Government of Western Australia

DEPARTMENT OF Conservation AND LAND MANAGEMENT

Conserving the nature of WA

Science Division

"Discovering the nature of WA"

Science Division Mission:

To provide up-to-date and scientifically sound information to uphold effective conservation and land management In Western Australia

Broad Strategies

- Alignment
- Consultation, collaboration & partnerships
- Priority setting
- Secure resources
- Outcome-based teams
- Global watch
- Communicate, promote, market

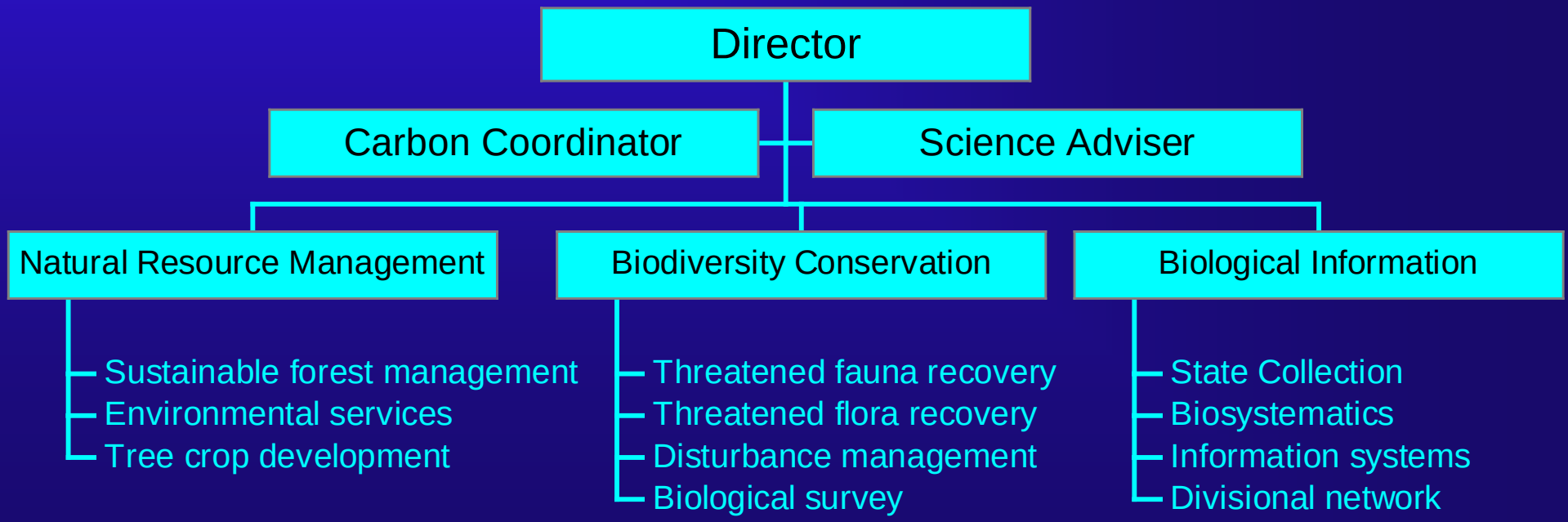
Setting Priorities

- Internal workshops
- External processes
- SPAs Output programs
- Strategic/Scenario planning

Planning Processes

- Strategic Plan (2-5 yrs)
- Annual Business Plan
- Operations Plan
- Science Project Plans

