Invasive Species Workshop

- Case study of **Blackberry**
- **Status**
- Declared plant, Weed of National Significance.
- **Biology**
- Seed spread by birds and foxes. No dormancy.
- Canes tip root for vegetative reproduction.
- **Control**
- Spraying works.
- Use metsulfuron to reduce large infestations.
- Follow up with 3 years spraying of Grazon.
- Results in no Blackberry on 30% of areas treated 10 years after the last spray.
- New biocontrol rust is looking good – may reduce spread – unlikely to provide control
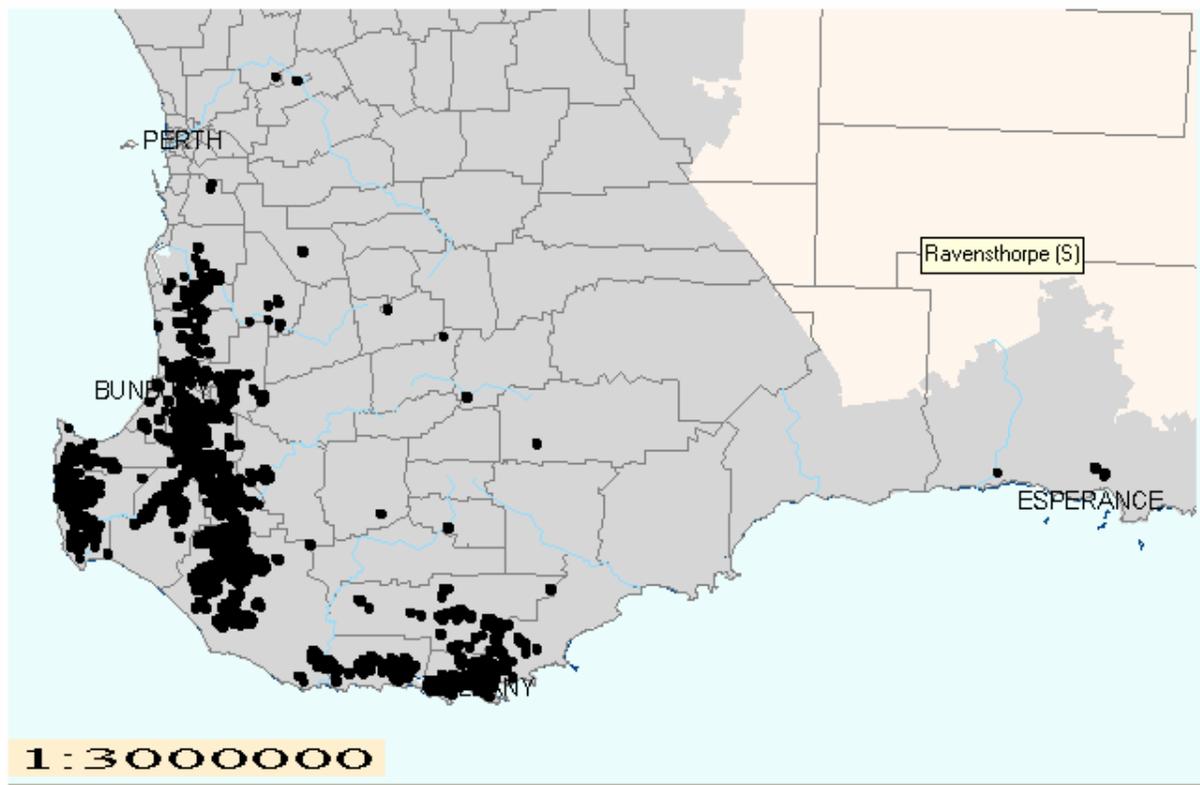
Blackberry Rust (Kent River)

Weed Watcher - Microsoft Internet Explorer

File   Edit   View   Favorites   Tools   Help

Back | | | | Search | Favorites | | | | W | | | |

Address | http://spatial.agric.wa.gov.au/weedwatcher/framesetup.asp?browsertype=Microsoft%20Internet%20Explorer&pluginpresent=1 | Go | Links »

Weed Watcher
ADD TO FAVOURITES

Department of Agriculture
Government of Western Australia

Help | View 🔍 🔍 | | | | | | | | | | Measure | | | | Queries | | Print

▼ General Public
  ● Report Weeds

▶ Authorised Users

View

Report

Home

PERTH

BUN...

