



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

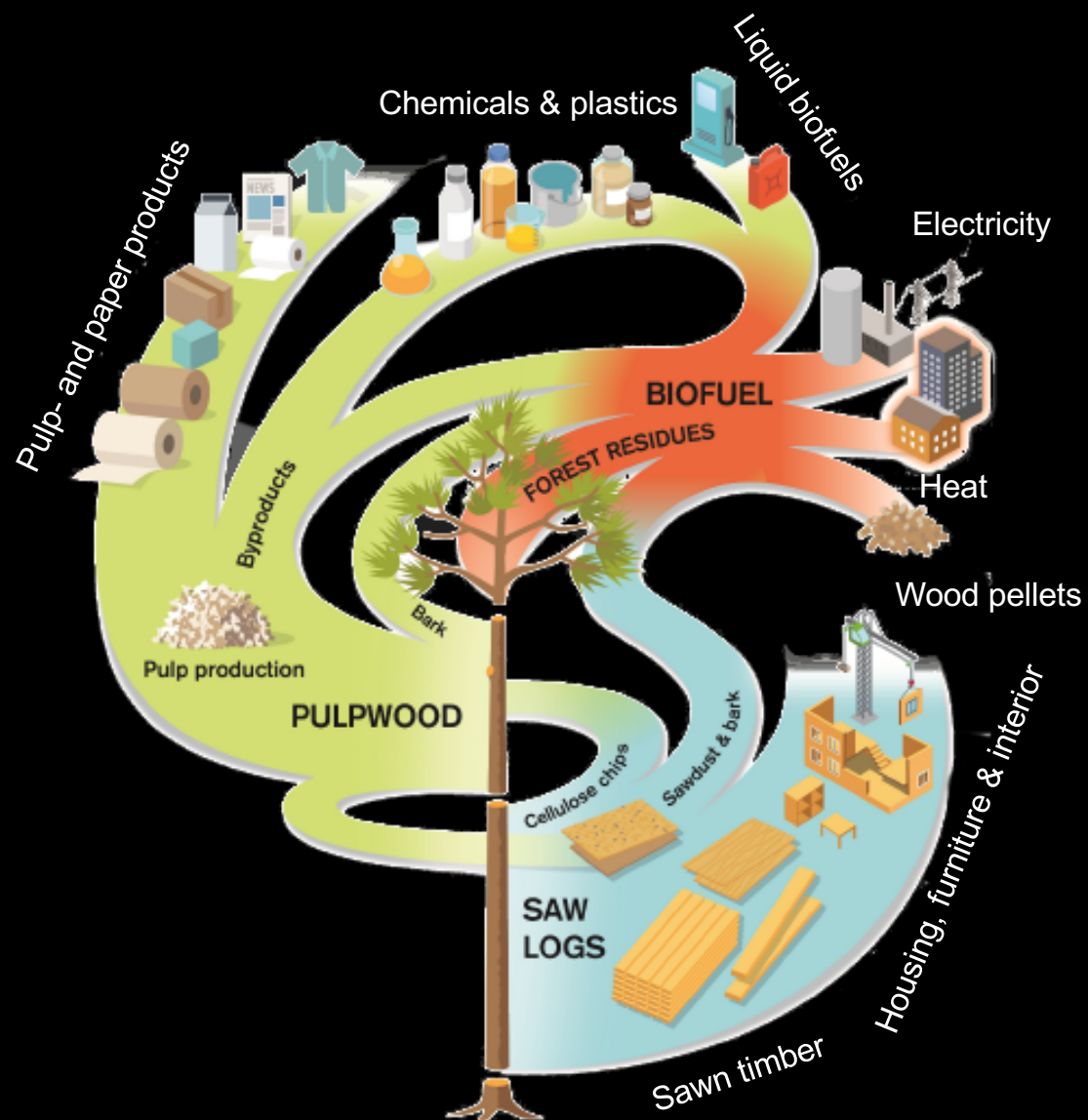
**Advanced Biofuels Conference 17-19 May, Conference
Centre Wallenberg, Gothenburg, Sweden**

Myth-busters on renewable fuels!

