

Mining and Biodiversity



FBA's NHT funded project
enhancing Bowen Basin
biodiversity in partnership with the
coal mining industry



Outline

- Origins and aims of the project
- Biodiversity issues in the Bowen Basin
- Technical tools
- Assessing values to guide recovery
- Possible solutions ~ some options
- Project outline summary





Mining and Biodiversity

Origins of the project

- Concerns over diminished native Biodiversity in the Bowen Basin
- Broadscale clearing stopped for all but nine ongoing purposes ~ and mining
- A need to address cumulative effects of coal mining on landscape and biodiversity

Partnership ~ FBA is involved with

Queensland Resources Council, Xstrata, Rio Tinto, Anglo Coal and BHP Billiton Mitsubishi Alliance, EPA (Qld) and DEH (Cth)

Aims or outputs

- A process for assessment of biodiversity values
- A biodiversity strategy for the coal mining industry in the Bowen Basin





What is Biodiversity?

Globally ~ Biodiversity is the variety of life on Earth and its functions or ecosystem services.

Ecosystem services at different scales...

- *Global climate regulation*
- *Water quality controls*
- *Hydrology and flood control*
- *Local nutrient cycling*
- *Source of food, fibre and medicines*
- *Soil formation and protection from erosion*

All beautiful, useful and even not-so-useful biota have wild origins.

Viable food crops need vigour from wild relatives.

Maintenance of ecological services and genetic resources requires in-situ conservation





from Global to Regional



Legal protection of biodiversity concentrates on threatened species and communities.

The Bowen Basin remains home to native species and communities that have become extinct or scarce in the longer and more developed south of the Brigalow Belt Bioregion.

Brigalow, Bluegrass and Semi Evergreen Vine Thicket communities are considered threatened by the Commonwealth along with eight mammals, nine birds and nine reptiles.

Statutory approach assumes that common species and communities can look after themselves!



Ecological communities of the Bowen Basin

The Commonwealth lists ecological communities: being Semi Evergreen Vine Thicket, Brigalow communities and Bluegrass grassland - as endangered



Bluegrass grassland

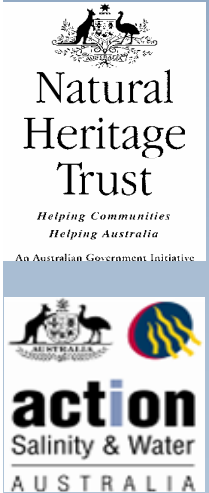
Brigalow and SEVT



Brigalow



SEVT



Biodiversity issues in the Bowen Basin



Issues: Current inheritance in the Bowen Basin

40% of pre-clearing regional ecosystems remain intact averaged across the eight subregions that coincide with the Bowen basin

Species that have dramatically declined elsewhere enjoy a stronghold in the Bowen Basin eg Bridled nail tail wallaby and squatter pigeon.



Bridled Nailtail wallaby



Squatter pigeons

Communities decimated elsewhere can bounce back – Brigalow and Bluegrass are resilient and where soil profiles are intact will recover with appropriate management.

Comparatively little land reserved in protected areas, for example 0.9% of the Northern Bowen Basin subregion.



Biodiversity issues and tools

Issues (continued)

Few patches of threatened vegetation communities are in large patches.

