Lesnická fytopatologie a rostlinolékařství

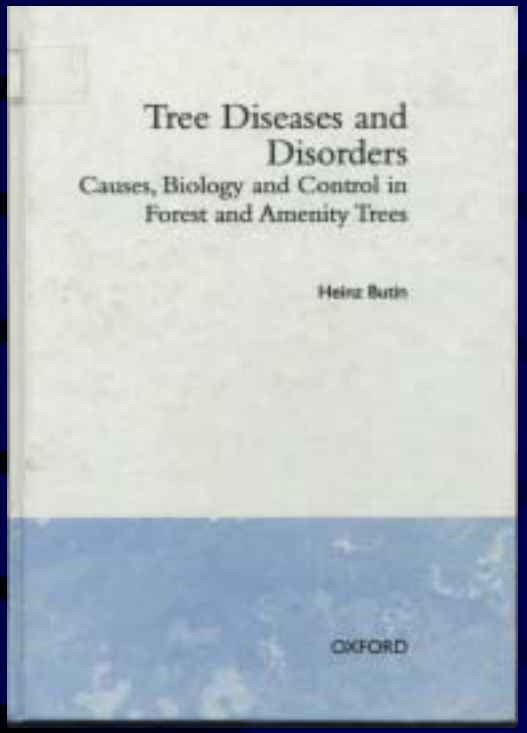
I. Úvod

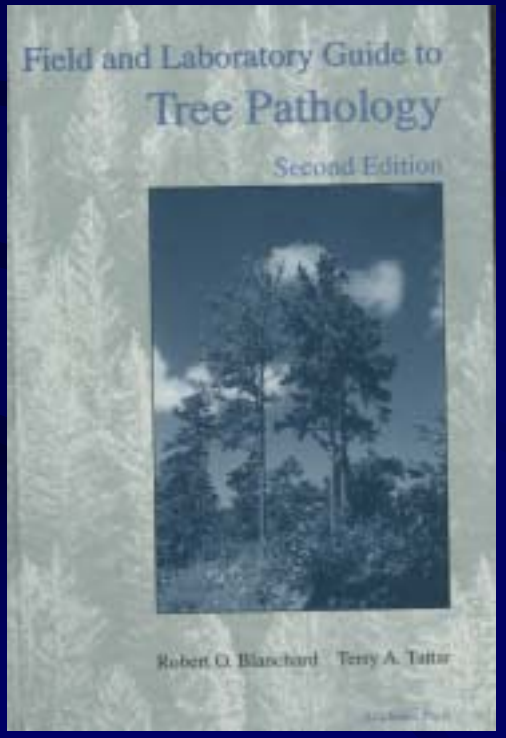
Tento projekt je spolufinancován Evropským sociálním fondem a Státním rozpočtem ČR InoBio – CZ.1.07/2.2.00/28.0018

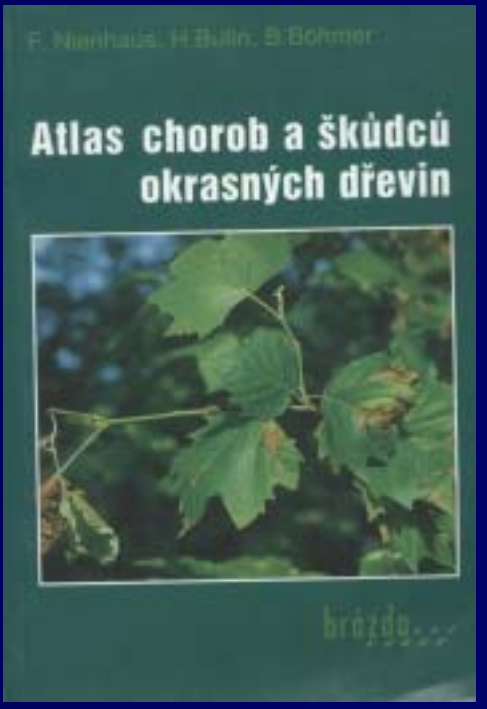
Studijní literatura

- Butin Heinz 1995. Tree Diseases and Disorders. Causes, Biology, and Control in Forest and Amenity Trees. Oxford University Press.
- Černý Alois 1976: Lesnická fytopatologie. SZN Praha
- Černý Alois 1989: Parazitické dřevokazné houby
- Černý Alois 1989: Ochrana lesů s fytopatologií. Návody do cvičení skriptum VŠZ Brno
- Jankovský, L. 1997: Viry, prokaryota, řasy, houby a lišejníky. Přehled systému a fylogeneze. PdF MU v Brně.

Literature


Tree Diseases and Disorders
Causes, Biology and Control in Forest and Amenity Trees
Heinz Butin
OXFORD


Field and Laboratory Guide to
Tree Pathology
Second Edition
Robert O. Blanchard Terry A. Tattar


F. Nienhaus, H.Butin, S.Bohmer
Atlas chorob a škůdců okrasných dřevin

Doporučená literatura

- Kůdela Václav et al. 1989: Obecná fytopatologie. Akademia Praha
- Blanchard, R., Tattar, T.A. Field and Laboratory Guide to Tree Pathology.

Obrazové průvodce

- Uhlířová et al. 1996. Symptomy poškození lesních dřevin. MZe ČR.
- Nienhaus, Butin, Bohmer 1998. Atlas chorob a škůdců lesních dřevin. Brázda
- Butin et al. Atlas chorob a škůdců okrasných dřevin.

Projekty řešené na Ústavu ochrany lesů a myslivosti

- Podíl hub na dekompozici dřevní hmoty (Jankovský)
- Referenční laboratoř SRS ČR pro determinaci *Mycosphaerella pini* (Jankovský, Palovčíková)
- Management velkých savců (Feuereisel)
- Biologie *Cameraria ohridella* (Samek, Mrkva, Urban)
- *Cryphonectria parasitica* v ČR (Jankovský)

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Přehled zdravotního stavu lesů v ČR

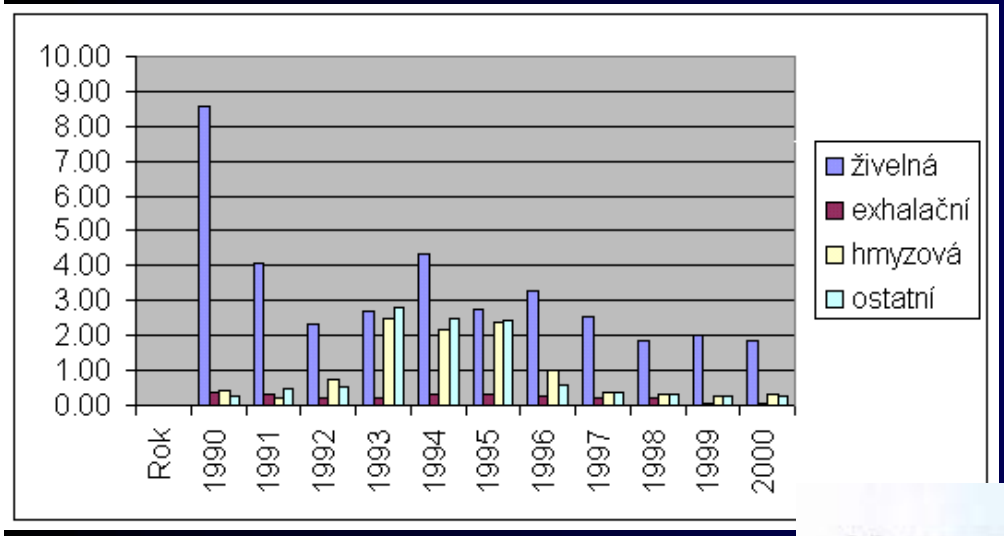
ZPRÁVA O STAVU LESA A LESNÍHO HOSPODÁŘSTVÍ ČESKÉ REPUBLIKY

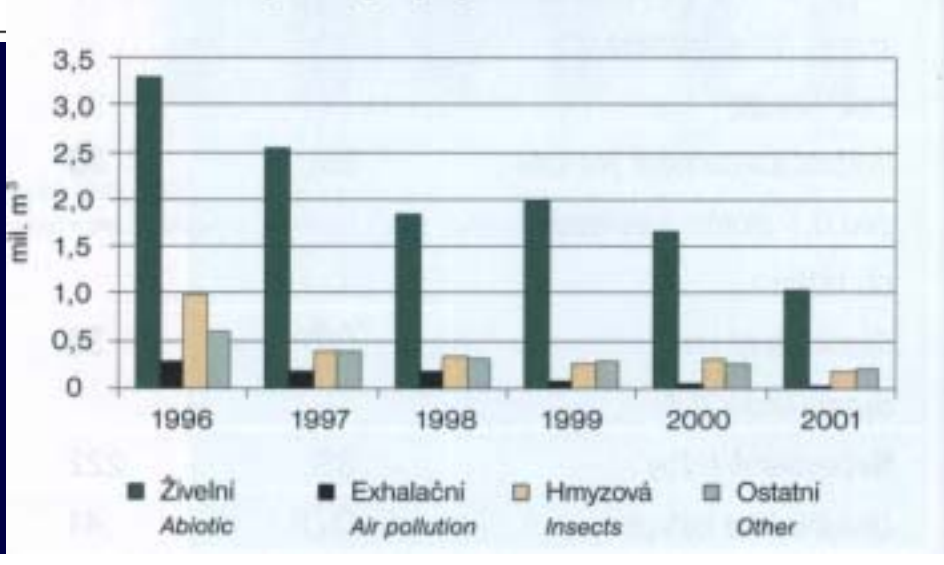
REPORT ON THE STATE OF FORESTS AND FORESTRY IN THE CZECH REPUBLIC

Stav k 31. 12. 2001
by December 31, 2001

MINISTERSTVO ZEMĚDĚLSTVÍ ČR ODVĚTVÍ LESNÍHO HOSPODÁŘSTVÍ
MINISTRY OF AGRICULTURE OF THE CZECH REPUBLIC

Salvage fellings by agents (mil. m^3)





Abiotické vlivy

- Poškození porostů
  - větrem
  - sněhem
  - námrazou
  - exhalacemi
  - suchem
  - ostatními vlivy
- Nahodilé těžby

Nahodilé těžby způsobené polomy (vítr, sníh, námraza)

