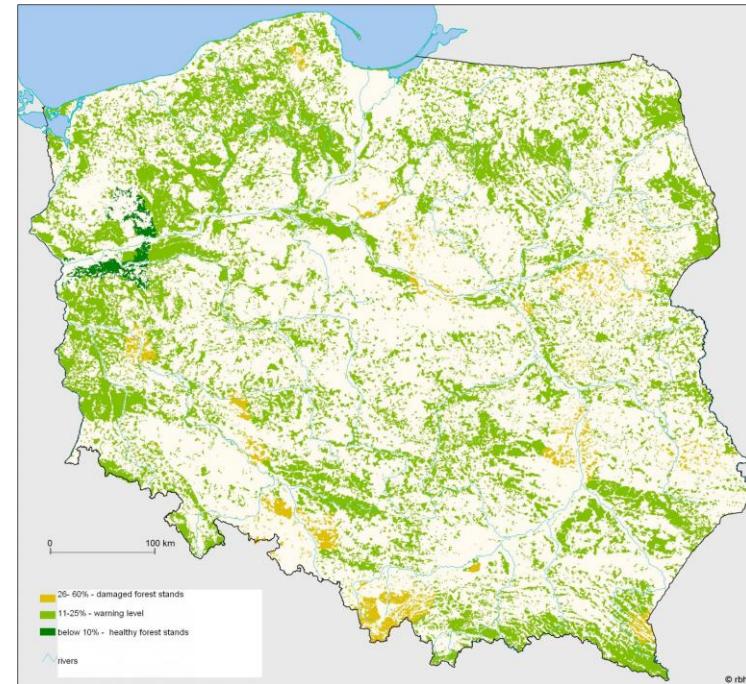
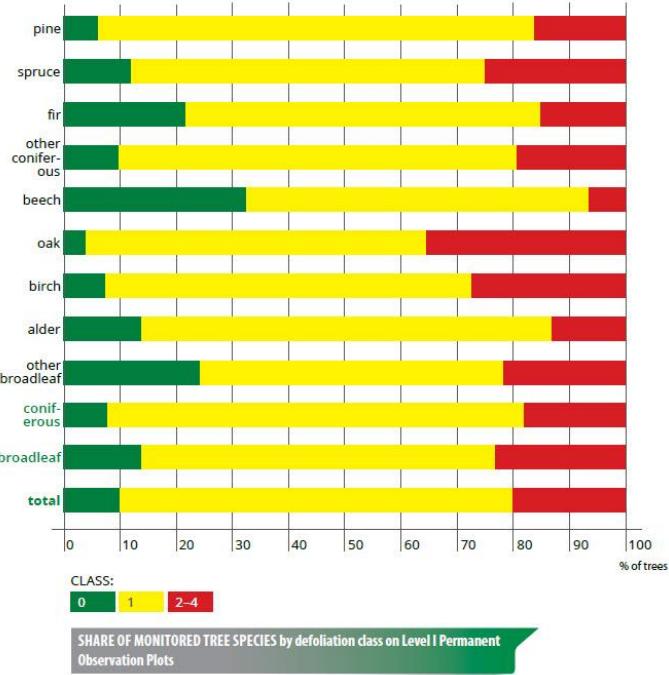
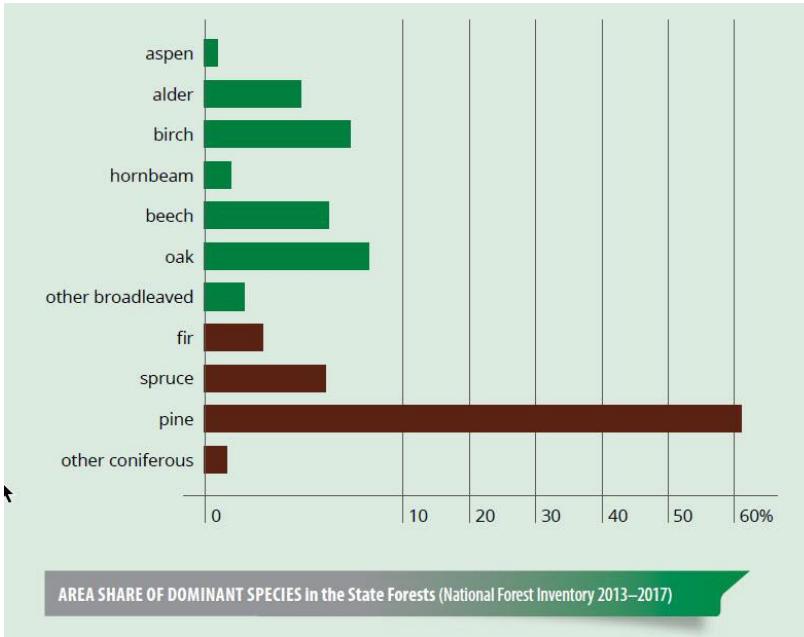


