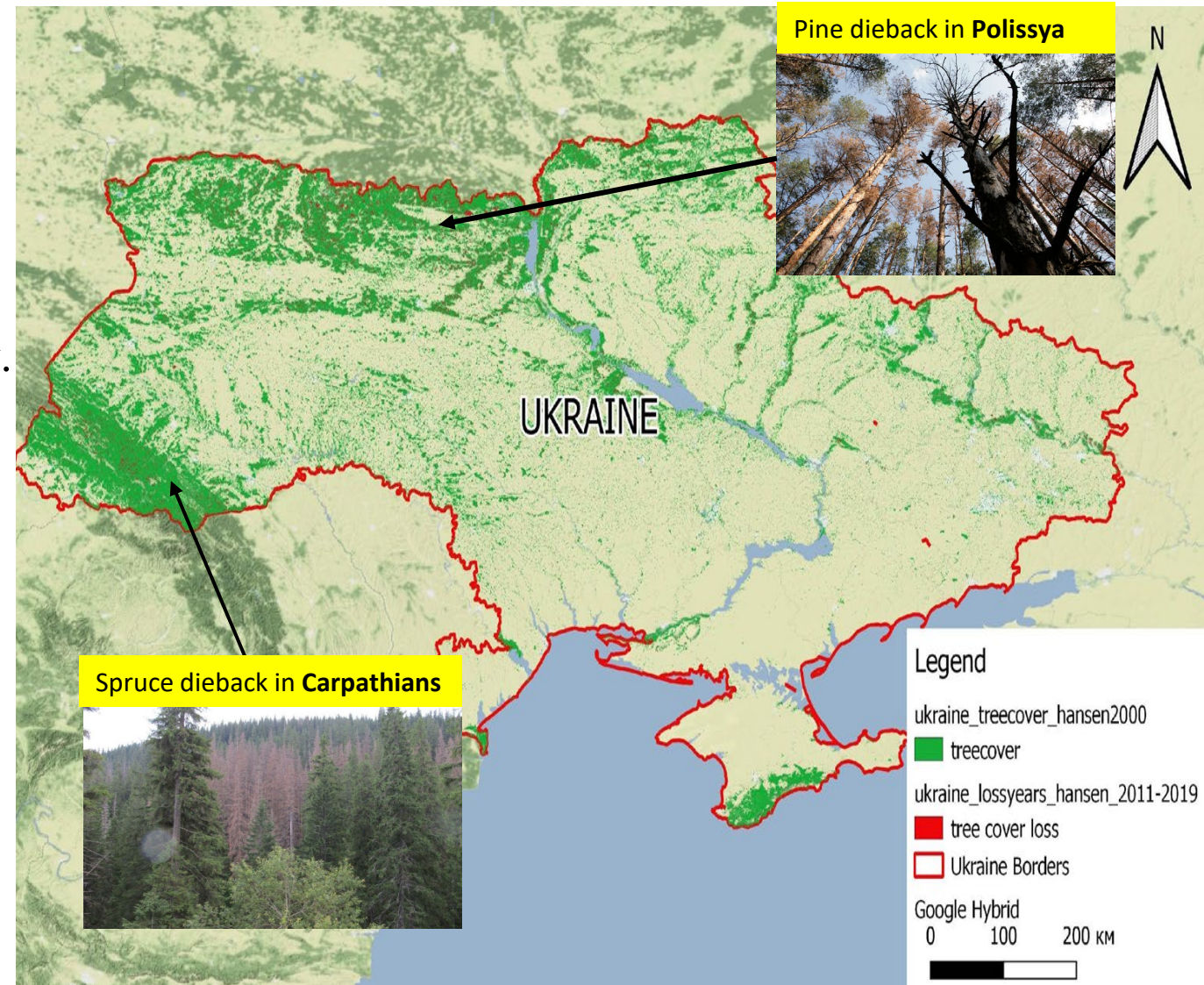


Beetle Damage Status in Ukraine

Oleh Chaskovsky, Serhii Havryliuk, Ukrainian National Forestry University

1. **Affected species** – spruce (*Picea abies*) attacked by bark beetle (*Ips typographus*) in **Ukrainian Carpathians**, scots pine (*Pinus sylvestris* L.) pine engraver beetle (*Ips acuminatus* Gyll.) in Polissya