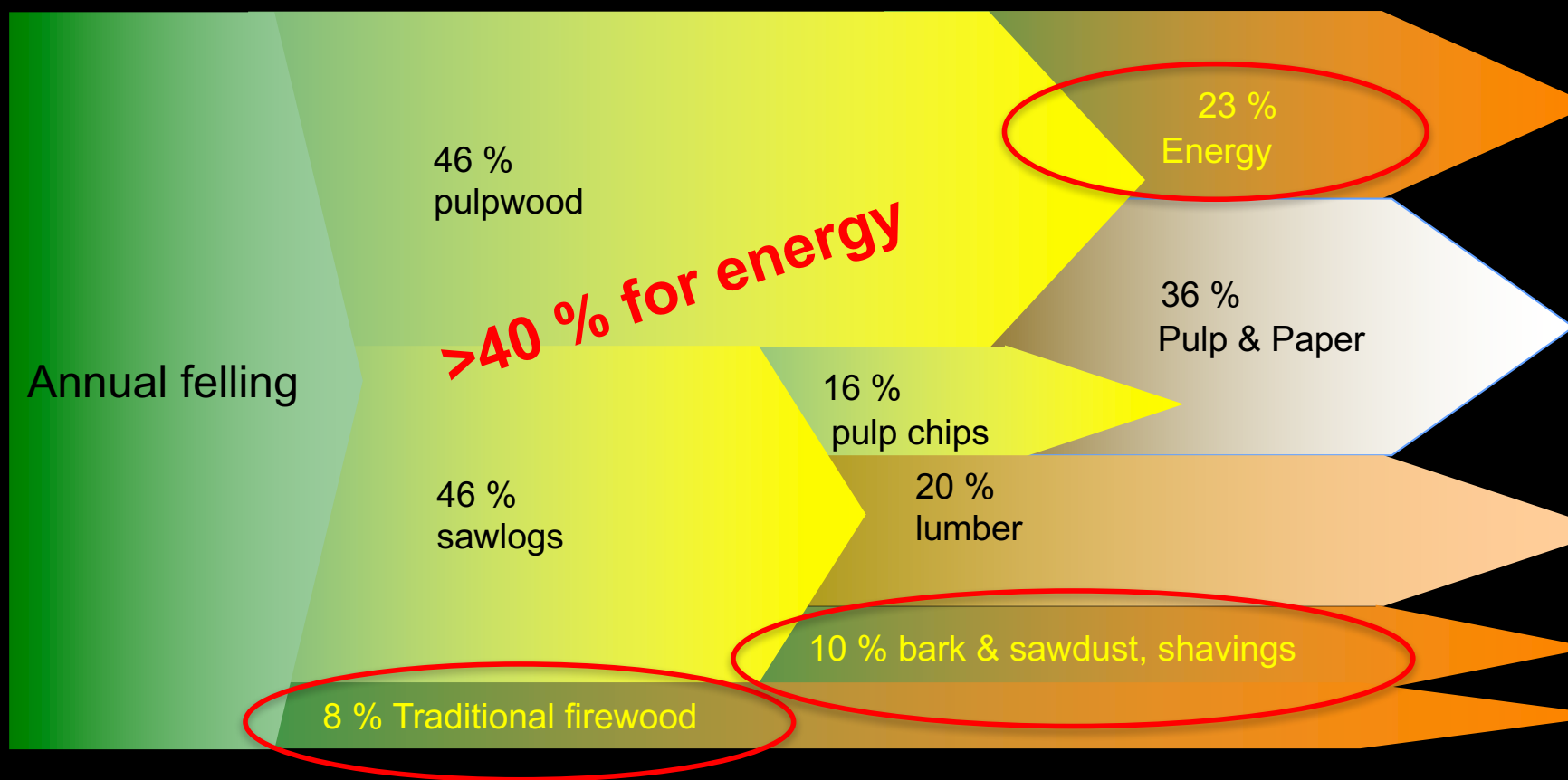
Myth: We do not have enough biomass!

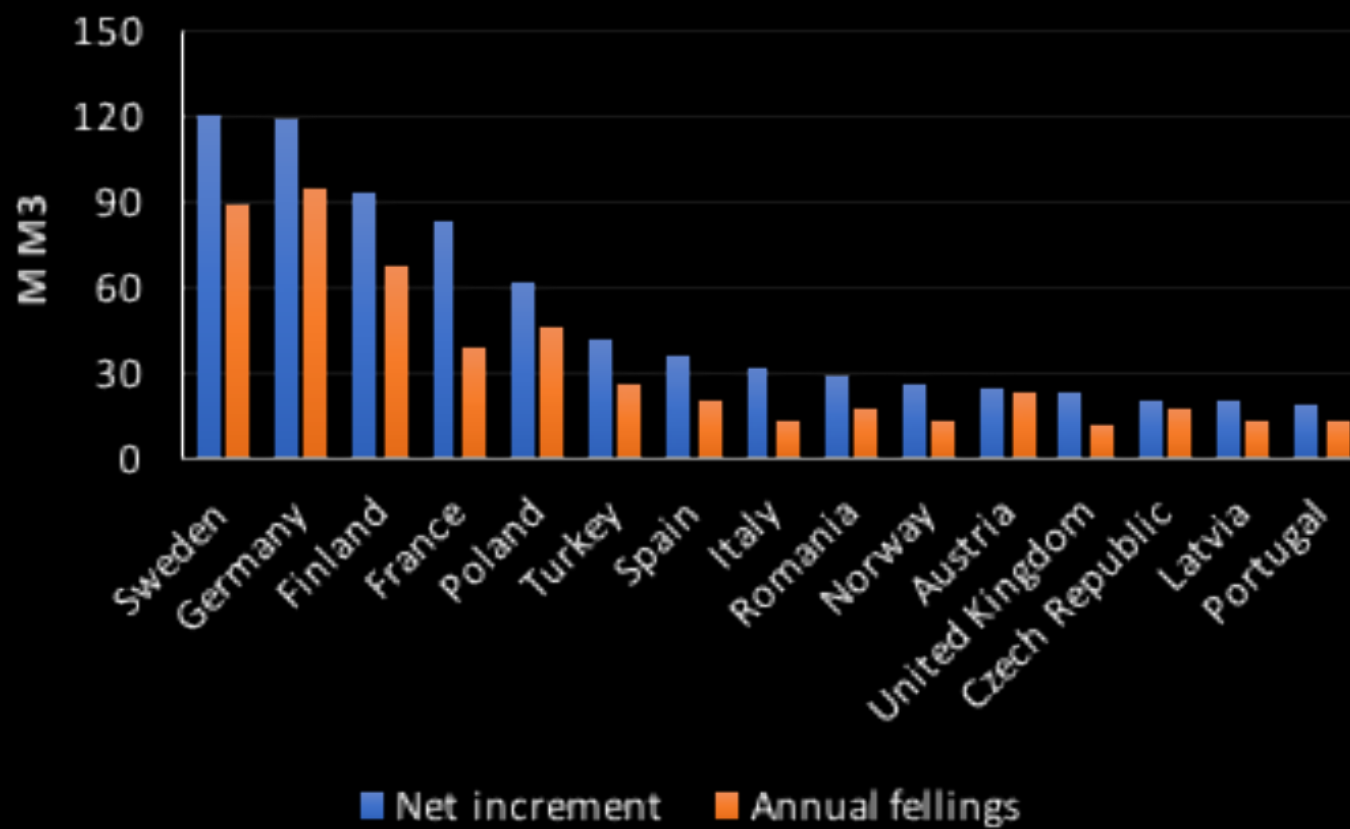
Gustaf Egnell, Dept. of Forest Ecology and Management

