

Plant & Food
RESEARCH

RANGAHAU AHUMĀRA KAI



The New Zealand Institute for Plant & Food Research Limited

A close-up photograph of several green leaves. The leaves are vibrant green and show detailed vein patterns. One leaf in the foreground has a small, irregular hole. The background is softly blurred, showing more green foliage.

VARROA

Dr Mark Goodwin

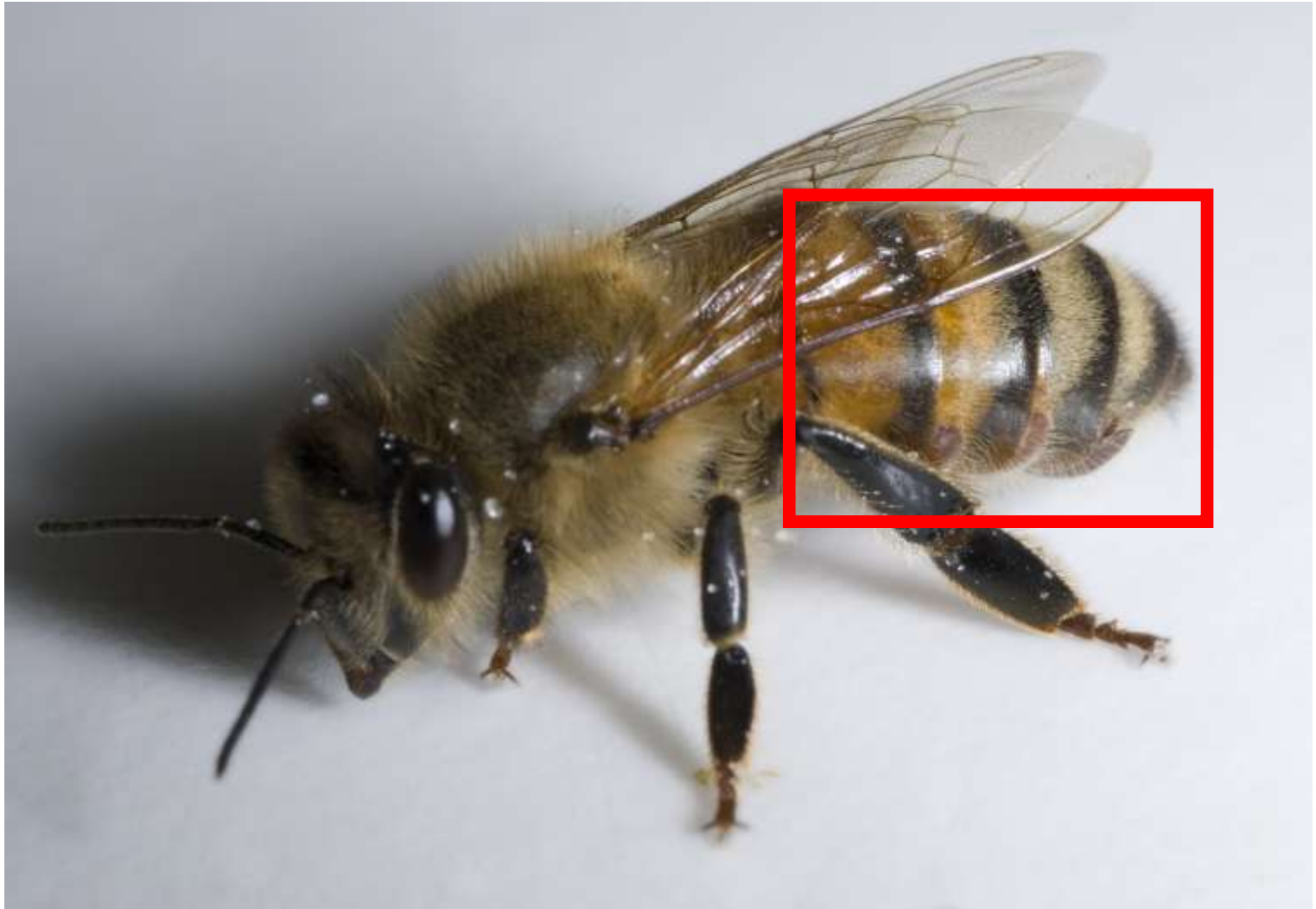










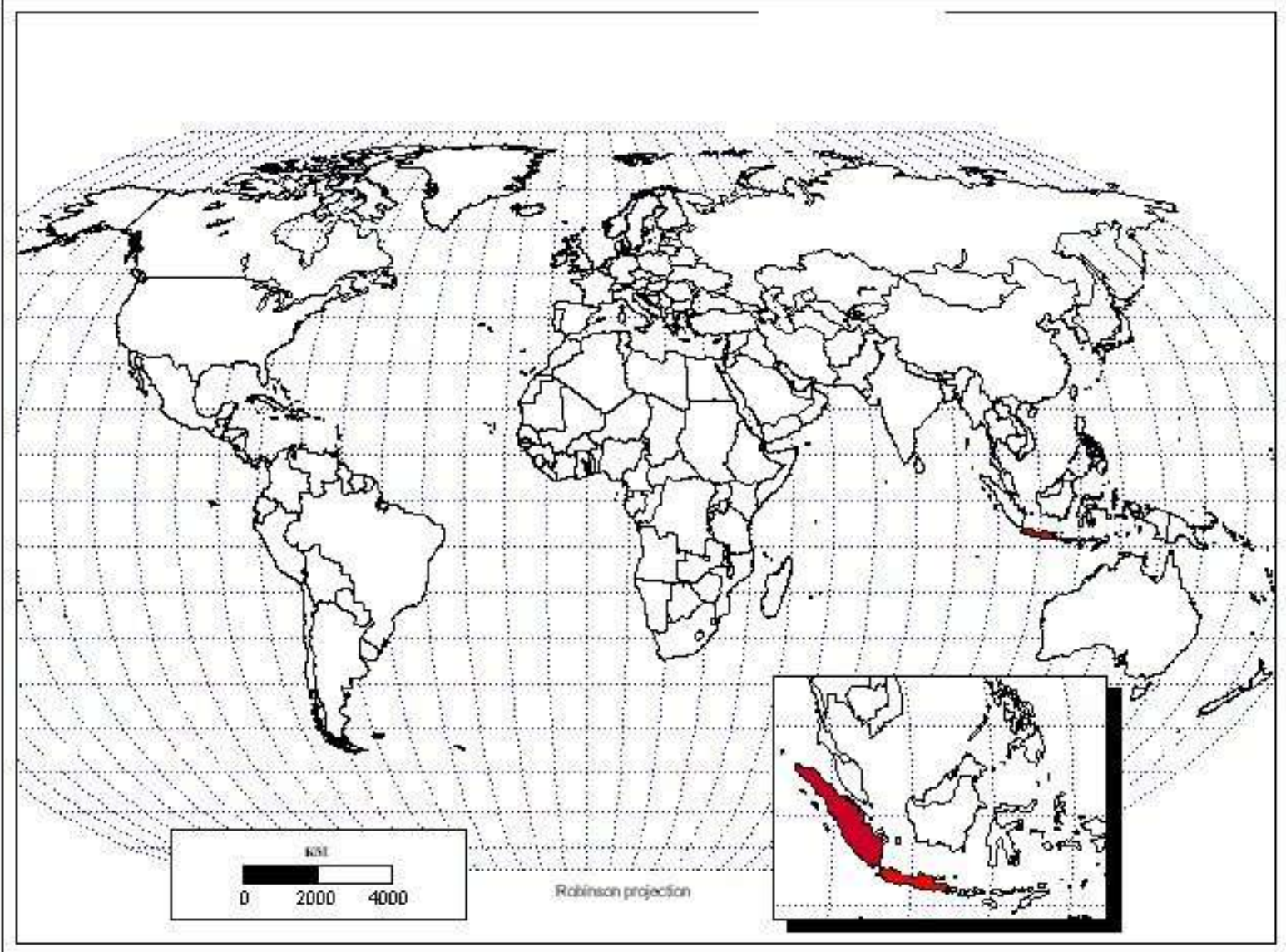




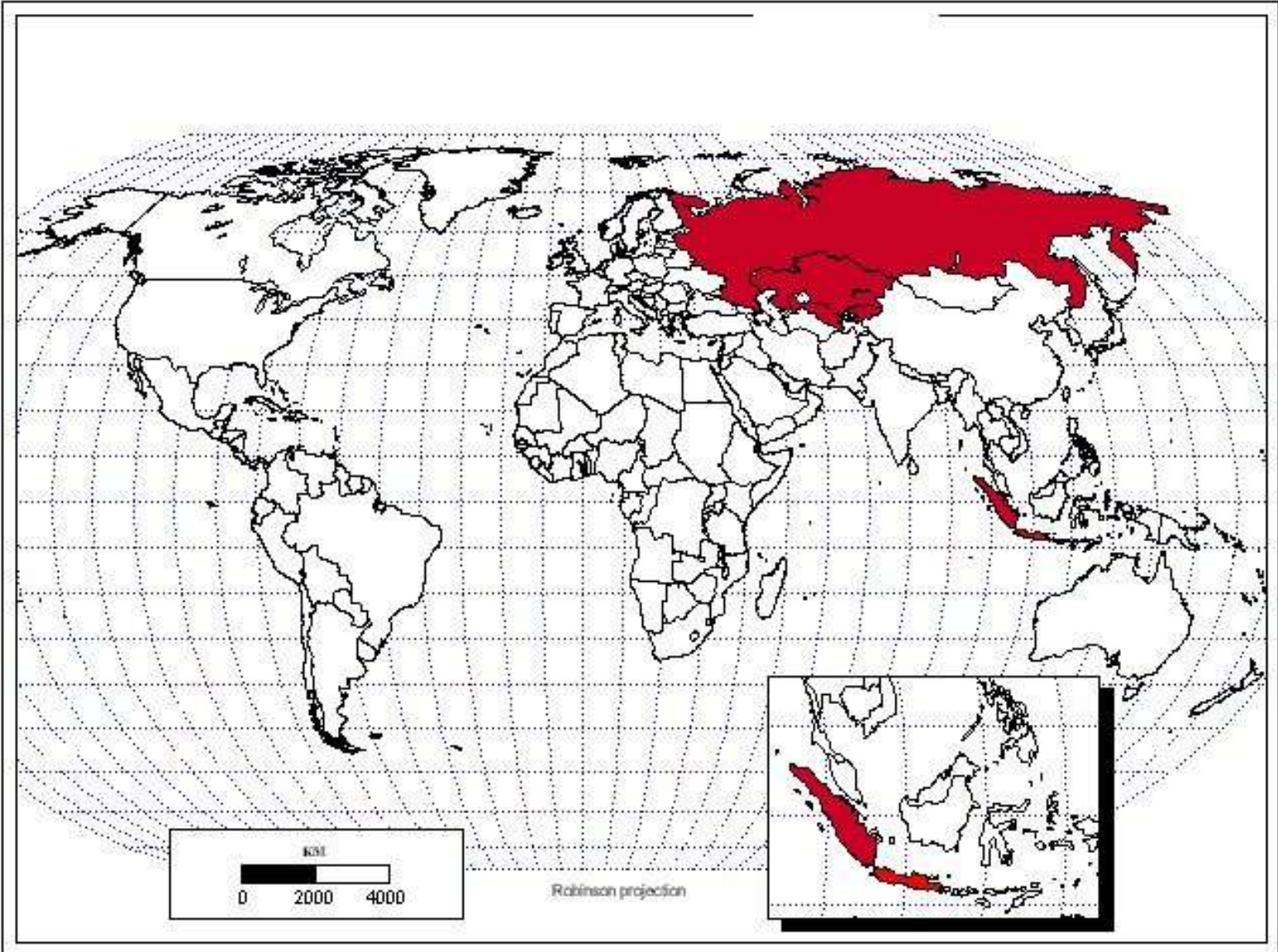




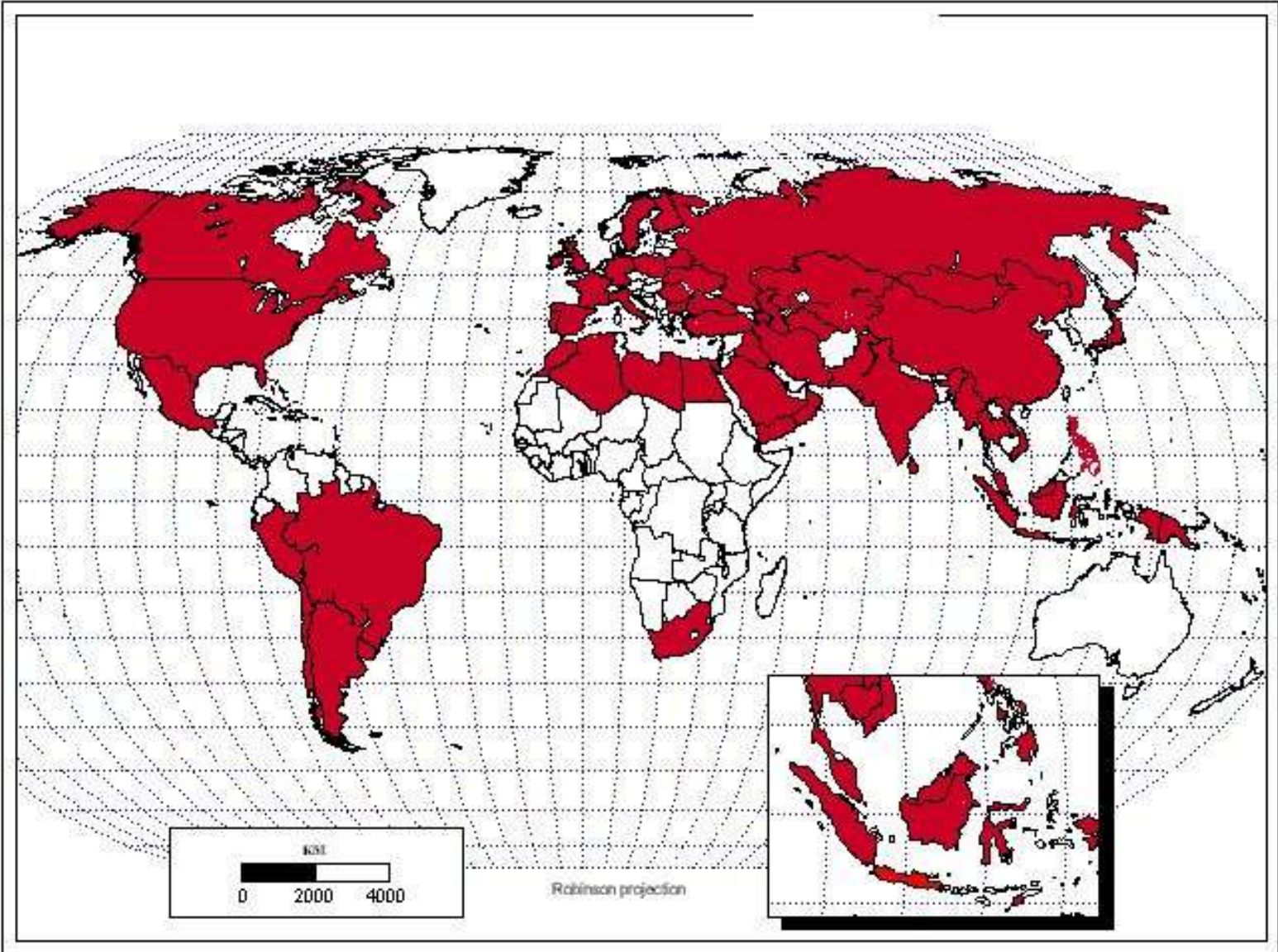
1912