2. **Severity** - variable. It is reported that more than 520,000 hectares of land in **Ukrainian Carpathians** planted with spruce since they are planted at lower altitudes than they grow naturally. **Polissya** – more than 3,25 mil. ha of forest cover lands, more than 60% - pine stands.
3. **Timeframe** approximate start (appx. 2005) and forecasted duration (appx. 2021+) – for spruce stands; 2015 start and duration ? for pine stands
4. **Most important causes and key factors**
natural - climatic factors: summer heat waves and lower moisture availability
anthropogenic - planting at lower elevation than the natural region and at high density
5. **Remote sensing detection and monitoring** – local aerial surveys; research: MS camera survey from UAV, land cover comparisons to ground observations.

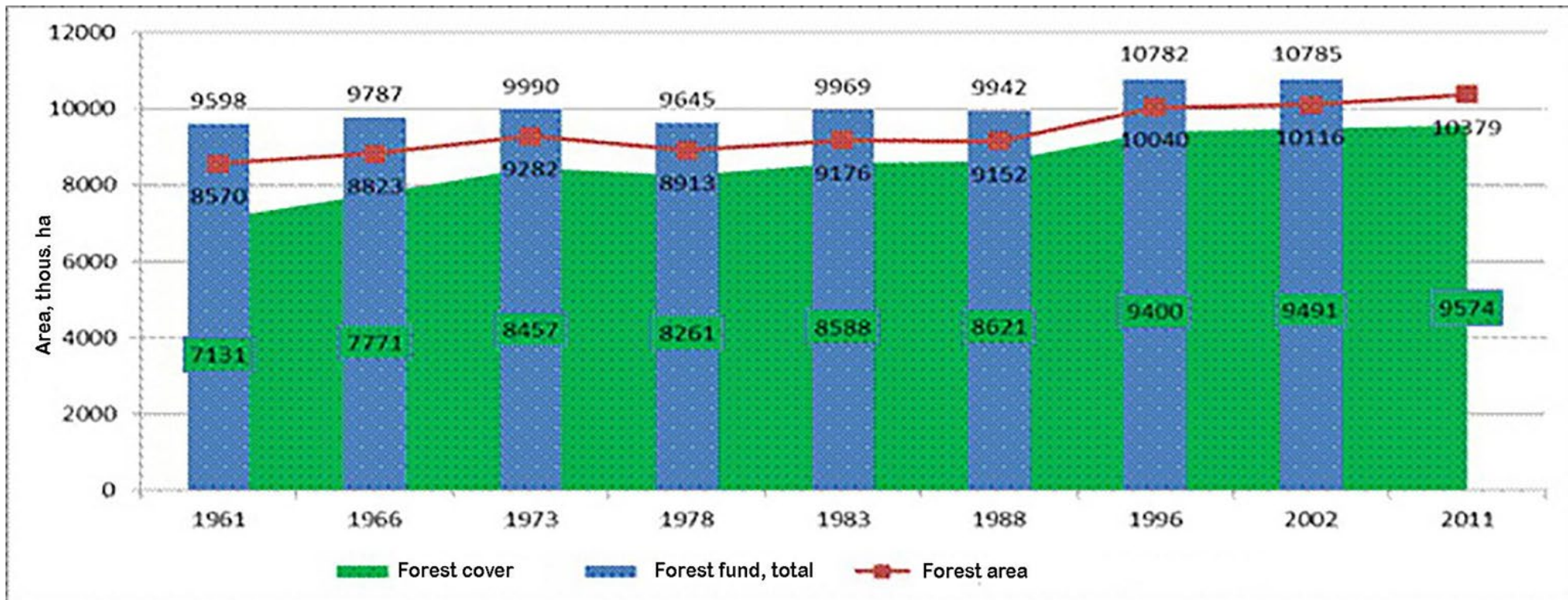
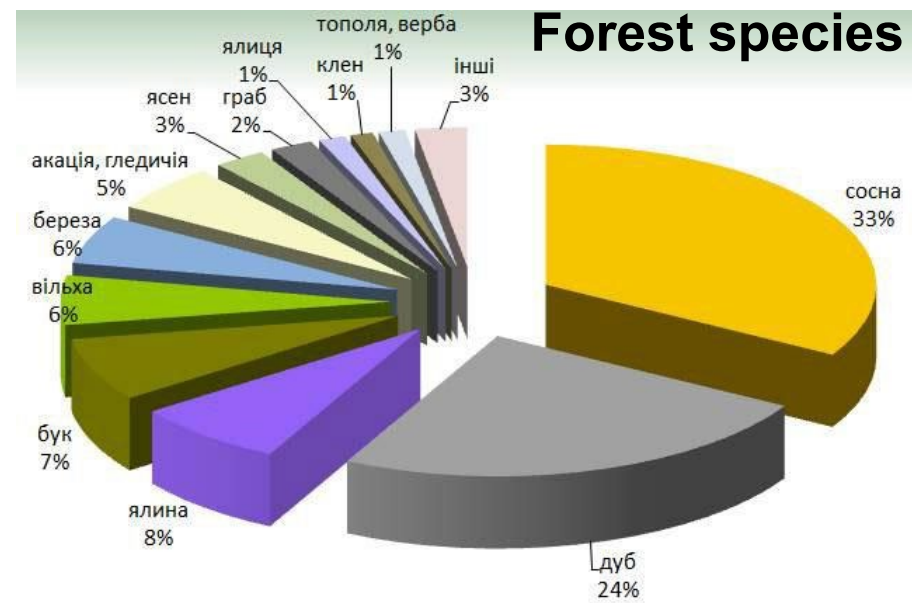