- 

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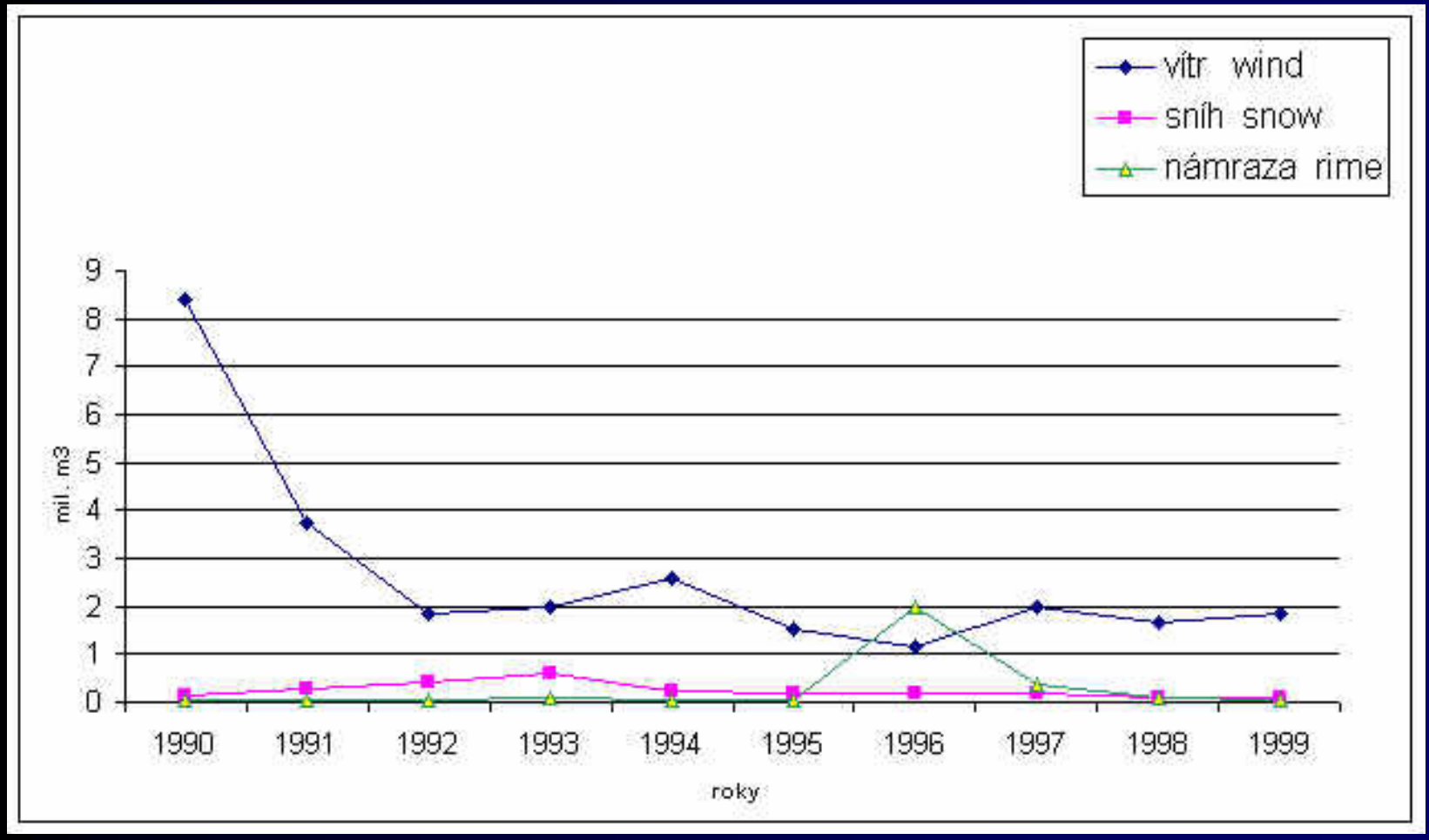
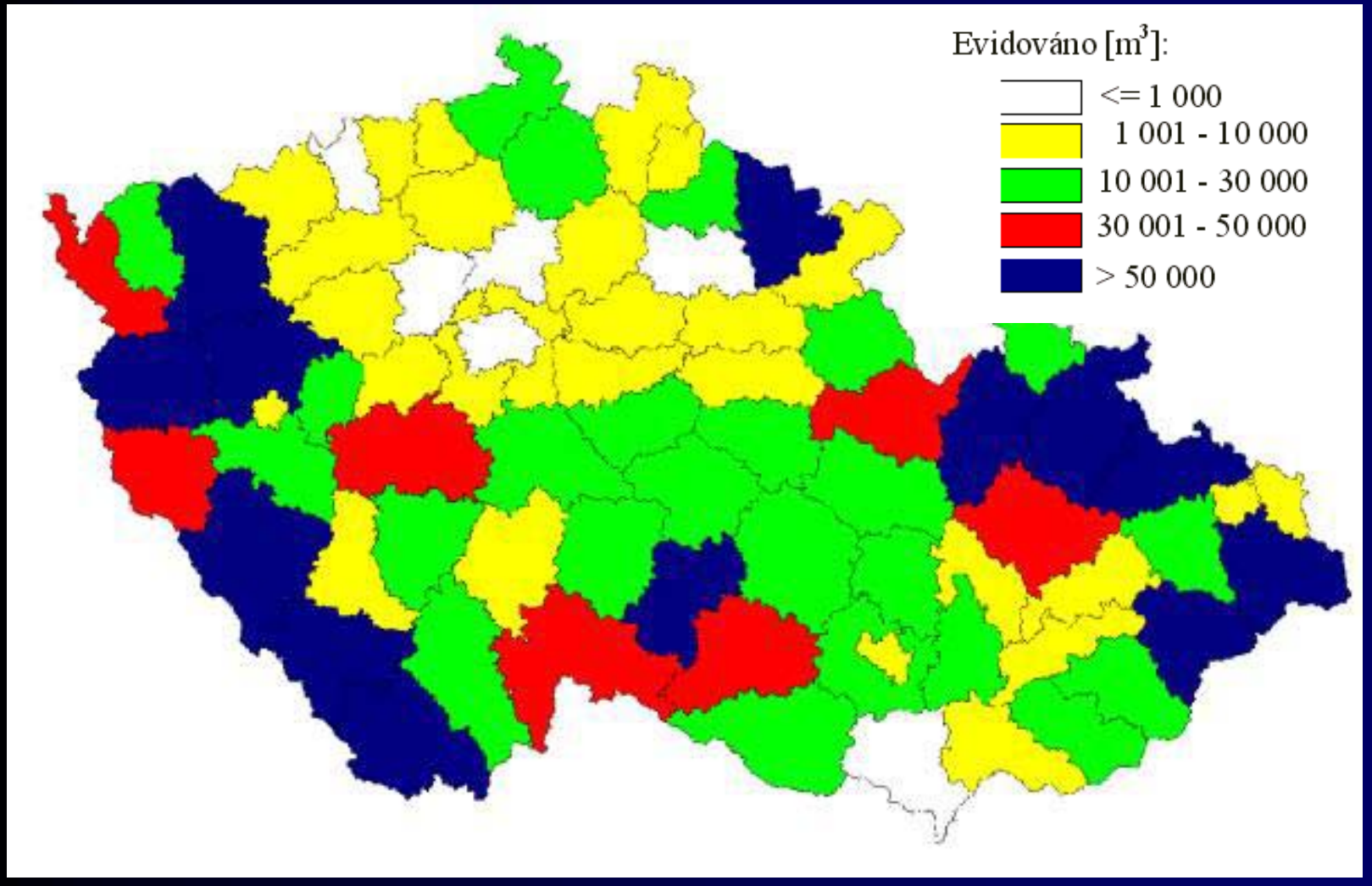
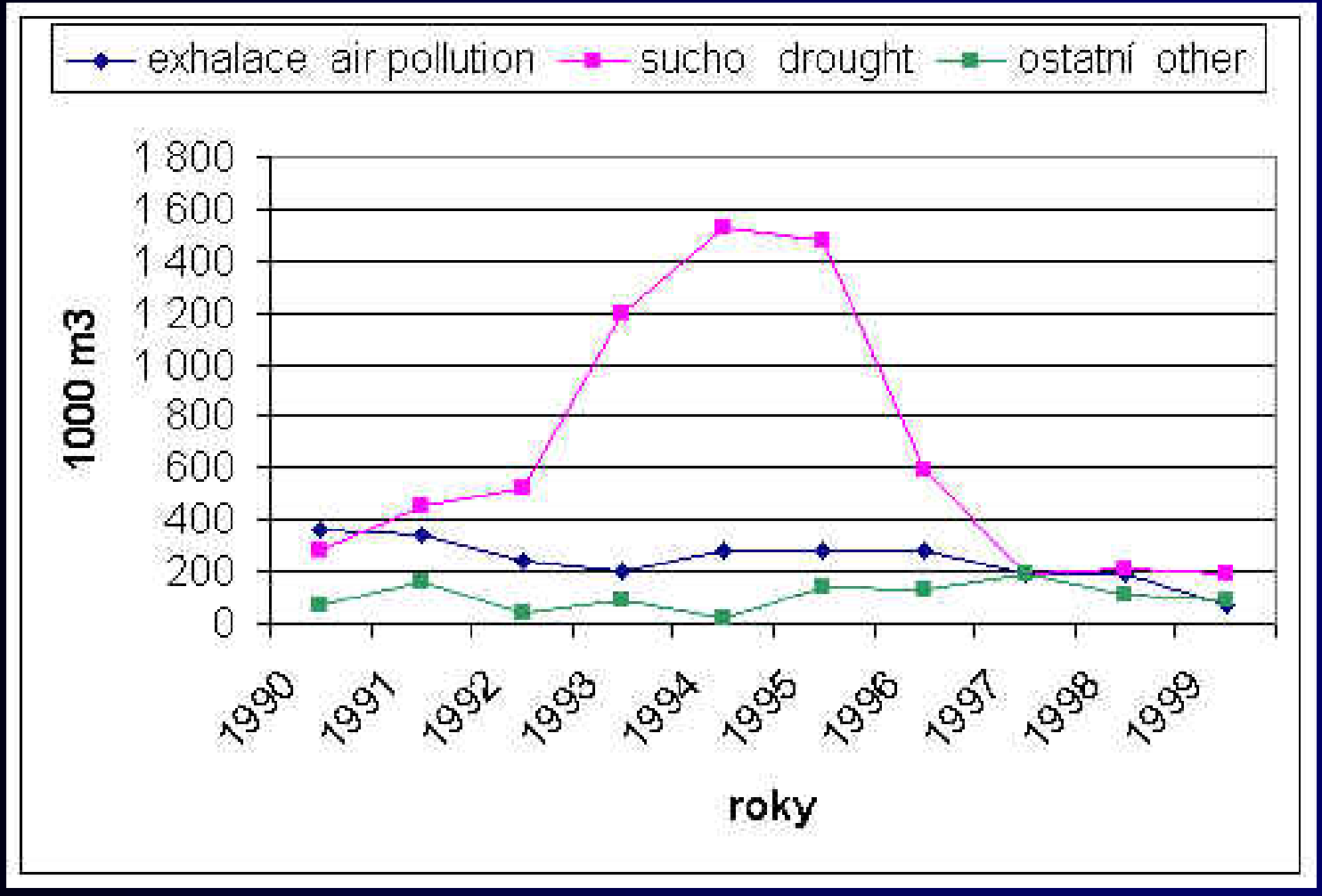


Poškození porostů větrem, sněhem a námrazou

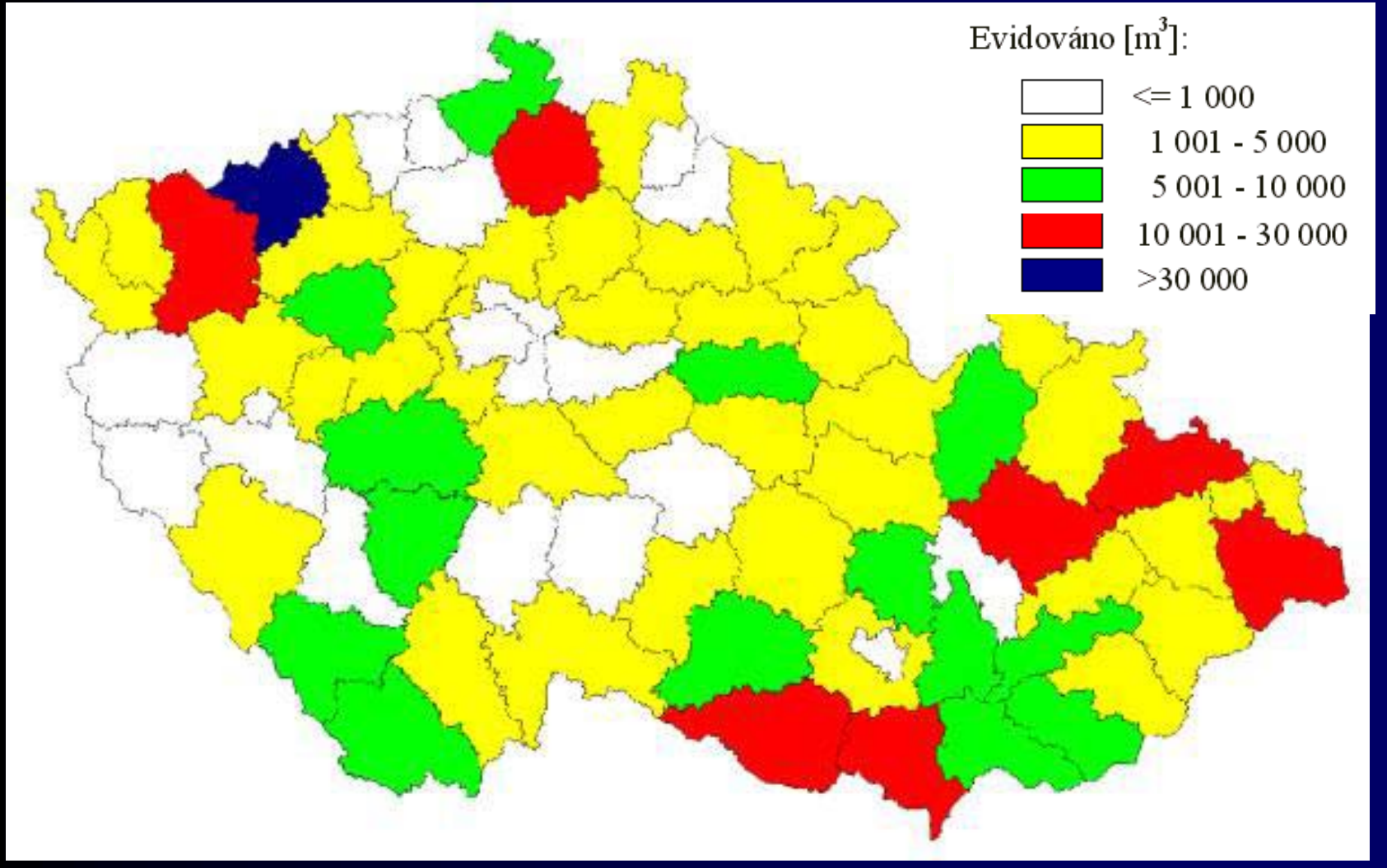


Nahodilé těžby způsobené exhalacemi, suchem a ostatními vlivy

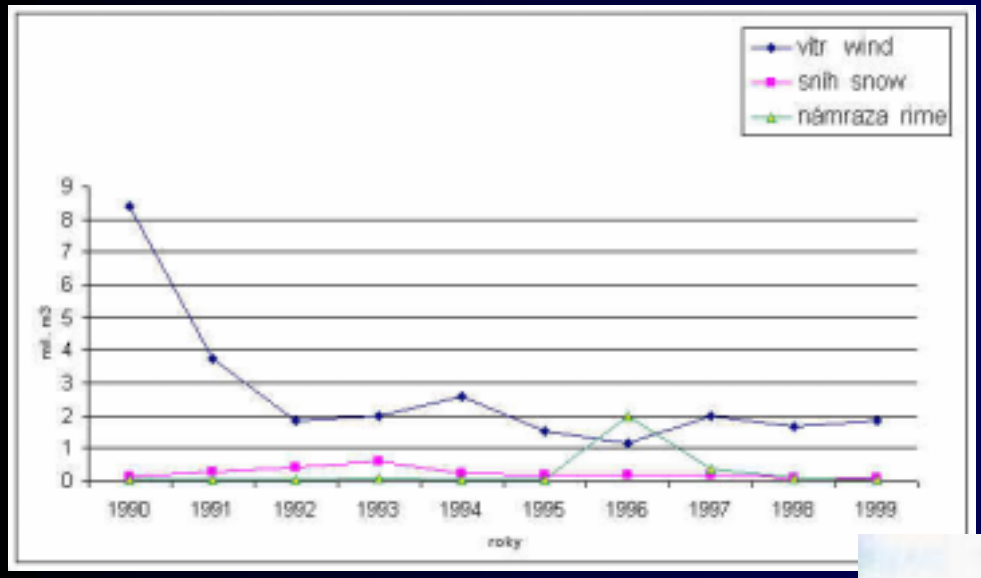
Nahodilé těžby způsobené exhalacemi, suchem a ostatními vlivy