Ravensthorpe (S)

ESPERANCE
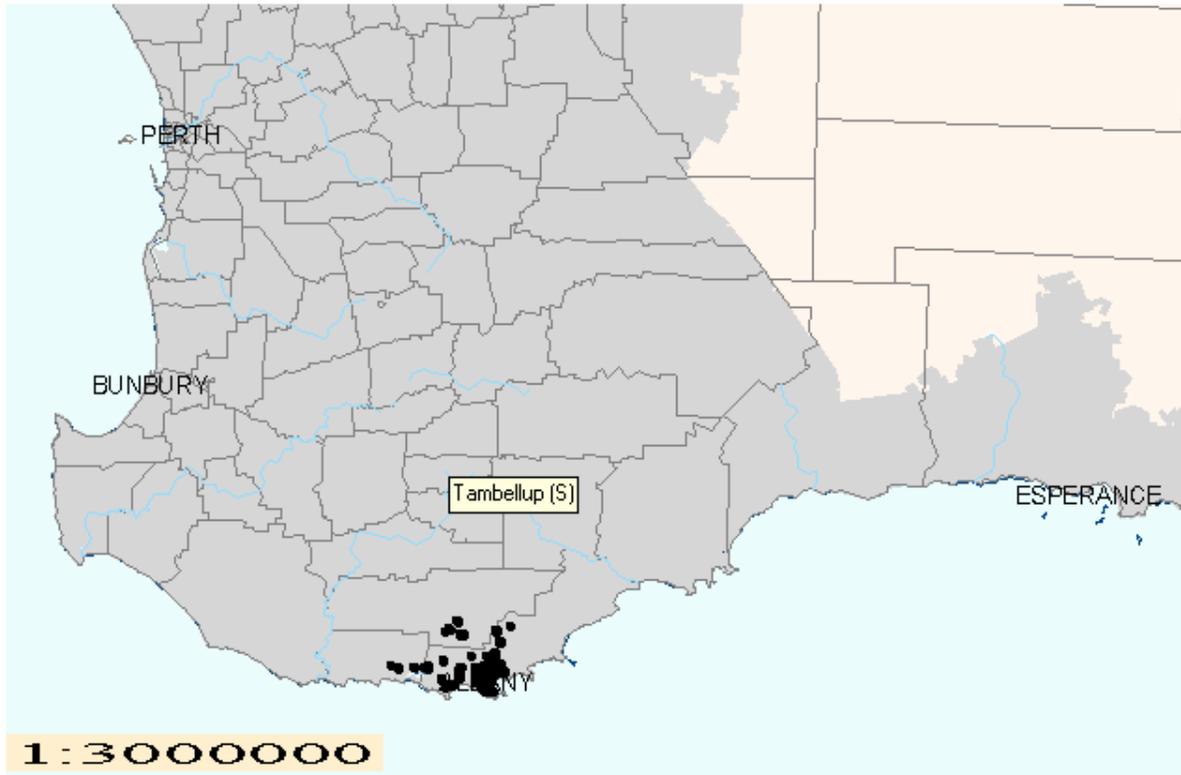
1:3000000

® State of Western Australia, 2005

100 Km

GDA94

Hits: 2947

☑ Weeds
☑ Cities and Towns
☑ Roads - General
☑ Roads - Detailed
☑ Hydrology
☑ Parcels
☑ Reserves
☑ Forests
☑ Unallocated crown land
☑ Shires

Blackberry

- Too much to spray all of it.

- Eradication costs about $1000/ha.

- Most of it is in difficult terrain, water catchment areas, along rivers and in reserves and national parks.

- Most of the economic infestations have been controlled.

- Tree plantations are likely to lead to an increase in infestations.