Forest users in Ukraine

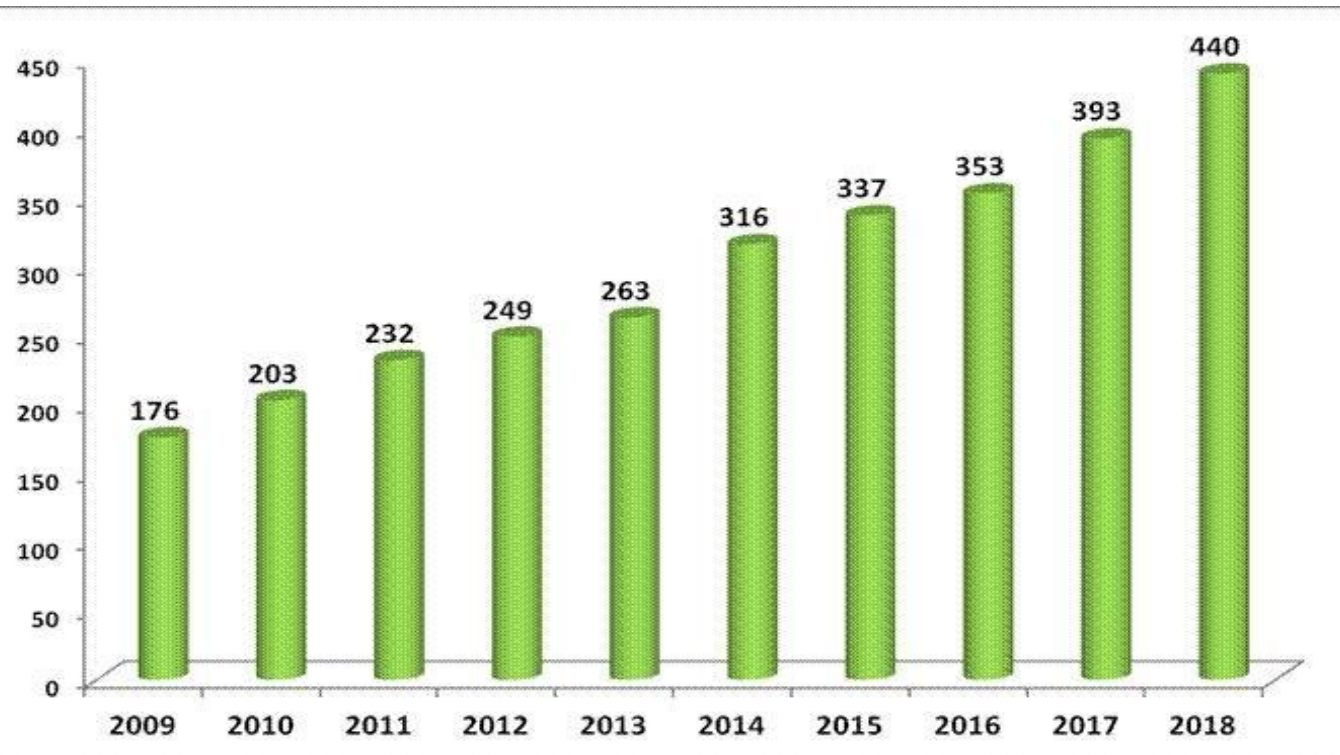


Source: http://dklg.kmu.gov.ua/forest/control/uk/publish/article?art_id=62921