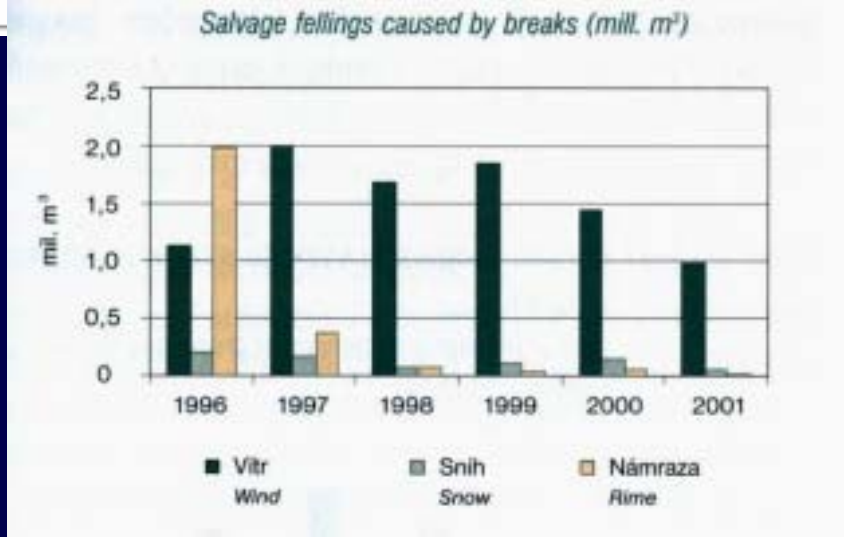


Poškození porostů exhalacemi, suchem a ostatními vlivy



Salvage felling caused by wind





Damage caused by wind,

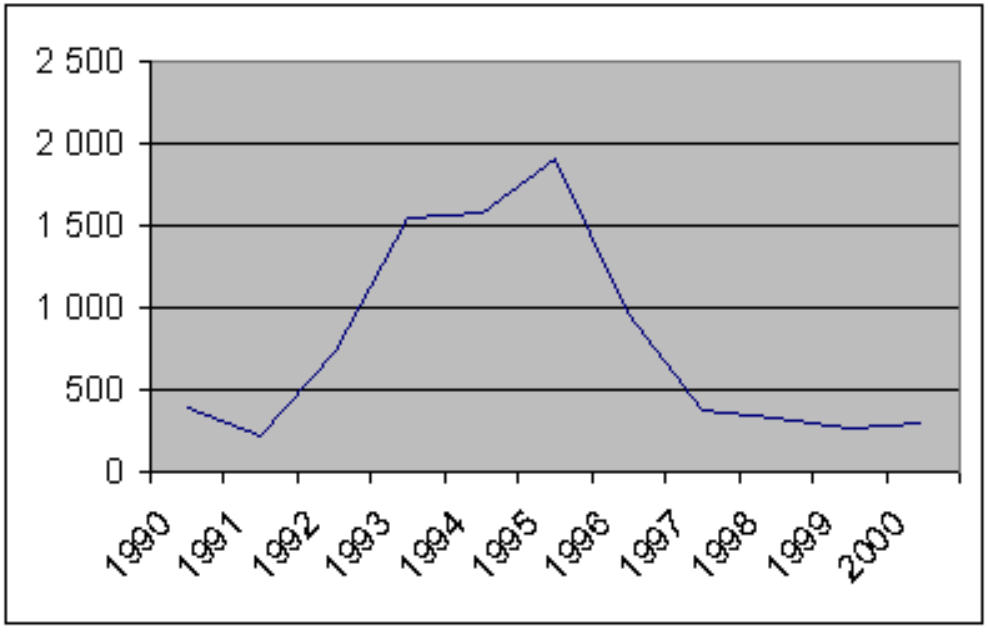
- 

Fires

	1999	2000	2001
Škoda způsobená lesními požáry (mil. Kč) *Damage caused by forest fires (mill. CZK)*	10,8	19,9	6,8
Uchráněné hodnoty lesů (mil. Kč) *Forest values saved (mill. CZK)*	236,3	332,4	120,6
Počet požárů (včetně zahoření) *Number of fires (including incipient fires)*	1 403	1 499	483
Rozloha lesních požárů (ha) *Area of forest fires (ha)*	336	375	87

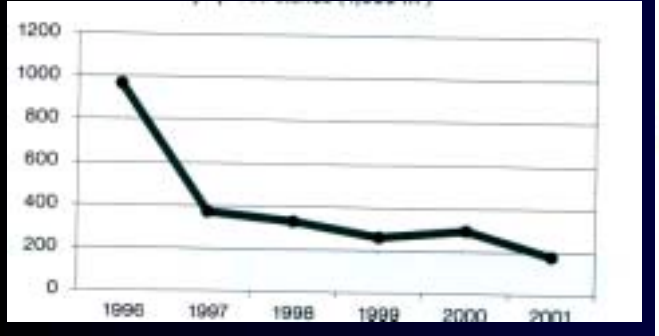
Biotičtí činitelé

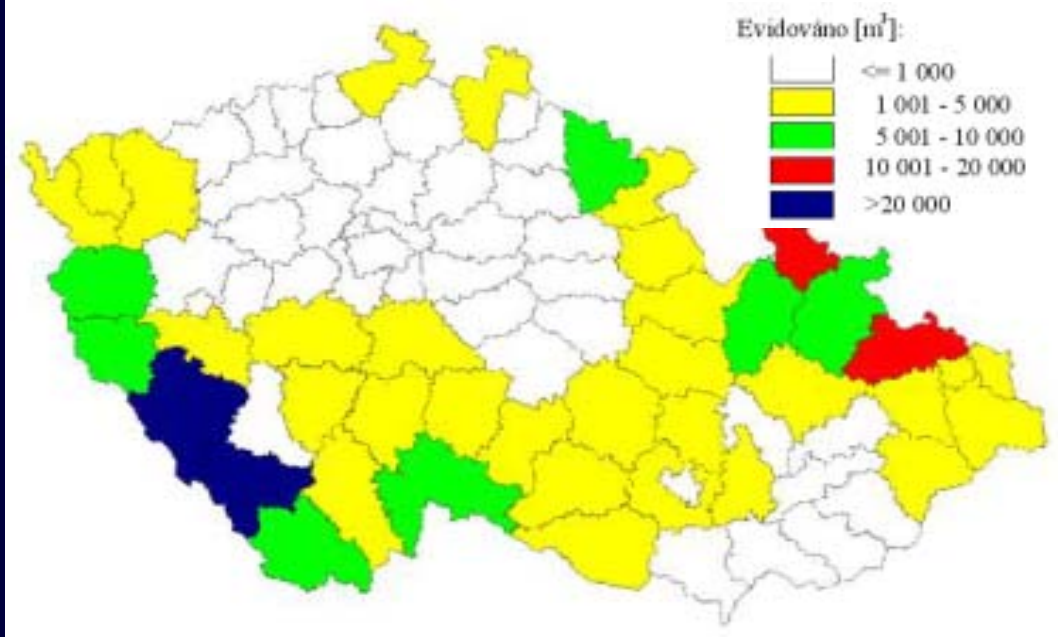
- podkorní hmyz
- listožravý hmyz
  - na jehličnanech
  - na listnáčích
- škody zvěří
- houbové choroby



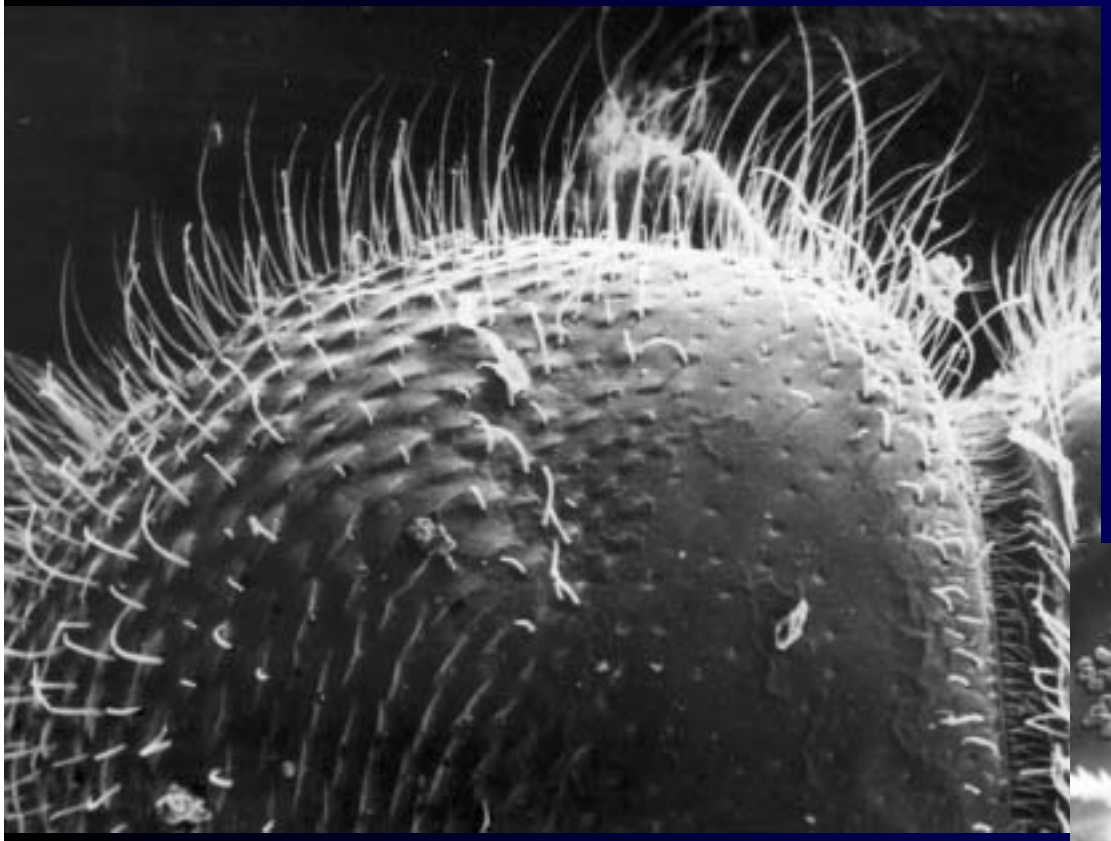
Bark beetles

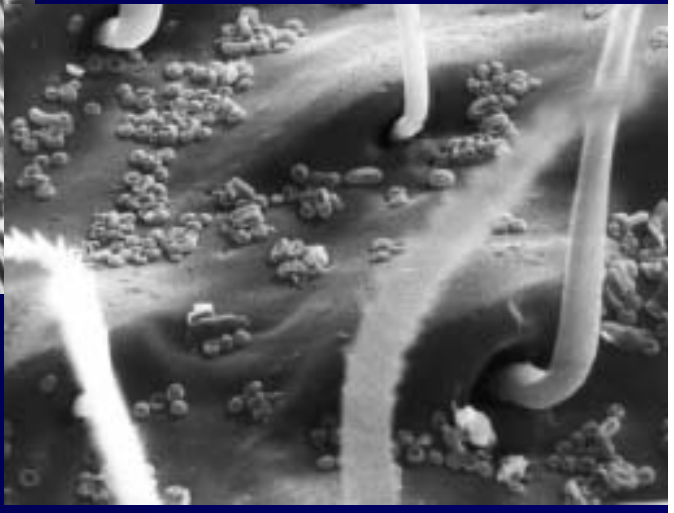
Recorded volume of wood infested by bark beetles in Norway spruce stands in 1,000m3