Bark Beetle damages status in Poland

Piotr Wężyk, prof. UR; Laboratory of Geomatics, Department of Forest Resources Management, Faculty of Forestry,
University of Agriculture in Krakow, Poland; piotr.wezyk@urk.edu.pl



Basic information about the Polish Forests and health condition of the stands



Tree species

Defoliation classes

Sanitation cuts in 2017 in Poland - 8.6 million m³. The most threatened were coniferous stands: 7.4 million m³ of dead wood including 4.7 million m³ (63%) of broken and fallen trees:

- **Scots pine** 4.91 million m³, of which 3.85 million m³ were broken and fallen trees;
- **Norway spruce** 2.3 million m³, of which broken and fallen trees were about 0.7 million m³ (25%).

References:

1) <https://ungc.org.pl/info/zasoby-wodne-polsce/>

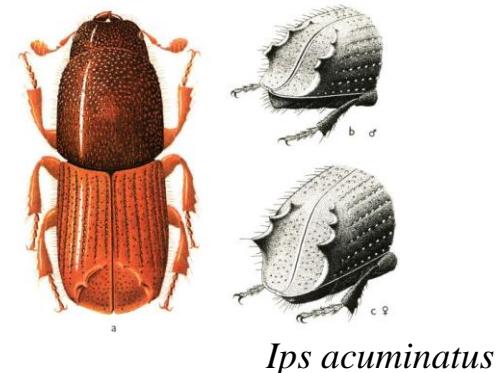
Data by 2018 (GUS): Total forest area in Poland: **9.2 mio. ha** (forest cover 29.6 %). Total removal: **45.5 mio m³**. **Coniferous trees: 34.3 mio m³; deciduous: 9.5 mio m³**. Forest monitoring: damaged trees (classes 1—3): 88 %; severe damaged: 18%

1. Affected tree species by bark beetle (secondary pests)

- Coniferous species:

Scots pine (*Pinus silvestris* L.) mostly attacked by: *Ips acuminatus* (Gyllenhal)

Norway spruce (*Picea abies* Karst.) major secondary pests of spruce stands were:
the European spruce bark beetle (*Ips typographus*), small spruce bark beetle
(*Polygraphus poligraphus*) and six-toothed bark beetle (*Pityogenes chalcographus*).



Ips acuminatus

- Deciduous species

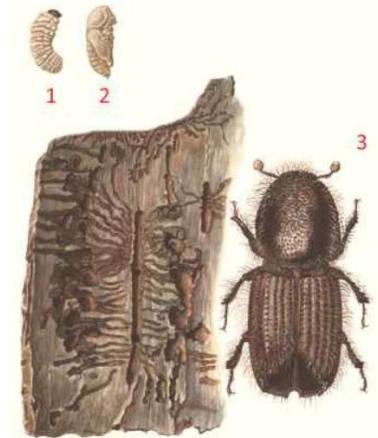
e.g. Oak's are attacked by *Agrilus biguttatus*

2. Severity

- dynamically increasing area and intensity of damage. A huge threat to Polish forests

3. Timeframe

- *The intensification of damage to spruce has almost always existed, but has gained strength since around 2010 for Scots pine for the last 5 years (Ips acuminatus)*



Ips typographus L.

References:

- 1) Krótkoterminowa prognoza występowania ważniejszych szkodników i chorób infekcyjnych drzew leśnych w Polsce w 2020 roku. Instytut Badawczy Leśnictwa, Sękocin Stary 2020
- 2) Prezentacja Aldona Perlińska – Wpływ zmian klimatu na lasy (Naczelnik Wydziału Ochrony DG LP) – 23.01.2020 Warszawa