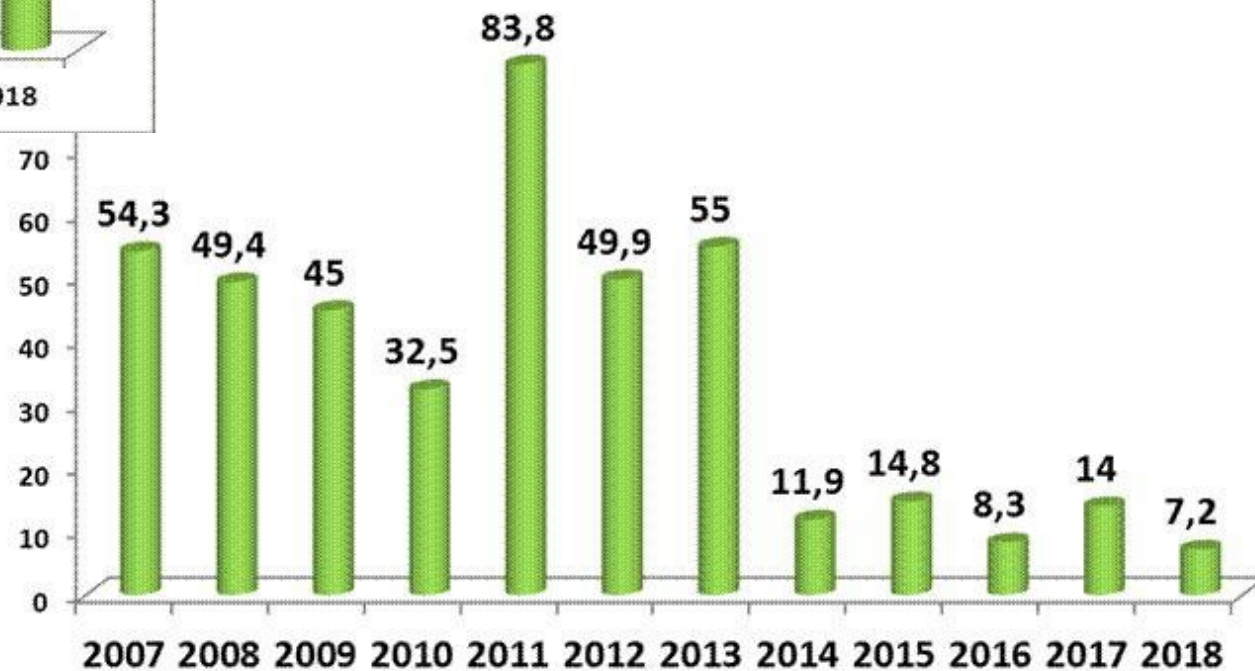
Forest species



Dynamic of forest damages at State Forest Agency (area, thous. ha)



