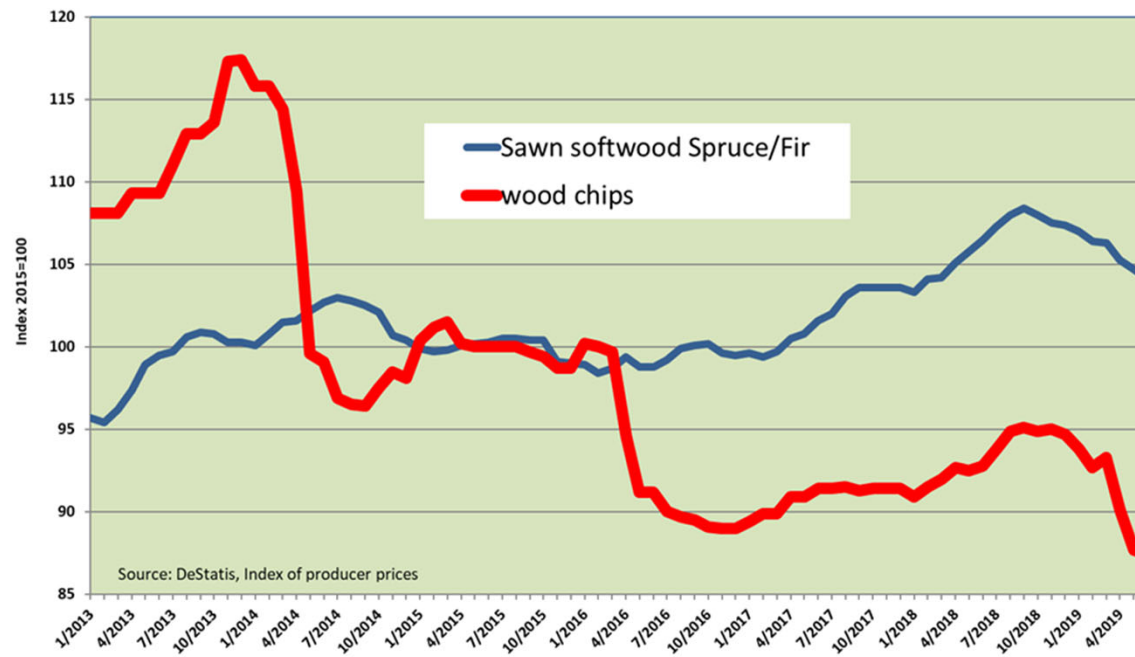
Conifer sawlog price



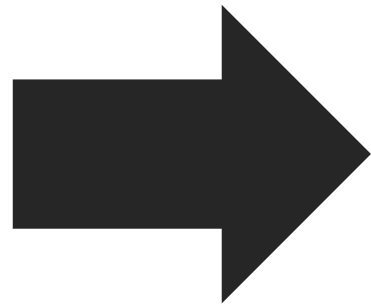
Priceindex softwood construction assortments



Priceindex wood chips



Situation in
South Sweden



Lessons Learned

1. Don't Wait to Take Action

- Early intervention could have significantly reduced the spread of the infestation.
- Climate change was one of the major contributing factors to the infestation.
- Pine beetle wood had an economic sawlog shelf-life of about 15 years.



Tunnels in a tree from Pine Beetle Infestation

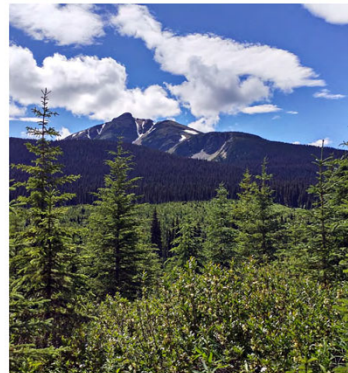


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Lessons Learned

3. Coordination & Communication Between Government & Industry is Critical

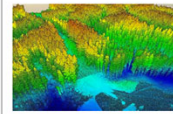
- 95% of the forests in British Columbia are publicly owned.
- Government initially resisted taking any measures to prevent the spread of the infestation.
- Government started to increase the annual allowable cut in 2001, but it wasn't until 2003 when it increased significantly.



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Lessons Learned

2. Invest in Detection and Monitoring



Using technology such as **LIDAR and satellite imagery** was useful in detection.



Partnership with industry to conduct a risk rating to identify pine stands that were the most susceptible and/or would incur the most damage if infested.



Walk the forest and conduct aerial surveys, which was one of the most effective monitoring tools.