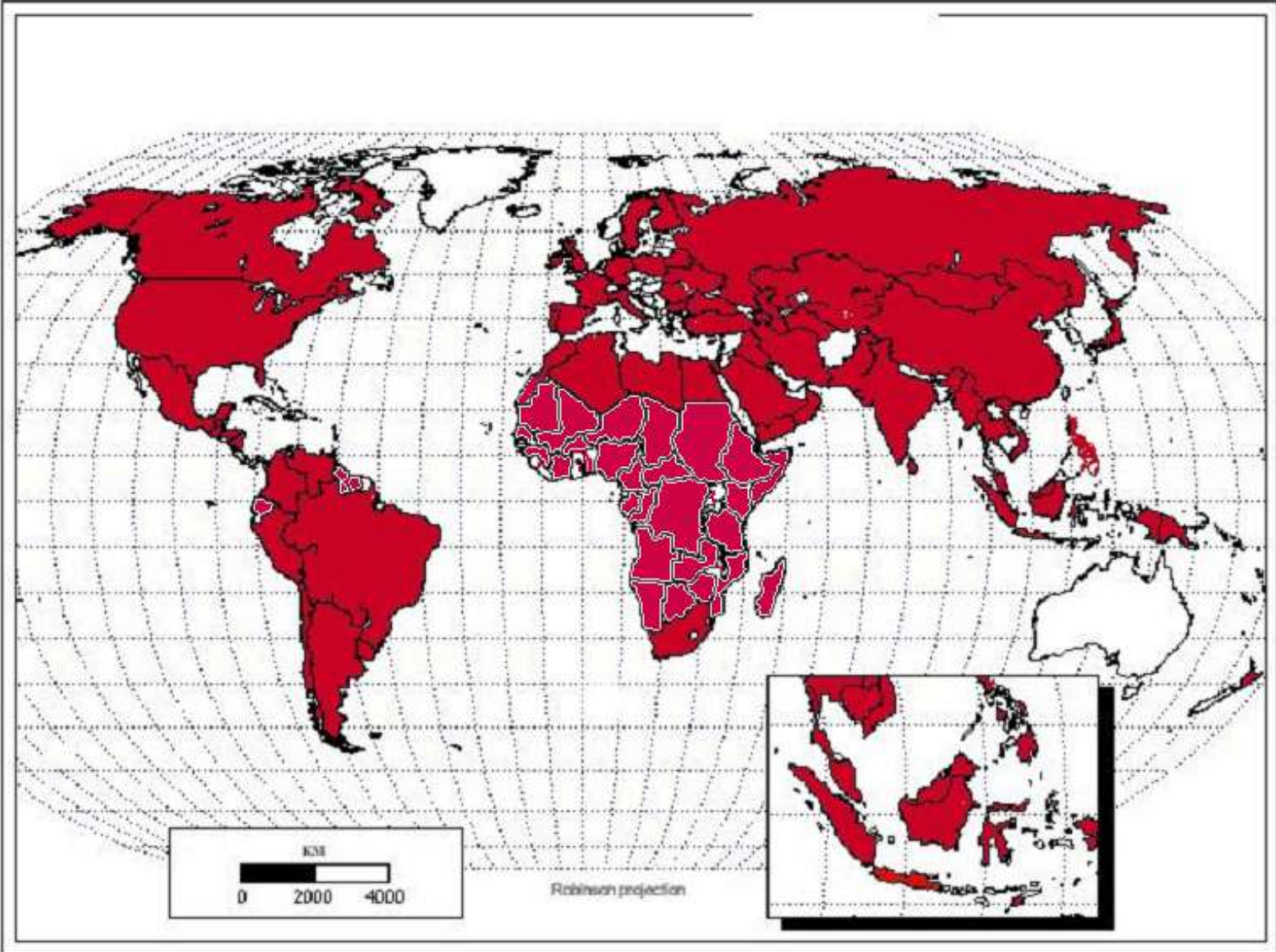
1949

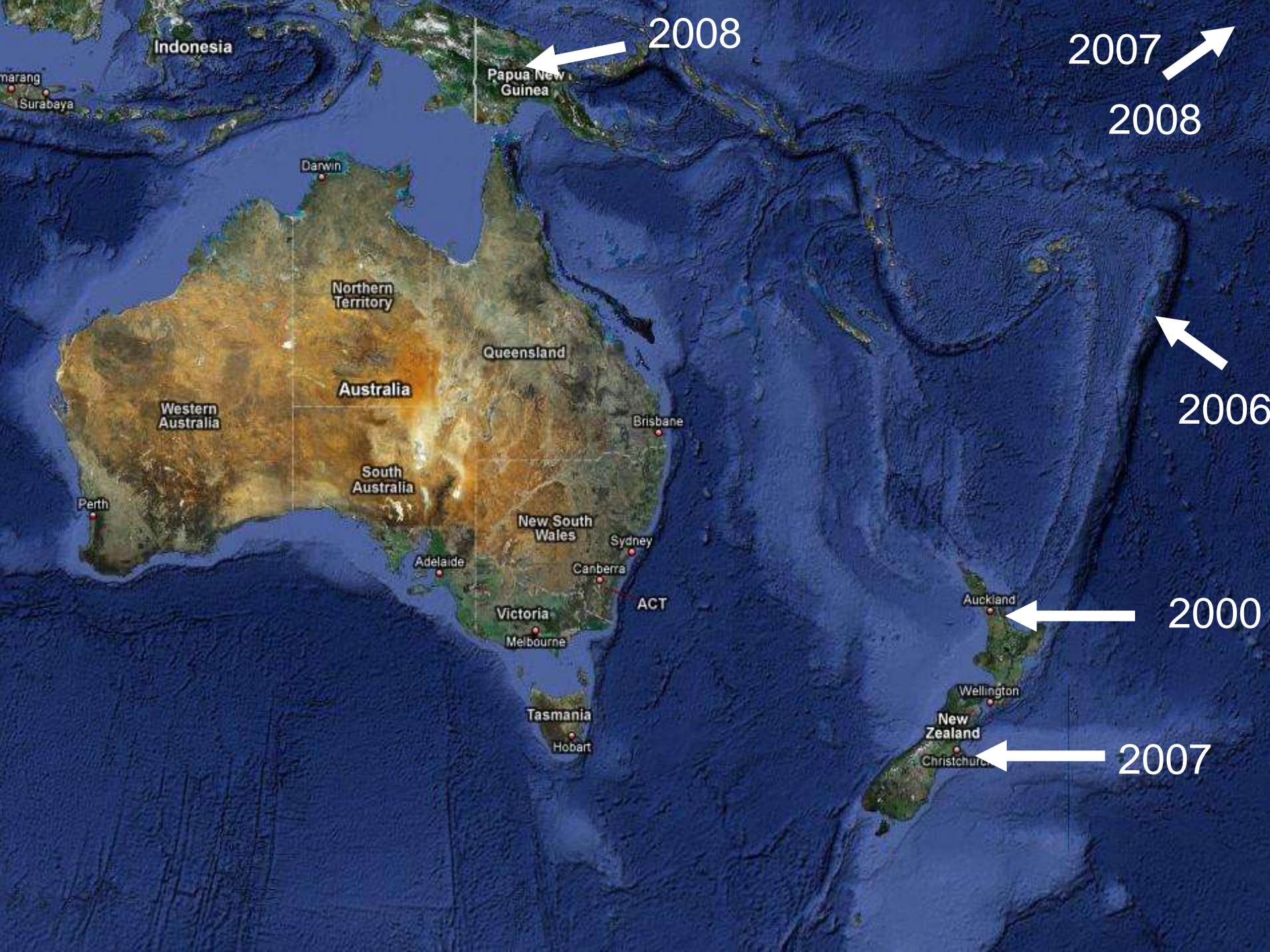


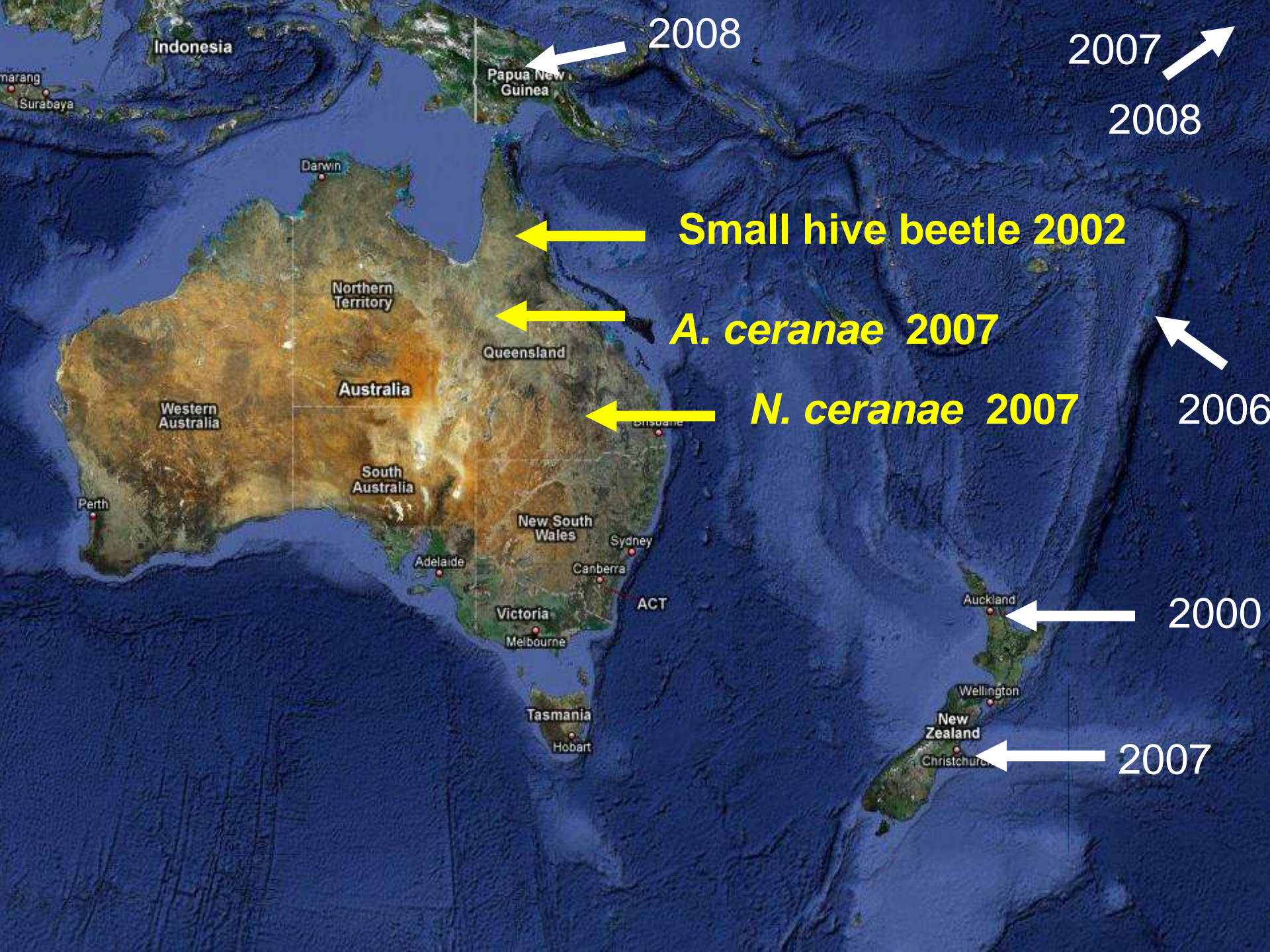
1998



2000







2008

2007

2008

Small hive beetle 2002

***A. ceranae* 2007**

***N. ceranae* 2007**

2006

2000

2007

Indonesia

Papua New Guinea

Darwin

Northern Territory

Australia

Western Australia

South Australia

Queensland

New South Wales

Victoria

Tasmania

ACT

Auckland

New Zealand

Christchurch

Surabaya

Perth

Hobart

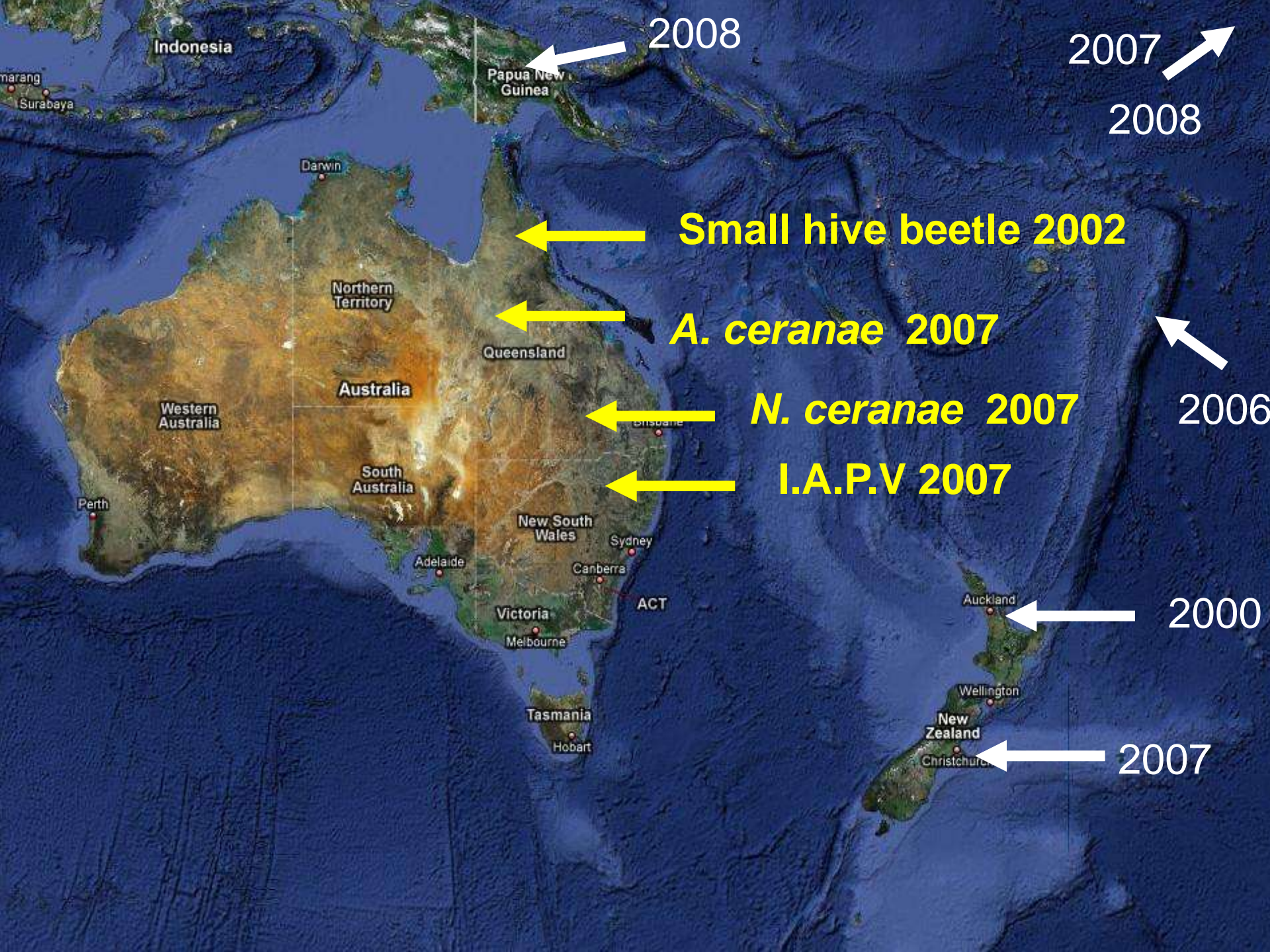
Sydney

Canberra

Adelaide

Melbourne