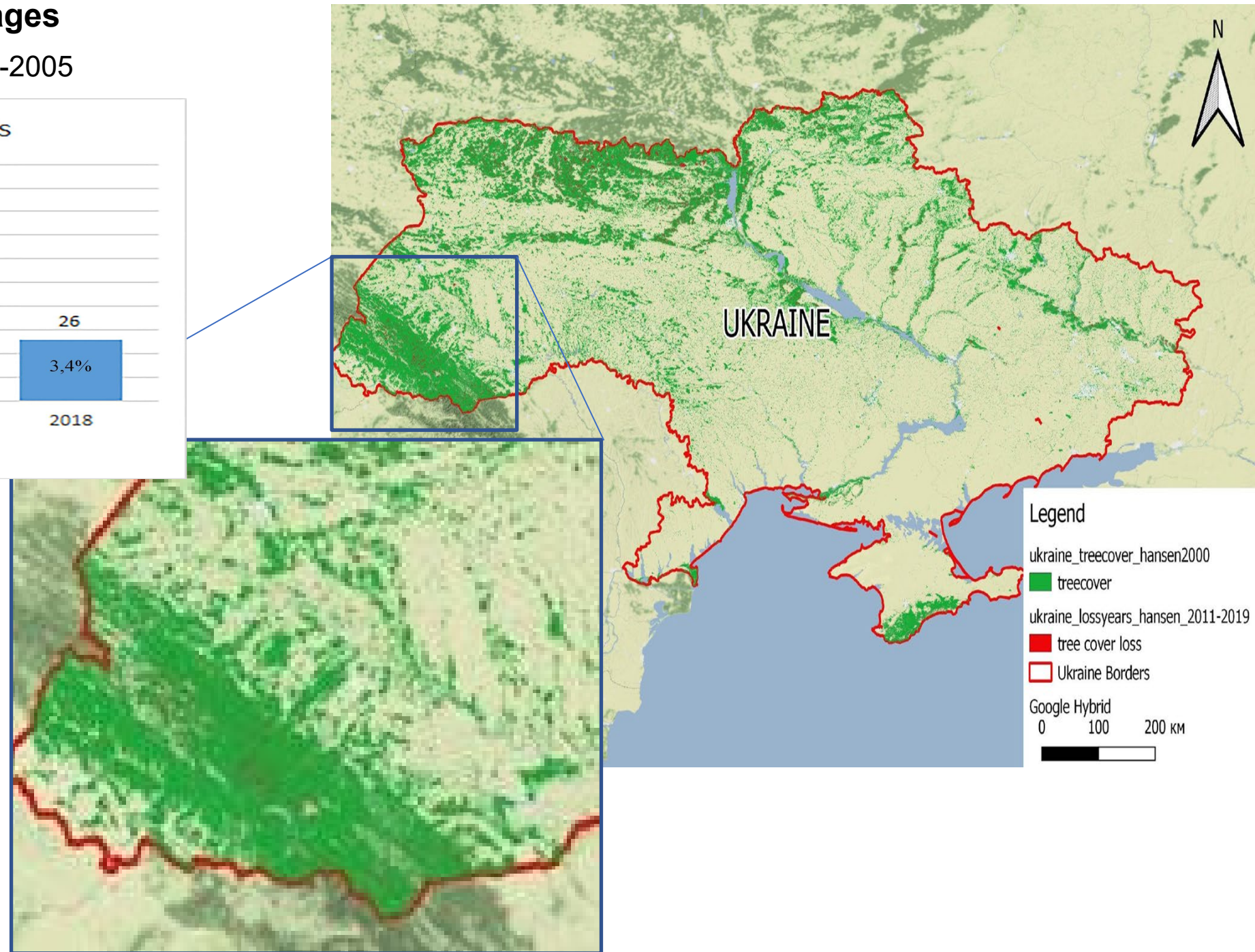
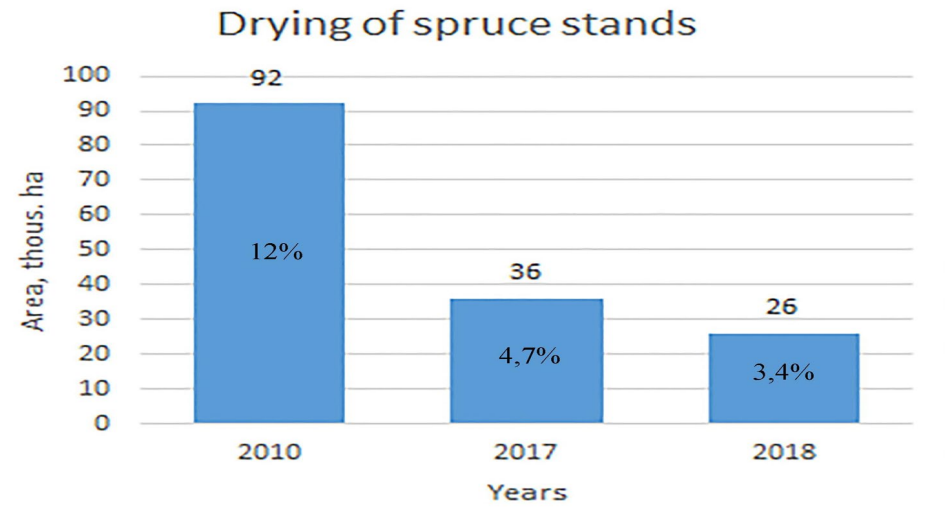
Areas (thous. ha), where were done destructive actions against forest pests