Bark beetles





Bark beetles

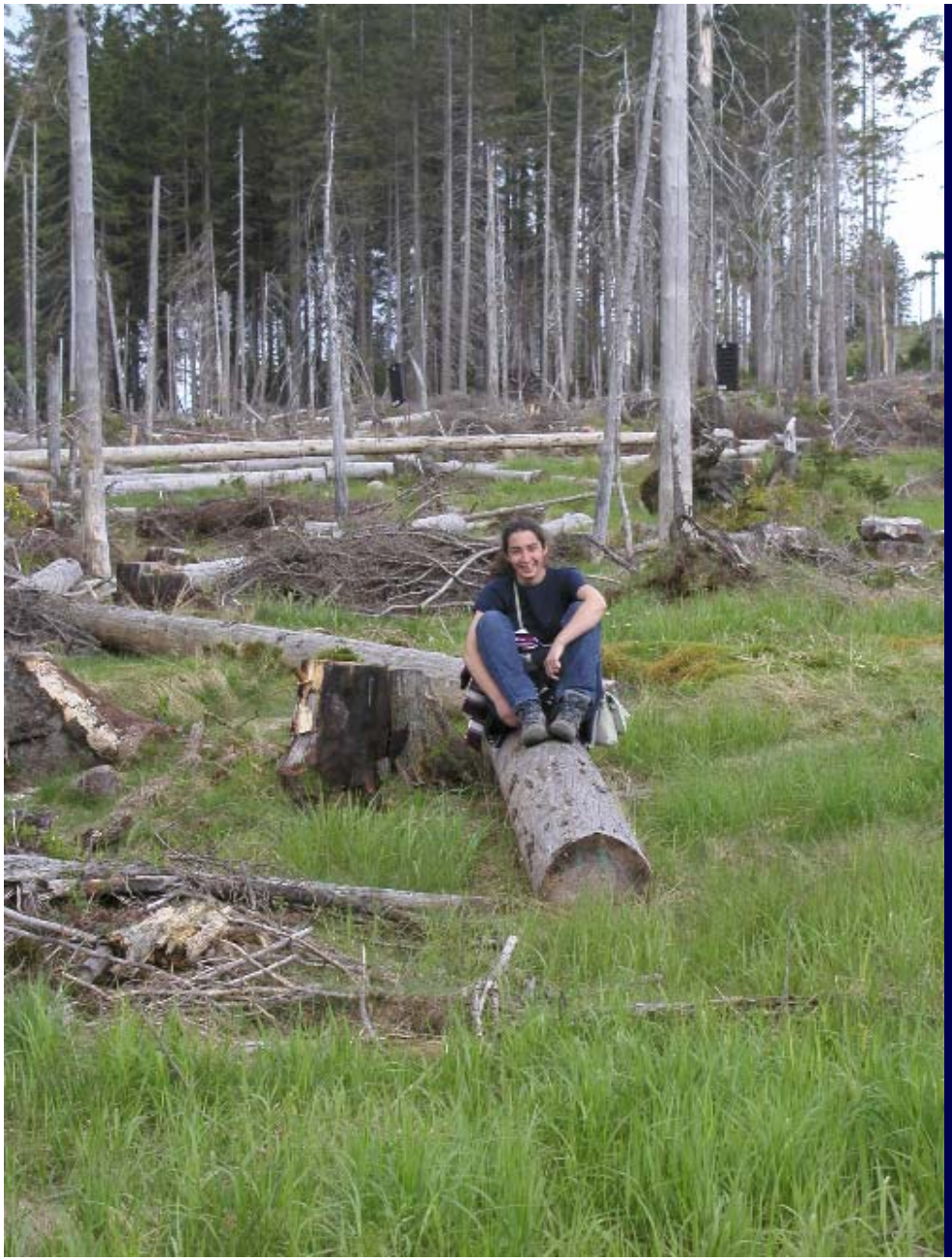
Bark beetles in Sumava Mts.

Bark beetles in Sumava Mts.

Bark beetles in Sumava Mts.

Trap tree (trap log)


Bark beetles in Sumava Mts.



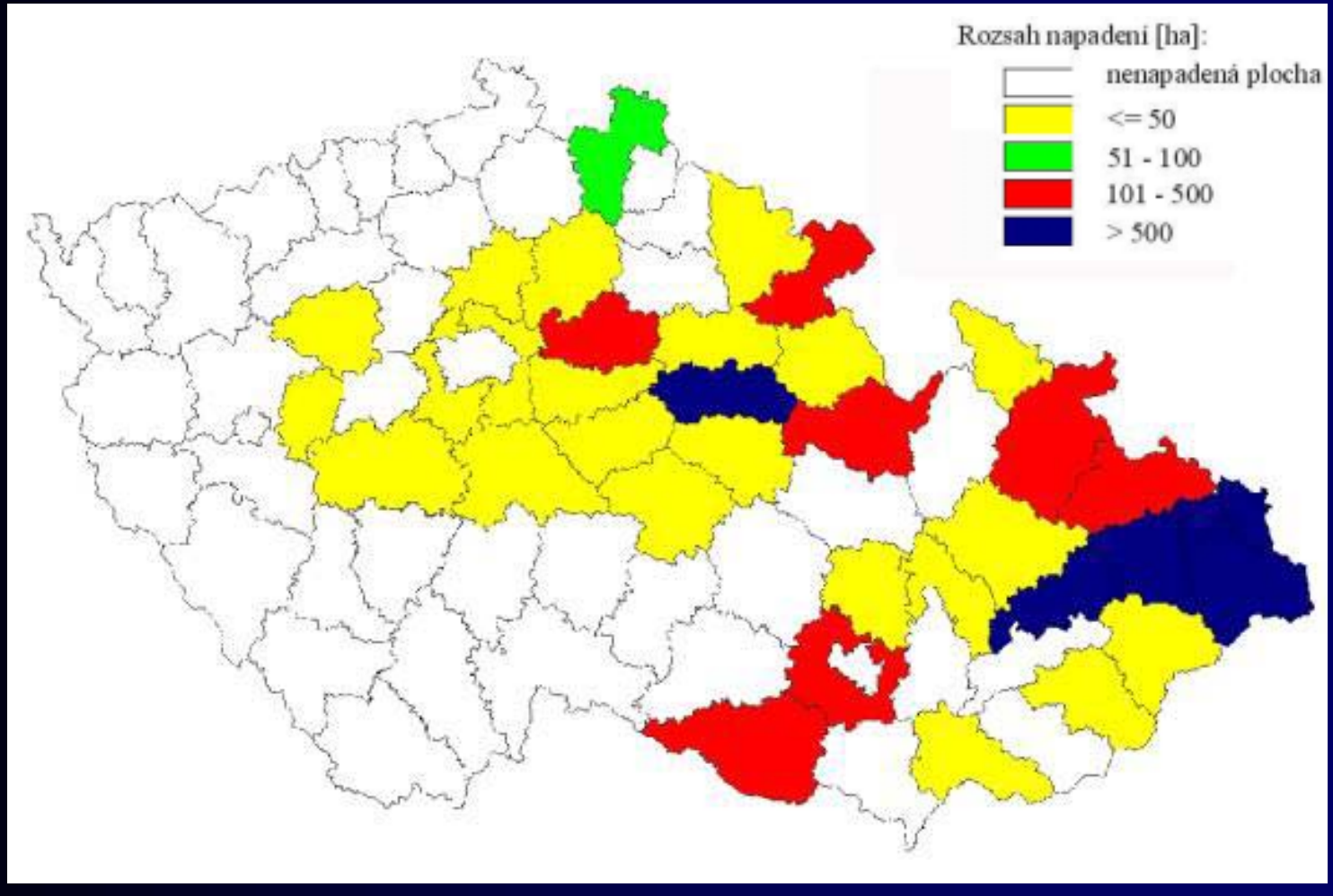
Bark beetles in Sumava Mts.

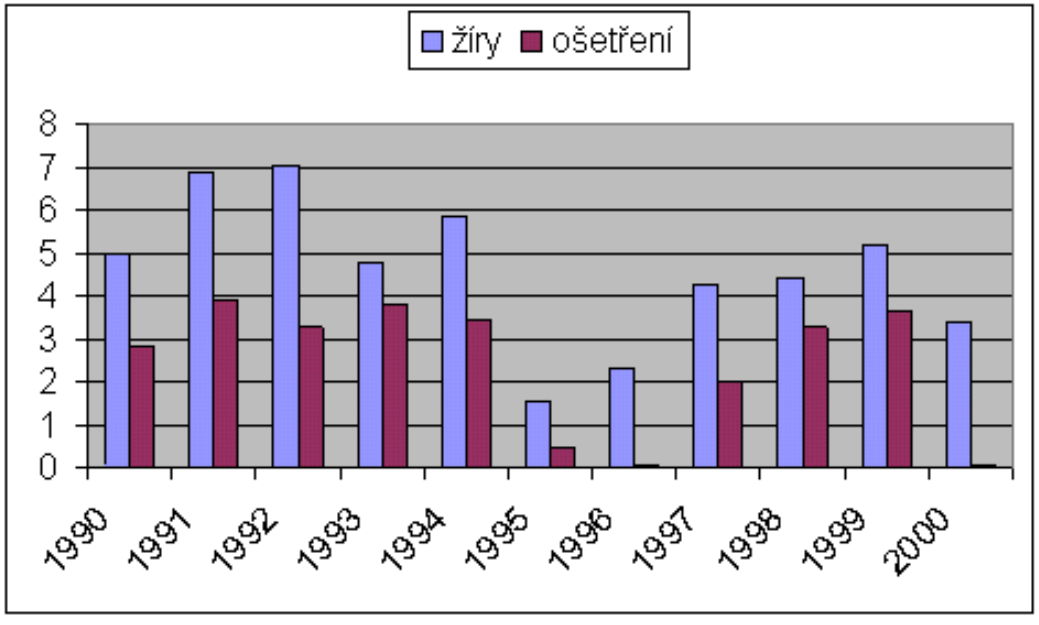

164
169

The Armillaria as predisposial factor of bark beetle

Listožraví škůdci na jehličnanech

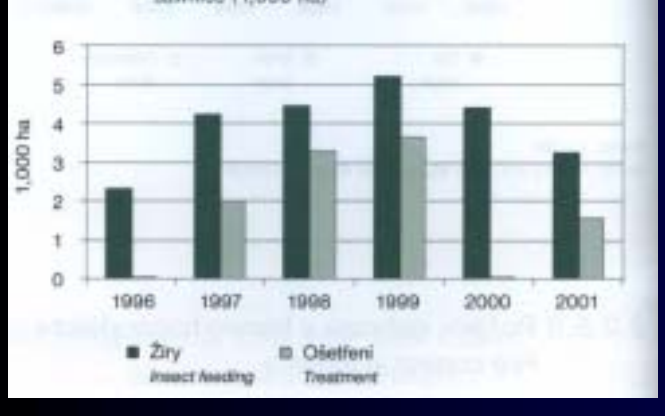
Rozsah škodlivého výskytu pilatek na smrku