Wellington



2008

2007

2008

Small hive beetle 2002

***A. ceranae* 2007**

***N. ceranae* 2007**

I.A.P.V 2007

2006

2000

2007

Indonesia

Papua New Guinea

Darwin

Northern Territory

Queensland

Australia

Western Australia

South Australia

New South Wales

Sydney

Adelaide

Canberra

Victoria

Melbourne

Tasmania

Hobart

ACT

Auckland

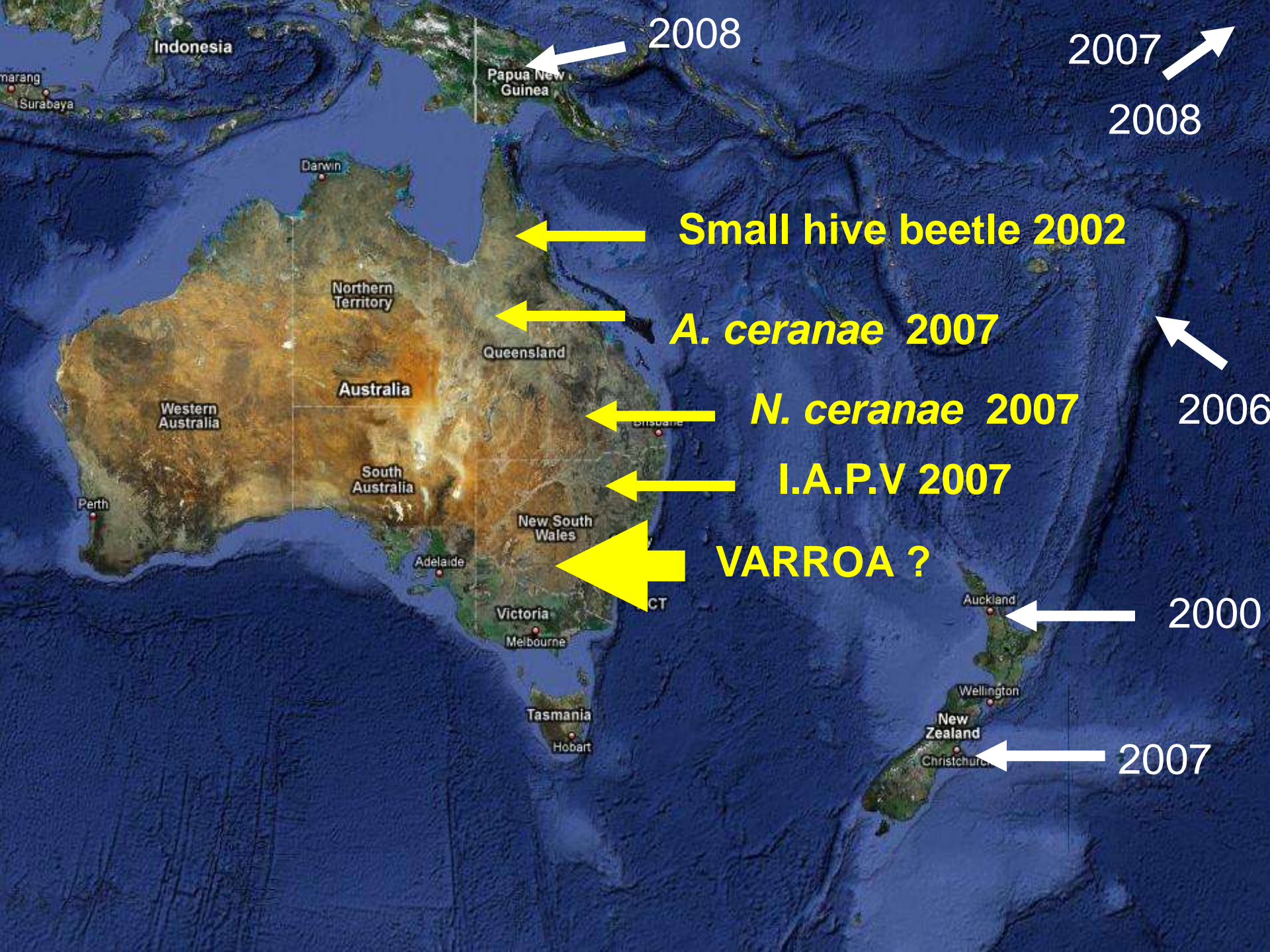
Wellington

New Zealand

Christchurch

Surabaya

Marang



2008

2007

2008

Small hive beetle 2002

***A. ceranae* 2007**

***N. ceranae* 2007**

I.A.P.V 2007

VARROA ?