Forest biomass



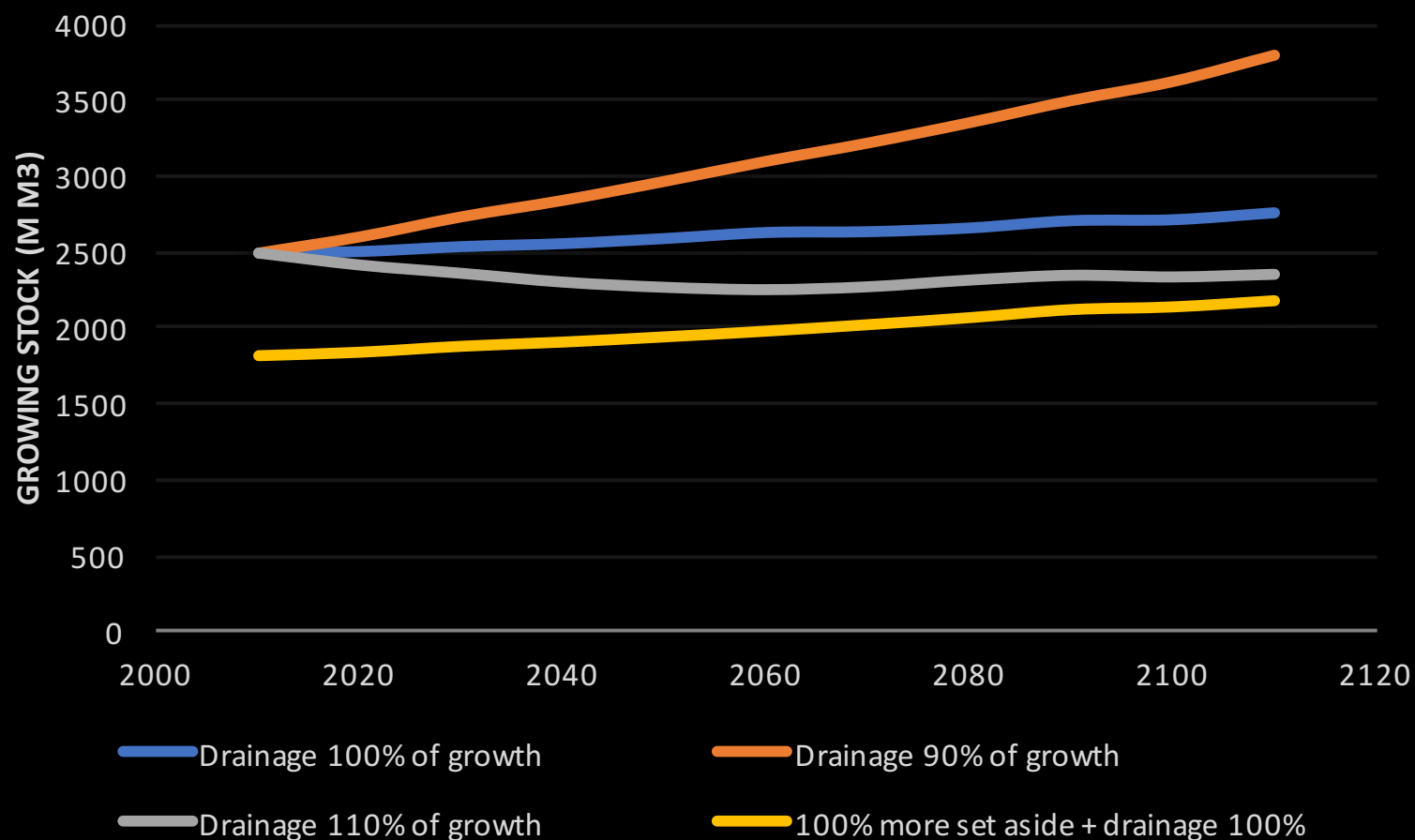
Swedish wood use ...