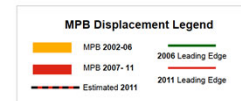


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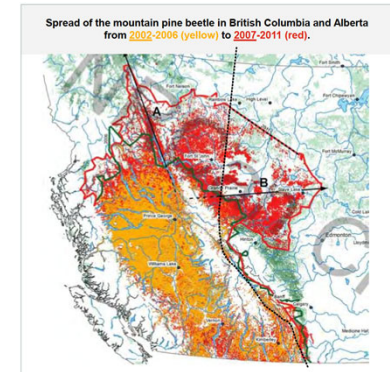
Lessons Learned

4. Beetles Don't Respect Borders

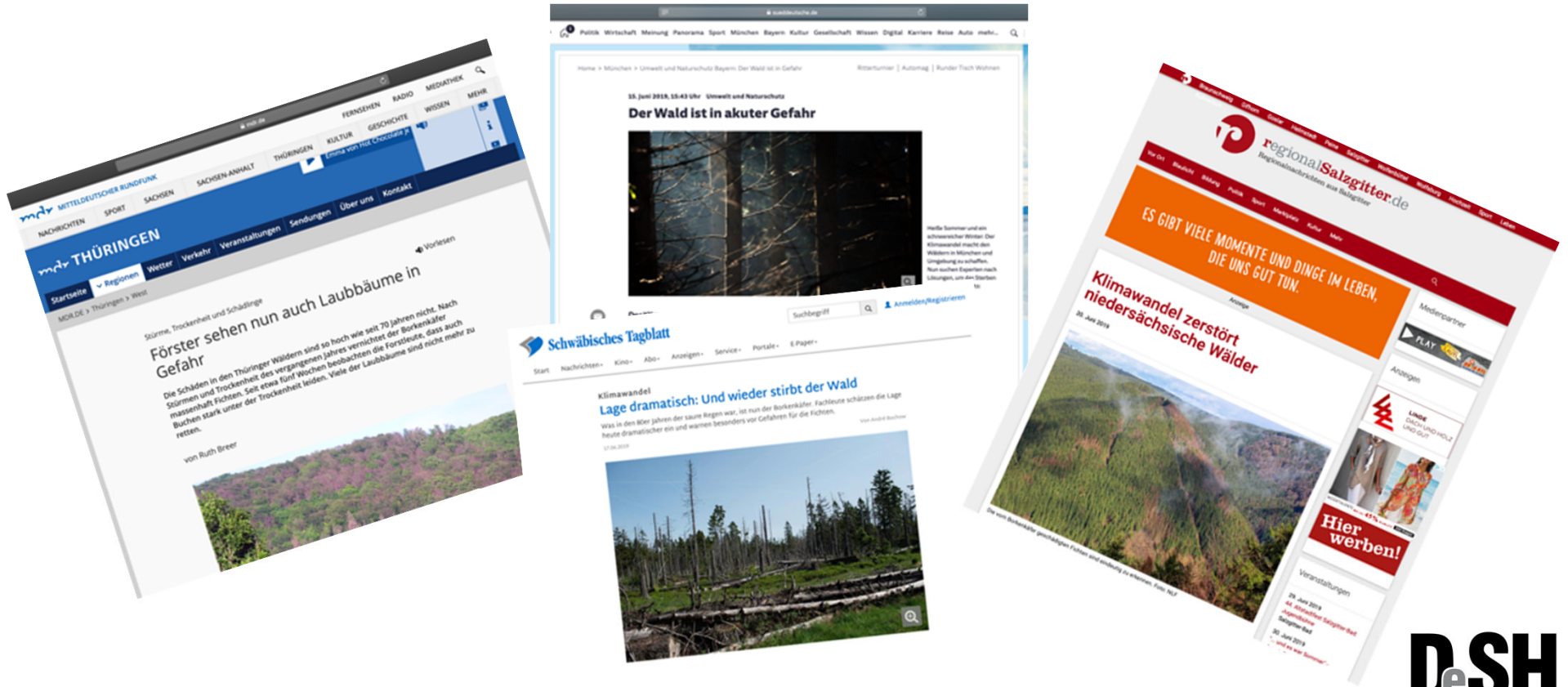
In 2006 the Mountain Pine Beetle infestation started to **spread into Alberta**, the province to the east of British Columbia.



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Forests at the center of attention





Sector as victim of climate change

Draught vs. extreme rain

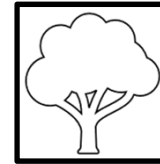
Storms

Increasing temperature drives reproduction of bark beetles

New pests as a danger

Replanting urgently needed!

Selection of climate proof species?



Sector as chance against climate change

Use more wood to store more CO₂ in building, packaging, energy generation, bioeconomy.

Plant more forests to improve the hydrological balance.

Forests can reduce wind forces.

LULUCF

Thank you



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