

Hunting nematodes in the pine forests of Northern Greece: a preliminary overview after one year of surveys

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Pine wood nematode *Bursaphelenchus xylophilus* (Parasitaphelenchidae, Nematoda)

- Causal agent of Pine Wilt Disease
- Very important pathogen of high ecological and economic importance
- International trade facilitates its expansion beyond its natural range
- One of the most notorious quarantine organisms

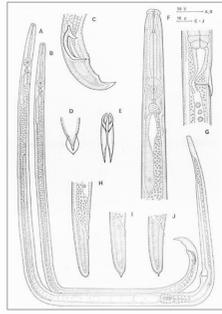


Figure 1: *B. xylophilus* (Source Mamiya and Kiyohara 1972)

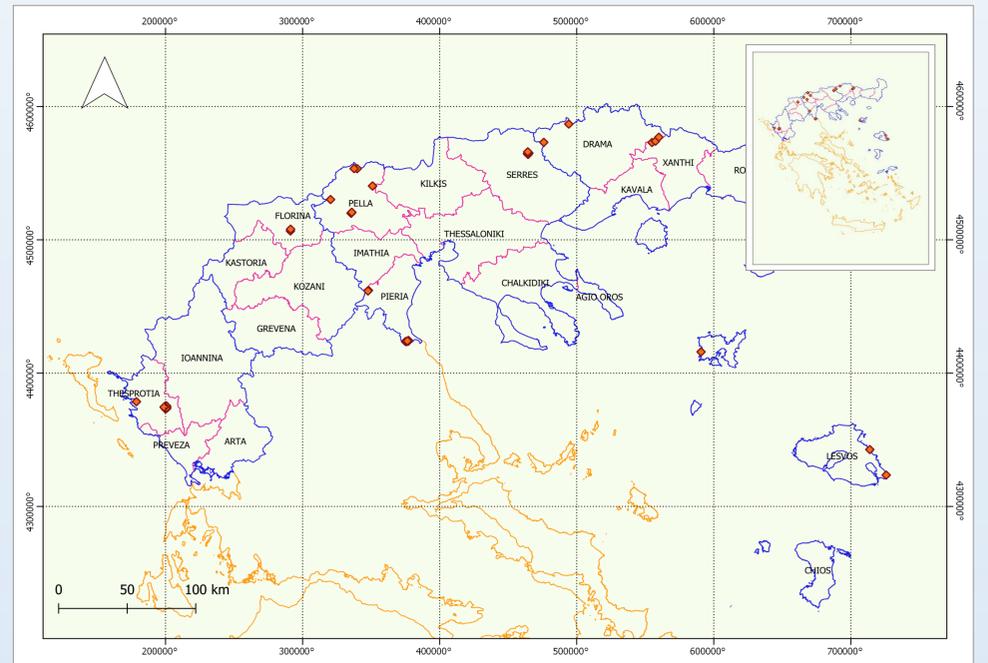


Figure 2: Sampling sites covering North and Central Greece and part of the Northern Aegean Islands. (a) (b) (c)

Objective

Screening populations of pine trees that show symptoms similar to the ones caused by PWN

Materials and methods

- Collection of 45 wood disc samples of conifers, mostly pines, from 9 regions of Northern and Central Greece
- Extraction of nematodes using a modified Baermann funnel technique
- Microscopic identification of nematodes based on morphological traits

Table 1: Regions, conifer species and detected nematodes.

Regions	Conifer species	<i>Bursaphelenchus</i> spp.	Other nematodes
Aridaia	<i>Abies borisii-regis</i>	<i>B. mucronatus</i>	
	<i>Pinus silvestris</i>	<i>Bursaphelenchus</i> sp.1	
Neurokopi	<i>Pinus silvestris</i>	<i>B. hellenicus</i>	Anguinidae
	<i>Pinus silvestris</i>	<i>B. leoni</i>	
	<i>Pinus</i> sp.	<i>B. mucronatus</i>	<i>Parasitorhabditis</i> sp.
Pella	<i>Pinus</i> sp.	<i>Bursaphelenchus</i> sp.1	
	<i>Pinus</i> sp.	<i>Bursaphelenchus</i> sp.†	<i>Aphelenchoides</i> sp.
Pieria	<i>Pinus nigra</i>		<i>Panagrolaimus</i> sp.
	<i>Pinus</i> sp.	<i>B. hellenicus</i>	<i>Tylencholaimellus</i> sp.
Thesprotia	<i>Pinus</i> sp.	<i>Bursaphelenchus</i> sp.†	<i>Clarkus</i> sp.
	<i>Pinus</i> sp.		Other

† *Bursaphelenchus* individuals that could not be identified

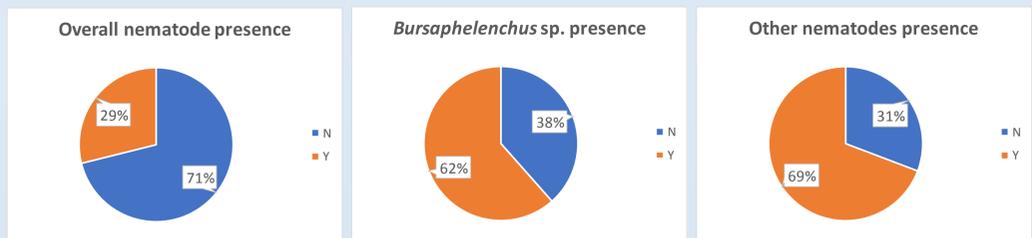


Figure 3: Percentage of nematode presence (a), *Bursaphelenchus* spp. (b) and other nematodes (c) in wood samples. "N": indicates absence, "Y": indicates presence.

- No *B. xylophilus* was retrieved from any of the samples
- Nematodes were found in 13 samples (29%)
- Out of the 13 samples with nematode presence
 - 62% contained *Bursaphelenchus* spp.
 - *B. hellenicus* Skarmoutsos, Braasch, Michalopoulou 1998
 - *B. mucronatus* Mamiya and Enda 1979
 - *B. leoni* Baujard 1980
 - *Bursaphelenchus* sp.1
 - 69% contained other nematode taxa
 - saprophytic, predatory and entomophilic nematodes



Figure 4: *Bursaphelenchus mucronatus*, female.



Figure 5: *Bursaphelenchus* sp.1, female.



Figure 6: *Parasitorhabditis* sp., male.

Conclusions

- *Bursaphelenchus xylophilus* has not been retrieved in the samples examined; yet other *Bursaphelenchus* species have been identified in 17.7%
- On several occasions, more than one nematode species has been found in the samples
- Beside *Bursaphelenchus* species, several other taxa have been recorded exhibiting various feeding habits (saprophytic, predatory and entomophilic)