



IUFRO WP 7.03.10 Methodology of Forest Insect and Disease Survey in Central Europe. “Fluctuation of Insects and Diseases” Working Party Meeting
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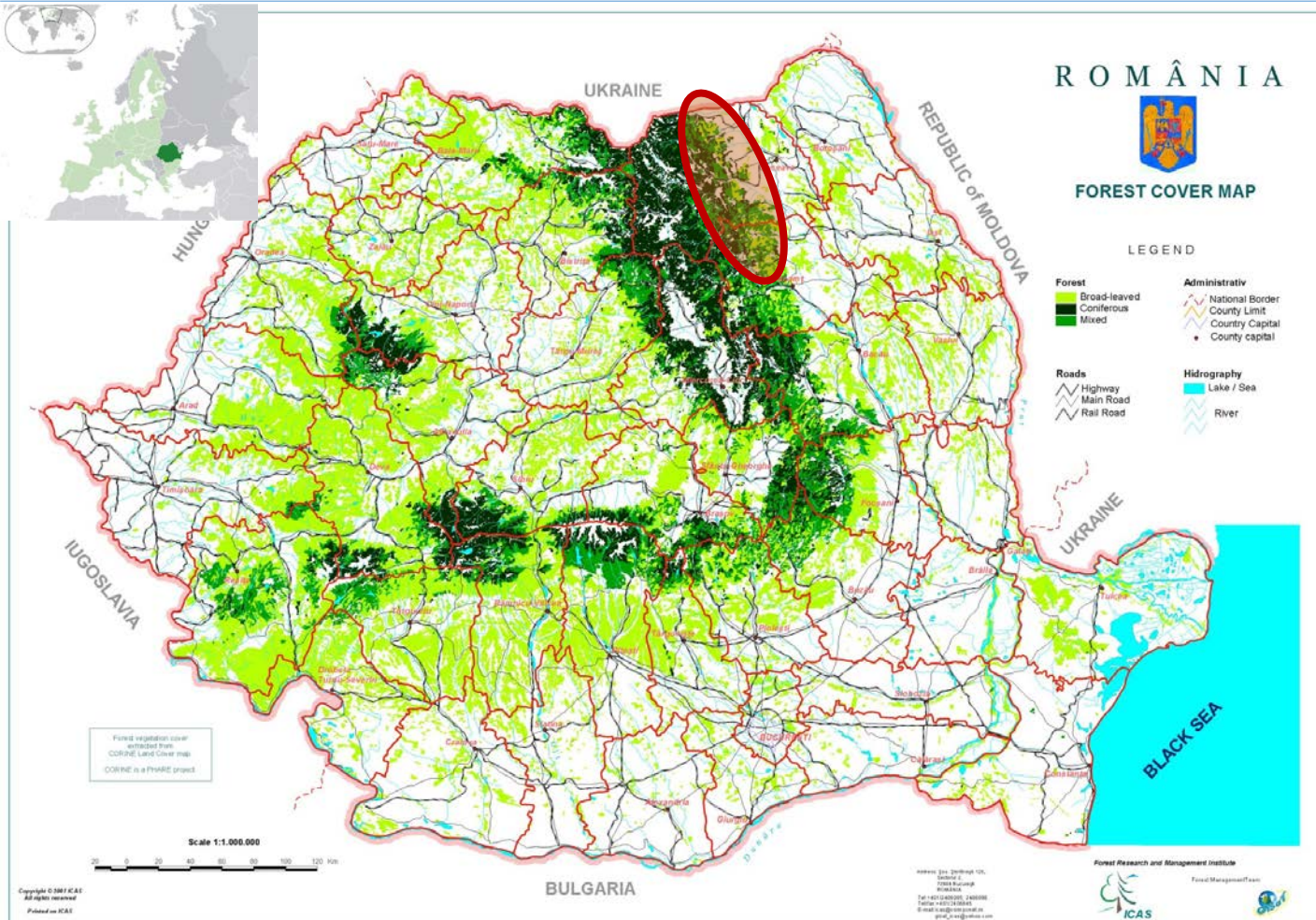