Service Delivery Structure
Science Division

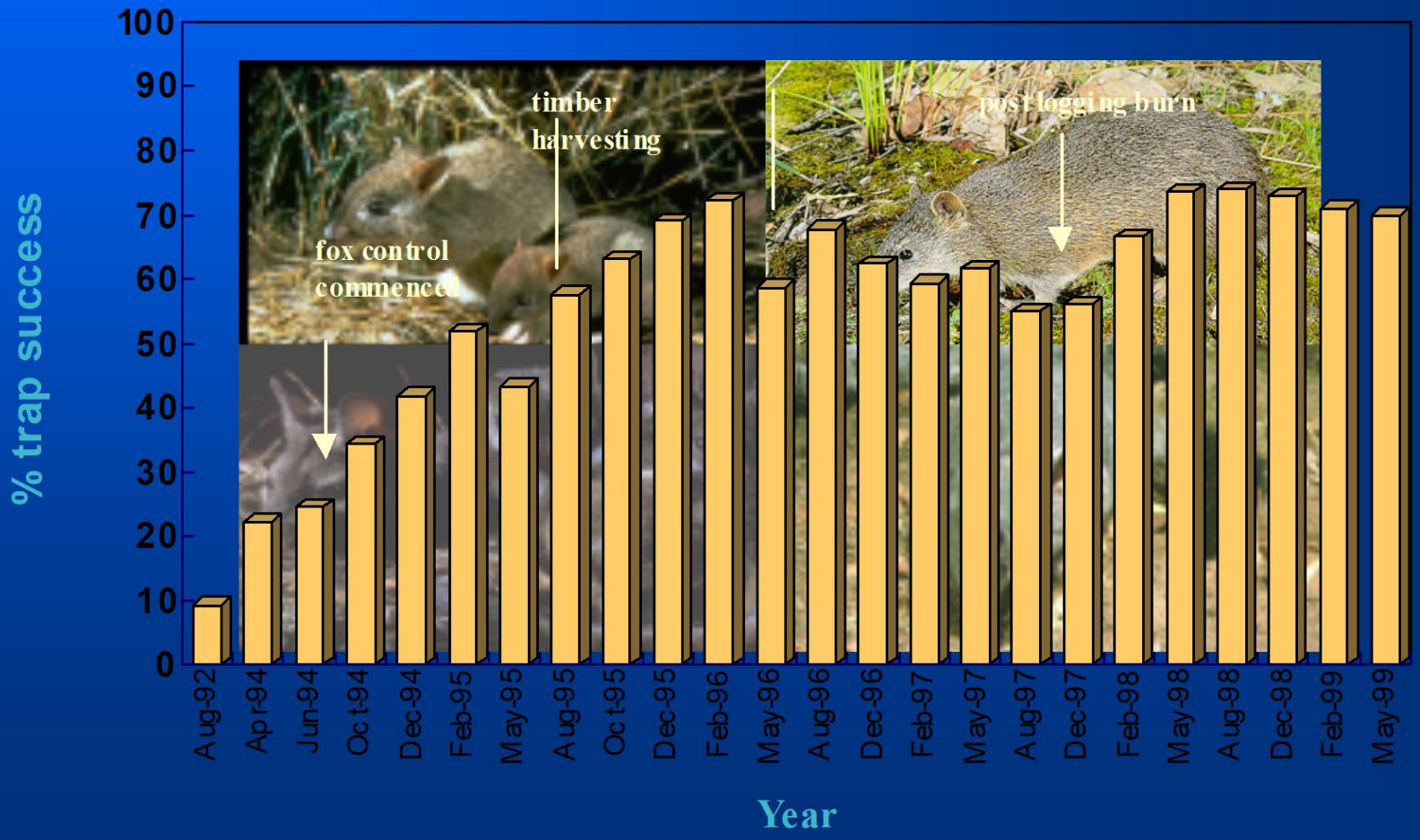


Resources Summary

- 124 CF funded FTEs
- 25 externally funded FTEs
- $10 million CF budget
- $3 million external

Natural Resource Management Group

- Kingston Timber Harvesting Study -
Trap Success Rates For All Medium Sized Mammals
Woylie, Quenda, Chuditch, Brushtail Possum