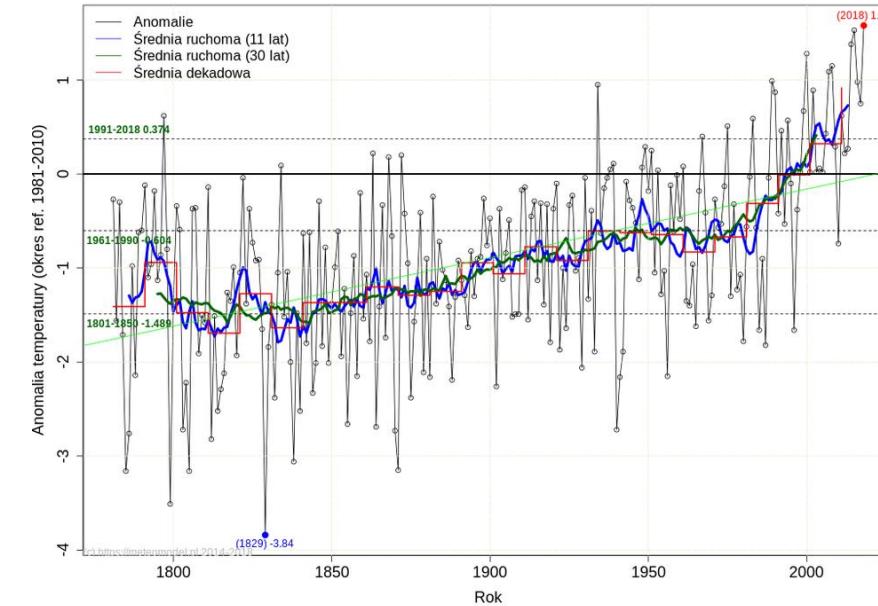


Bark Beetle damages status in Poland

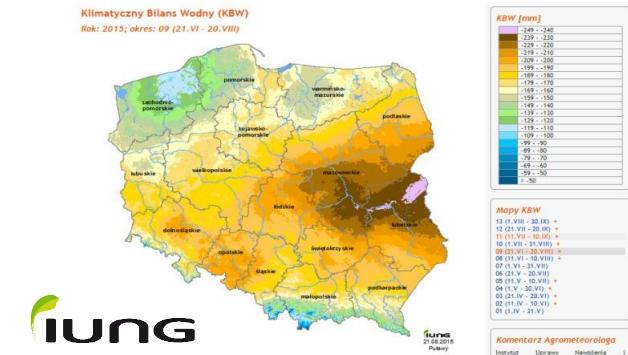
Piotr Wężyk, prof. UR; Laboratory of Geomatics, Department of Forest Resources Management, Faculty of Forestry,
University of Agriculture in Krakow, Poland; piotr.wezyk@urk.edu.pl



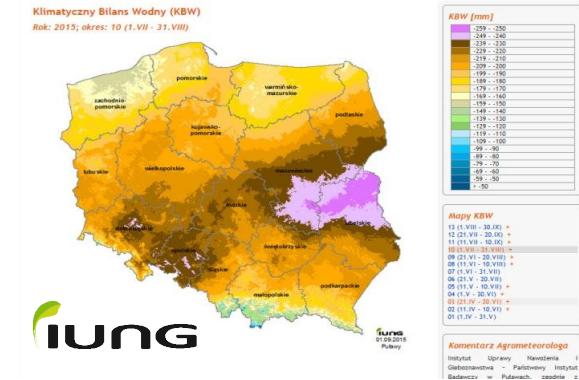
Anomalie temperatury w Polsce (rok) 1781-2018



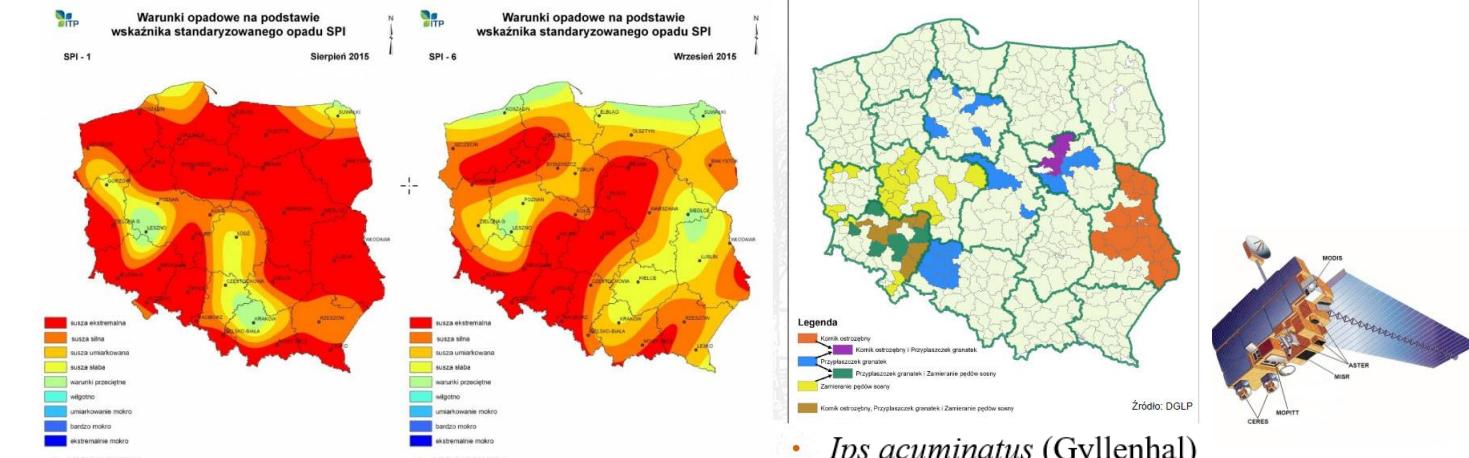
Climatic Water Balance 2015 (21.VI- 20.VIII)



Climatic Water Balance 2015 (01.VII- 31.VIII)



Powtórka? Znane szkodniki, nowe zagrożenie.