Comparative analysis of development duration of *Ips duplicatus* and *Ips typographus* bark beetles

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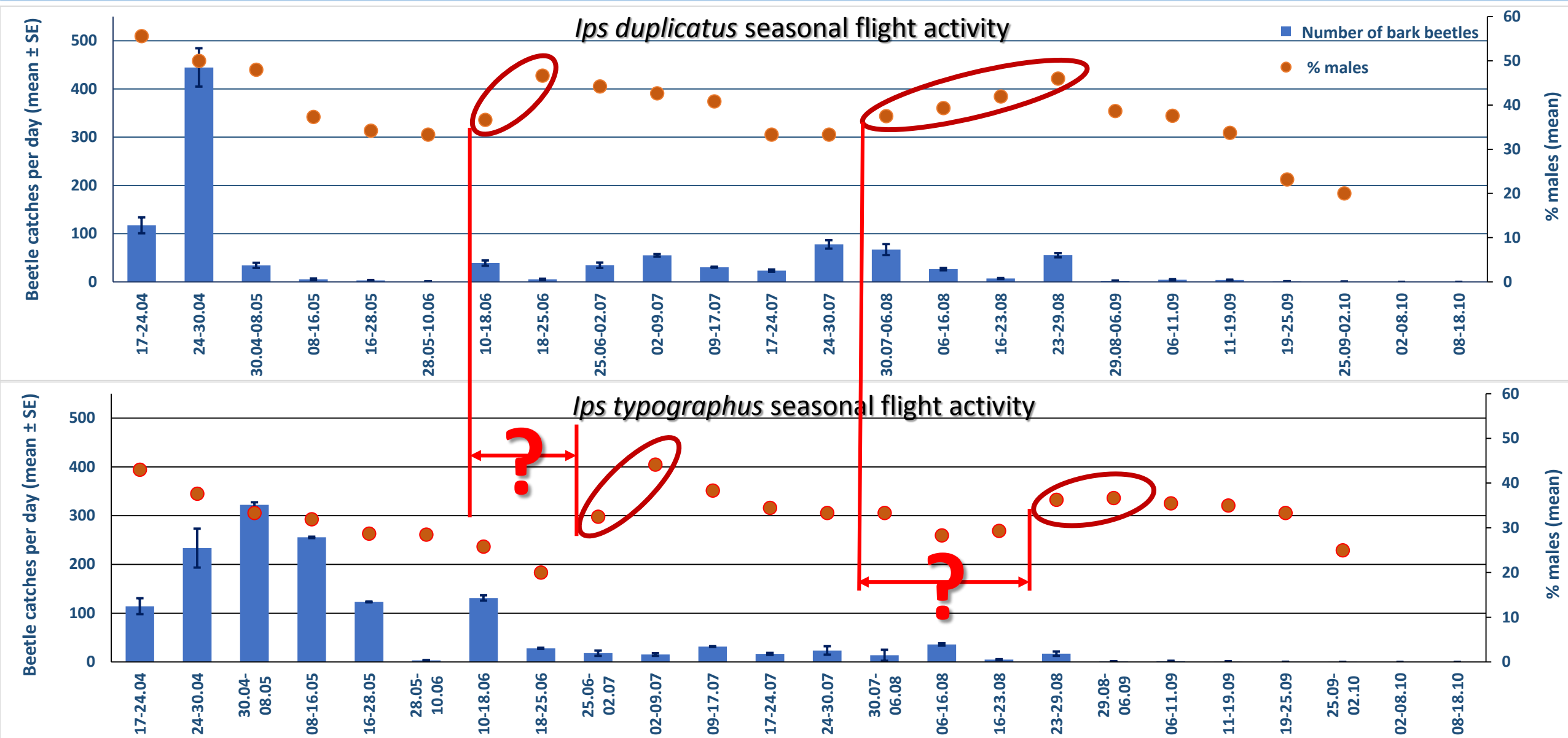
1. “Ștefan cel Mare” University, Forestry Faculty, Applied Ecology Laboratory, Suceava, Romania.