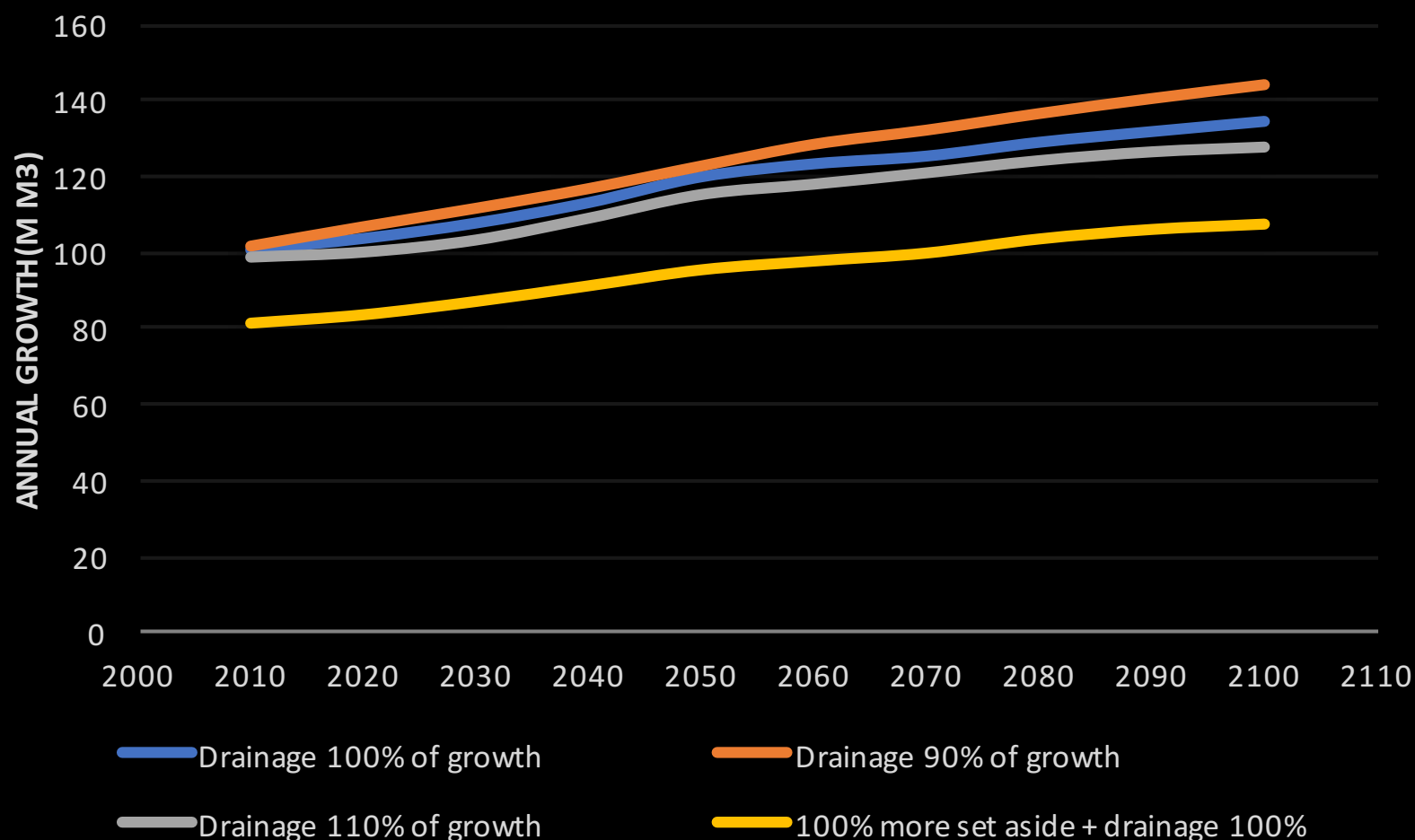


Source: Eurostat (Ministerial conference on the protection of forests in Europe (MCPFE) and the Swedish National Forest Inventory (Swedish figures)

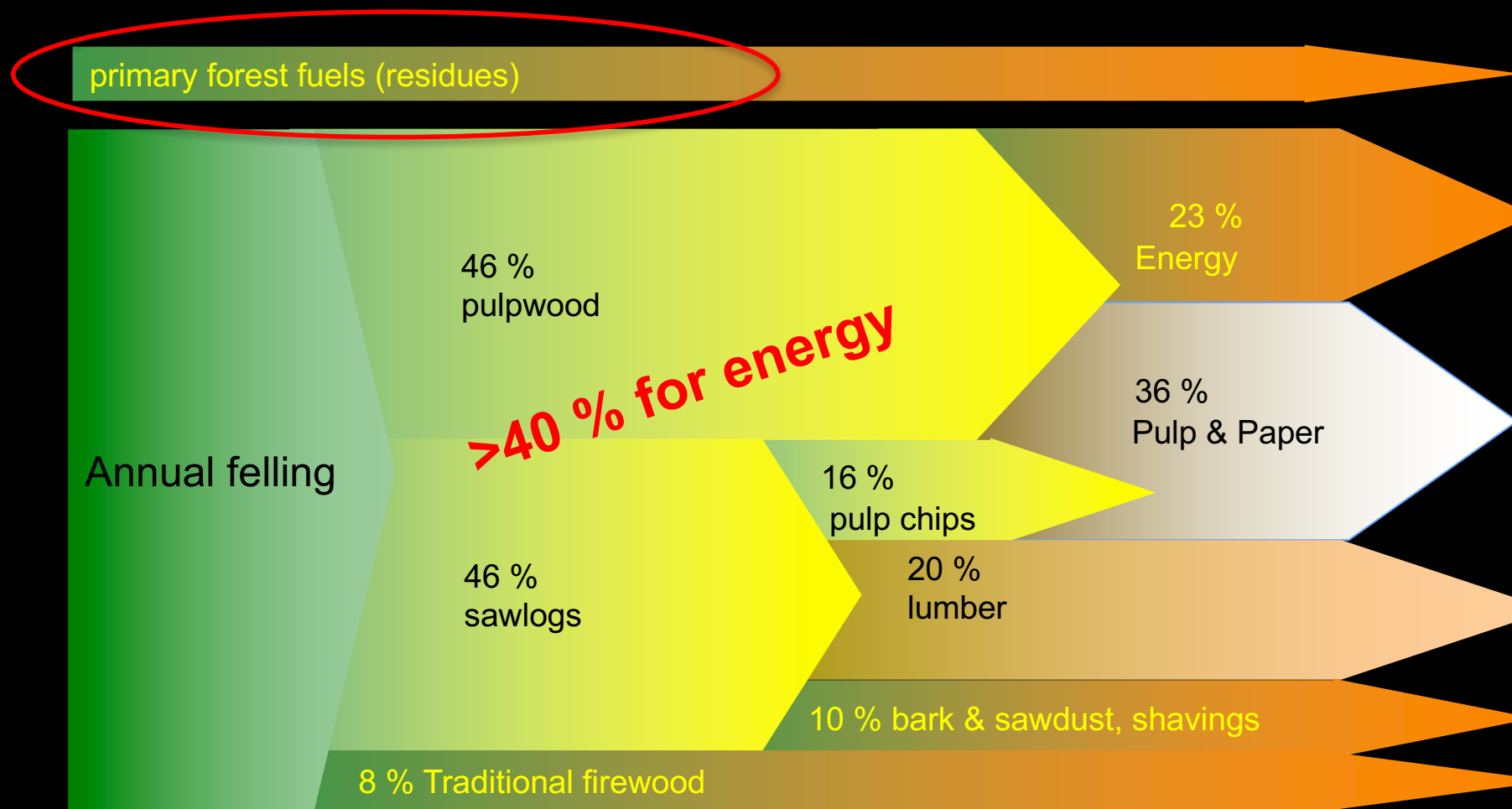
Forecast – Growing stock on production forest land in Sweden (SKA15, SLU, Swedish Forest Agency)