Źródło: Program „Monitoring, prognoza przebiegu i skutków oraz ocena ryzyka wystąpienia deficytu i nadmiaru wody na obszarach wiejskich” Instytut Techniczno-Przyrodniczy, Falenty

Drought in Poland 2015

- Ips acuminatus* (Gyllenhal)
- Phaenops cyanea*
- Ips typographus*

Grodzki 2016

References:

- <https://ungc.org.pl/info/zasoby-wodne-polsce/>
- Wojciech Grodzki (IBL) prezentacja Wybrani przedstawiciele rodzimej entomofauny jako źródło nowych zagrożeń dla lasu IBL 2015

Bark Beetle damages status in Poland

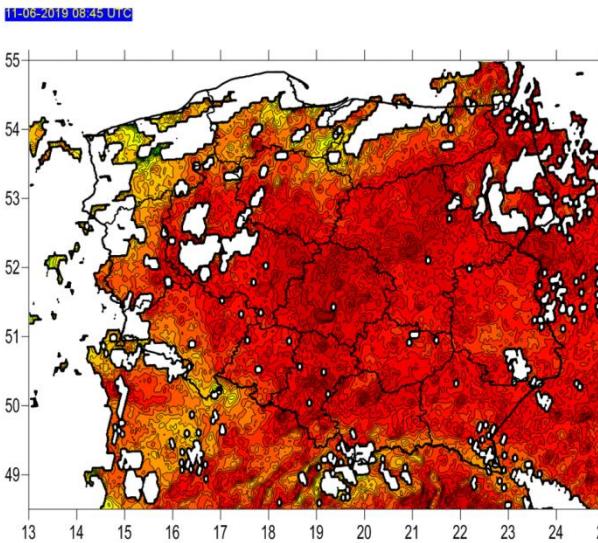
Piotr Wężyk, prof. UR; Laboratory of Geomatics, Department of Forest Resources Management, Faculty of Forestry,
University of Agriculture in Krakow, Poland; piotr.wezyk@urk.edu.pl



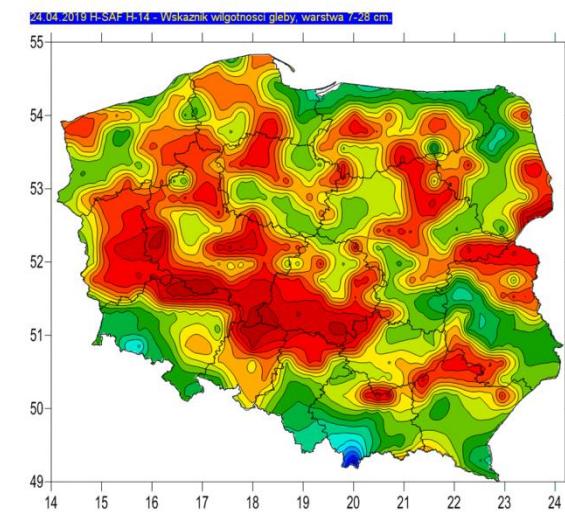
4. Most important causes and key factors

- Increasing heat and spring and summer drought periods (more generation of bark beetle);
- low snow cover last 10 years and relatively high temperature during winter

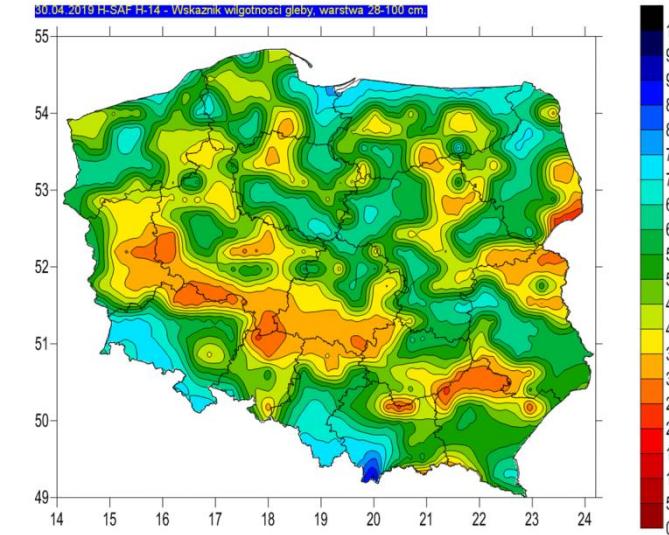
Earth surface temperature



Soil moisture 7-28 cm



Soil moisture 28-100 cm



 **EUMETSAT**

Soil moisture based on models and EUMETSAT H-SAF H-14.
Dates: 1.04-17.06.2019

References:

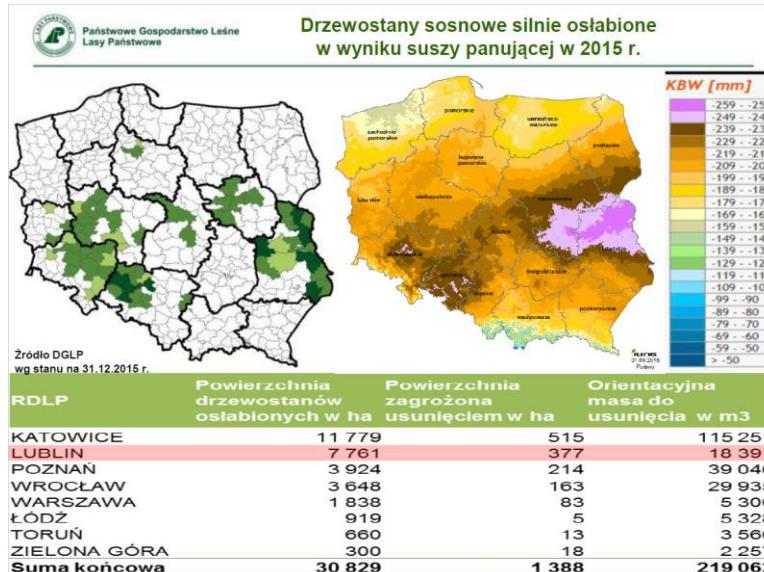
1) <https://ungc.org.pl/info/zasoby-wodne-polsce/>

Piotr Struzik / DTS Kraków

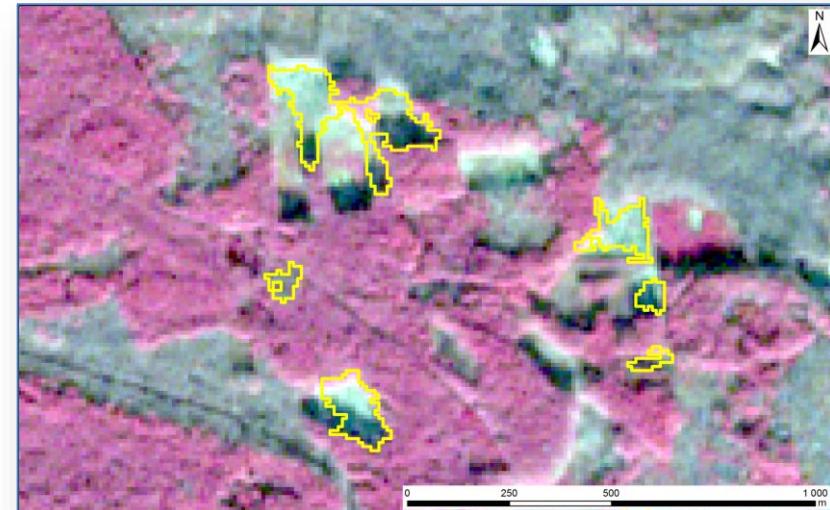


Bark Beetle damages on the Scots pine

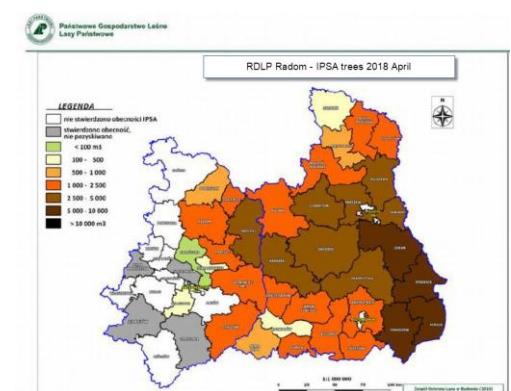
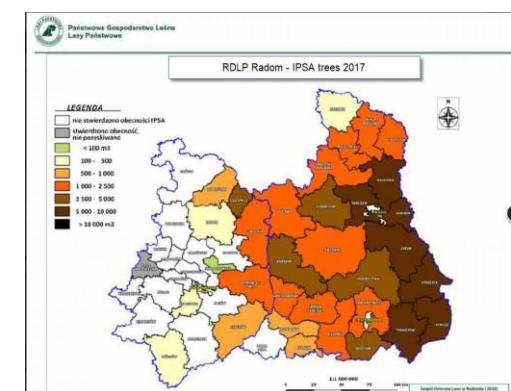
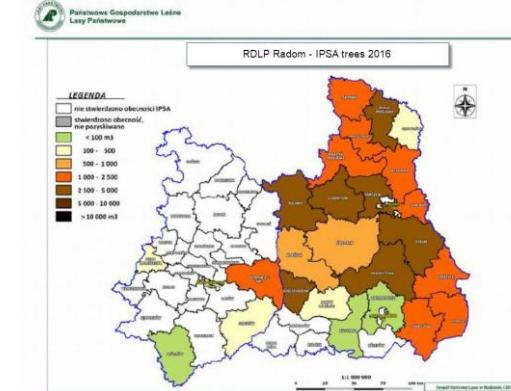
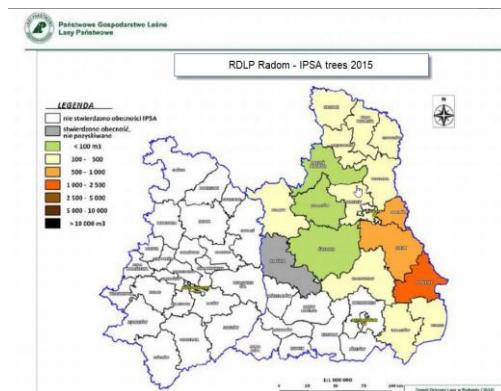
Piotr Wężyk, prof. UR; Laboratory of Geomatics, Department of Forest Resources Management, Faculty of Forestry, University of Agriculture in Krakow, Poland; piotr.wezyk@urk.edu.pl