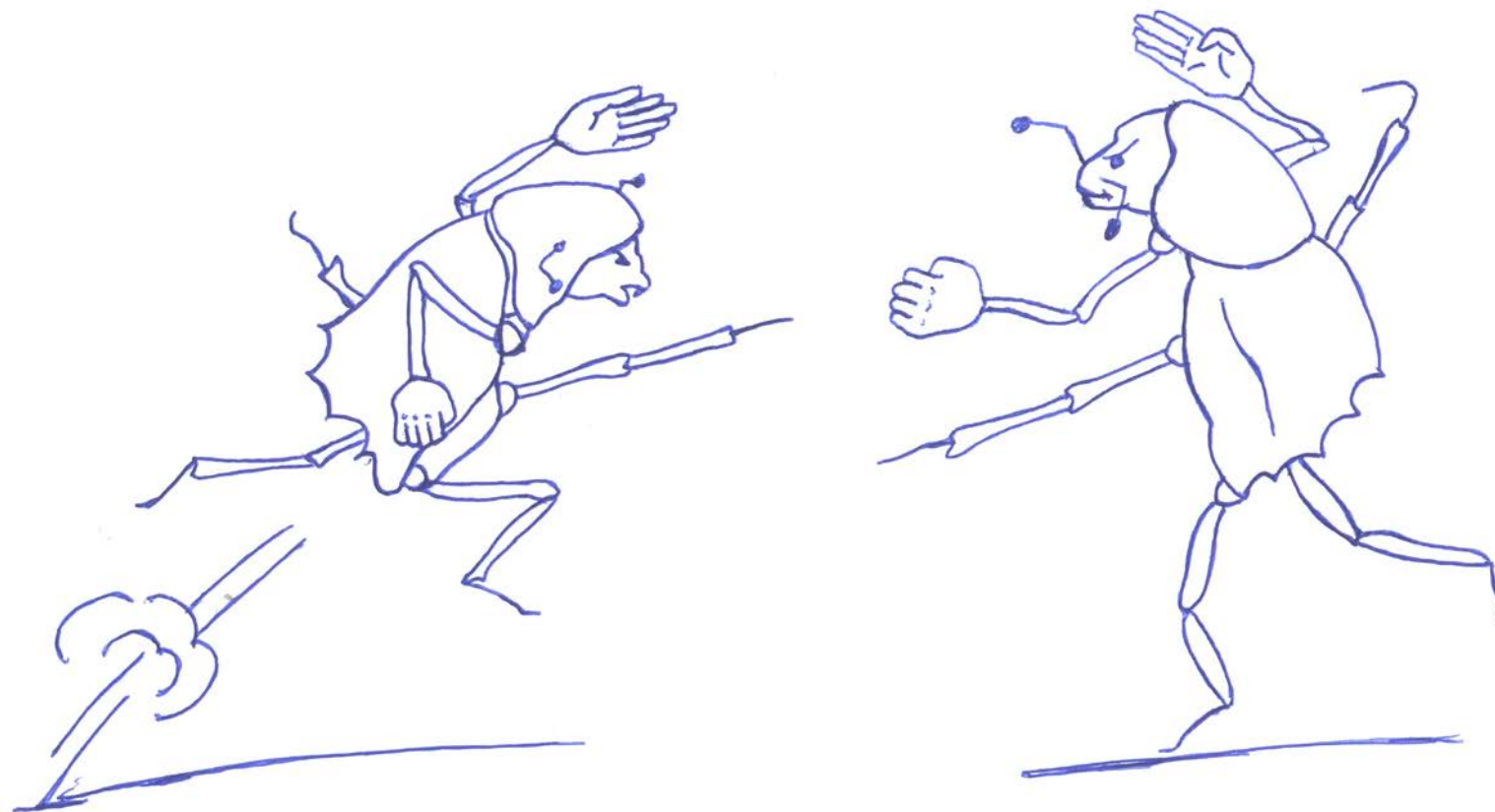
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2012: >300000 spruce trees killed by bark beetles (association between *Ips duplicatus*, *I. typographus*, and other bark beetle species).