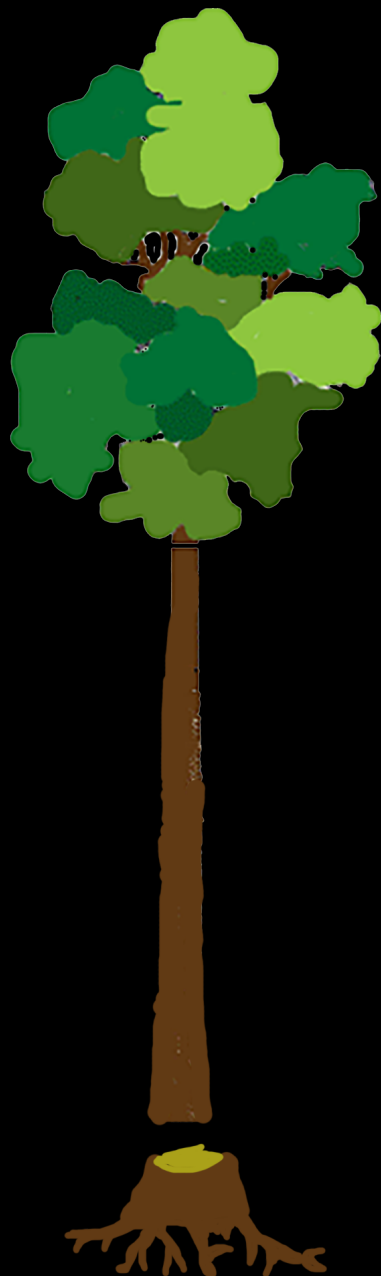


Forecast – Annual growth on production forest land in Sweden (SKA15, SLU, Swedish Forest Agency)



Swedish wood use ...