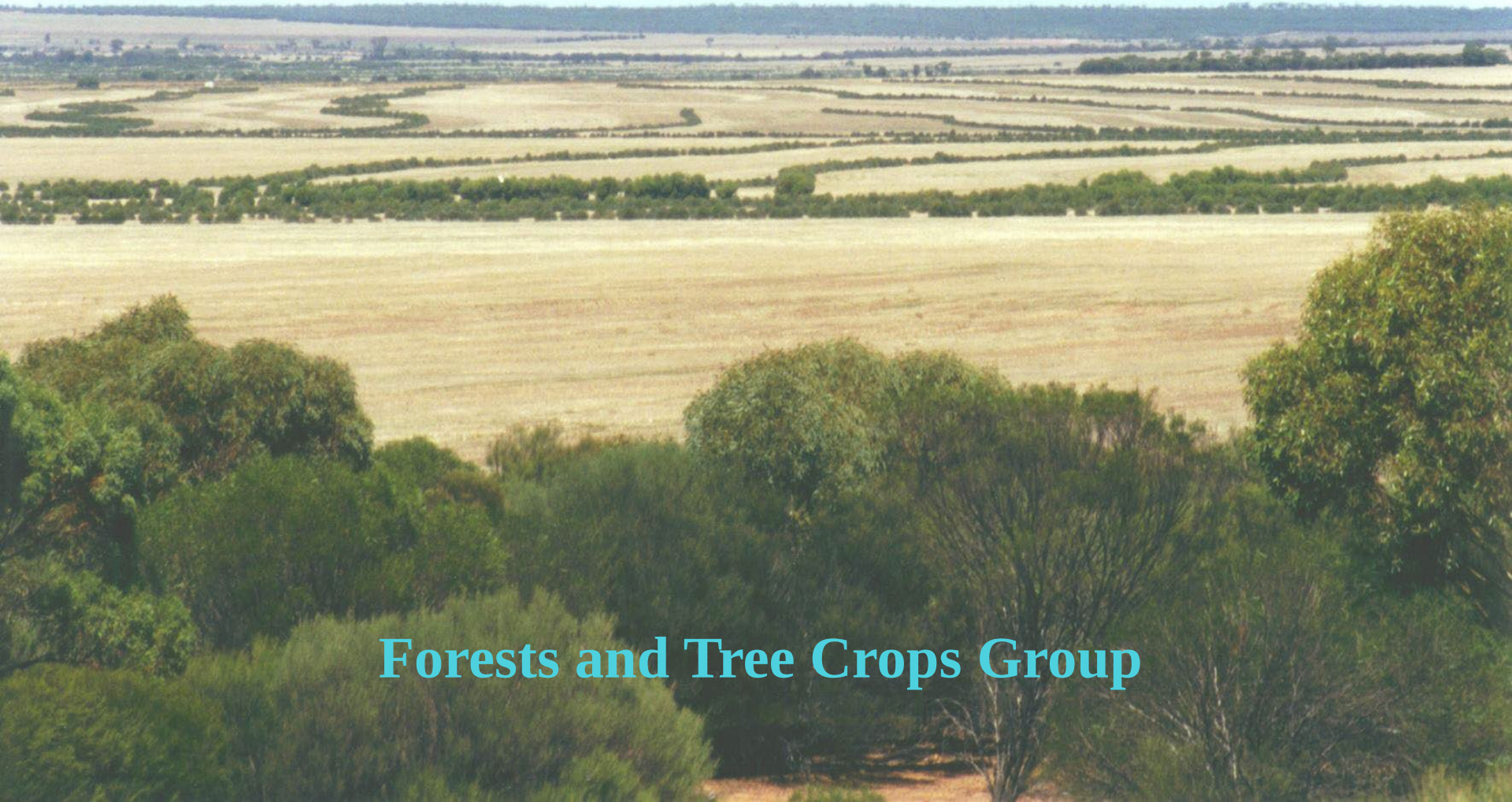
Monitoring Biodiversity in South-West Forests

FORESTCHECK

- Draft Concept and Operational Plans available
- Data collection on first 3 sites under way
- An exemplar of practical monitoring, applicable outside the SW forests?