Gorse

- **Status**
- Declared plant, Weed of National Significance.
- **Biology**
- Slow spread by ants and explosive seed pods or by movement of soil by man or erosion.
- Massive seed production & seed may last in soil >30 years.
- **Control**
- Mature plants controlled with metsulfuron or grazon herbicides and burning.
- Repeat every 2nd year for 30 years.
- Biocontrol has not been very effective. Possibly good for seed set reduction.

Gorse

- Can control the whole infestation but it will come back from the soil seed bank.

- Research into methods of killing the seed in the soil.

- 100 ha by $200/ha = $20,000/year.

- Most is easy to access as it has been distributed by man.

- Political pressure to eradicate it.

What should NRM's investment plan for invasive species be?

- Aids to help individuals control invasive species.

- Identification of new threats.

- Applying for funds for special cases.

- Controlling proven threats.

- Value adding other programs or community work (Equipment, herbicide, BBQ's and busy bees).

- Identify and control species with big biodiversity impacts.

- All of the above and more.
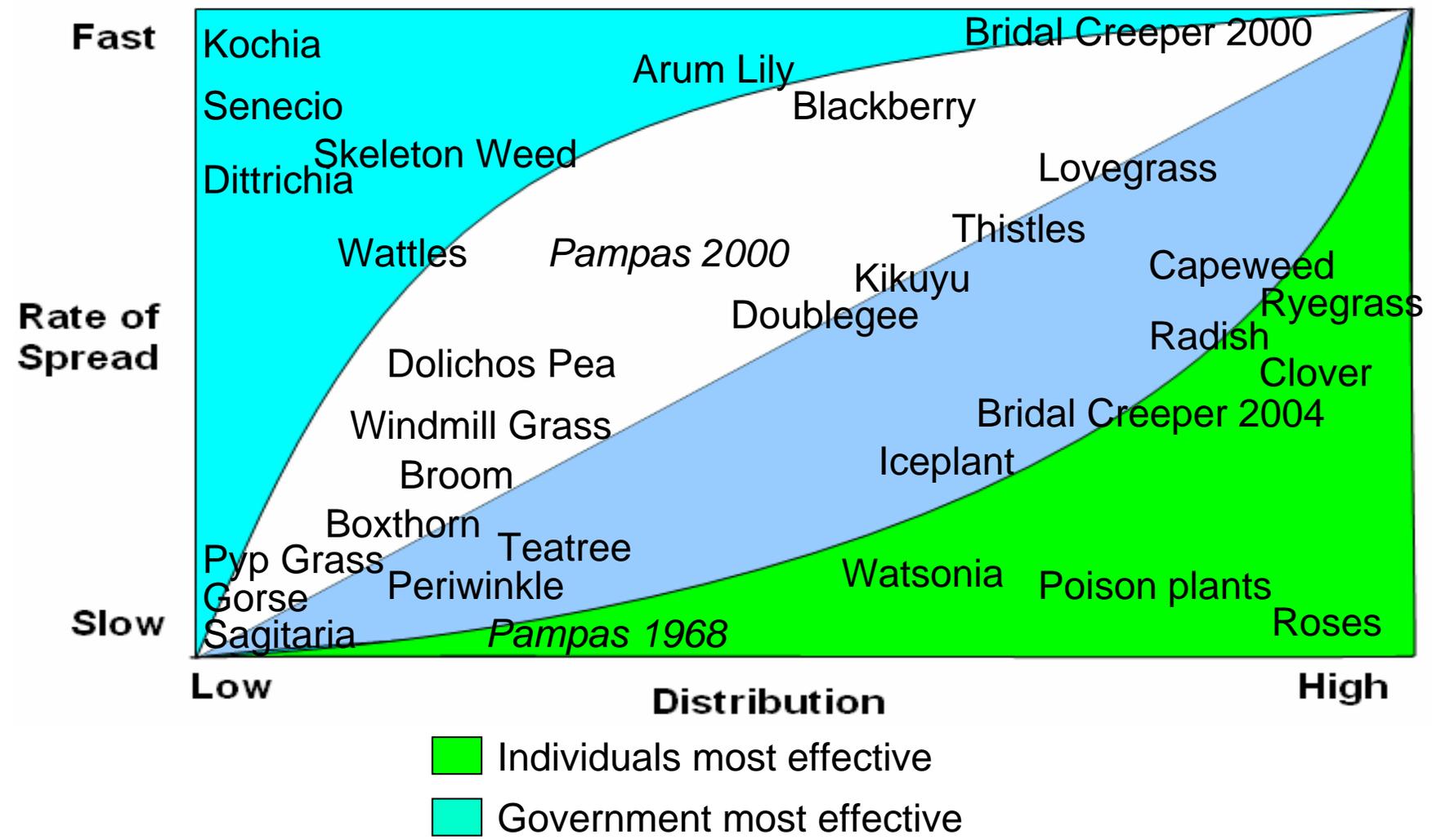
Invasive Species Models