2006

2000

2007

2000 varroa found



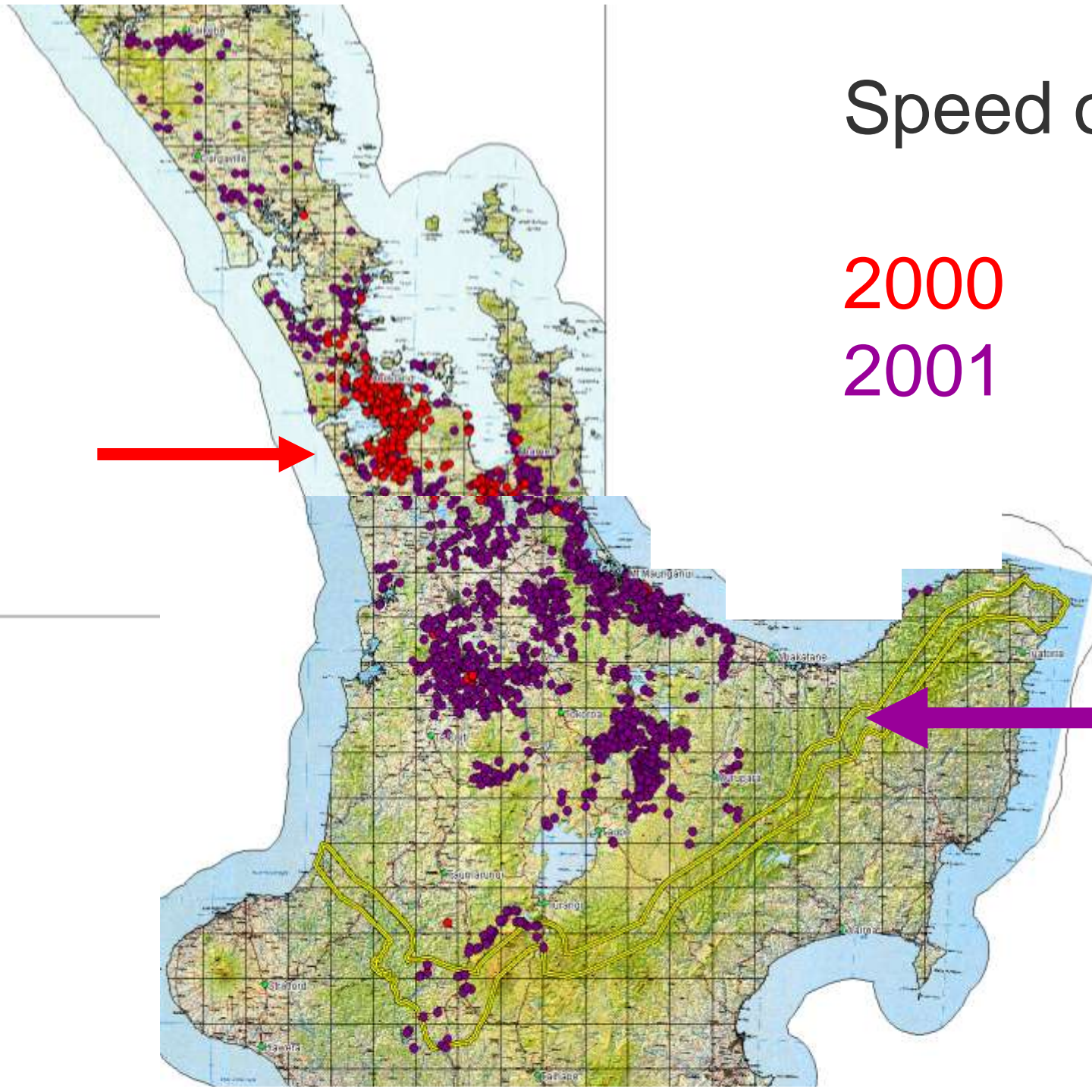
Speed of spread

2000

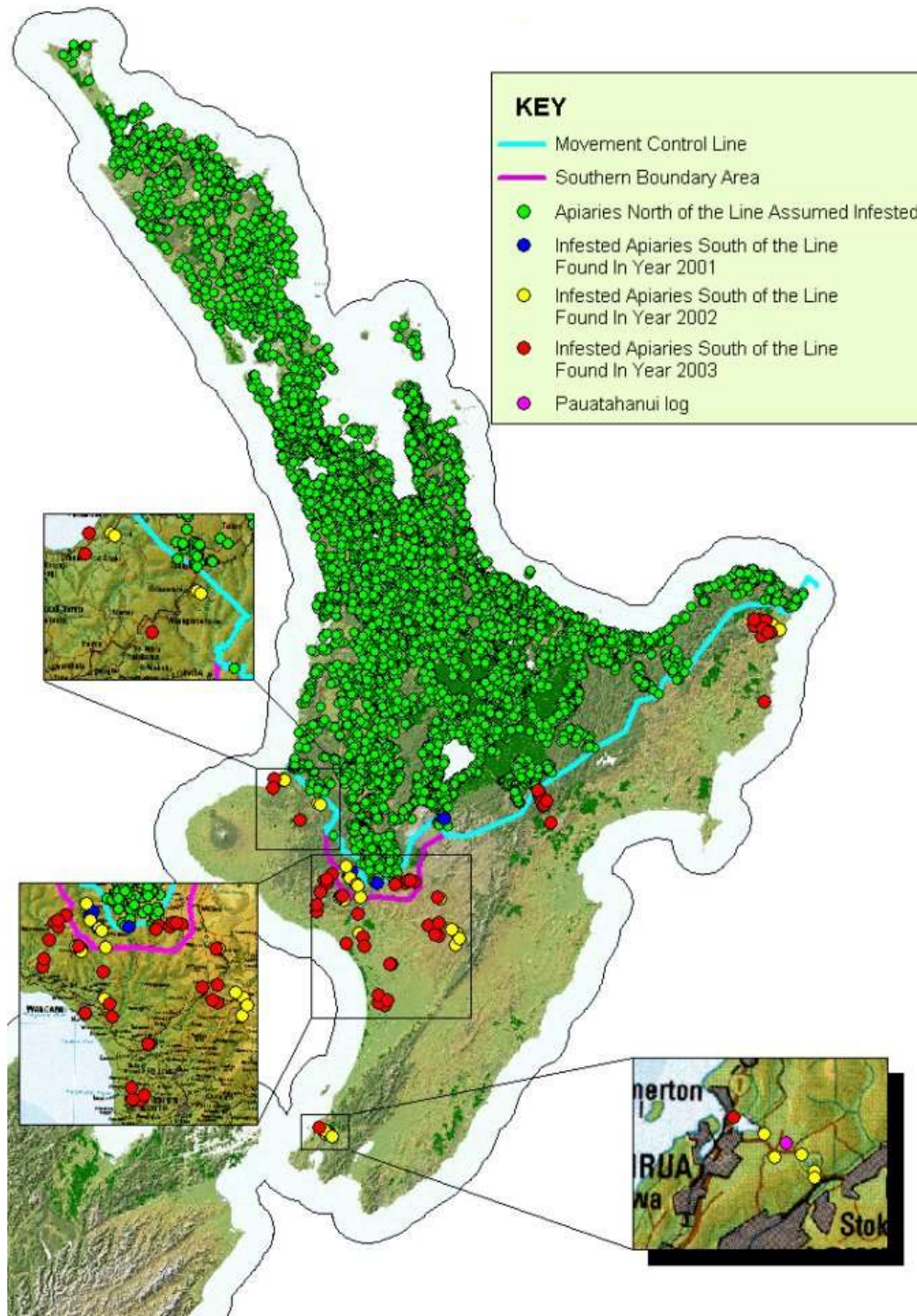
2001



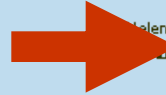
Non
movement
line



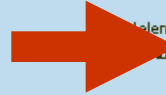
2003



2000

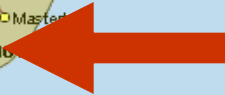


2000

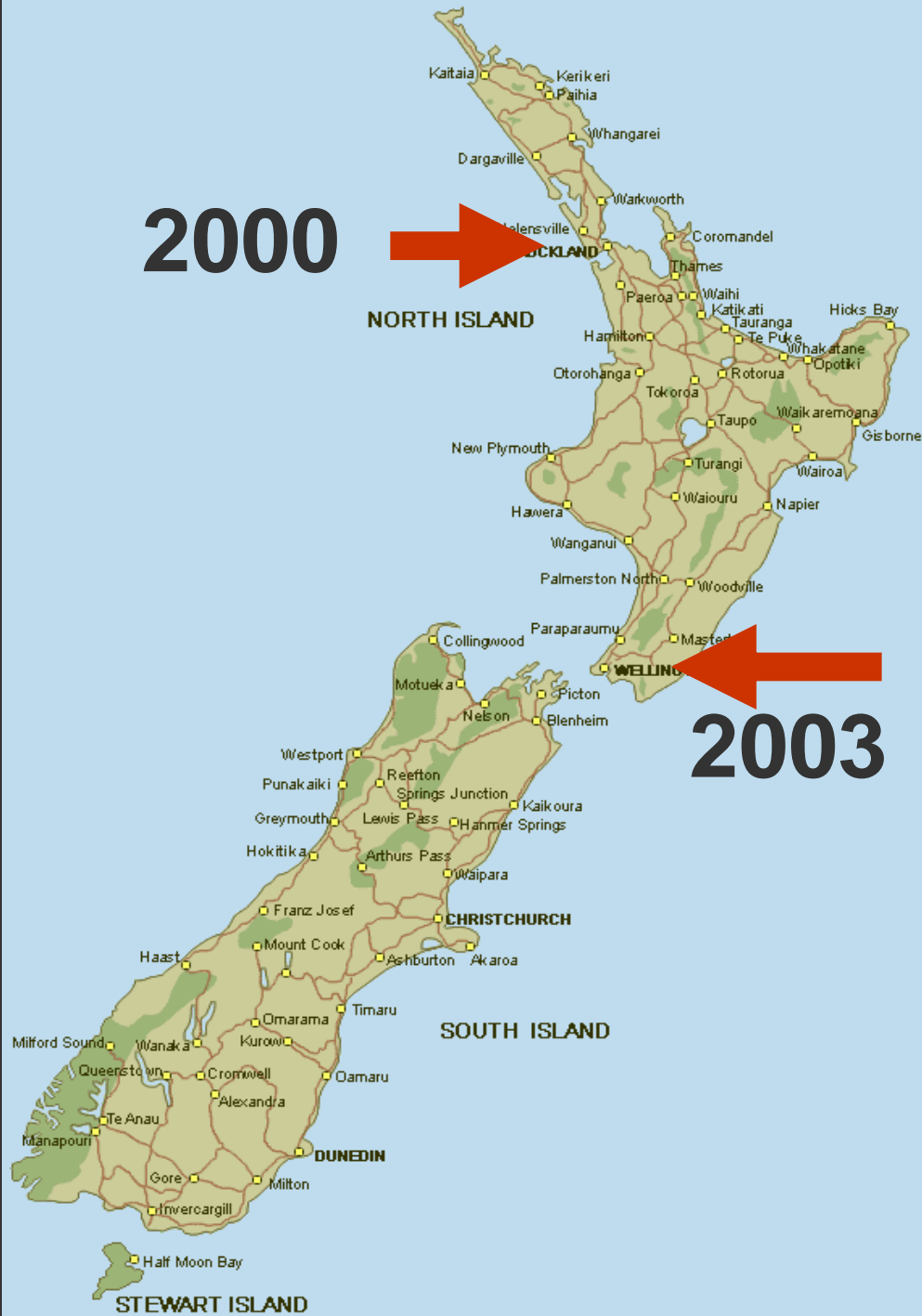


NORTH ISLAND

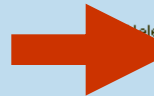
2003



SOUTH ISLAND



2000



NORTH ISLAND