The engraver beetle (*Ips acuminatus*) on Scots pine in Poland. Main factor: **drought** in Poland (KBW) – Climatic Water Balance since 2015 show very dramatic values. The roots of older Scots pine trees are not able to penetrate the soil deeper in search of the falling groundwater table.



Sentinel-2 image (Hawrylo 2019)



Perlinska 2020

References:

- 1) Krótkoterminowa prognoza występowania ważniejszych szkodników i chorób infekcyjnych drzew leśnych w Polsce w 2020 roku. Instytut Badawczy Leśnictwa, Sękocin Stary 2020
- 2) Prezentacja Aldona Perlńskiej – Wpływ zmian klimatu na lasy (Naczelnik Wydziału Ochrony DG LP) – 23.01.2020 Warszawa

Mistletoe on the Scots pine

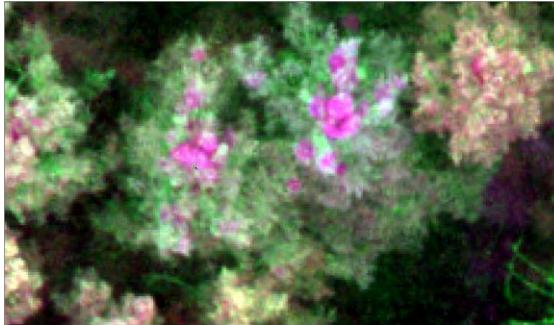
Piotr Wężyk, prof. UR; Laboratory of Geomatics, Department of Forest Resources Management, Faculty of Forestry,
University of Agriculture in Krakow, Poland; piotr.wezyk@urk.edu.pl



April 2020 5 cm GSD



RGB 2.5cm GSD, April 2020

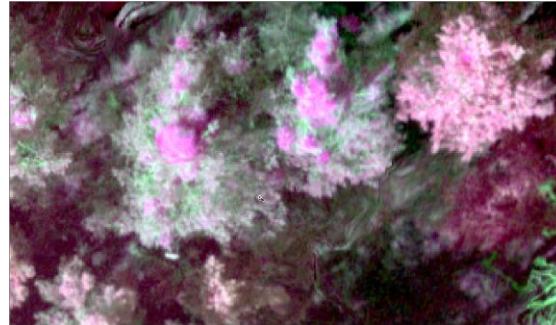


541 MS 7cm GSD, April 2020

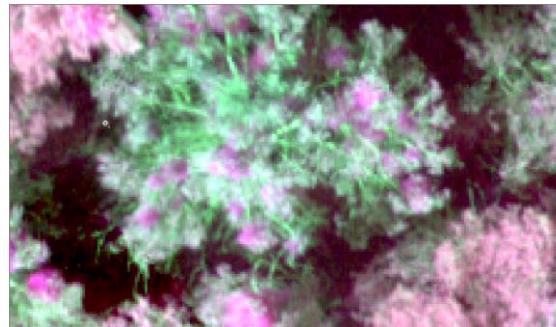
Sept 2020



RGB 1 cm GSD, Sept. 2020



541 MS 7cm GSD, Sept. 2020



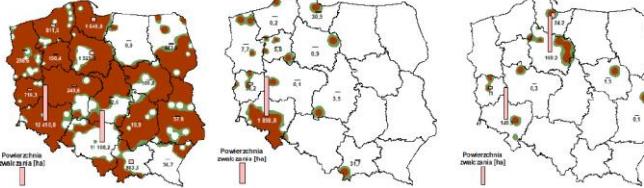


Bark Beetle damages status in Poland

Piotr Wężyk, prof. UR; Laboratory of Geomatics, Department of Forest Resources Management, Faculty of Forestry, University of Agriculture in Krakow, Poland; piotr.wezyk@urk.edu.pl



Szkodniki wtórne w 2018 r. występowanie i zwalczanie



Ips typographus L.