- ## Species based models

Single weed species is targeted for action.

Easy to implement at a legislative level.

Good for fast spreading species.

Good for species with limited distribution.

Controlled species often replaced by another weed.

- ## Patch based models

An area is targeted where all weeds are controlled as well as adjacent threats.

Difficult to implement.

Better outcomes – Weeds are replaced by bush.

HerbiGuide
The Pesticide Expert on a disk

Kikuyu

(A weed is a plant out of place)

Species based model

Wetland area – Kikuyu is a threat

Recharge area – Kikuyu is useful to reduce recharge and save wetlands

Patch based model

Wetland area	Buffer Zone	Recharge area
All weeds including Kikuyu controlled	**Spreading/aggressive species controlled and not planted**	**High water use/stabilizing plants including Kikuyu grown**

Mixed Model

- **Species Based Model** for Declared Weeds and Weeds of National Significance

- **Patch Based Model** for special areas e.g. Ramsar wetlands, Rare and endangered species sites, roadsides, corridors, water catchment areas etc.

Species based model

- **Determine**
- Distribution
- Significance (Environmental)
- Rate of spread (Exponential rates)
- Biology
- Control method
- Strategic plan

Strategic Options

- Prevention

- Eradication

- Control

- Containment

- Ignore

Patch based model

- **Determine**
- Invasive (target or weed) species present
- Native (host or bush) species present
- Invasiveness
- Adjacent or underlying threats
- Control methods
- Rehabilitation methods
- Prevention of re-infestation