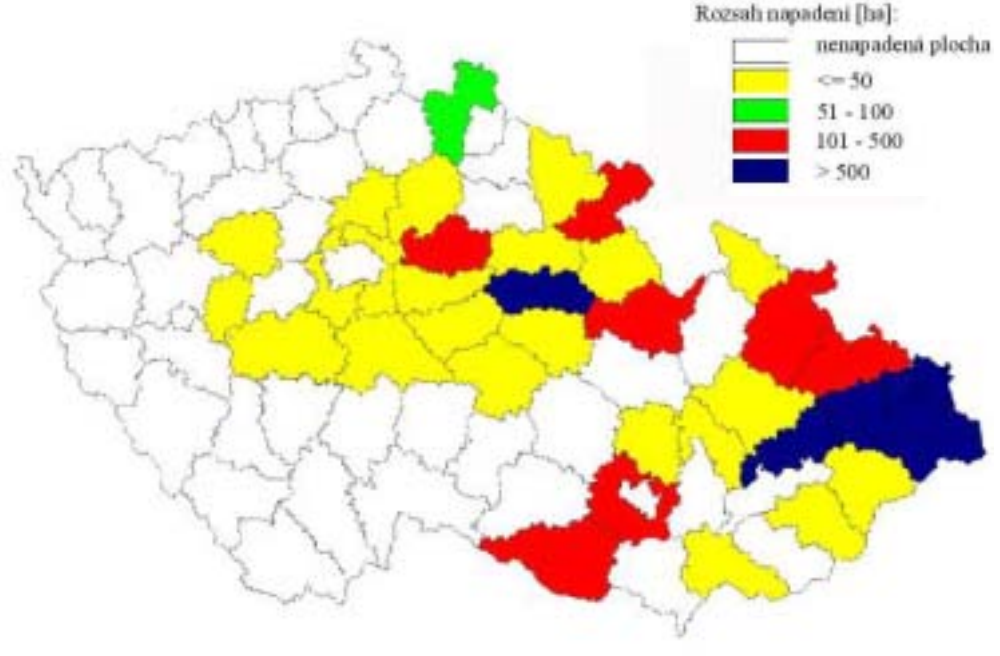


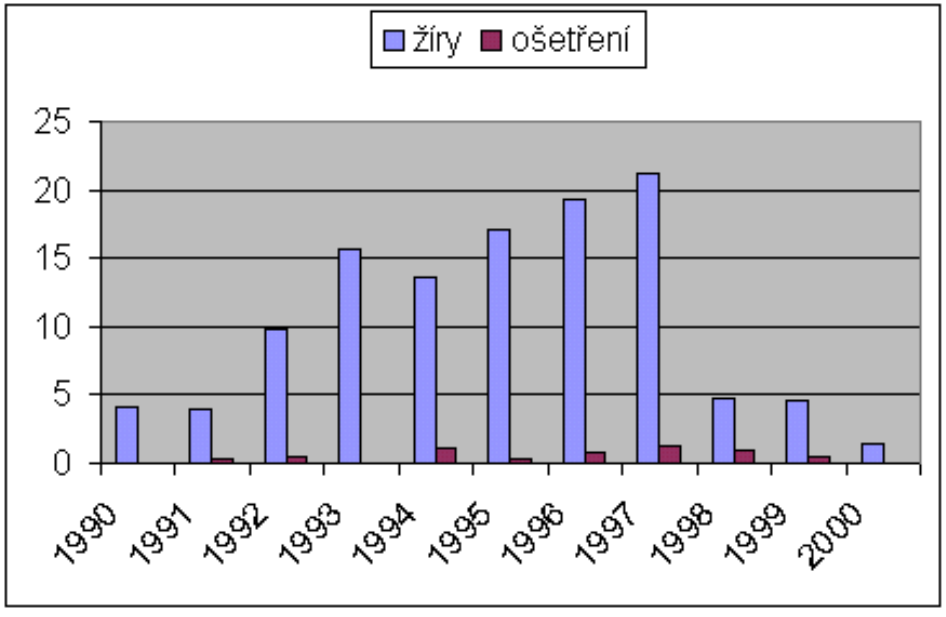


Leaf eating insects on coniferous species

Area of damaging occurence of gregarious spruce sawflies in 1,000 ha

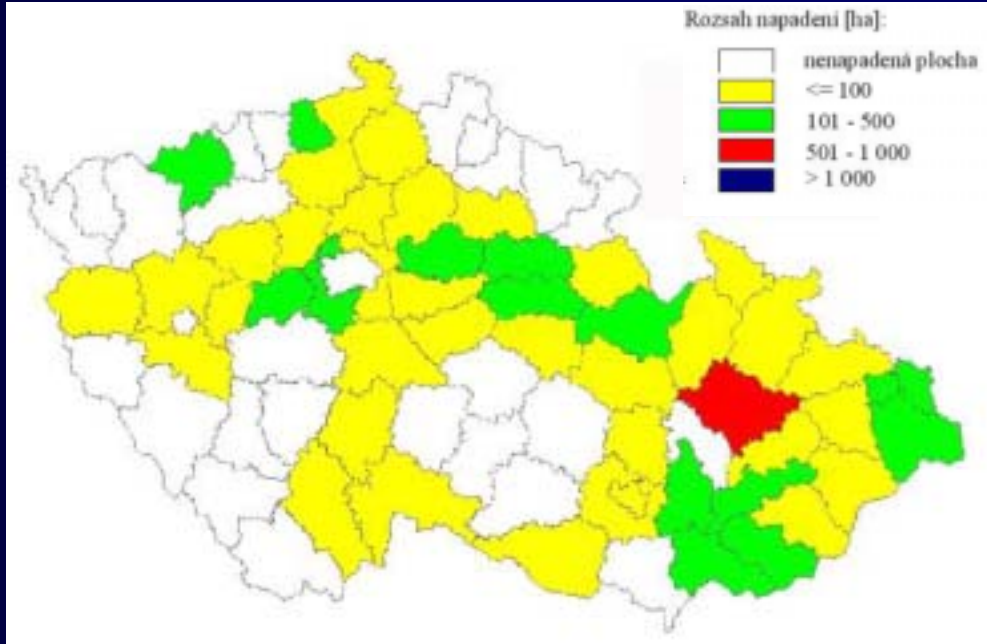






Leaf eating insects on broadleaved species

Area of damaging occurence of oak leaf roller moths and hopers in oak stands



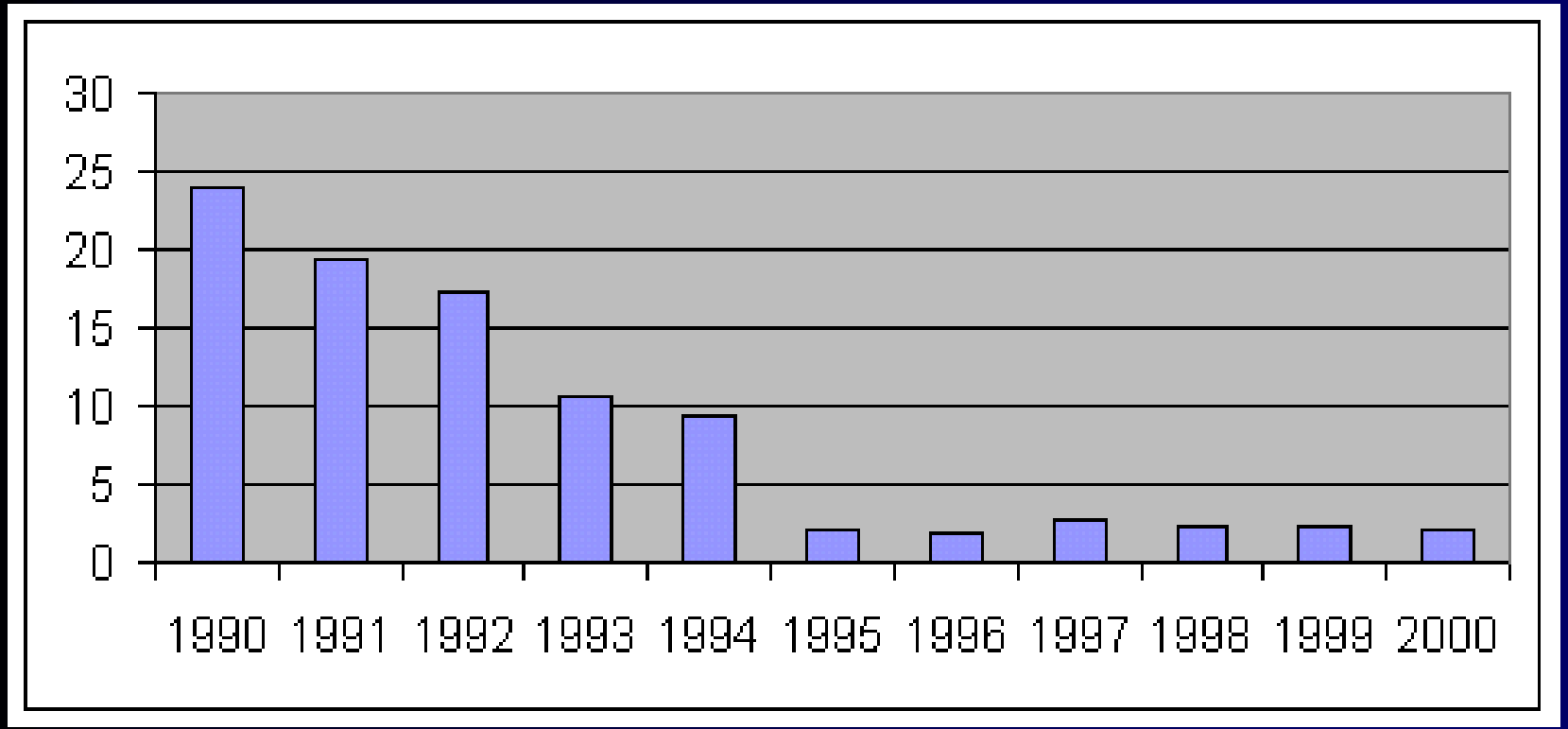
Houbové choroby

Houbové choroby

Houbové choroby

Houbové choroby

Damage to coniferous plantation by larch pine weevil



Game damages

- Bark stripping
- Browsing
- Fraying

Spring stock of game

Game	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Red deer	21639	23929	22294	22236	18281	177787	17829	14653	15929	16789	19069	19366
Fallow deer	5363	4674	5790	6500	6780	6958	7020	7172	7653	8272	9651	9642
Mouflon	7976	7885	7344	7943	7540	7322	7183	6653	7309	6938	7974	7724
Roe deer	105257	119508	121630	125486	127866	124230	107977	102671	107437	100202	113320	115832
Wild boar	572350	54085	31168	41464	33947	35470	41873	42976	62616	73555	68571	74883

Hunting of major game species (pcs)

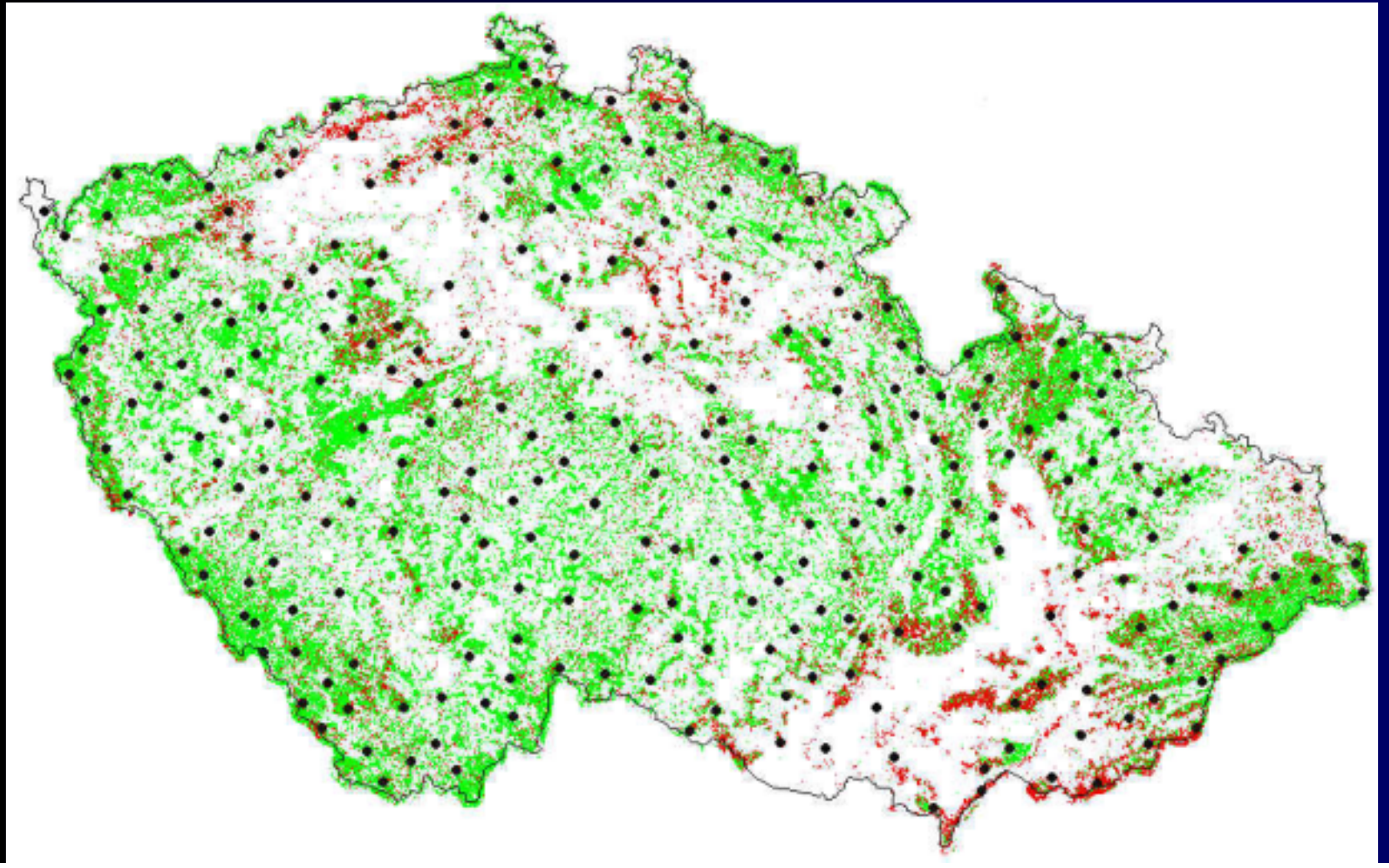
Game	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Red deer	25127	24370	20841	23124	20477	22089	20815	20270	20862	24373	24004	23809
Fallow deer	12123	11656	11117	14298	14775	14027	14276	15777	17281	17532	17605	17591
Mouflon	16940	16175	16456	17022	15633	15263	15788	15708	13670	16812	16476	15721
Roe deer	236930	258562	227015	257999	254383	253118	243712	248105	253865	263609	269542	261208
Wild boar	31447	33623	31638	25094	29448	26492	30587	34365	35911	42831	43771	43433