The cumulative impacts of more than thirty coal mines

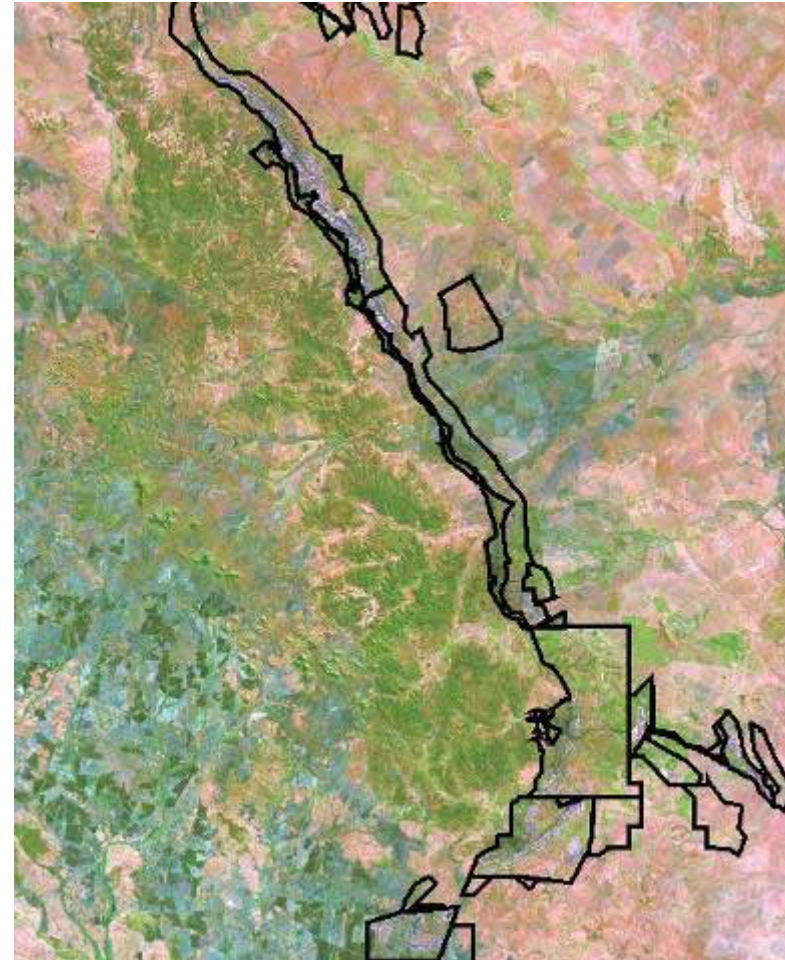
More than 8,000ha of “high conservation value” areas occur on mining leases and mineral development licenses, (>60,000 ha on exploration permits).

Accessible coal seams lead to linear disturbances that can exceed 100kms.

Tools:

Regional ecosystem mapping by the Queensland herbarium at 1:100,000

Landscape metrics allow calculation of rarity and equivalence ie measures what will be lost to a project and what should be put back.





Biodiversity values of the Bowen Basin

A draft assessment using mapping tools considers the values of Commonwealth-listed Brigalow, Bluegrass and **SEVT communities** across the Bowen Basin.

Large patches protect a larger sample of biota **than small patches and** are more capable of persisting into the future.

To achieve long term survival of listed communities **larger patches are** critical. The assessment identifies the largest **patches remaining in** each subregion as High Conservation Value areas.



Double-barred finches





Options to make sure no more biodiversity is lost to coal mining in the Bowen Basin 1

Because Brigalow, Bluegrass and SEVT communities now cover less than 10% of their original extent, all occurrences of these ecosystems are “irreplaceable”.

Offsets

If after all mitigation on site is worked through, **some irreplaceable** vegetation has to be cleared for mining, the **Commonwealth** wants companies to protect identical vegetation **offsite with a preference** that regrowth is included to avoid losses.

As any one mine will only affect a small area **individual offsets** may be ad-hoc.

A **Land Trust** or **Biodiversity Bank** can combine offsets into viable strategic parcels managed for biodiversity...

By purchasing properties hosting high conservation value areas that could be managed by third party **biodiversity specialists**.

Glossy black Cockatoo

Or signing up landowners to **conservation agreements** (tenders, contracts, stewardship payments).



Options 2

Site: Peripheral lands

Lands around the mine workings (mining lease or owned by the company) can be managed for biodiversity.



Red backed Fairy Wren

Site based Biodiversity Action Plans

Companies holding land with conservation value can prepare Biodiversity Action Plans that integrate mine planning with protection of biodiversity (no or limited controlled clearing, arrangements with wildlife carers, weed and feral animal control) through the life of the mine (from exploration to closure).

Options 3

Rehabilitation and post mine land use

Concerns over possible failure of rehabilitation of open cut mines is driving a change in preferred post mine land use from agricultural production to self sustaining native ecosystems.

Residual risks may be best and cheaply addressed by letting nature do the work.

Improvements to final landform design, rehabilitation (of spoil, pits, coal reject storages and stream diversions, etc) with native plants and integrated management with peripheral lands can make biodiversity conservation a safe, practical and sustainable final land use for many coal mines.



Project Milestone Summary



1. Review of current legislation, policy and assessment processes (draft circulated January, comments being addressed)
2. Biodiversity assessment of values on mining tenements (EPA mapping by January and Report by Easter 2006)
3. An Options Report outlining possible solutions (October 2006)
4. A Biodiversity Strategy for sub regions of the Brigalow belt over coal measures (Jan/Feb 2007)
5. Agreement on revised Govt assessment processes supporting the mitigation of biodiversity impacts (March 2007)



An Australian Government Initiative





Acknowledgments

Photographs by

John Augusteyn Wildlife Ranger QPWS

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Questions???

and

Discussion