NRM Options

- Surveillance

- Rapid response

- Awareness

HerbiGuide
The Pesticide Expert on a disk

Government/community involvement

- Identity is unknown

- Experience levels are low

- Infestations are small

- Knowledge is low or specialized

- Benefits are to an uninfested landholder

- Spread rate is high

Where do weeds come from

Unknown 20%

Agriculture 7%

Contaminant 2%

Other 6%

Ornamental 65%
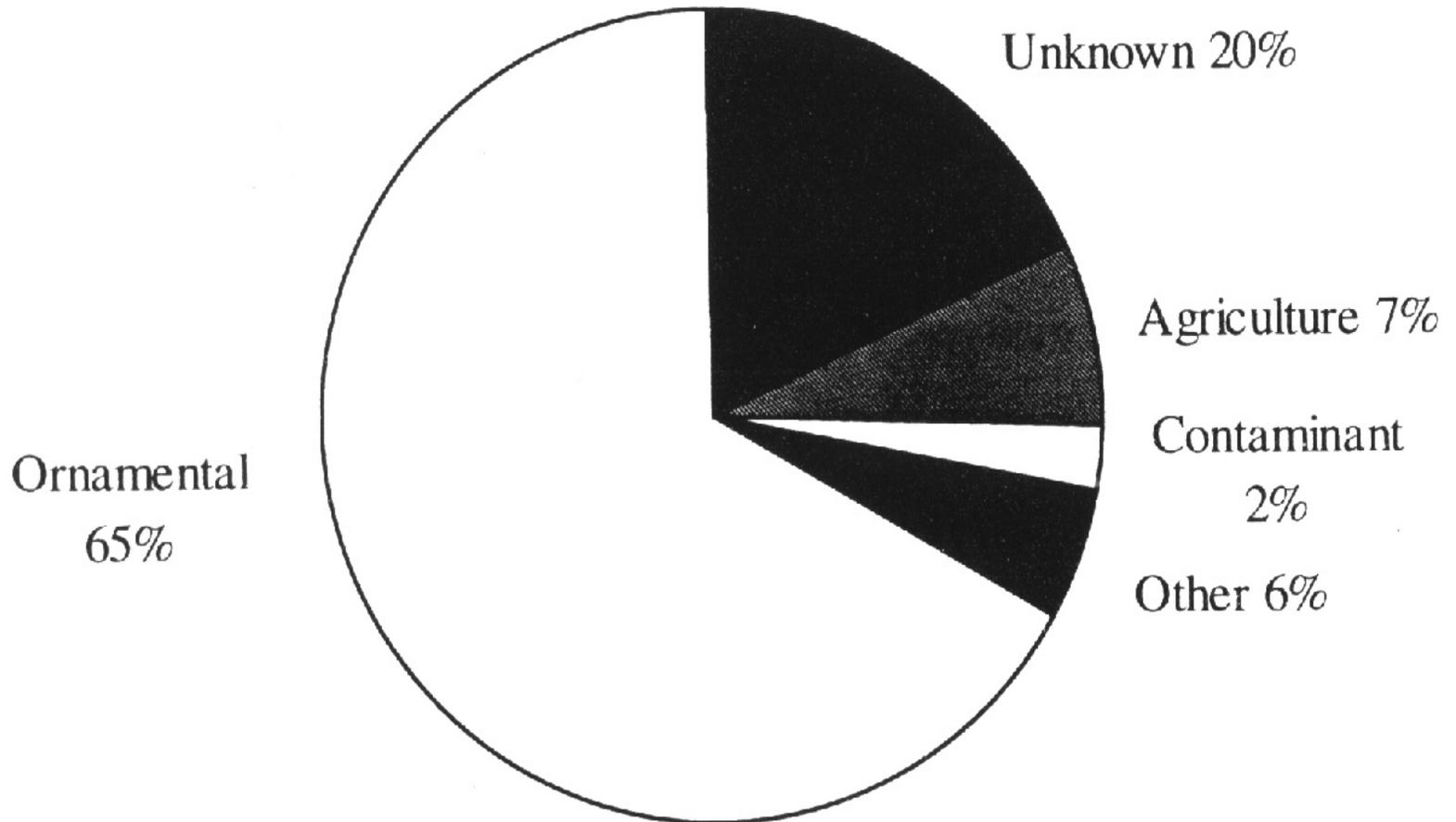
Weeds

- Most of our new weeds are growing in local gardens now.

- Risk assessment

Bad weeds

- 76 plants are listed as "The Worlds Worst Weeds"

- Half of them are present in WA

- Only one is a serious weed – Wild Oat

- Only 2 are on the spray chart WO and Chickweed

- We can tell you what won't invade but have difficulty telling you what will invade

- The Tens Rule

Significance

- $90M of herbicide applied to the top 10 weeds each year

- Weeds cause more environmental damage than salt and mining combined

- Look out the window as you drive home to convince yourself

- Large tracts of Australian bush are still essentially weed free – its not too late.

HerbiGuide
The Pesticide Expert on a disk

Significance

- 19,000 Australian native plants – 9,000 in WA, 10,000 in the east.

- About 10,000 introduced plants
  - 8,500 are on the permitted list
  - 1,700 on the prohibited list
  - 11,000 are listed in nursery catalogues

- 1,000 introduced plants have naturalized in WA

- 100 are significant weeds

- 73 are declared

- 38 are on the Spray Chart

Modeling or monitoring

- Monitoring/mapping of the current bushland resource
- With a good ecological match and appropriate historical factors the probability of invasiveness can be quite high
- Kareiva et al (1996) sum it up as
- "We have so little faith in models and experiments regarding invasion, that extensive monitoring is advocated for all introduced species with ecologically relevant traits"
- Prediction of invasiveness of a particular species is at the research stage rather than the application stage.
- Use the modeling to determine what needs to be monitored.
- Pinus pinaster and Pinus radiata are in the 5 most invasive species of Pinus.