Protection against damage caused by game

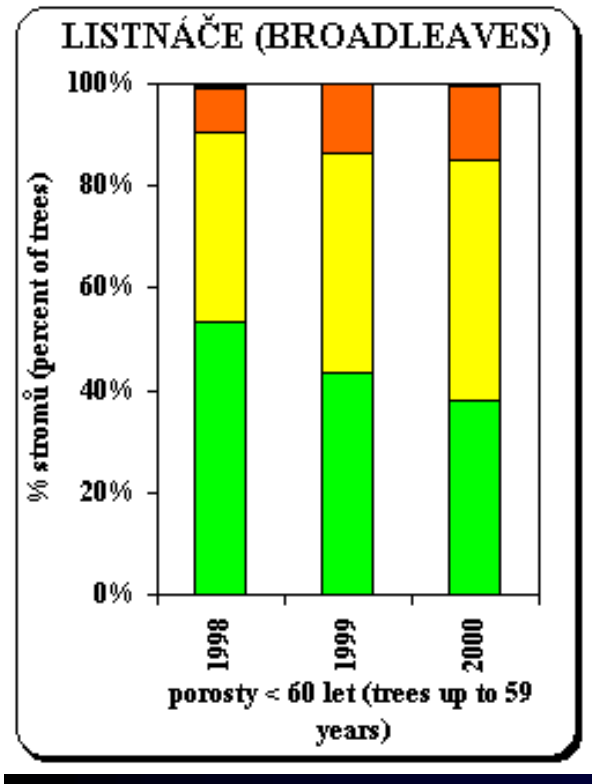
Ohryz kůry zajícem

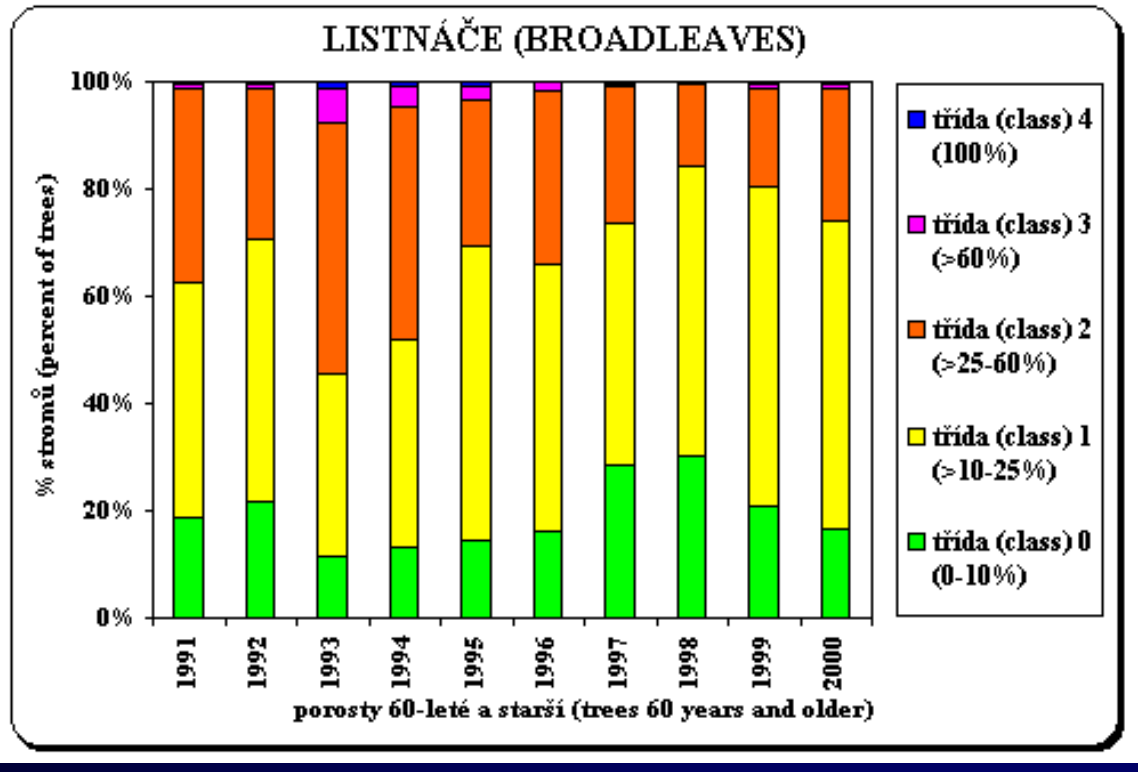
Monitoring of forest health

The net of monitored plots in Czech

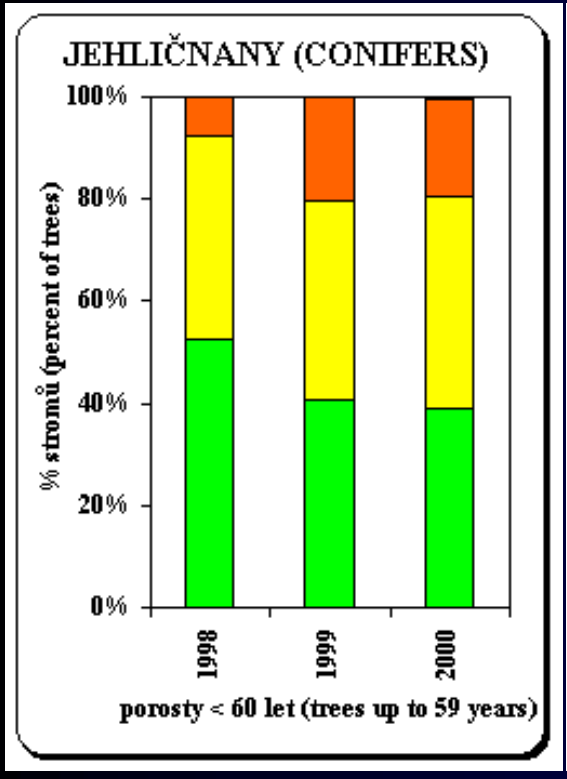


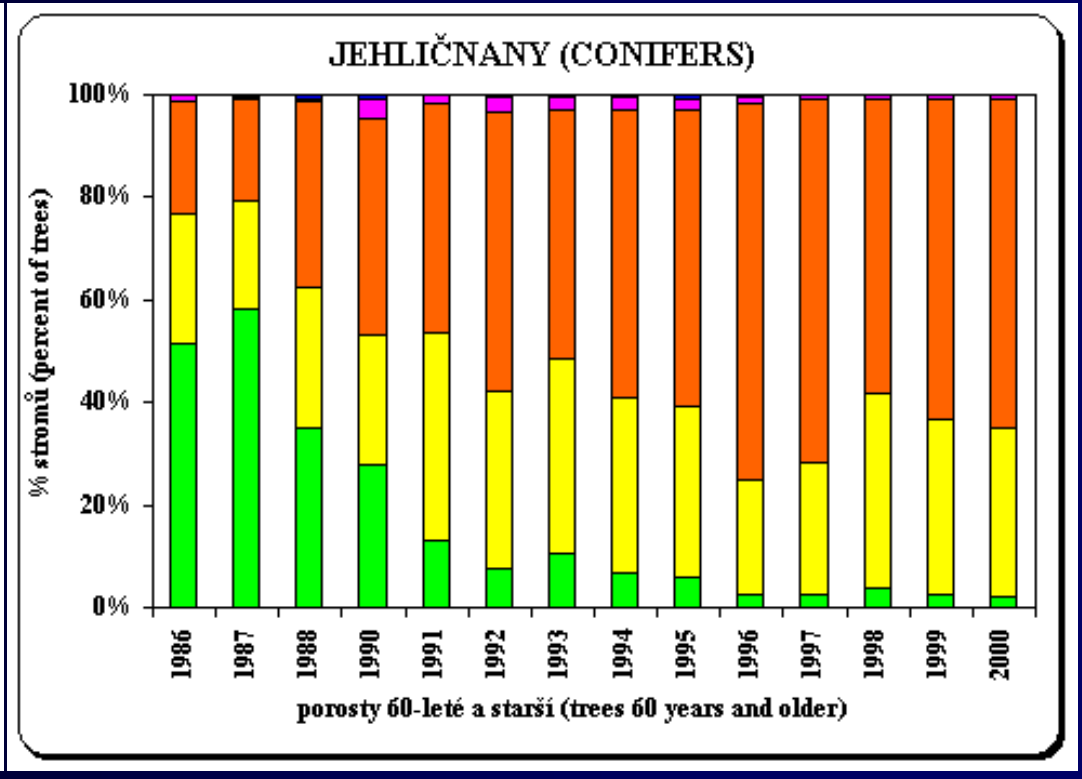
Defoliation of broadleaves species at the ICP plots



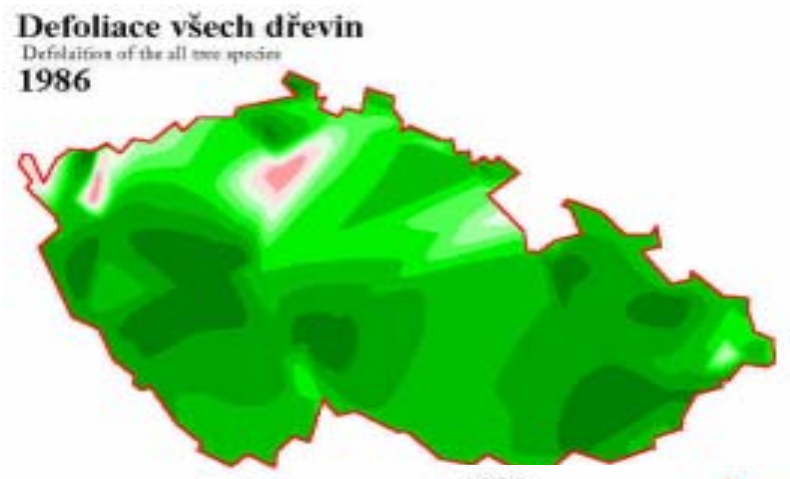


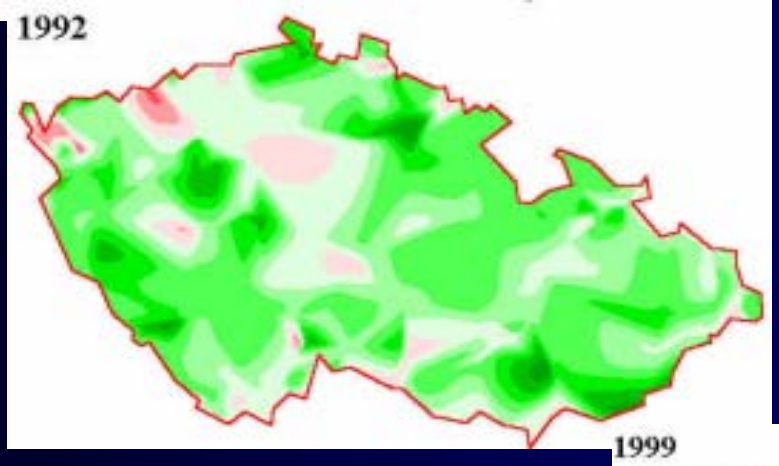
Defoliation of conifers at the ICP plots

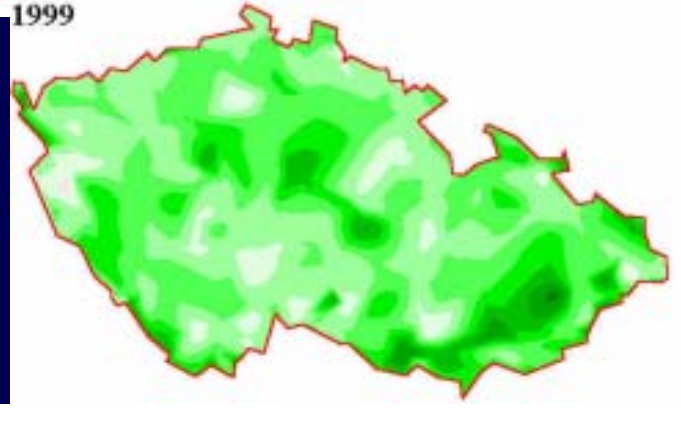


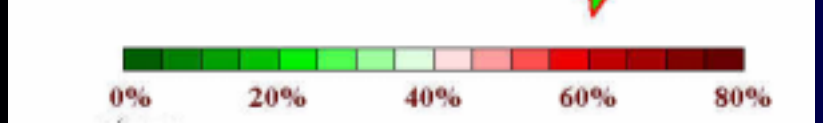


Trends of defoliation









Některé příklady chřadnutí dřevin v ČR

Forest decline in Orlicke Mts.