2007



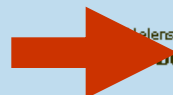
2003



SOUTH ISLAND



2000



NORTH ISLAND

2007



2003

SOUTH ISLAND

2009



Honeybee survival



300,000 colonies

Spring 1,000

Autumn 500

Feral colonies



Managed pollination



Two problems

Resistance
Economics

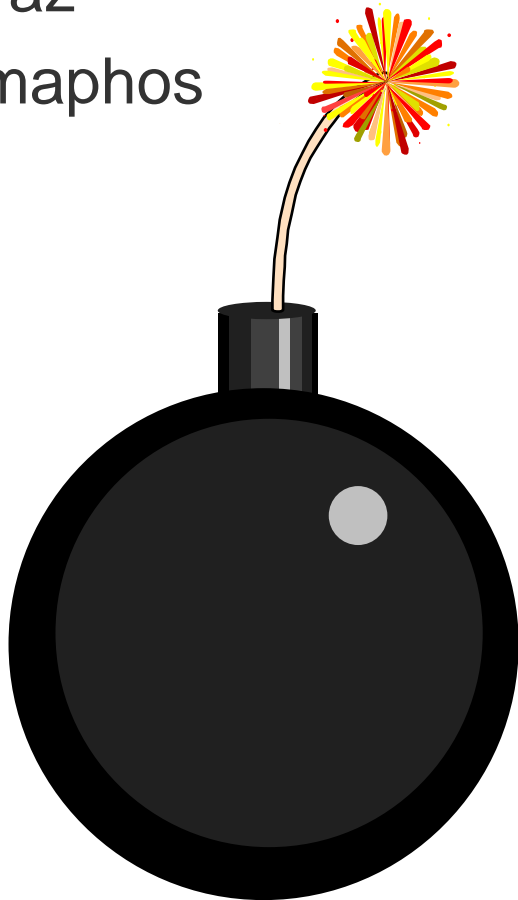


Varroa resistance

Fluvalinate

Amitraz

Coumaphos





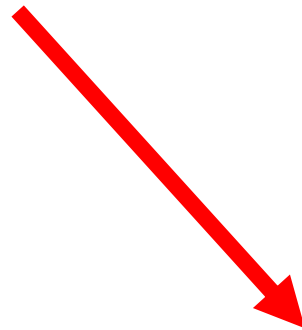


Beekeeping Economics

Economics