Are there any differences between development duration of *Ips duplicatus* and *Ips typographus*?

Bark beetle rearing system



Spruce bark harvesting



Spruce baited with *I. typ.* or *I. dupl.* pheromone lures



"Sandwich" manufacturing

After
3-4 days



Transfer of bark beetles families

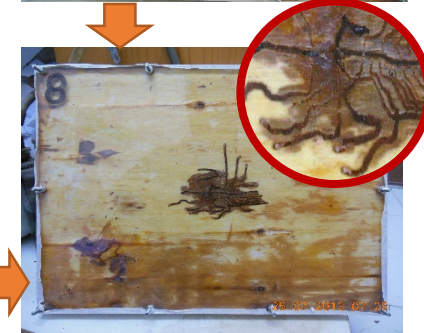


Spruce bark "Sandwiches"

20°C 22.5°C 27.5°C



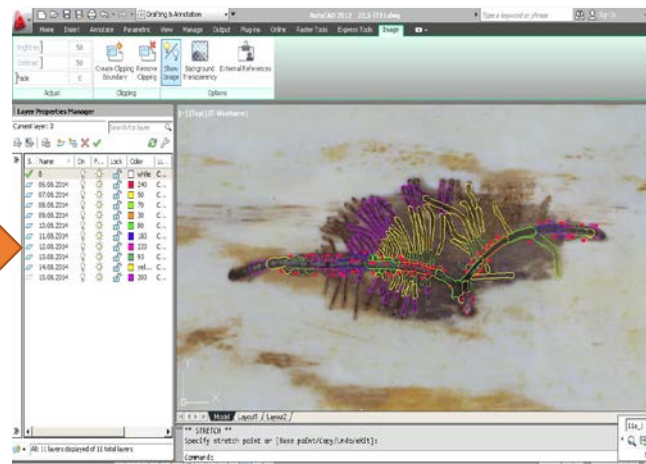
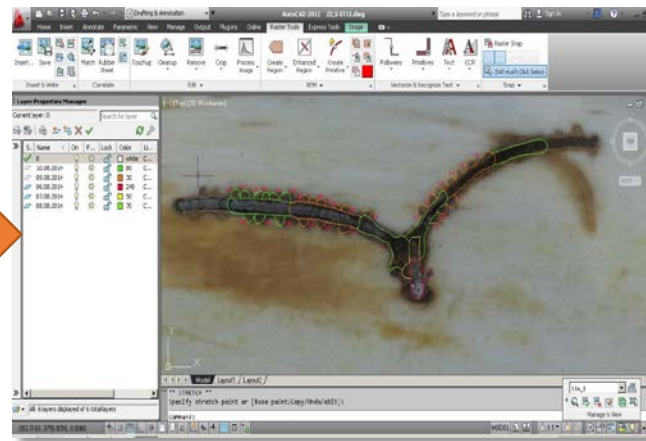
Climatic chamber



Recording of gallery construction and insect development



Daily taking of pictures



Gallery construction progress (AutoCad software)