Kornik drukarz

35 707 ha
30 619 ha

występowanie

zwalczanie

występowanie

zwalczanie

występowanie

zwalczanie

występowanie

zwalczanie

występowanie

zwalczanie

występowanie

zwalczanie

ŚWIERK

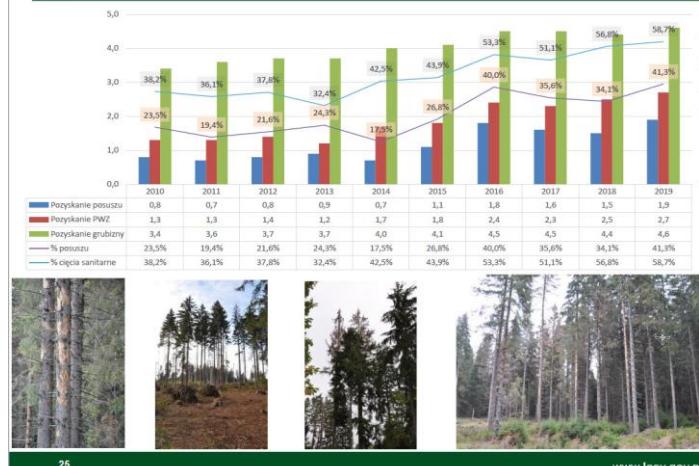
Źródło: Krótkoterminowa prognoza występowania ważniejszych szkodników i chorób drzew leśnych w Polsce w 2019 r. IBL

22

www.lasy.gov.pl



Cięcia sanitarne w drzewostanach świerkowych w latach 2010-2019



26

www.lasy.gov.pl



Zaawansowanie pozyskania posuszsu świerkowego w latach 2015-2019



Państwowe Gospodarstwo Leśne
Lasy Państwowe

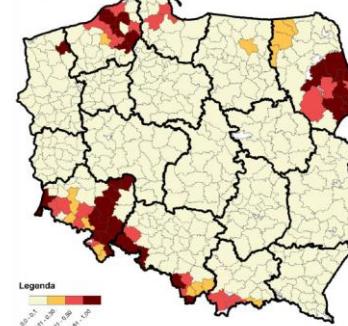
Pozyskanie 2016 r. – 4,5 mln m³, w tym 1,8 mln m³ posuszsu (40,0%)

Pozyskanie 2017 r. – 4,5 mln m³, w tym 1,6 mln m³ posuszsu (35,6%)

Pozyskanie 2018 r. – 4,4 mln m³, w tym 1,5 mln m³ posuszsu (34,1%)

Pozyskanie 2019 r. – 4,6 mln m³, w tym 1,9 mln m³ posuszsu (41,3%)