The Tens Rule

- 1 in 10 introduced plants will naturalize

- 1 in 10 naturalized plants will become economic weeds
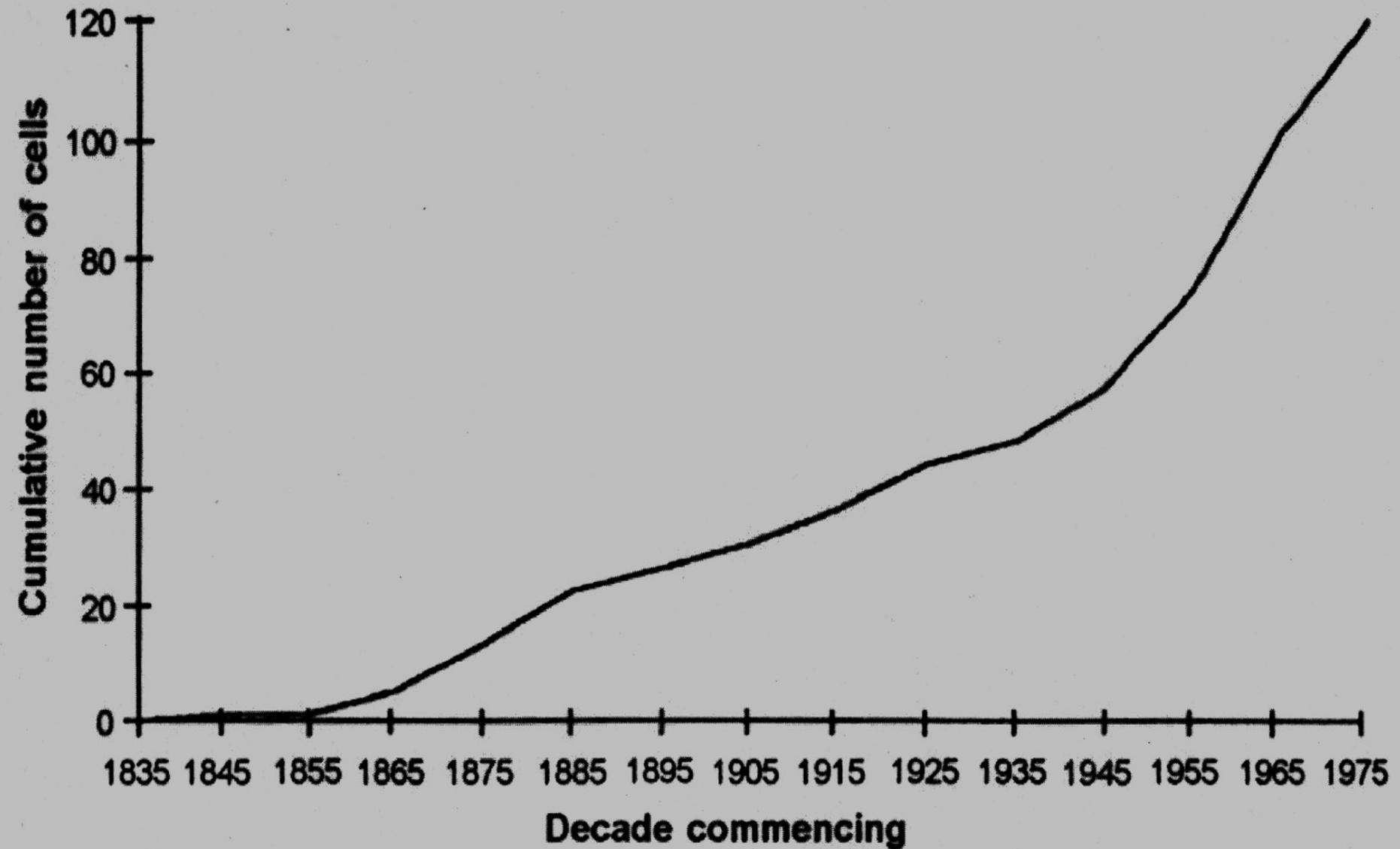
- 1 in 10 economic weeds will become serious weeds.