Forest decline in Orlicke Mts.


Forest decline in Orlicke Mts.


Forest decline in Orlicke Mts.


Forest decline in Orlicke Mts.

Forest decline in Orlicke Mts.

Flatting of root system

The main agents of root reduction

- disturbation of soil due deposition of sulphur dioxid within 70th and 80th years
- High deposition of nitrogen at the present
- Disturbation of water relations after cutting
- Using of undercutting plants (truncated plants)

Forest decline in Orlicke Mts.

Decline of mature stands


Spruce dieback
complex factors + Ascocalyx abietina
Kuusenversosyöpä

Spruce dieback

complex factors + ***Ascocalyx abietina***

Kuusenversosyöpä

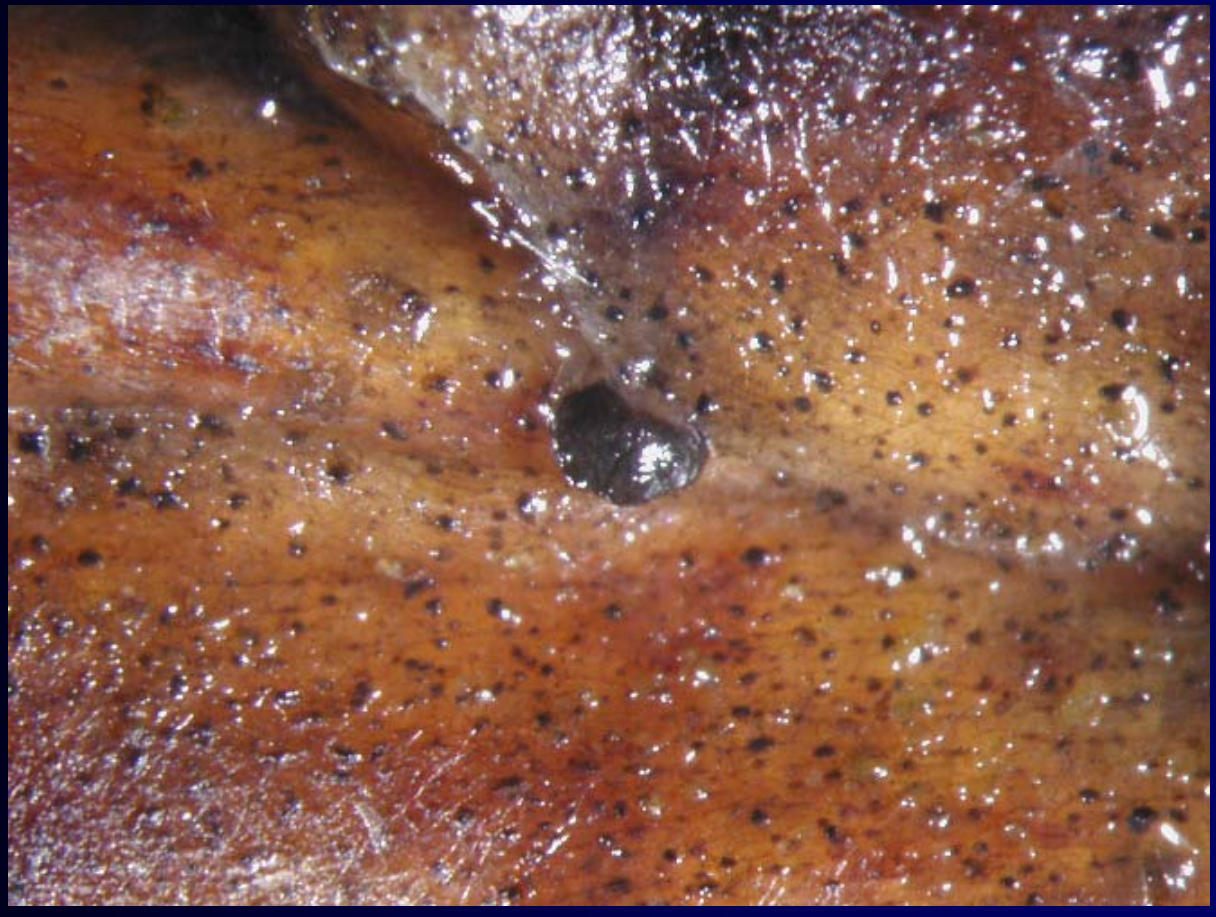

Spruce dieback
complex factors + Ascocalyx abietina

Spruce dieback

complex factors + *Ascocalyx abietina*

Spruce dieback

Ascocalyx abietina



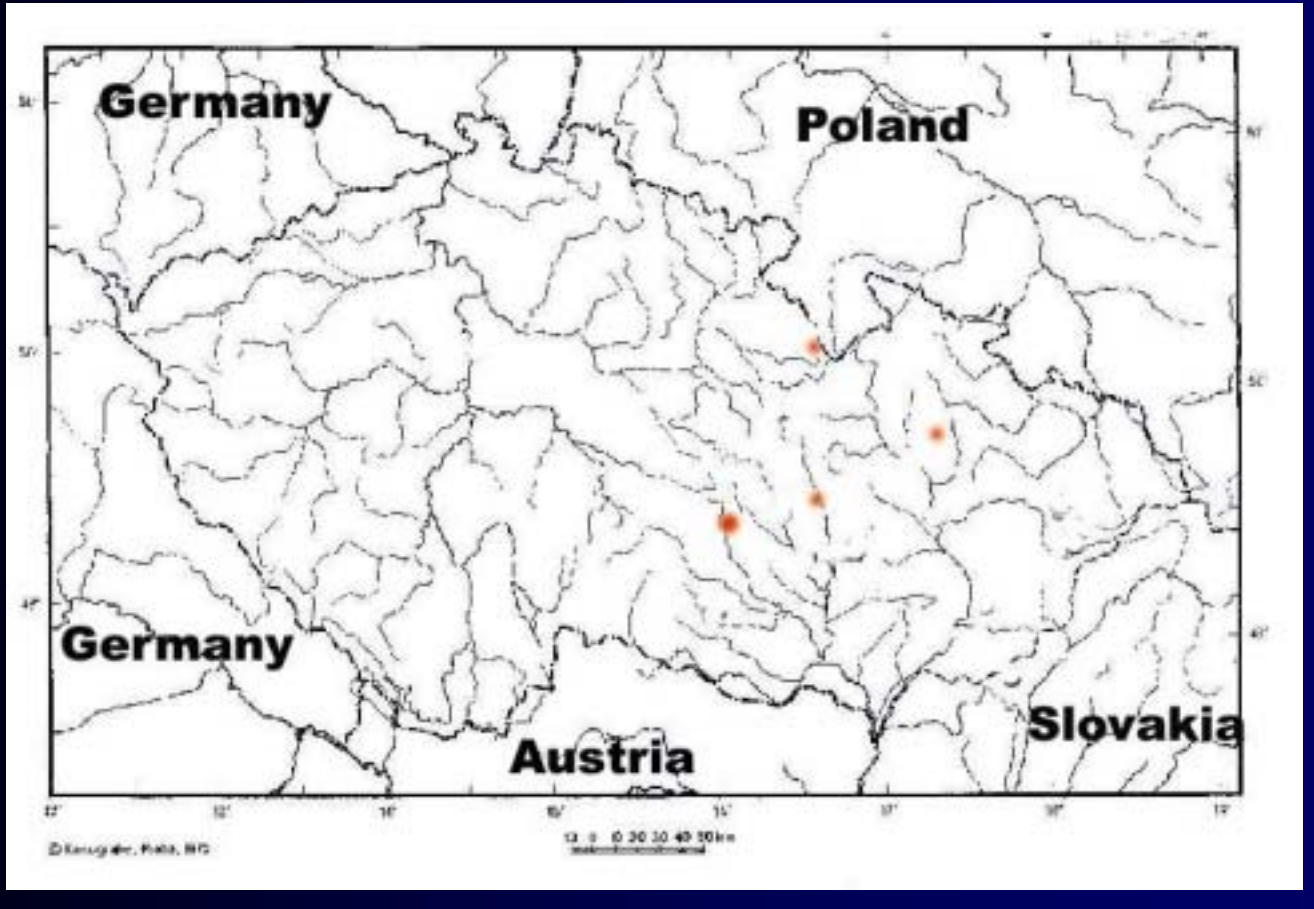
Spruce dieback

Ascocalyx abietina

Límce proti klikorohu po 15 letech

Spruce decline

abiotic factors?, mites?, MLO?, RLO?




Spruce decline
abiotic factors?, mites?, MLO?, RLO?


Spruce decline
abiotic factors?, mites?, MLO?, RLO?

Spruce decline

abiotic factors?, mites?, MLO?, RLO?

Spruce decline

abiotic factors?, mites?, MLO?, RLO?

Spruce decline

abiotic factors?, mites?, MLO?, RLO?

Spruce decline

abiotic factors?, mites?, MLO?, RLO?

Spruce decline

abiotic factors?, mites?, MLO?, RLO?

Spruce decline

mites?, MLO?, RLO?


Spruce decline
mites? + MLO?, RLO?

Spruce decline

mites

Spruce decline

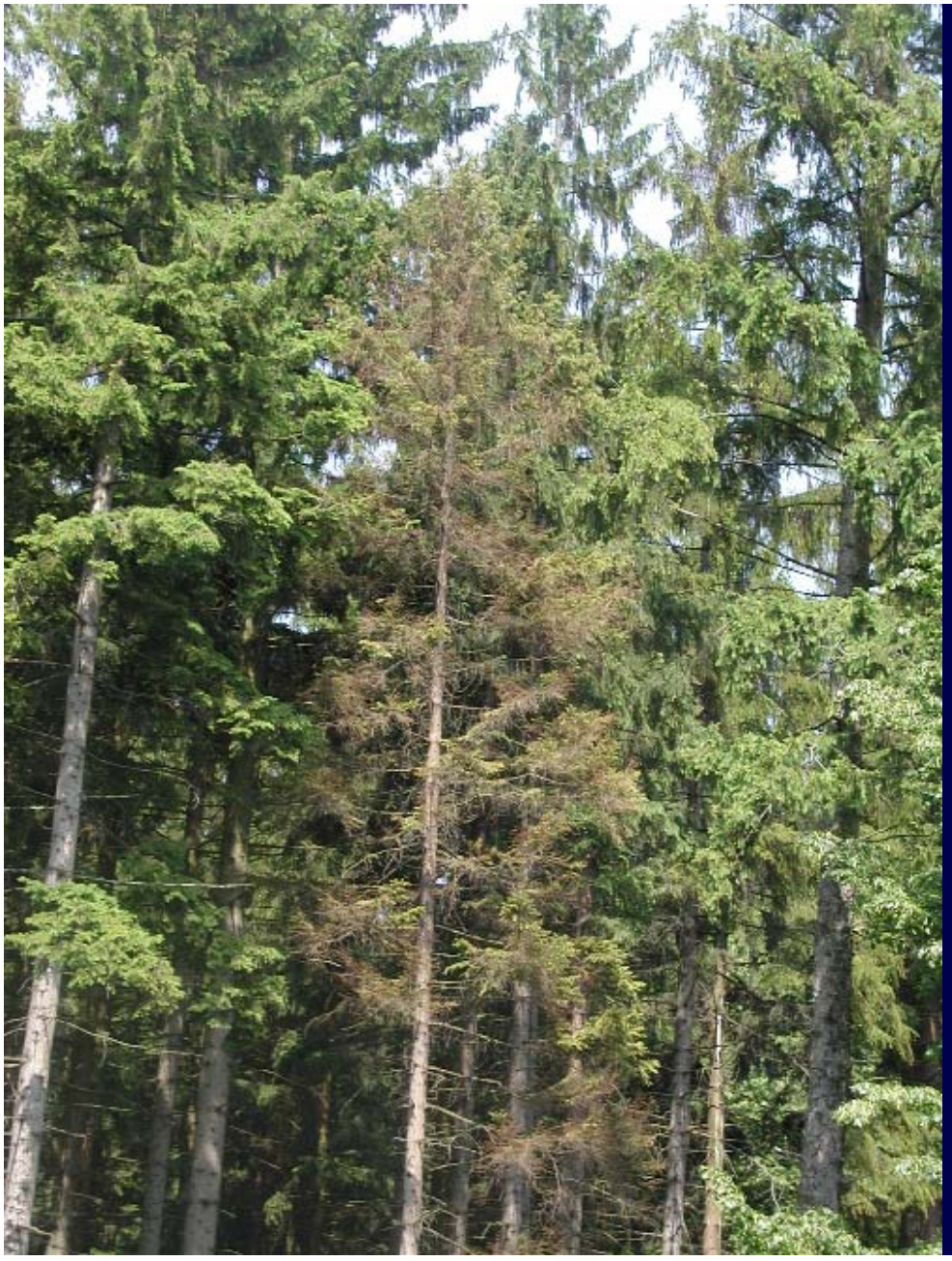
the necrosis after mites sucking


Spruce decline
No specific decline of spruce

Spruce decline

abiotic factors?, mites?, MLO?, RLO? – ozon?