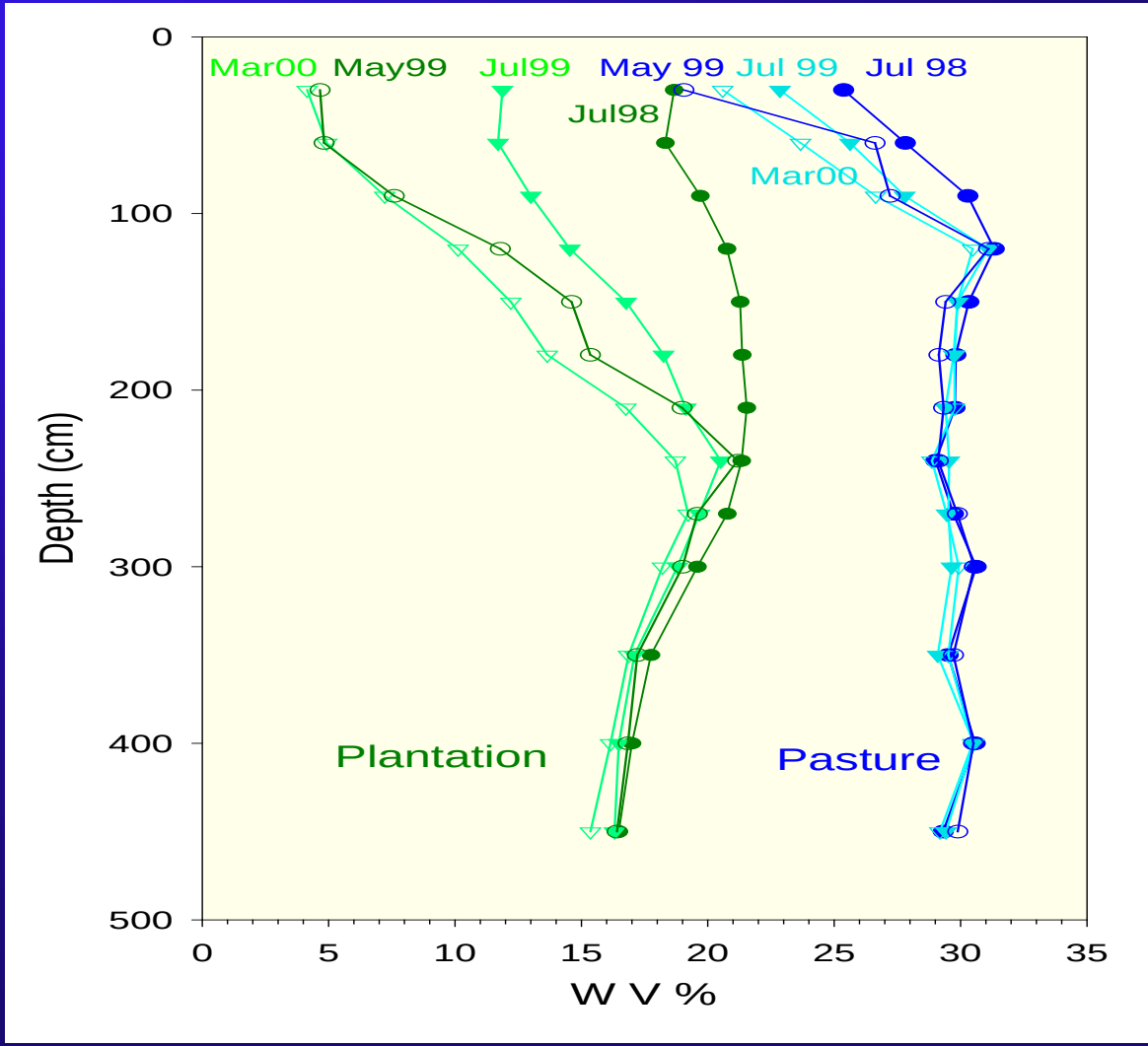
Natural Resource Management Group

Woody perennials for reversing salinity



Forests and Tree Crops Group

Do woody perennials work ?



I. Dumbrell 2000

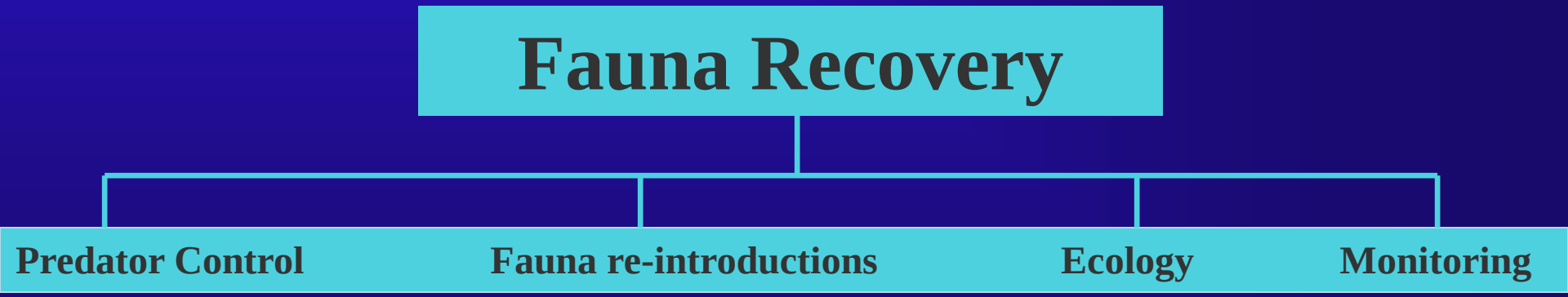
Yes, the scale of planting is the critical issue

Natural Resource Management Group

Oil Mallee

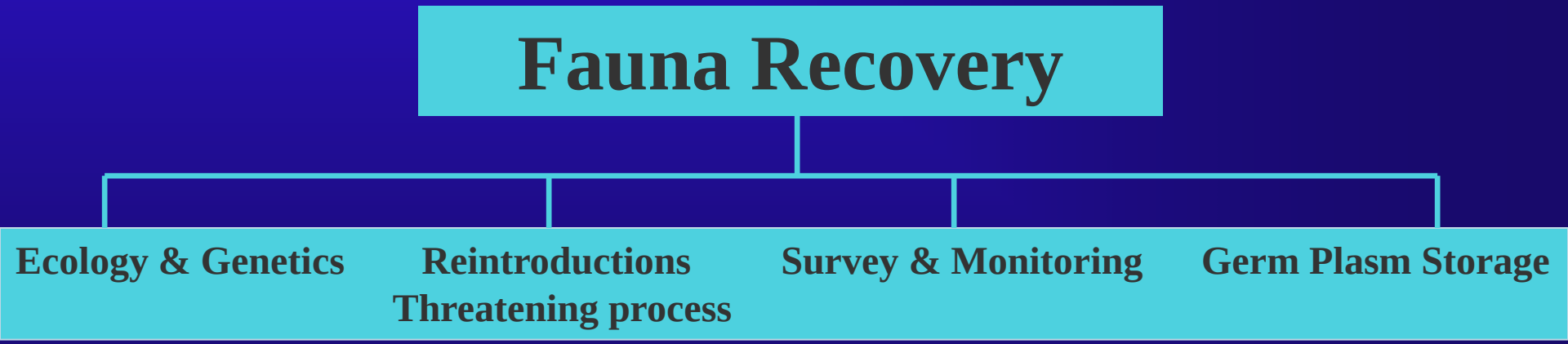
- Breeding and seed production
- Silviculture
- Harvest regime and yield
- Harvest and handling systems
- Processing
- Products