Source:
http://dklg.kmu.gov.ua/forest/control/uk/publish/article?art_id=118935&cat_id=118934

SPRUCE damages

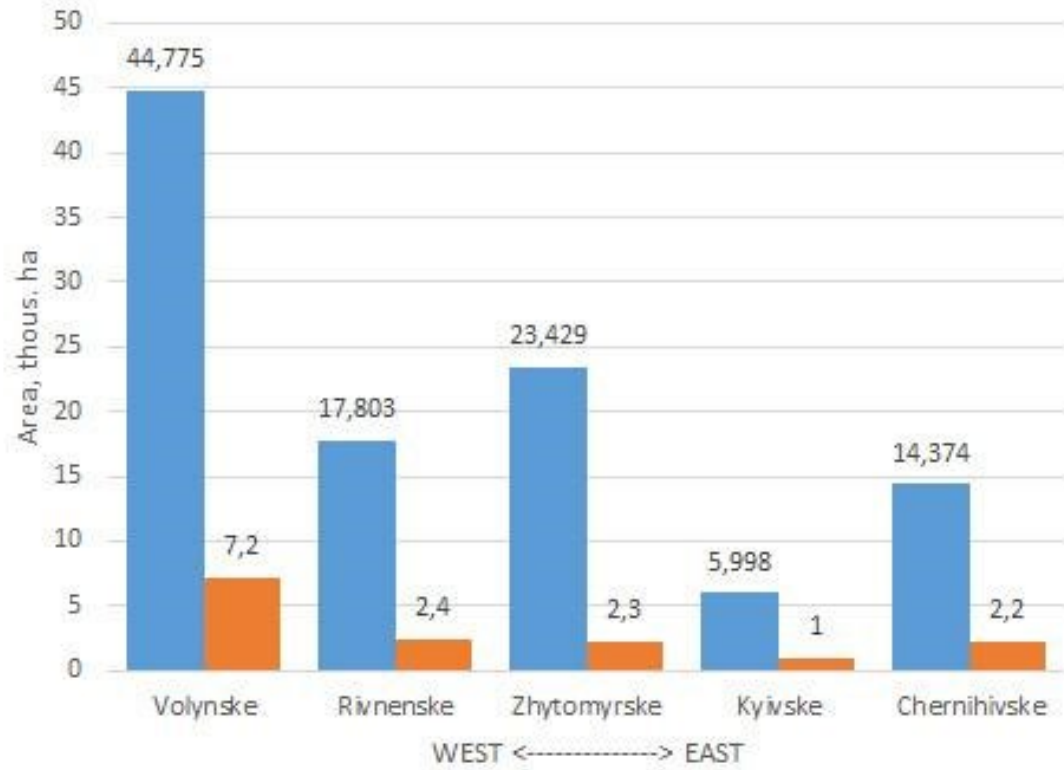
Start drying – 2004-2005



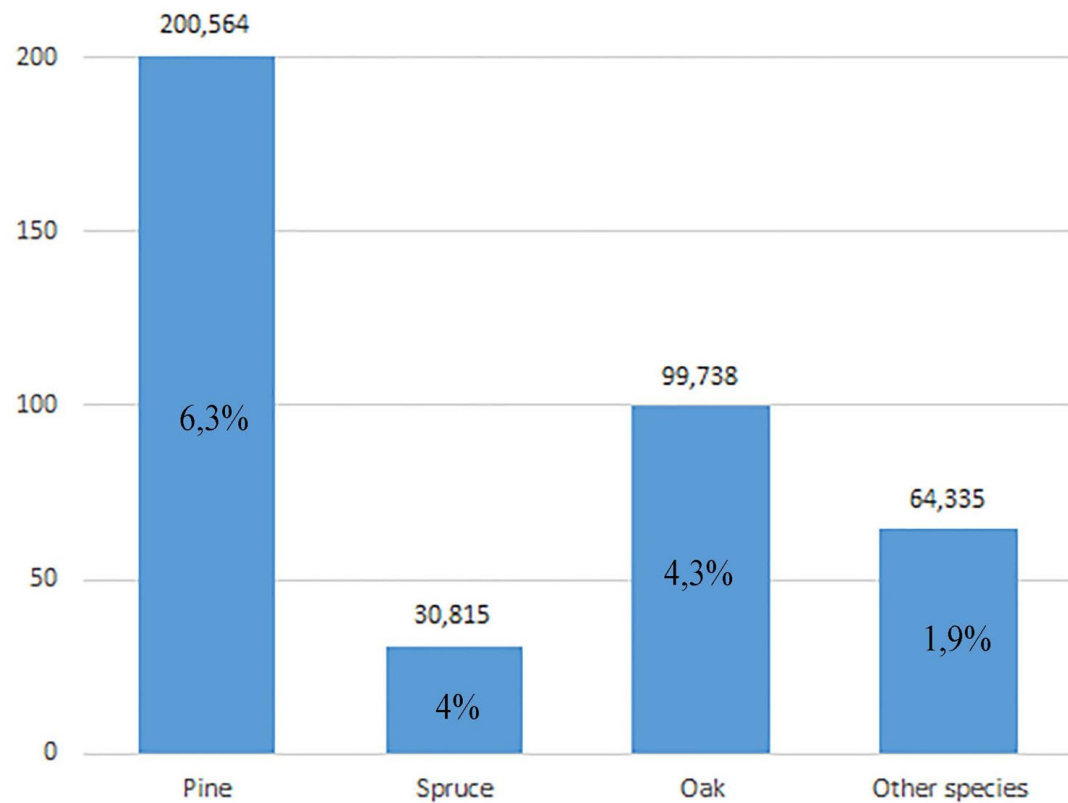
PINE damages

Start drying – 2015-?