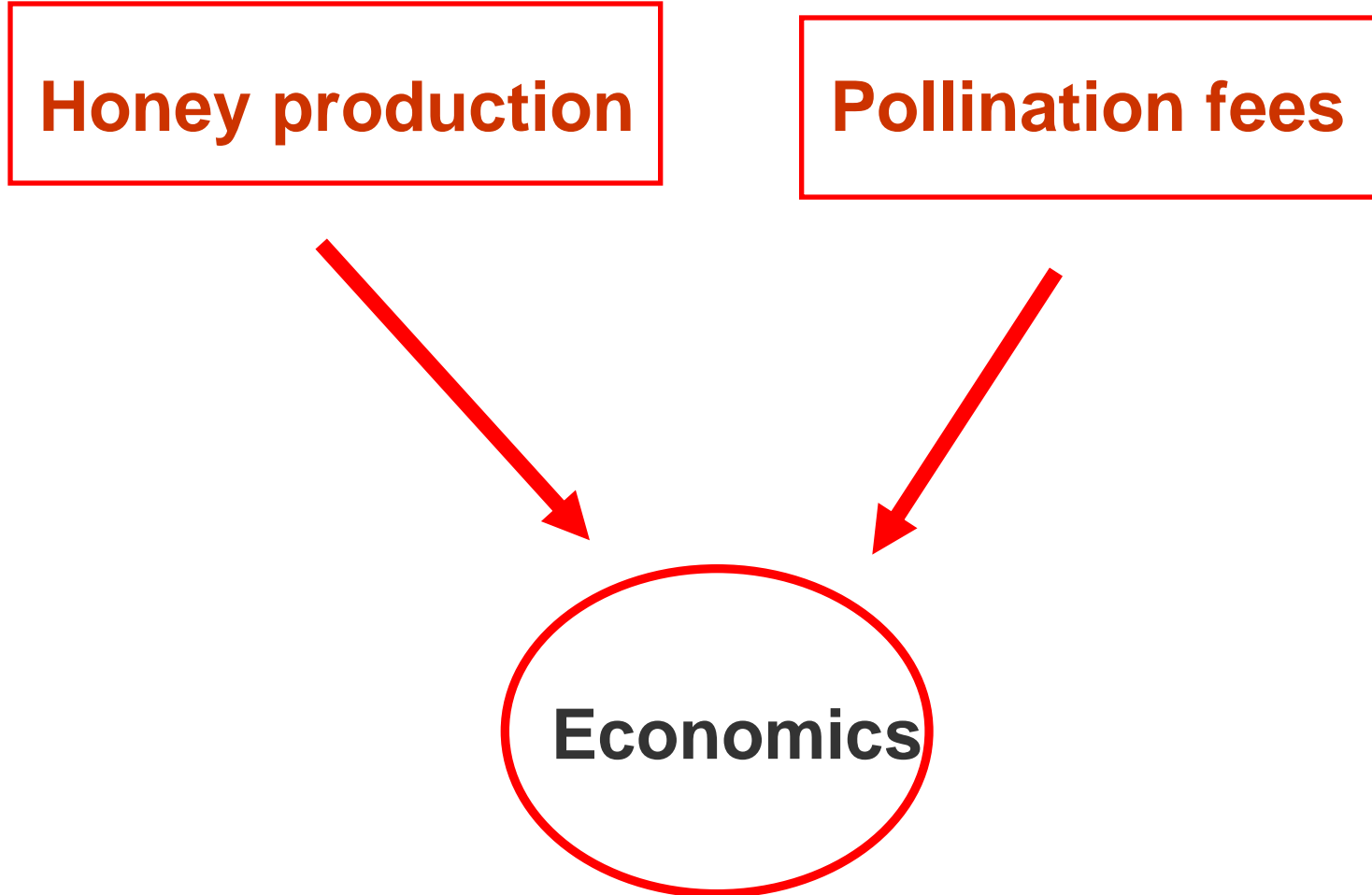
Beekeeping Economics

Honey production



Economics

Beekeeping Economics



Varroa economics

Increased costs

Treatments \$12 – 24 / pa

Labour 10-30% more

Lost colonies 5-10%/pa

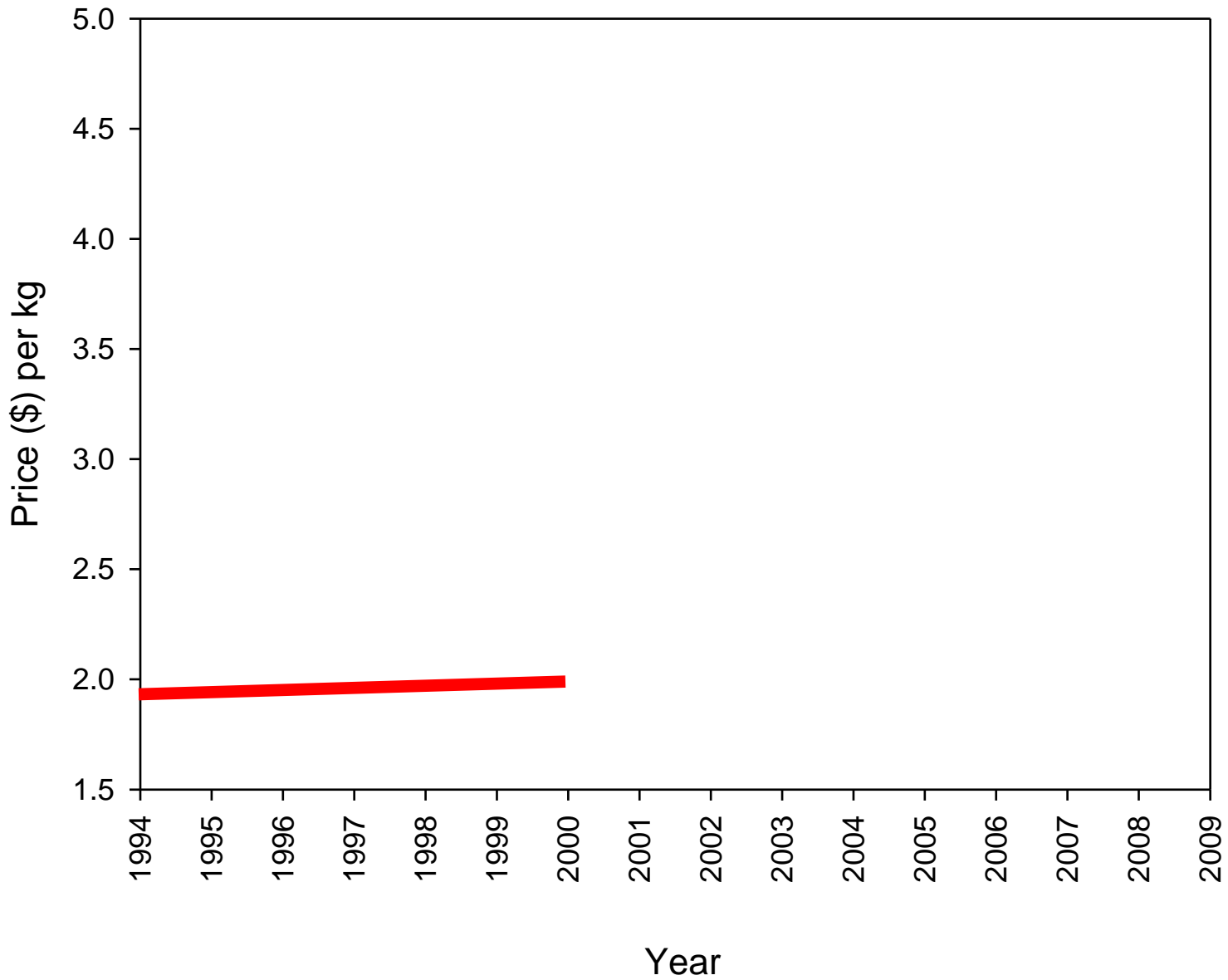
\$40 - 50 / hive

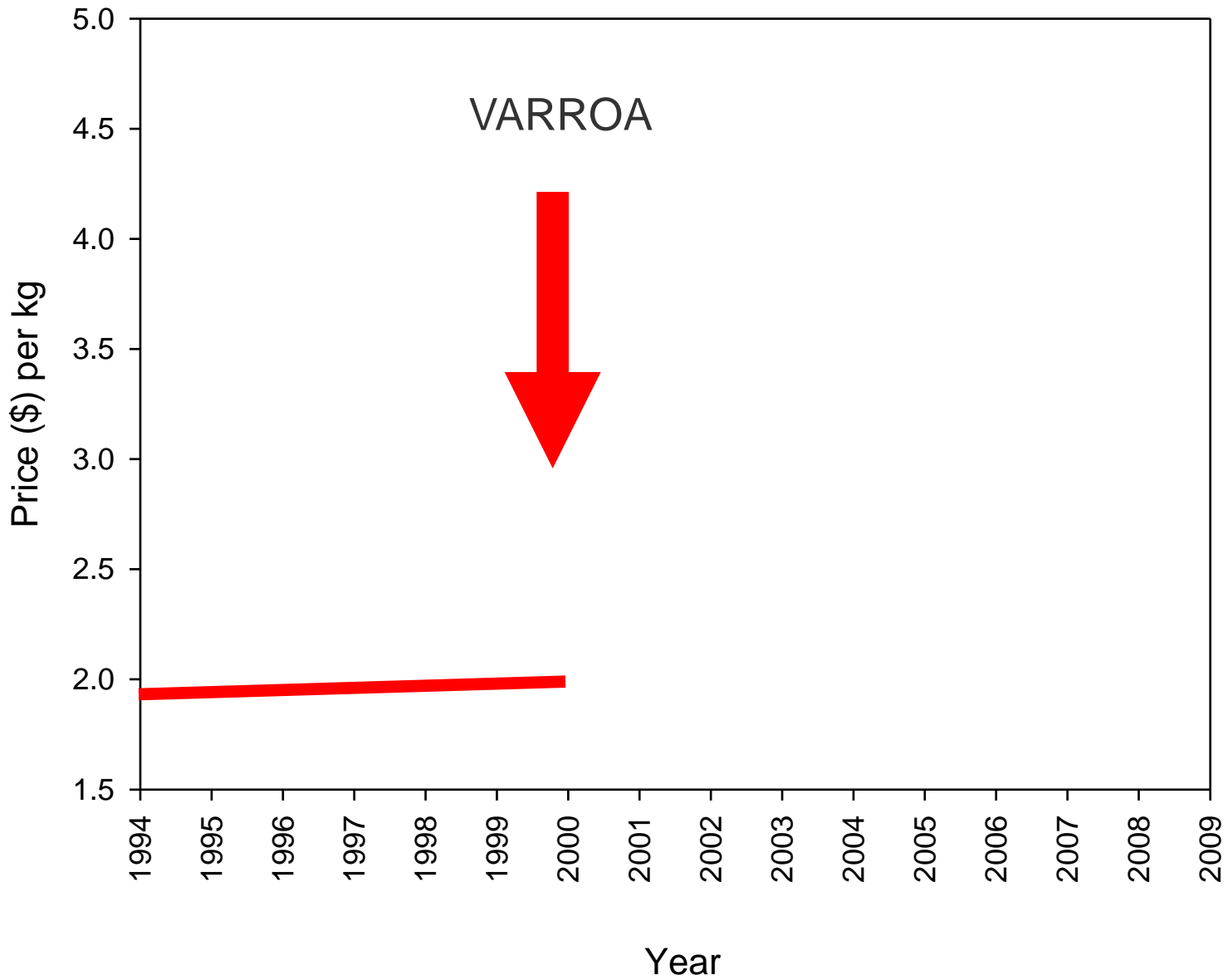


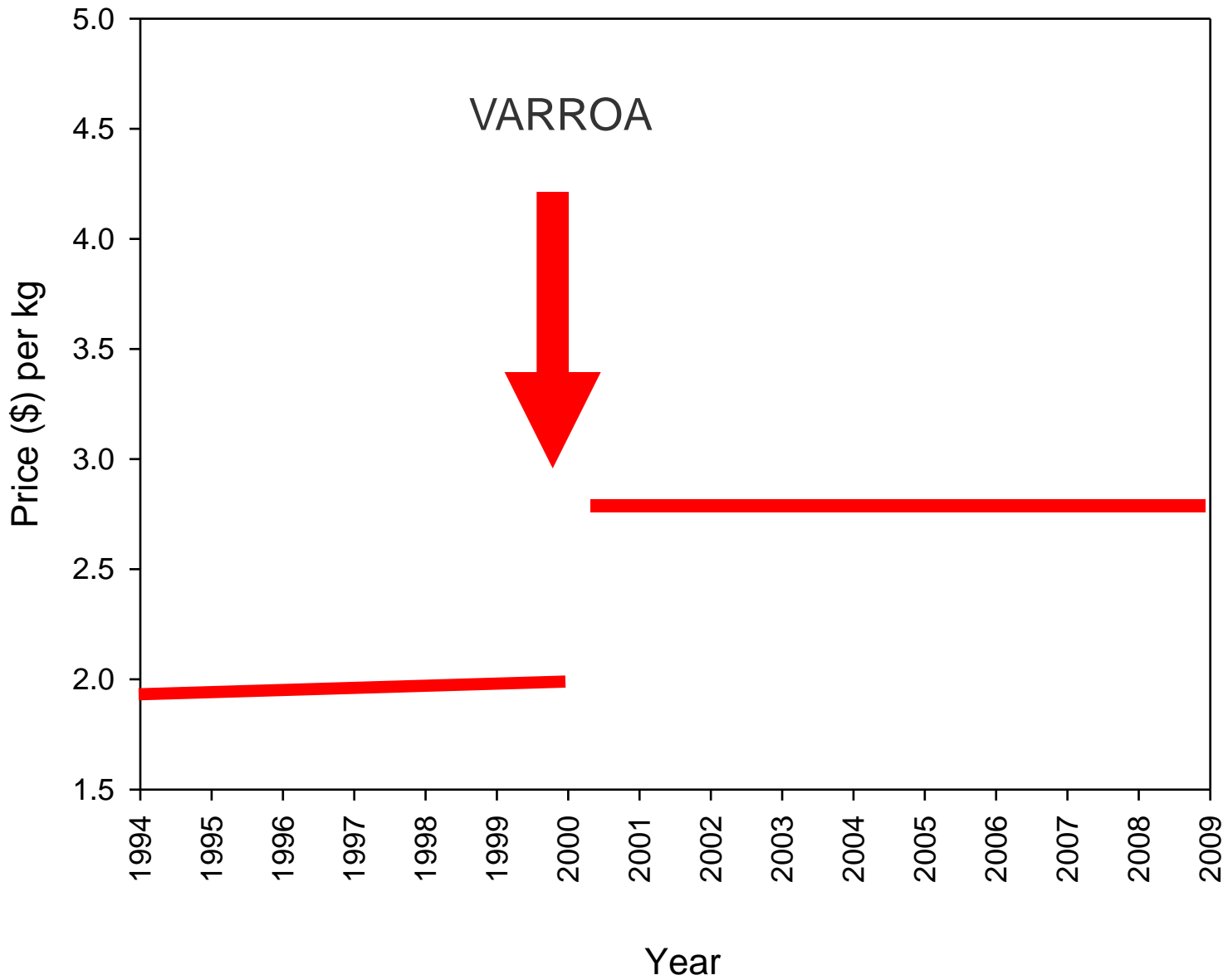
Pollination

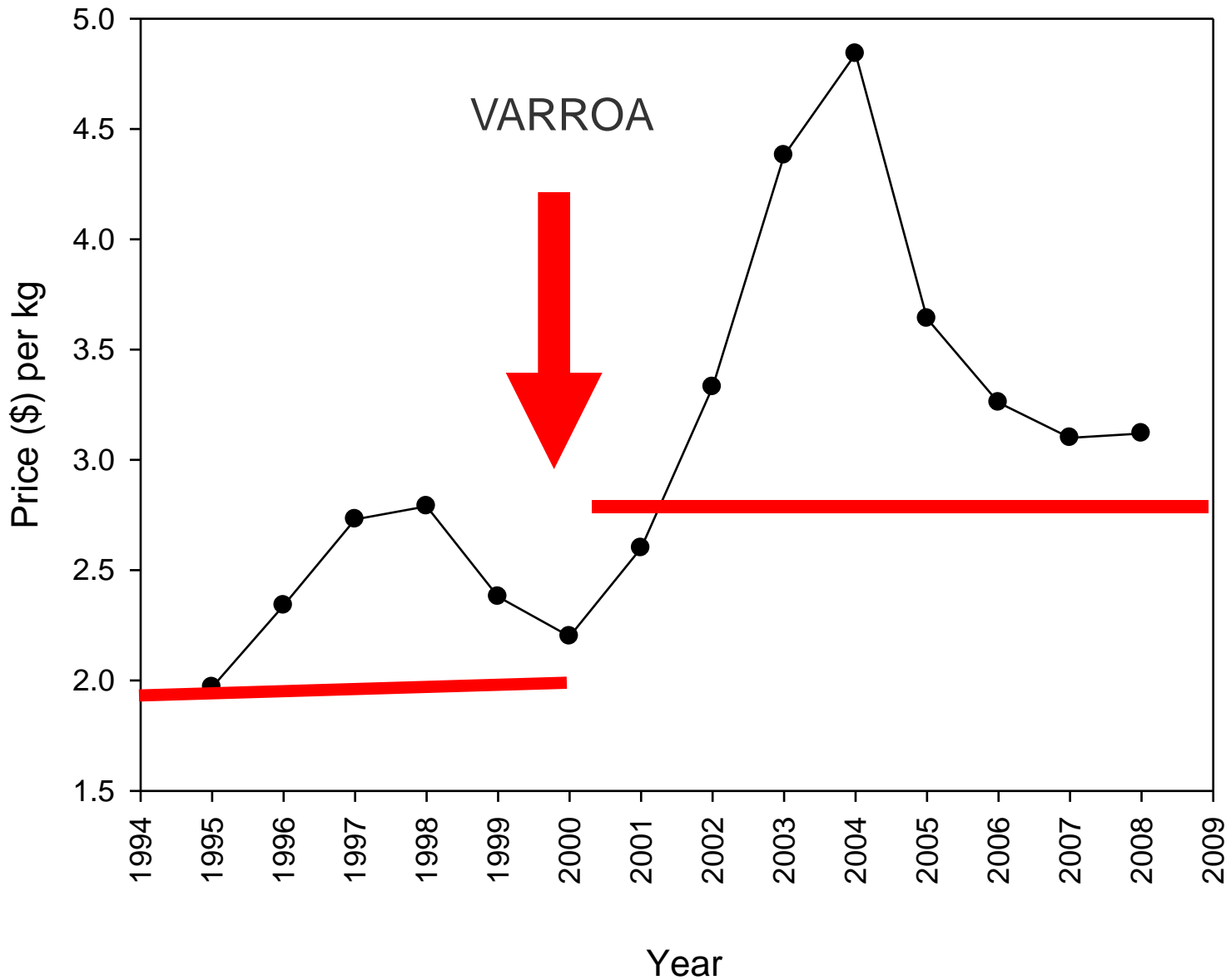
Hive rentals doubled
(kiwifruit \$80-\$160)