Biodiversity Conservation Group



Fauna reintroductions

Biodiversity Conservation Group



Experimental Translocations of Critically Endangered Species

Objectives

1. **Translocation techniques for a range of site conditions**
2. **Protocols for assessing and predicting translocation success**
3. **Translocation database**

Millenium Seedbank Project

1. **Benefit Sharing Agreement with Royal Botanic Gardens Kew**

2. **DCLM Threatened Flora Seed Centre to collect 1,000 Priority Flora species over 10 years**

3. **Seed to be processed / stored in TFSC duplicate collections to be housed at Millenium Seed Bank, UK.**

5. **Total funding over 10 years £439,300 = $ 1,1800,000. TFSC to receive ≈ $850,000**

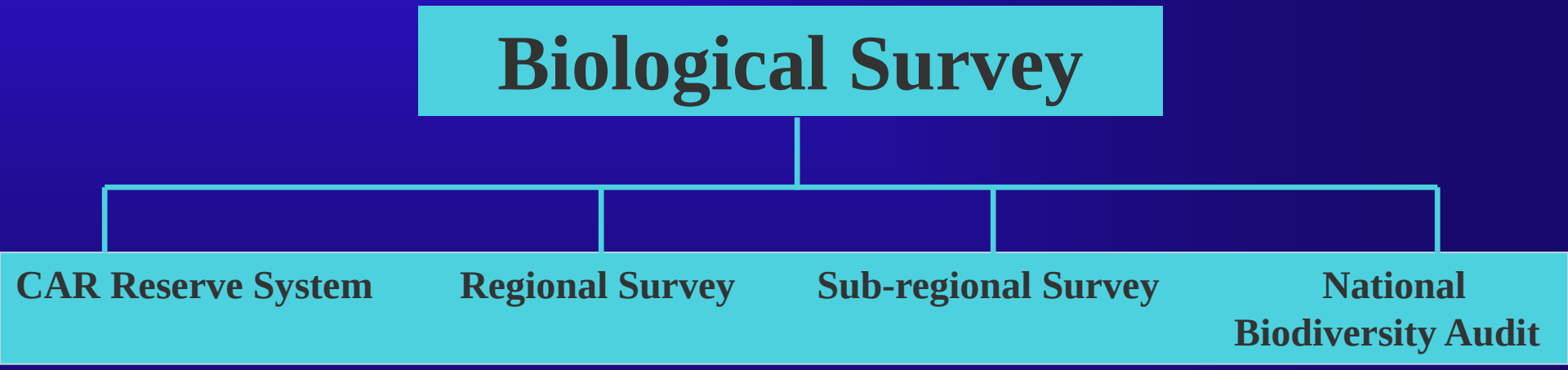
Land and Water Australia Grant 2001-2004

Objectives

1. **Determine genetic and ecological factors that affect the viability of plant populations in remnant vegetation (Dongalocking, NSW, Qld).**
2. **Develop management guidelines for remnants**
3. **Develop landscape design principles that will maximise the probability of population persistence**