Spruce decline
abiotic factors?, mites?, MLO?, RLO? – high level of water in soil?



Spruce decline

Acute infection by Armillaria
drought + Armillaria

Spruce decline

Acute infection by Armillaria
drought + Armillaria

Spruce decline

Acute infection by Armillaria
drought + Armillaria

Spruce decline

Acute infection by Armillaria
drought + Armillaria

Spruce decline

Acute infection by Armillaria

drought + Armillaria


Chřadnutí smrku
zasolení kořenového systému

Chřadnutí smrku

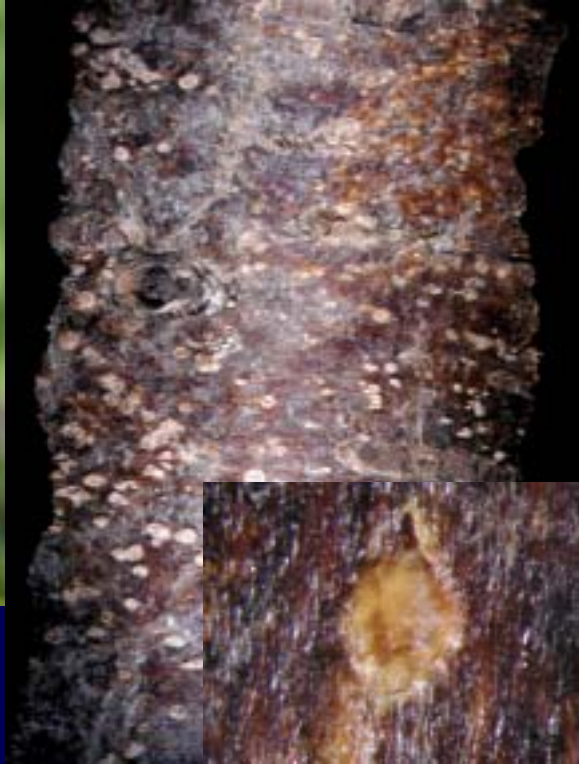
zasolení kořenového systému

Chřadnutí smrku

zasolení kořenového systému

Decline of young larches

Decline of young larches



Decline of broadleaved species

Decline of beech in Bile Karpaty Mts.

Decline of beech in Bile Karpaty Mts.

Decline of beech in Bile Karpaty Mts.

Game damages browsing

Decline of beech in Bile Karpaty Mts.

Bark peeling

Decline of beech in Bile Karpaty Mts.

Bark peeling

Decline of beech in Bile Karpaty Mts.

Damage of root system

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Decline of beech in Bile Karpaty Mts.

Damage of root system Armillaria root rot

Decline of beech in Bile Karpaty Mts.

Damage of root system
Armillaria root rot

Decline of beech in Bile Karpaty Mts.

Phytophtora necrosis

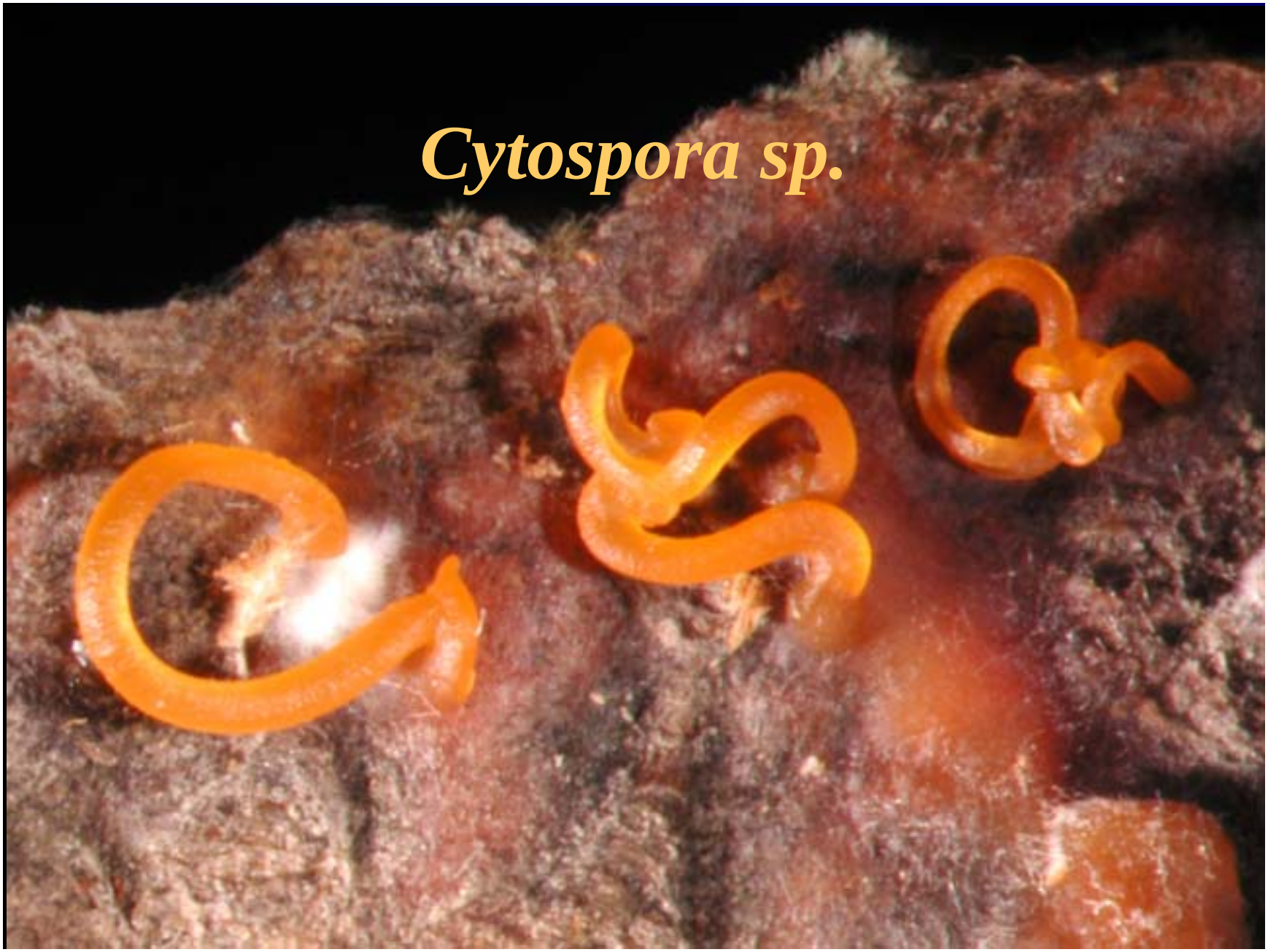
Decline of beech in Bile Karpaty Mts.

Nectria coccinea

Decline of beech in Bile Karpaty Mts.

Schizophyllum commune

Cytospora sp.


Cytospora sp.


Cytospora sp.

Some new unintentionally introduced pest a disease

- Mycosphaerella pini + risk of introduction of other quarantine pests (Cryphonectria parasitica, Ceratocystis fimbriata f. sp. platani ….)
- Cameraria ohridella and Guignardia aesculii on Horse chestnut
- Ips duplicatus
- Mining insects

Diseases of pines

Phacidium infestans

Sphaeropsis sapinea


Sphaeropsis sapinea

Ascocalyx abietina

Ascocalyx abietina

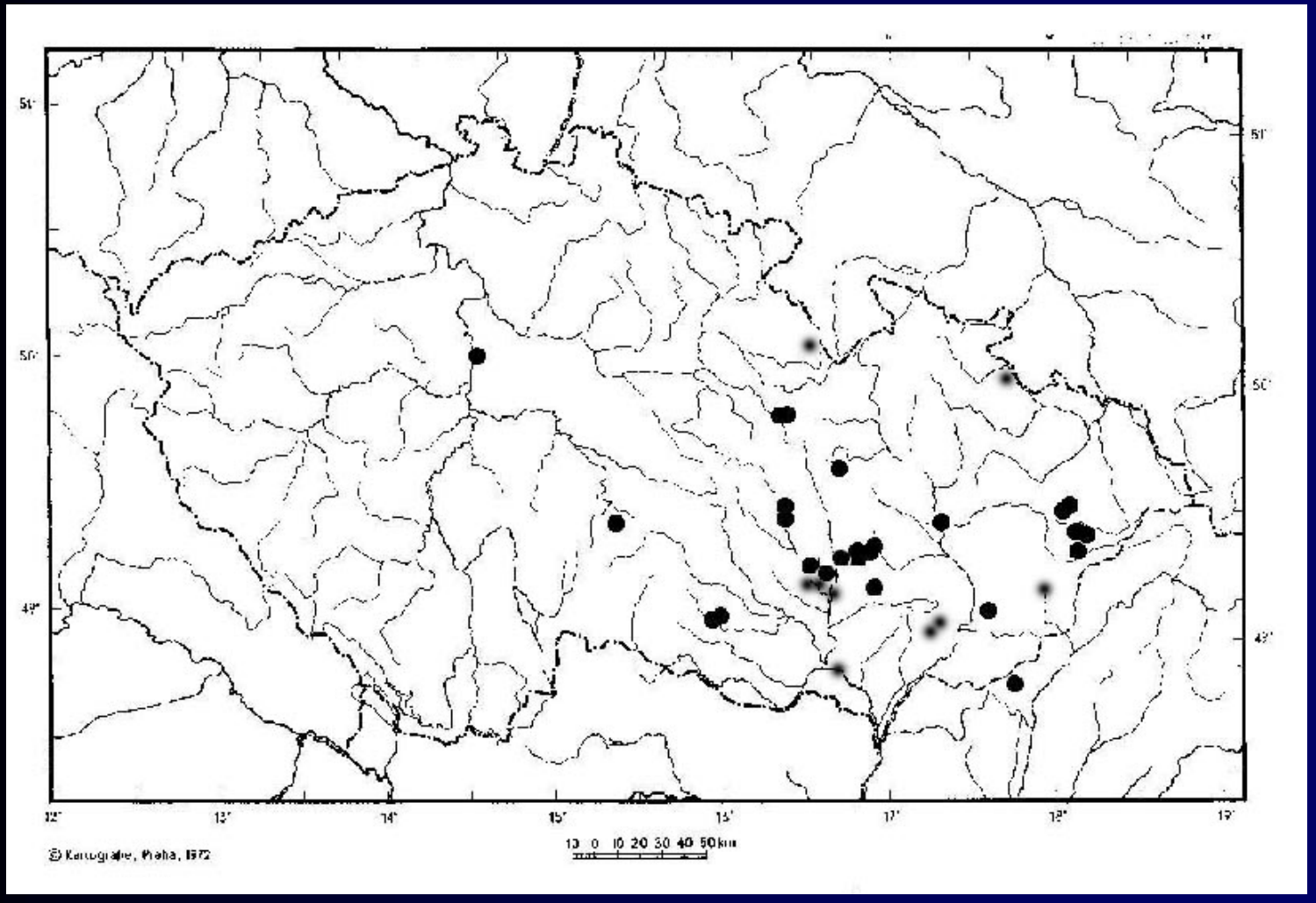
Quarantine pest

Mycosphaerella pini


Mycosphaerella pini

The distribution of M.pini

situation March 2002



Mycosphaerella dearrnessi M.E. Barr.

- Symptomy *M. dearnessii* se projevují jako hnědé skvrny, ohraničené žlutavým lemem
- obrázek nahoře: symptomy na Pinus nigra
- obrázek dole: symptomy na *Picea omorica*

Mycosphaerella dearrnessi M.E. Barr.

Cameraria ohridella + Guignardia aesculii


Guignardia aesculii

Guignardia aesculii

Guignardia aesculii


Cryphonectria parasitica

Cryphonectria parasitica Murr

symptoms of infection

Cryphonectria parasitica Murr

symptoms of infection