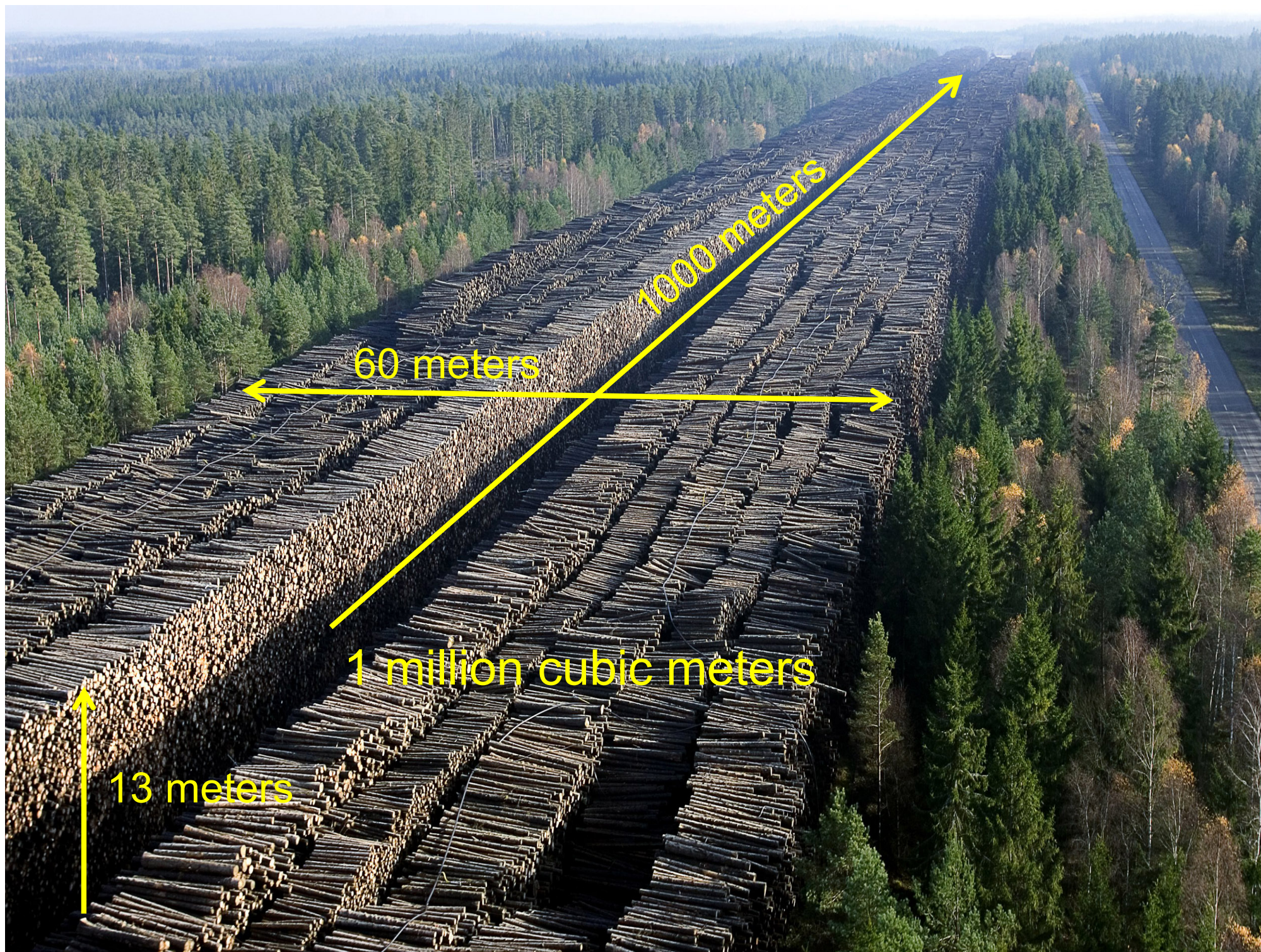


Branches & top 20%

Stemwood 60%

Stump & coarse roots 20%



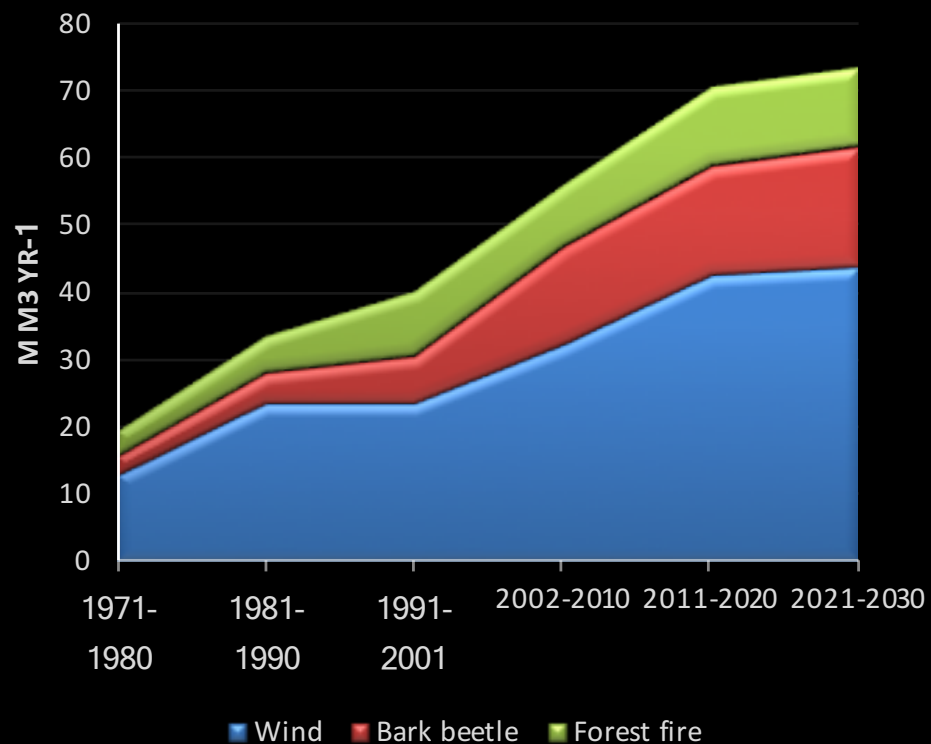


60 meters

1000 meters

1 million cubic meters

13 meters



Here we show that forest disturbance damage in Europe has continued to increase in the first decade of the twenty-first century. On the basis of an ensemble of climate change scenarios we find that damage from wind, bark beetles and forest fires is likely to increase further in coming decades, and estimate the rate of increase to be $+0.91 \times 10^6 \text{ m}^3$ of timber per year until 2030.

American Companies Are Shipping Millions Of Trees To Europe, And It's A Renewable Energy Nightmare



CREDIT: AP/WINFRIED ROTHERMEL

I don't think policymakers were able to see in advance that this would drive the entire destruction of Southeastern forests for wood pellets.

Source: <https://thinkprogress.org/american-companies-are-shipping-millions-of-trees-to-europe-and-its-a-renewable-energy-nightmare-ef1fdcca1cb4>