Biodiversity Conservation Group

Biodiversity Conservation Group



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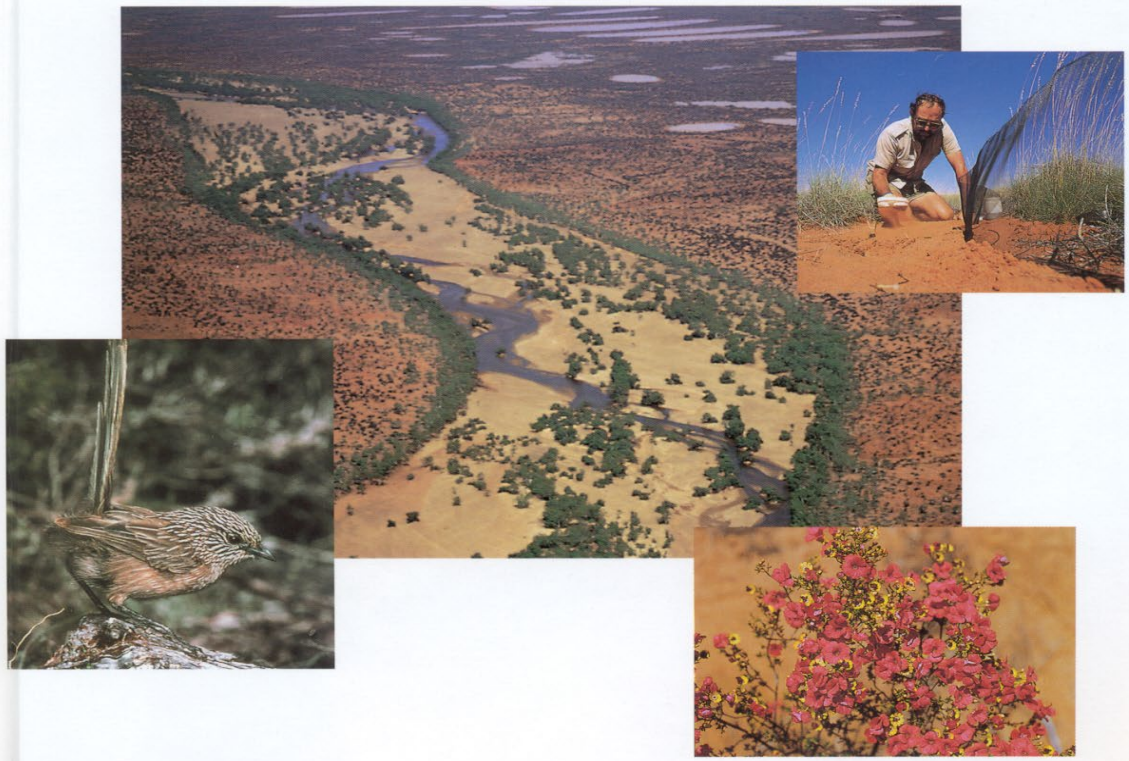
Biodiversity of the southern Carnarvon Basin

Edited by
Allan H. Burbidge, Mark S. Harvey and N.L. McKenzie



Records of the Western Australian Museum
Supplement No. 61

Pilbara Biological Survey

- Little is known about stygofaunal distribution and ecology in WA
- Management and conservation of this significant source of biodiversity is major challenge
- To provide a framework for conservation and information on ecology, Science Division is seeking funding for a regional survey of stygofauna in Pilbara, in conjunction with the proposed survey of surface biota

- Ostracods

Stygofauna

- Stygofauna live in groundwater. Most are crustaceans but include beetles, mites, worms and fish as well.
- About 130 species recorded in WA so far. Probably several thousand occur and they are a major component of WA biodiversity.
- Many of the crustaceans appear to be ancient species with a pre-Gondwanan history

- Bathynellid
- Thermosbaenacid

Distribution

- Main habitats are underground karst caves, calcrete deposits and alluvial beds associated with drainage systems but occur in all aquifers
- Best studied areas are Cape Range, Pilbara and Yilgarn
- Occur in saline water as well as fresh

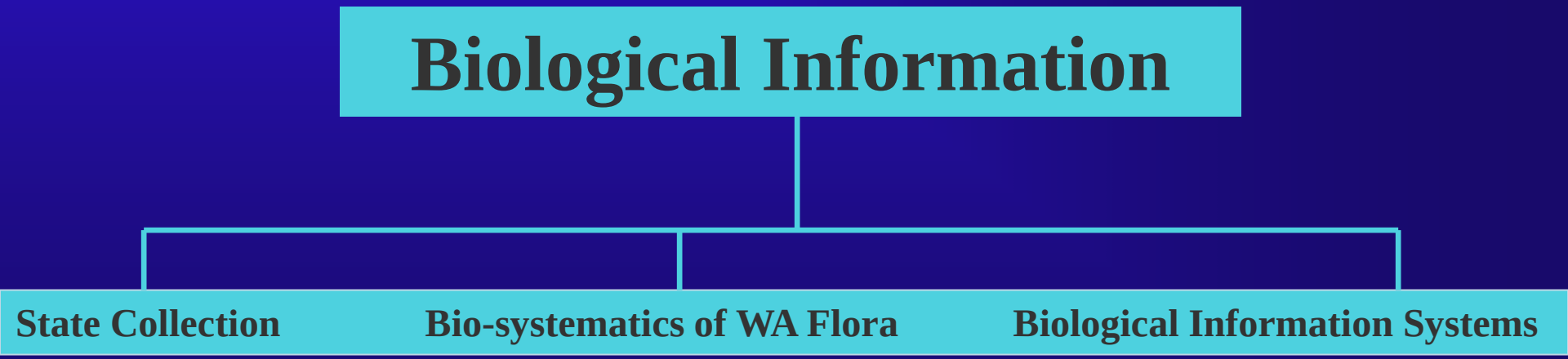
- Isopod
- Amphipod

Conservation issues

- Stygofauna threatened by de-watering for mining below watertable and by water abstraction for domestic and industrial supply
- May also be threatened by changes in water quality
- EPA has assessed mining proposals for impact on stygofauna and several stygofaunal communities have been listed by WATSCU
- No formal reservation system exists for stygofauna other than terrestrial reserve system

- Copepod

Biological Information Group



Biological Information Group

Aim:

To maintain & extend the State resource centre for taxonomic, conservation and economic information on the State's flora.