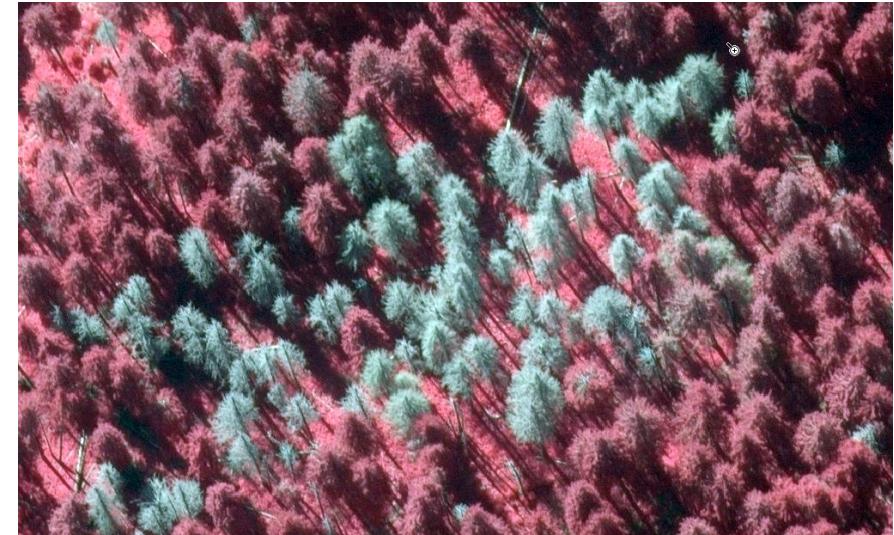
2019



www.lasy.gov.pl

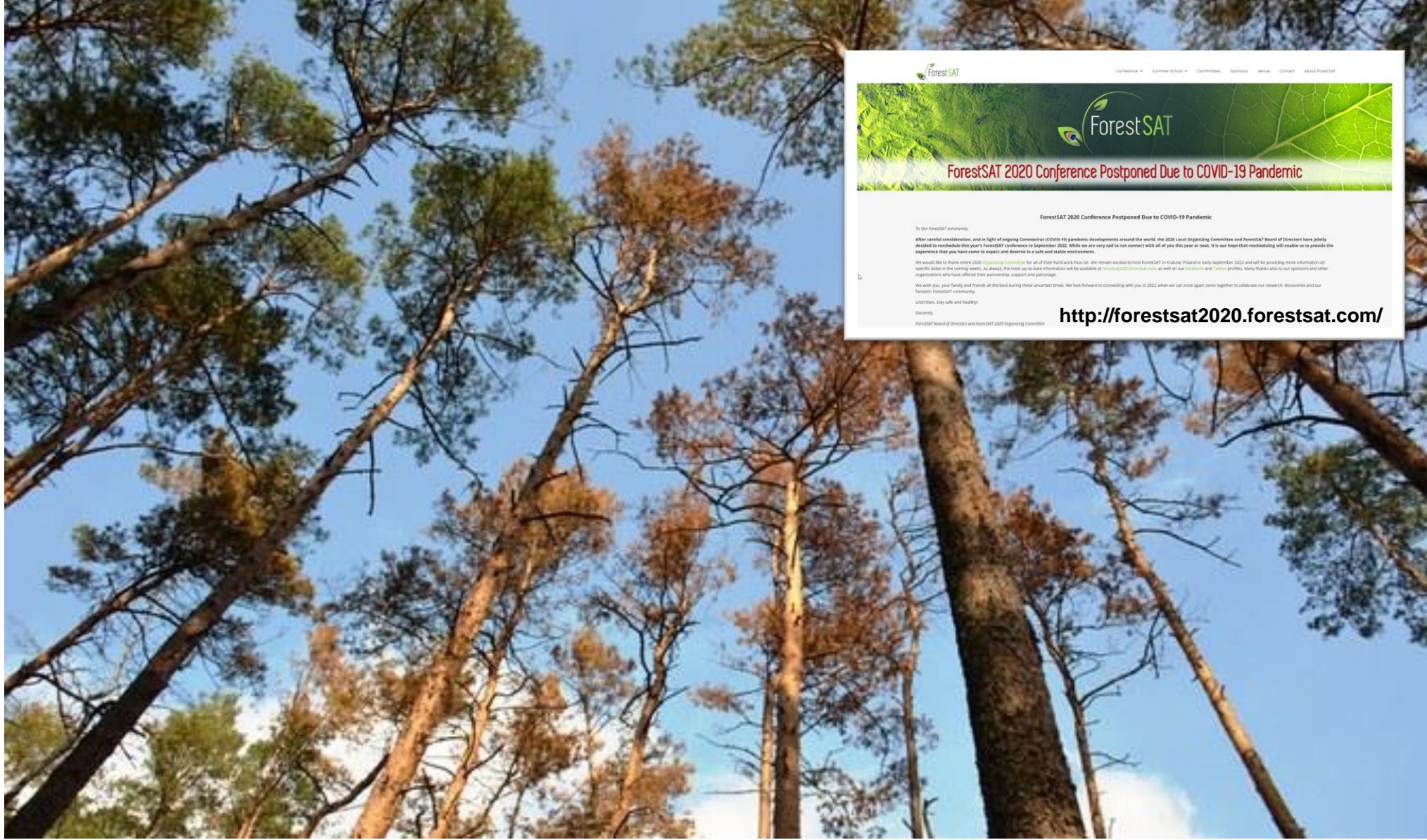
24

www.lasy.gov.pl



References:

- 1) Krótkoterminowa prognoza występowania ważniejszych szkodników i chorób infekcyjnych drzew leśnych w Polsce w 2020 roku. Instytut Badawczy Leśnictwa, Sękocin Stary 2020
- 2) Prezentacja Aldona Perlińska – Wpływ zmian klimatu na lasy (Naczelnik Wydziału Ochrony DG LP) – 23.01.2020 Warszawa



ForestSAT

Conference | Summer School | Committees | Sponsors | Venue | Contact | About ForestSAT

ForestSAT 2020 Conference Postponed Due to COVID-19 Pandemic

To Our ForestSAT community,

After careful consideration, and in light of ongoing Coronavirus (COVID-19) pandemic developments around the world, the 2020 Local Organizing Committee and ForestSAT Board of Directors have jointly decided to reschedule this year's ForestSAT conference to September 2022. While we are very sad to not connect with all of you this year or next, it is our hope that rescheduling will enable us to provide the experience and impact and deliver the conference in a safe environment.

We would like to thank everyone who has worked so hard for all of their hard work thus far. We remain excited to host ForestSAT in early September 2022 and will be providing more information on specific dates in the coming weeks. As always, the most up-to-date information will be available at forestsat2020.forestsat.com, as well as on our [Facebook](#) and [Twitter](#) profiles. Many thanks also to our sponsors and other organizations who have offered their partnership, support and patronage.

We wish you, your family and friends all the best during these uncertain times. We look forward to connecting with you in 2022 when we can once again come together to celebrate our research, discoveries and our fantastic ForestSAT community!

Until then, stay safe and healthy!
Sincerely,
ForestSAT Board of Directors and ForestSAT 2020 Organizing Committee

<http://forestsat2020.forestsat.com/>

Thanks for Your attention !!!!

Photo K. Czajka / J. Pieczewski