HerbiGuide
The Pesticide Expert on a disk

Figure 3. Spread of capeweed over time. Cells are 1˚ latitude by 1˚ longitude

Weed Invasion

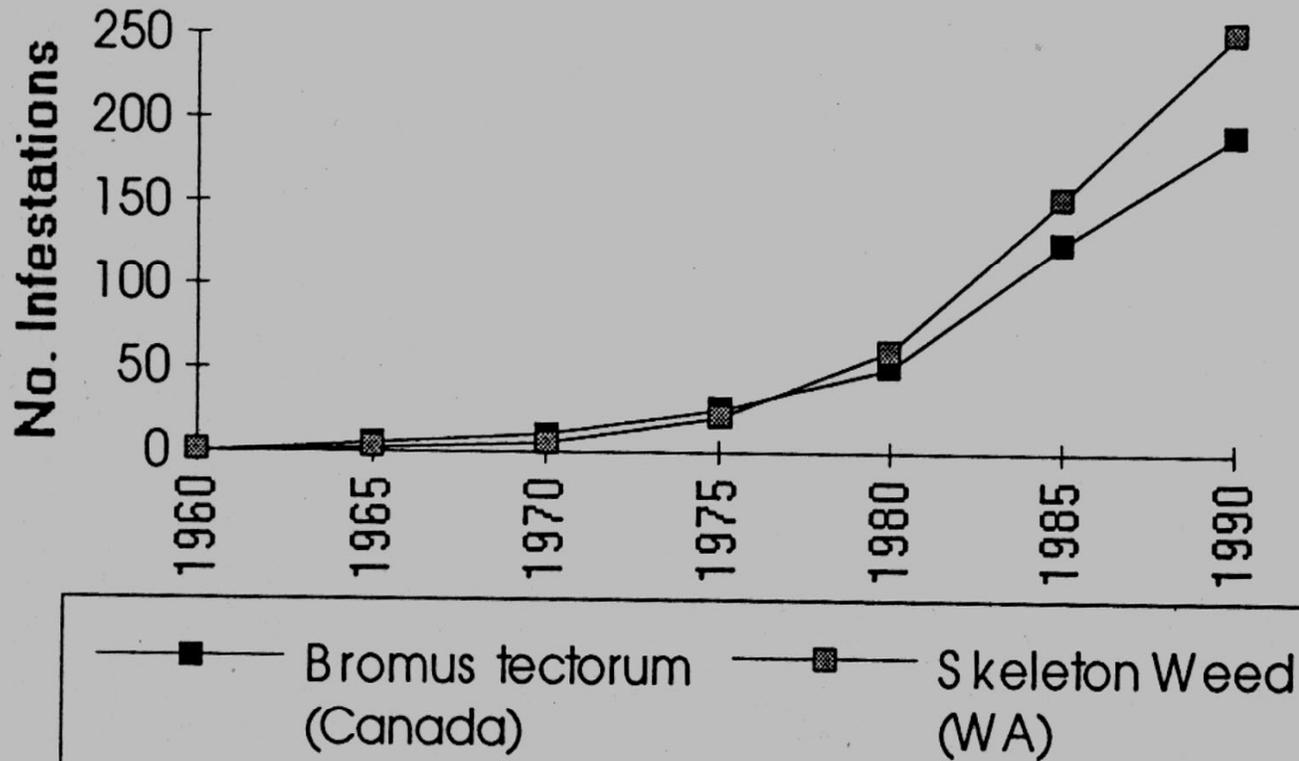
Figure 2. The rate of spread of Skeleton weed in WA and tectorum in Canada.