The State Collection

- Collections of identified and curated material total 500 000 specimens of vascular plants, mosses and their allies, lichens, fungi and marine and fresh water algae

Biodiversity Information Systems

- Corporate databases to communicate the results of botanical science to a wide range of users involved in conservation

DCLM Corporate Databases

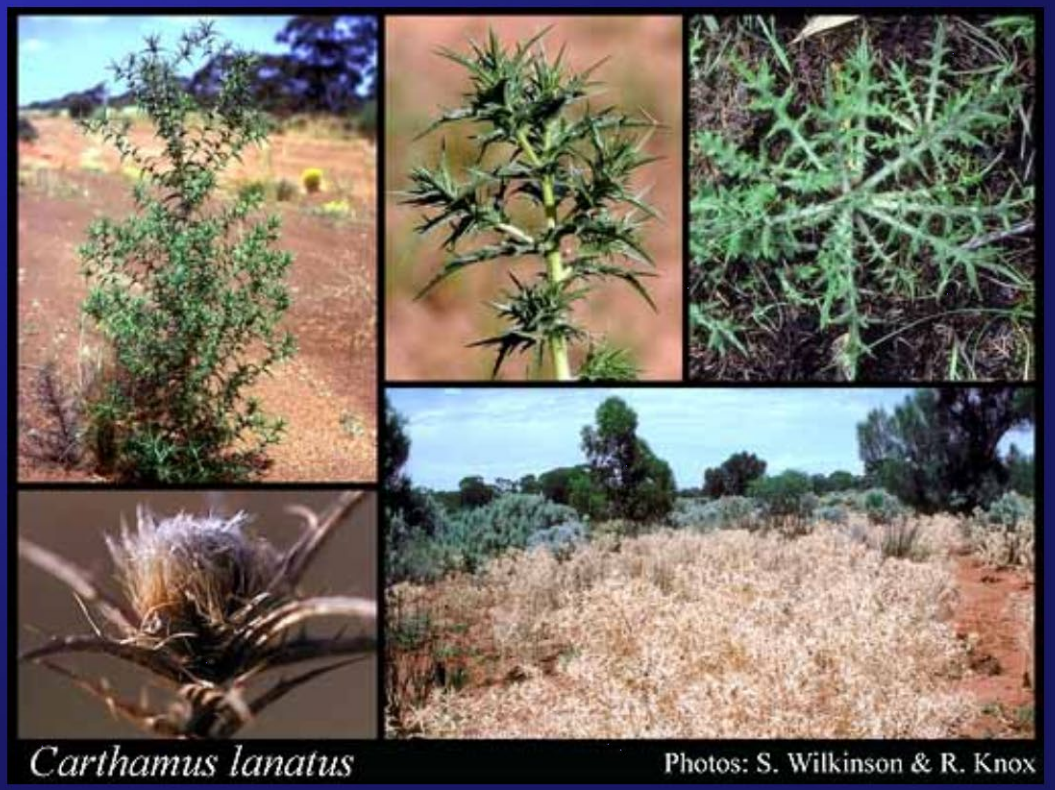
- authoritative names database
- plant descriptions for 13 000 species
- botanical library
- spatial data from specimen labels
- plant images
- biological attributes

- The Regional Herbaria Network
- WIN the Weed Information Network
- FloraBase: a statewide electronic plant information system integrating a range of databases into an easily accessible web site

Biological Information Group

Weed Information Network (WIN)

- Partnership (NHT-funded) between government and community, to combat the growing weed problem in WA through:
  - a network of trained collectors
  - a weed identification service
  - comprehensive on-line weed identification system
  - improved curation of the WA Herbarium's weed collection
  - weed-incursion early-warning system
  - builds on and extends the Regional Herbarium Network



Biological Information Group
Weed Information Network (WIN)

- Achievements to date
  - WIN manual published – 'How to Collect and Record Weeds'
  - Extensive training and use of volunteers to describe and identify weeds
  - Country workshops for training regional herbarium volunteers
  - Weed descriptions coded in DELTA database for interactive key (17% species completed)