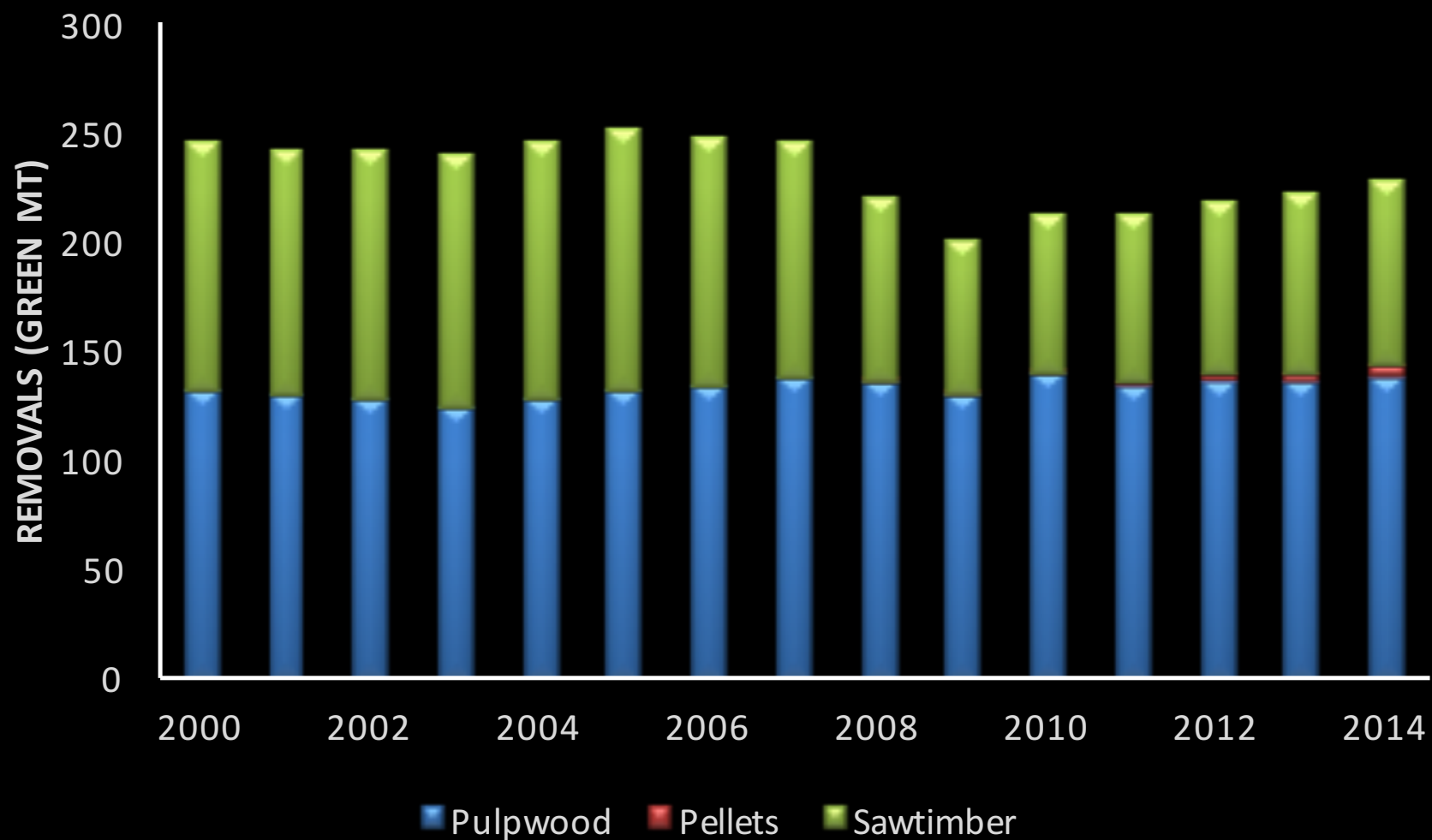


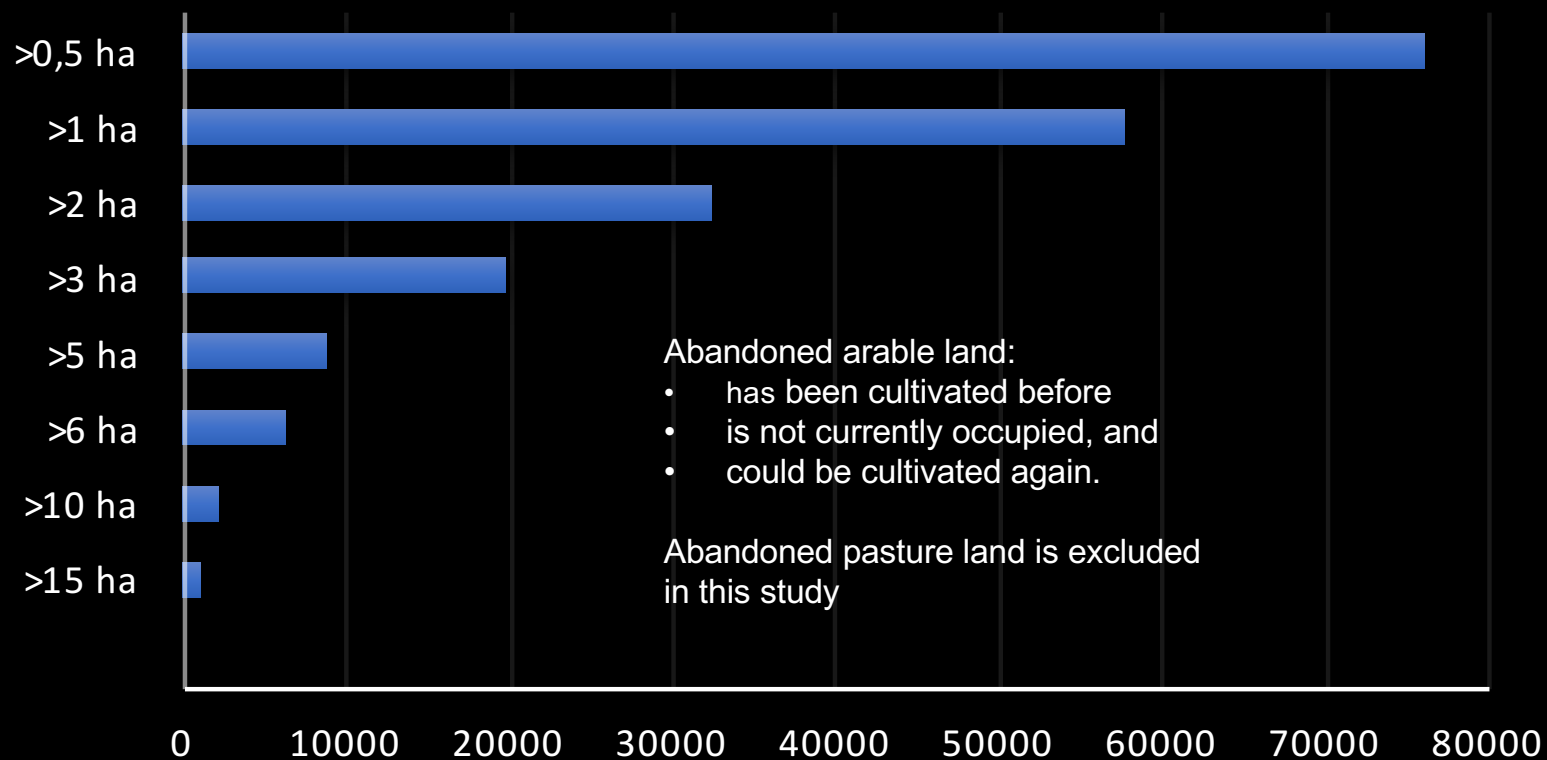
Fig. 1 Annual forest harvest removals in the SE USA shown in green million metric tonnes (MT) based on Forest2Market data reported for the Atlantic and Gulf regions (Stewart, 2015). In this figure, 2 tonnes of green wood are assumed to produce 1 tonne of dry pellets. Source: Dale et al. 2017.