Note - this is the cumulative sum of infestations and d take account of areas where eradication has been achiev
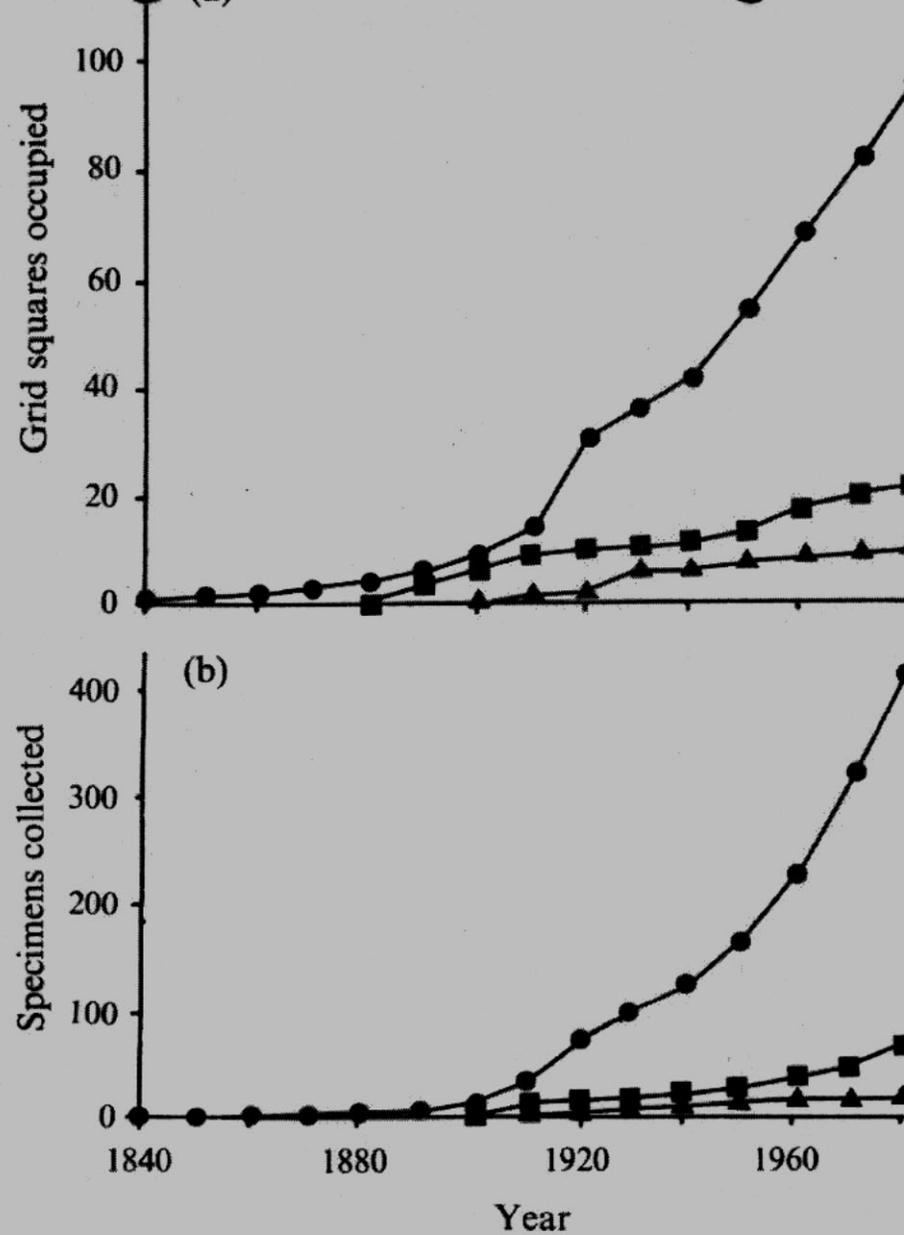
Fig. 2.9. Increase in *Echium* spp. in Australia, as determined from herbarium collections (redrawn from Forcella *et al.*, 1986): (a) number of grid squares occupied; (b) total number of specimens. *Echium italicum* (▲), *E. vulgare* (■) and *E. plantagineum* (●).

Conclusions

- Monitor and assess species
- Control small infestations
- Contain large infestations
- Support community groups
- Produce community empowerment tools
- Actively support other invasive species programs
- Protect special areas
- Educate gardeners and farmers on the weed potential of the species they are growing