Biological Information Group

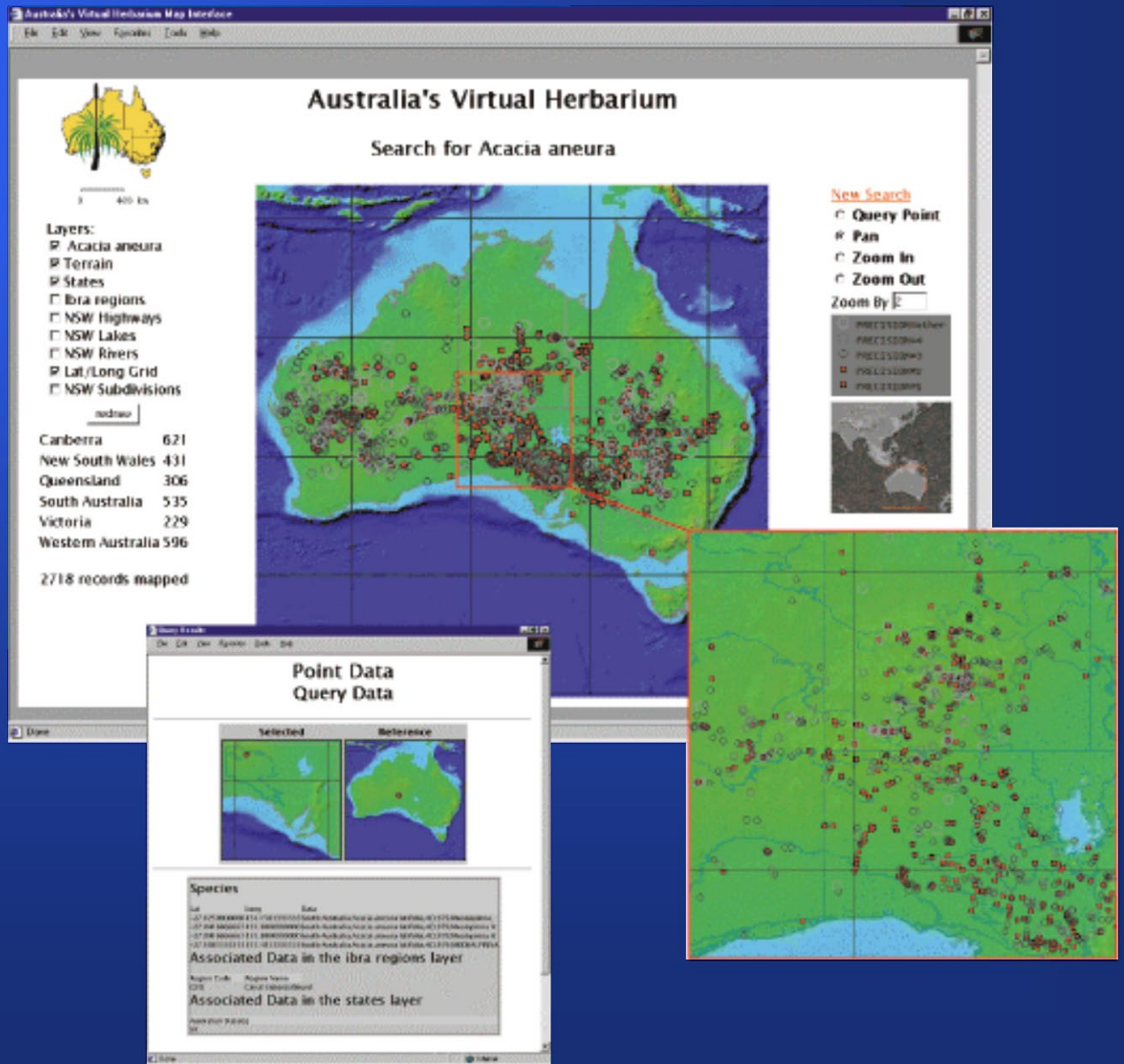
Australia's Virtual Herbarium

- On-line botanical information resource accessible via the web
- Immediate access to data associated with scientific plant specimens in each Australian Herbarium
- Six million specimen records, eventually displaying geographic distribution enhanced by images, descriptive text and identification tools
- Collaborative project of the State, Commonwealth and Territory herbaria
- Developed under the auspices of the Council of Heads of Australian Herbaria (CHAH), representing the major Australian collections

Biological Information Group

Australia's Virtual Herbarium

- AVH is accessed via the website
- A gateway at each Herbarium links to other Herbaria.
- WA Herbarium is a participating institution
- AVH will go online by December 23rd, 2001



Future Directions

- Knowledge Management Systems
- Biological Survey
- Rare & Endangered Species & Communities
- Landscape Ecology & Reconstruction
- Natural Resource Management
- Monitoring
- Partnerships & Collaborations

naturebank

A Western Australian Conservation Information System

- Assemble physical, biological and ecological data into central databases which are readily accessible to users.
- Develop predictive models about species distributions, ecological processes
- Draft concept plan available
- Intend to establish 3 positions (Data Manager, GIS research scientist, Biological Modeller)