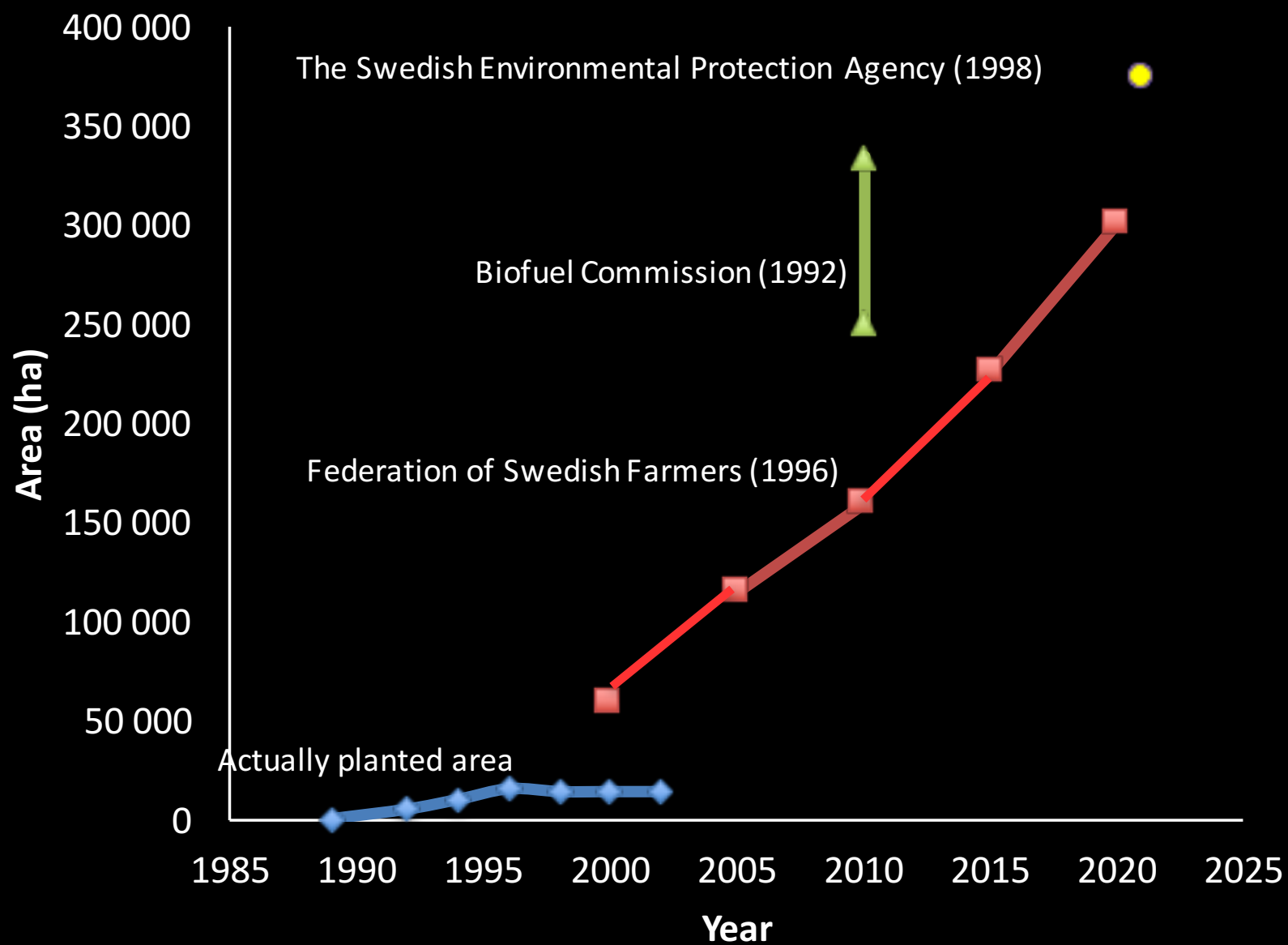


Slash burning is still a common practice in parts of the world

Source: CBS
News

Abandoned arable land in Sweden (ha)





A biomass potential will not become a resource until it is valued

The higher the price the more biomass on the market through:

- Energy efficiency investments in the forest industry
- More primary forest biomass (logging residues) recovered
- More ag biomass recovered
- More dedicated energy crops planted on abandoned/degenerated land