Drying of pine stands (2018)



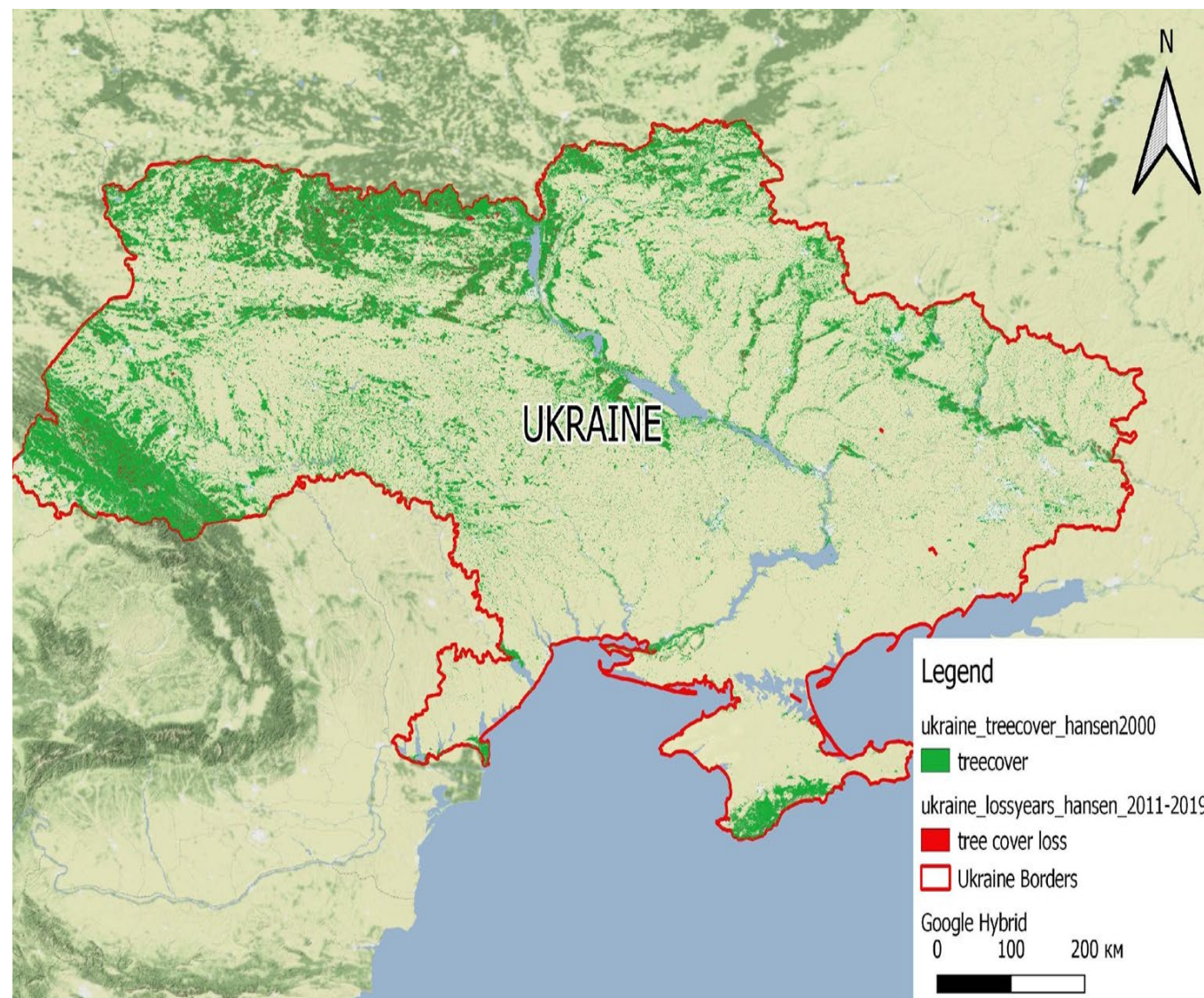
Drying forest stands in Ukraine (2018)



For comparison



DIEBACK OF FORESTS IN UKRAINE IN 2018



Areas (ha) of forests fires in Ukraine