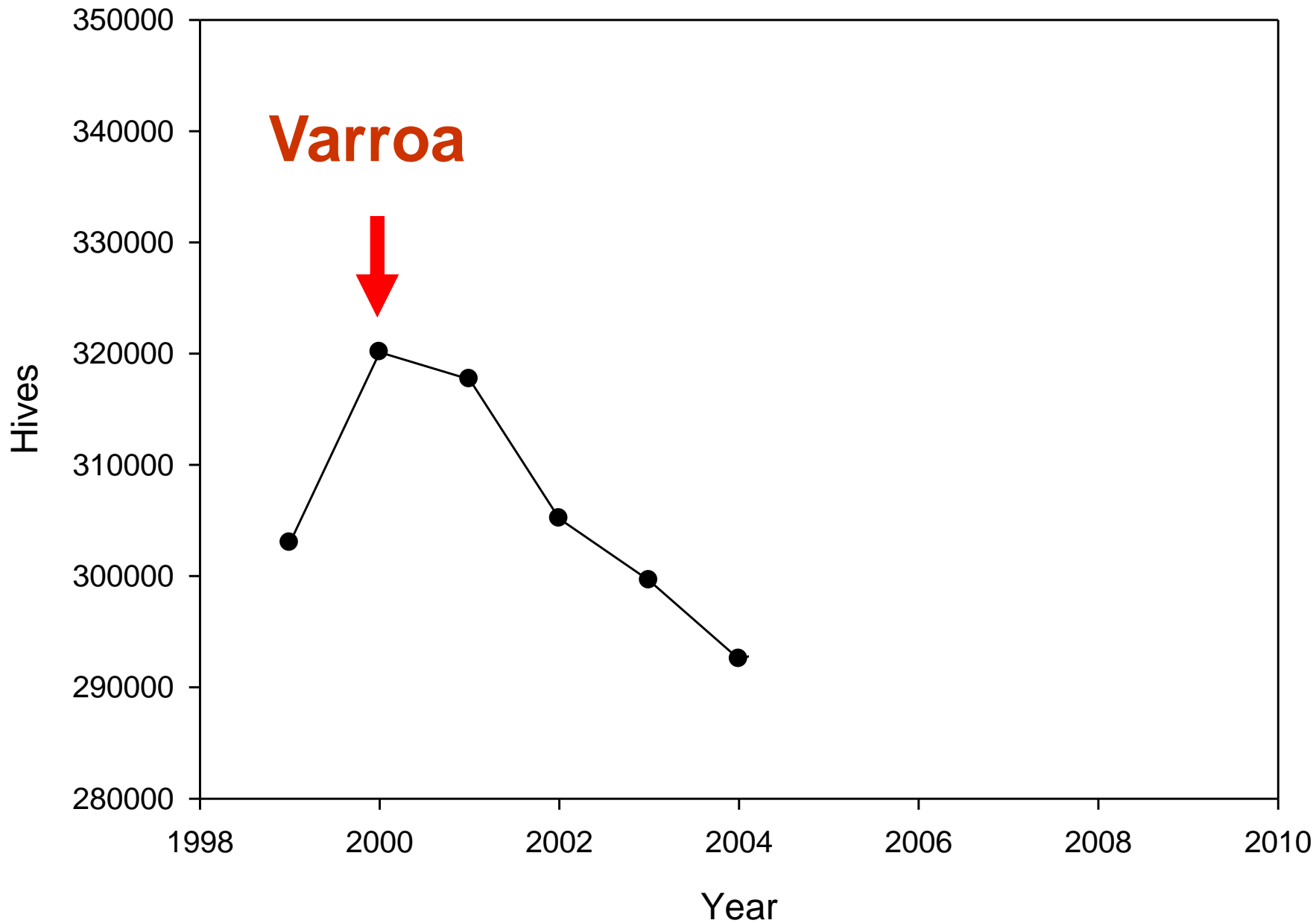


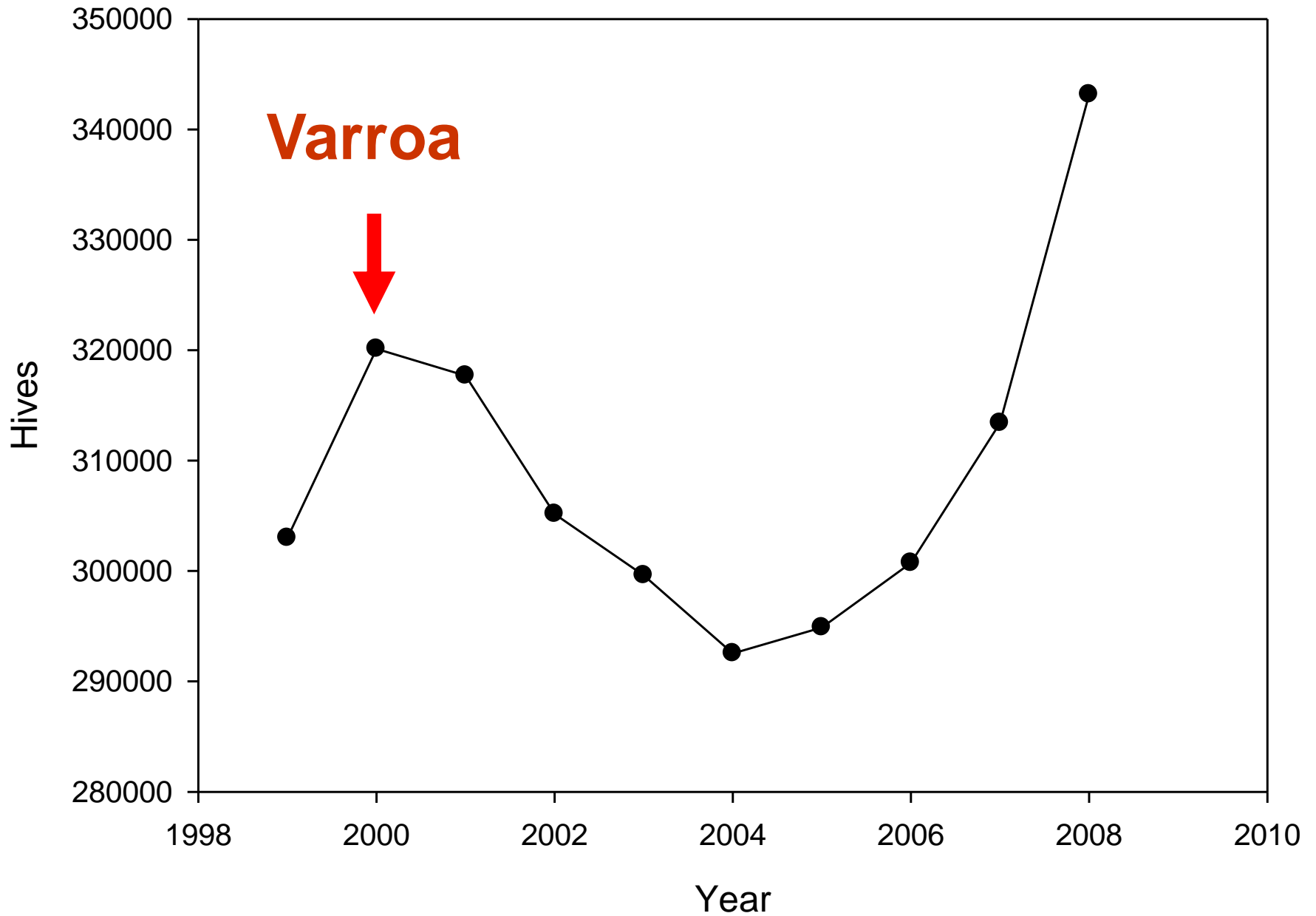


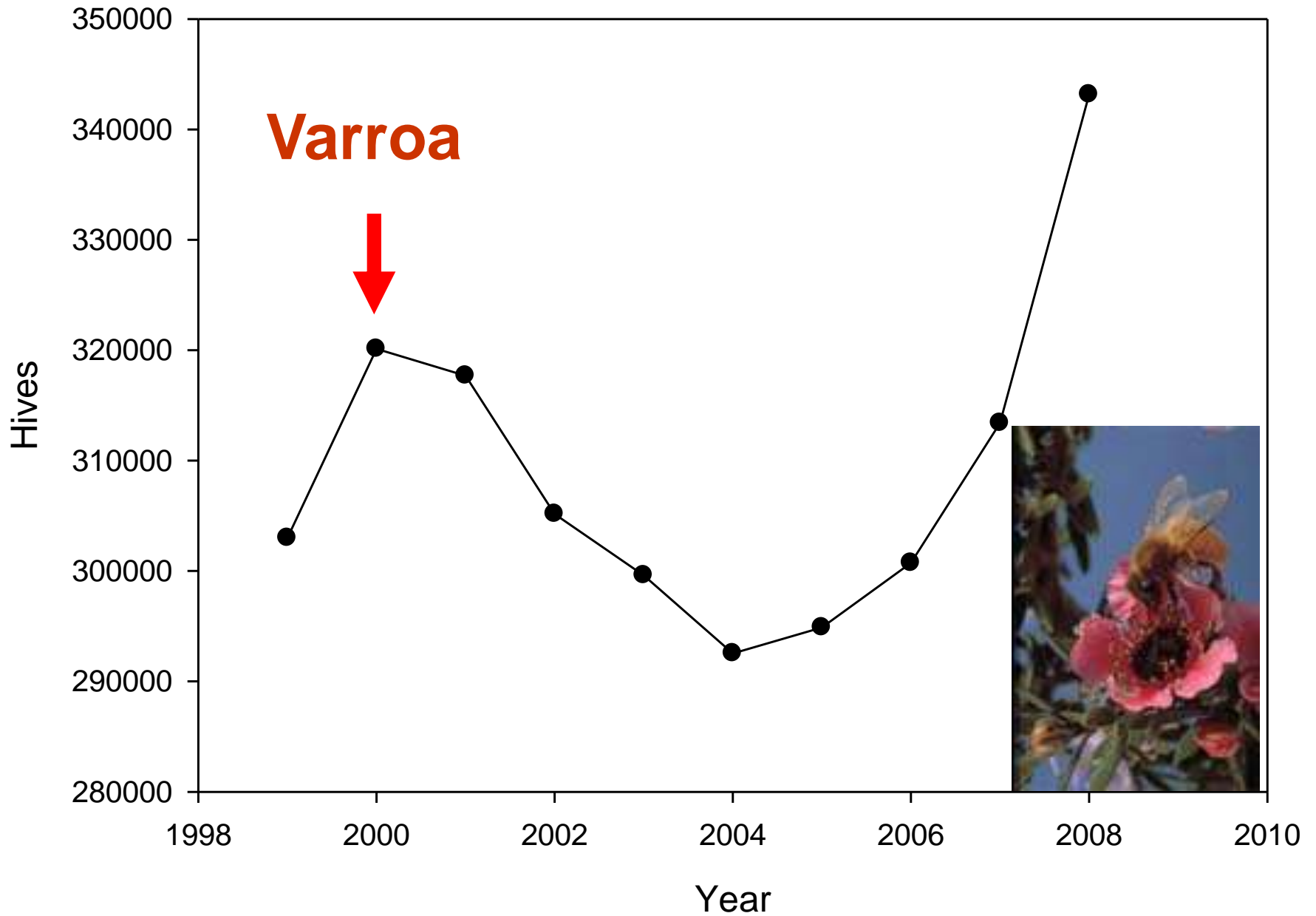


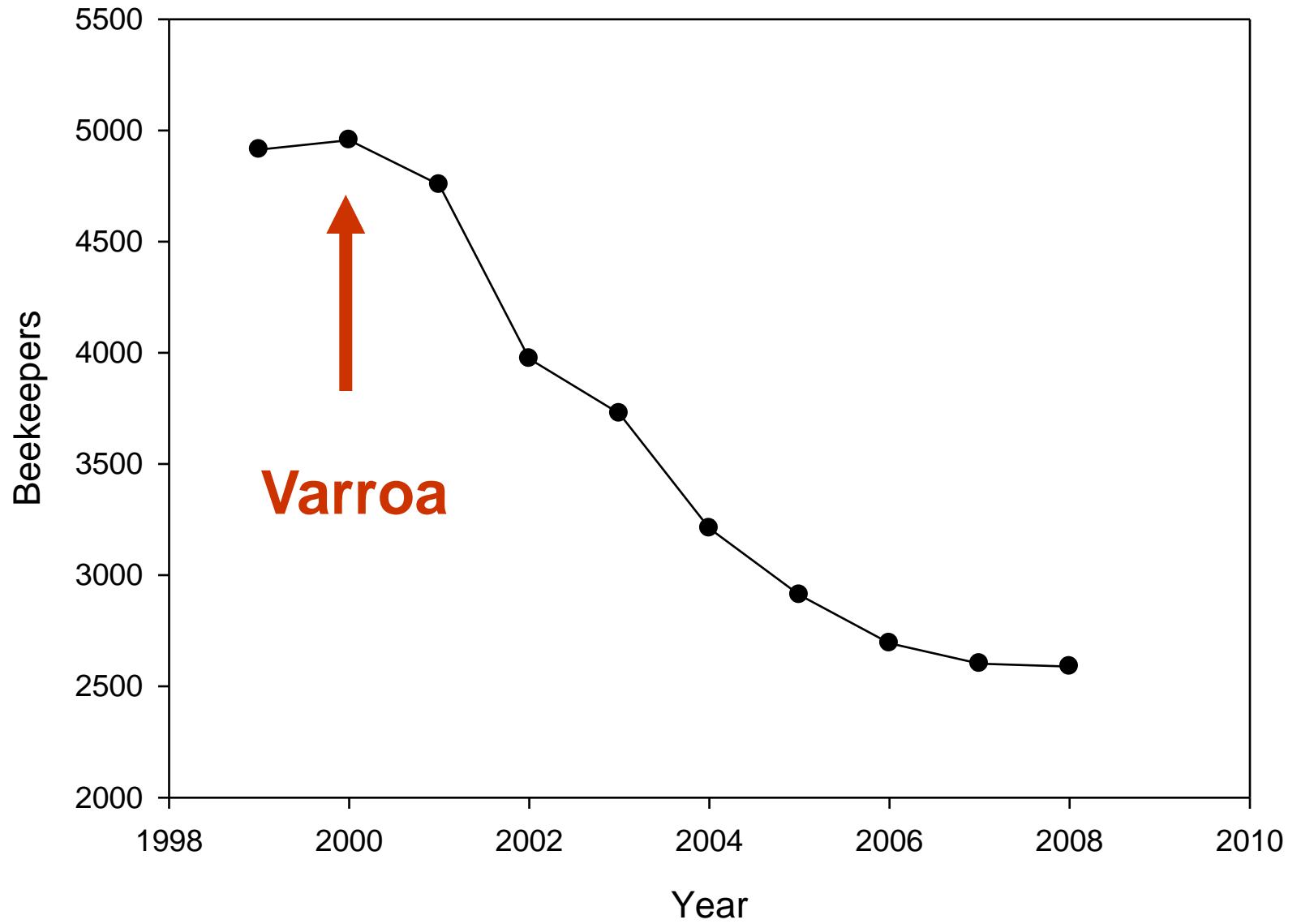




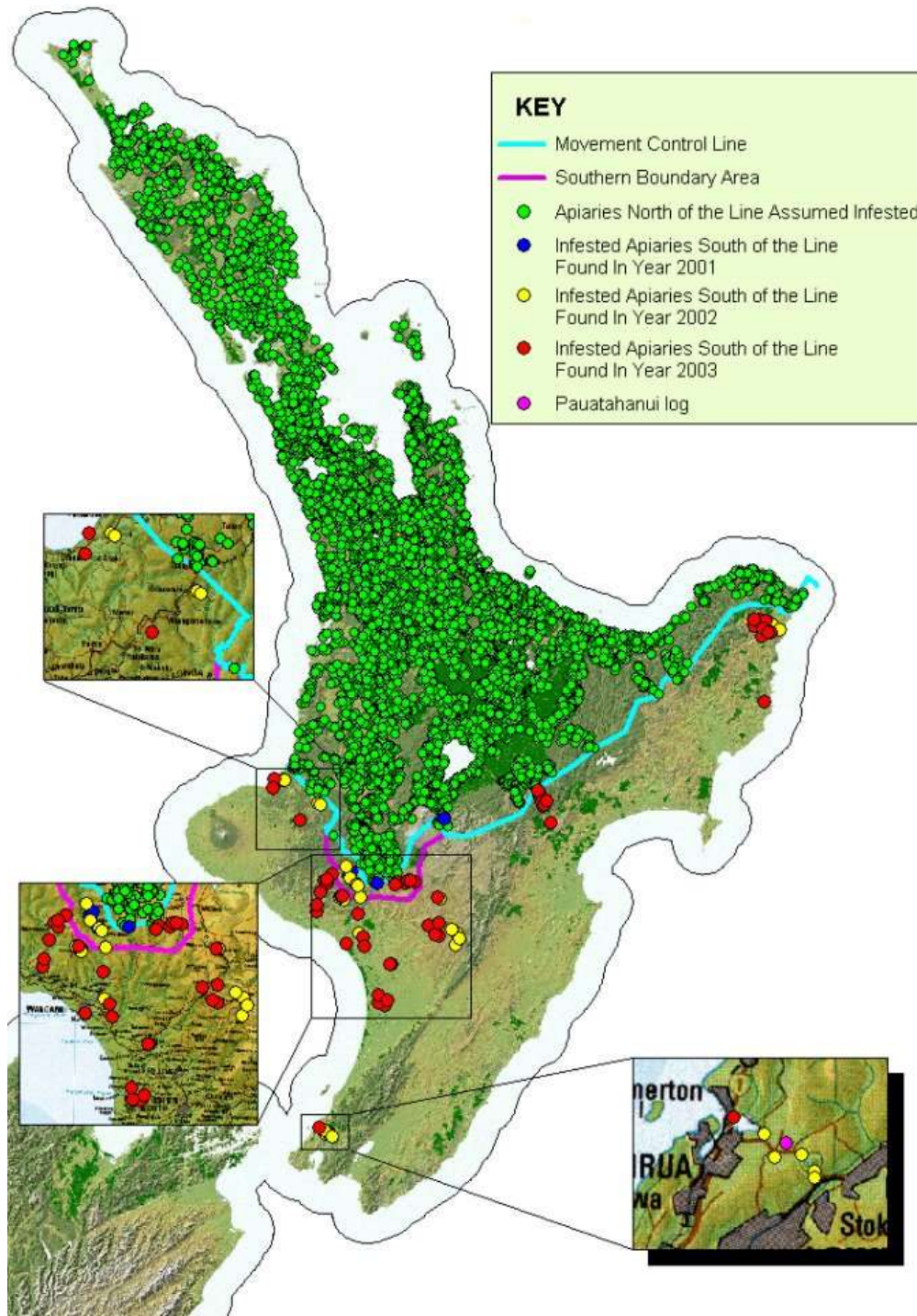








2003



Future

Australia will get varroa (may already be here)

It may already be resistant
spread quickly

Movement restrictions ?

Loss of feral colonies

Pollination costs will increase (double)

Shortages of hives ?

Pollination difficulties