

# Beetle Damage Status in Serbia

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## 1. Affected species

- *Ips typographus* L. -Norway spruce (*Pinus sylvestris* L), rarely at *Pinus*, *Pseudotsuga*, *Abies* and *Larix*.

-*Pityokteines curvidens*, *Cryphalus piceae* - *Abies*

-*Ips sexdentatus*, *Ips acuminatus*, *Tomicus piniperda*, *Tomicus minor* - *Pinus*

-*Scolytus intricatus* - Oaks

## 2. Severity - variable losses.

8 000 m<sup>3</sup> in 2019

11 000 m<sup>3</sup> in 2018

26 000 m<sup>3</sup> in 2017

40 000 m<sup>3</sup> in 2016

32 000 m<sup>3</sup> in 2015

30 000 m<sup>3</sup> in 2014

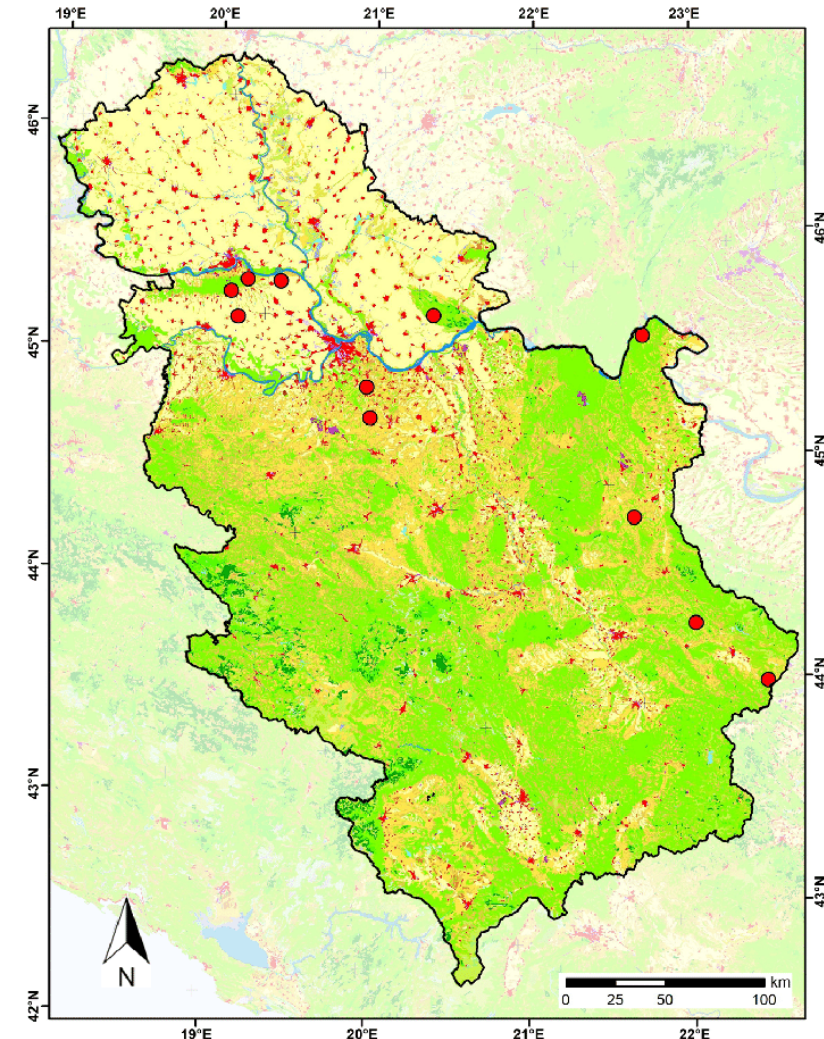