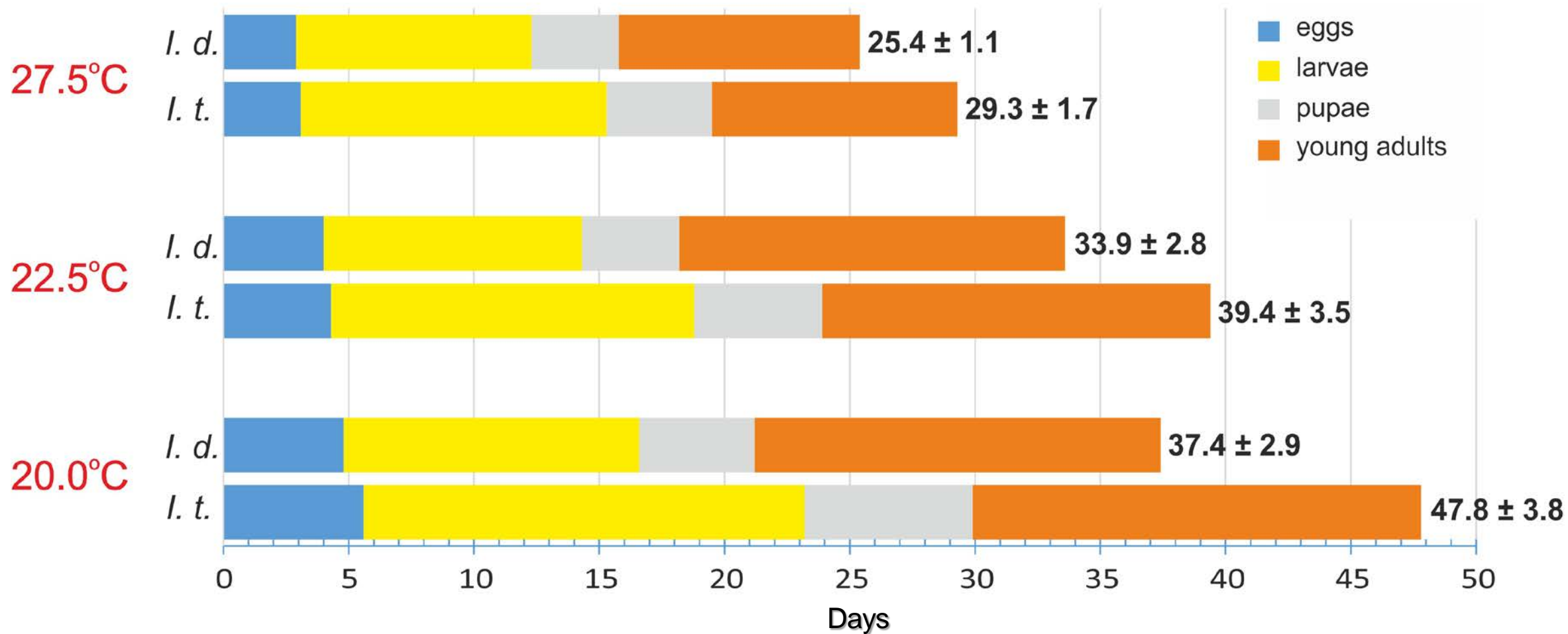


Number of viable bark beetles individuals obtained for every development stage

	Temperature	Eggs	Larvae	Pupae	Callow adults
<i>Ips duplicatus</i>	20.0°C	115	102	84	68
	22.5°C	148	130	108	92
	27.5°C	91	78	52	37
<i>Ips typographus</i>	20.0°C	79	65	48	34
	22.5°C	128	92	62	57
	27.5°C	86	75	56	38

- For every temperature lever and bark beetle species were used 5 “sandwich” devices;
- Every “sandwich” devices was colonized with 1 male and 3 females.

Duration of development of *Ips duplicatus* (*I.d.*) and *Ips typographus* (*I.t.*) [mean ± SD]



Conclusions:

- *Ips duplicatus* develops more quickly than *Ips typographus* in the same environmental conditions;
- The main differences occur in the larval and pupal stages, while embryonic development and adult maturation differ to a lesser extent.

THANK YOU FOR YOUR ATTENTION!