13 000 m<sup>3</sup> in 2013

## 3. 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

## 4. Remote sensing detection and monitoring – Opportunity for research



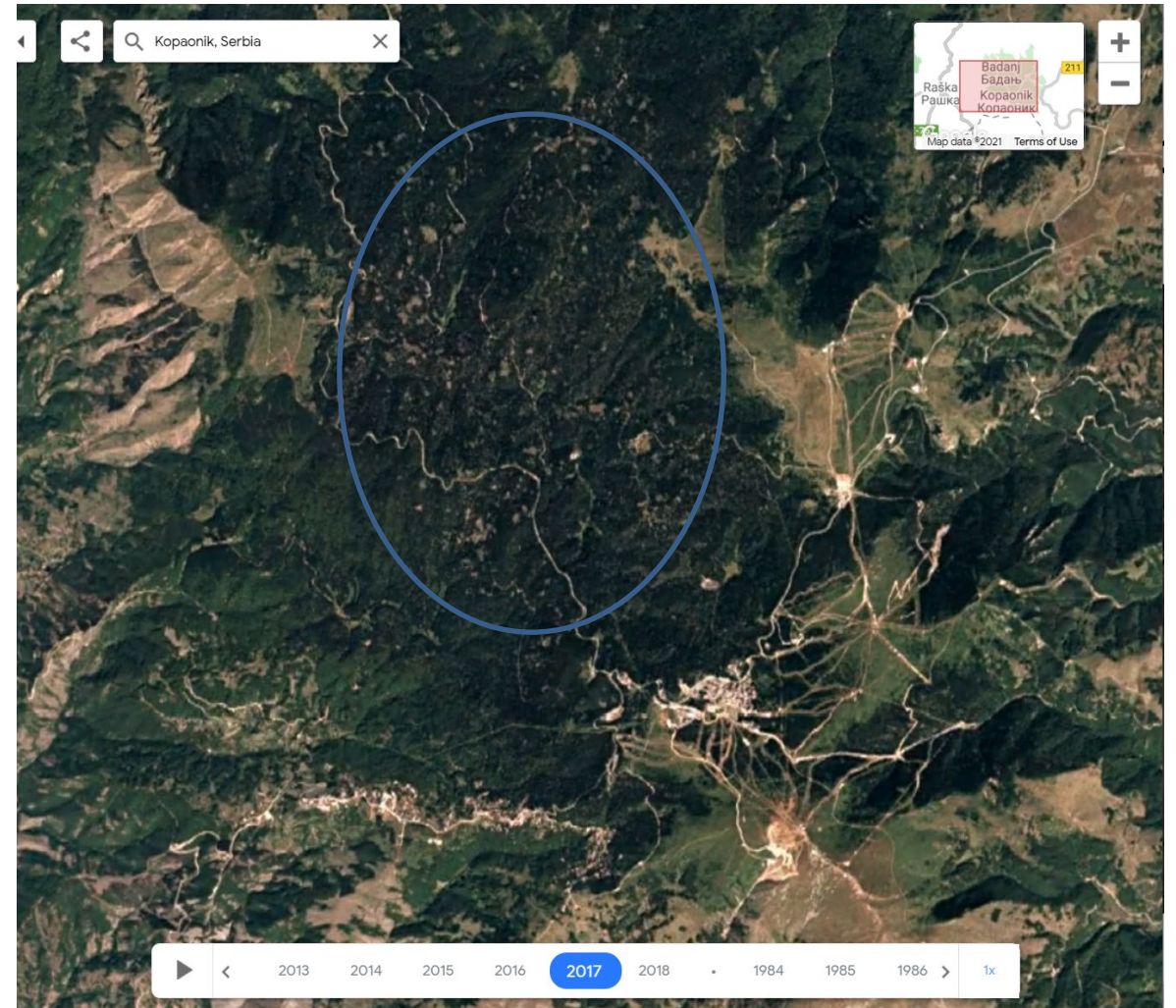
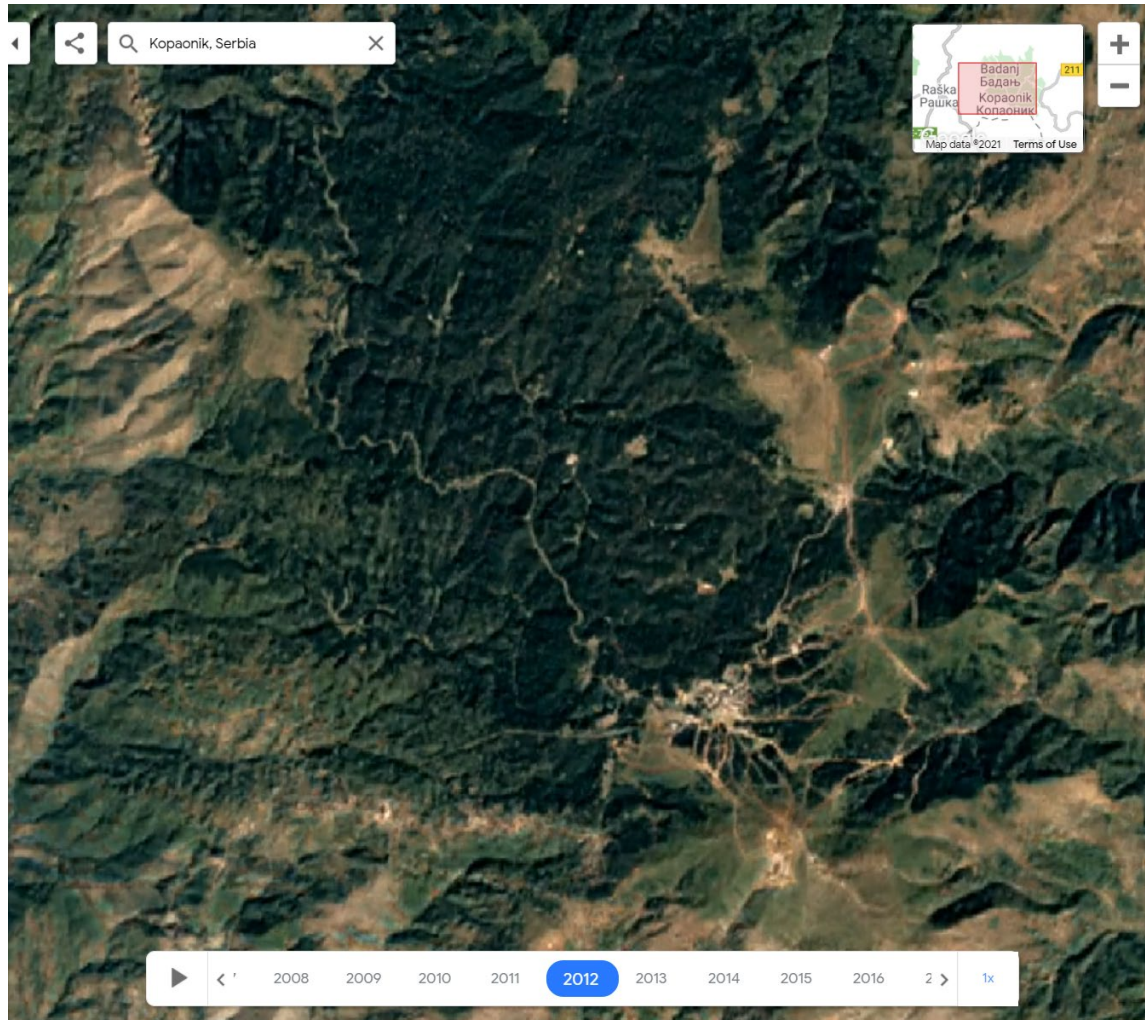
Corine land cover Serbia (Curcic et al. 2019)

**References:** 1) Tabaković-Tošić, M., & Milosavljević, M. (2015). Impact of extreme weather conditions on the population dynamics of bark beetles in the forests of Eastern Serbia. *Sustainable forestry/Održivo šumarstvo*. 2) Marković, Č., & Stojanović, A. (2019). New data on the distribution of xylophagous insects of oak and their parasitoids and inquiline in Serbia. *Acta entomologica serbica*, 24(2), 43-56. 3) Čurčić, S., Pavićević, D., Radović, D., Vesović, N., Bekchiev, R., Čurčić, N., & Gueorguiev, B. (2019). Current and predicted distribution of the rare and threatened beetle *Bolbelasmus* (*Bolbelasmus*) *unicornis* (Coleoptera: Geotrupidae) in Serbia. *European Journal of Entomology*, 116, 413-424.



# National Park “Kopaonik”

-between 2014 and 2017 severe bark beetle outbreaks appeared





# Bark beetle pheromone traps National Park “Tara”

-In the period 2014-2018, more than 70 million of bark beetles has been captured with the traps.

