



Key Facts

Date acquired: 2001 **Size:** 56,380 ha

IBRA Bioregion: Brigalow Belt

Traditional Owners: Bidjara people

Key Staff: Healthy Landscape Manager: Steve Heggie; Reserve Manager: Chris Wilson; Field Officer: Thornton Kerr; Ecologist: Murray Haseler

Key Partners: Neighbours (Mt. Tabor, Dooloogarah); Qld Parks and Wildlife; Qld Murray Darling Committee; Dept Natural Resources and Environment; University of Qld.

Ecosystem Diversity: Carnarvon Station Reserve protects a high valley in the Carnarvon Ranges in central Queensland. It is dominated by open forests and woodlands on rugged sandstone slopes and escarpments. The fertile alluvial valleys support a variety of grassy woodlands (poplar box, mountain coolabah, forest redgum) and grasslands. Carnarvon also contains natural springs, brigalow woodland, belah shrubland and vine thickets.

Goals and Objectives

Management Intent: IUCN Category II – Protected Area managed for ecosystem protection

Conservation Objectives: Maintain the extent and improve the condition of grasslands, grassy woodlands and fire-sensitive vegetation (brigalow, belah and vine thicket); Re-establish and maintain the native food-chain to support viable populations of small and critical weight range mammals; Natural succession of vegetation cover and composition.

Key Management Strategies: Cessation and exclusion of livestock, cultivation and clearing; control of key invasive species, principally Johnson grass, buffel grass and feral horses; soil erosion control, mainly around dams and roads; and fire management to prevent large bushfires, protect vine thickets and manage biomass in grassy ecosystems.

Key Conservation Targets

Key Conservation Targets	Status & Trend	Confidence Level
Bluegrass grasslands		
Grassy woodlands		
Brigalow		
Belah and vine thicket		
Freshwater springs		
Small and critical weight range mammals		
Riparian forests		
Open forests		

Key Ecological Processes

Key Ecological Processes	Status & Trend	Confidence Level
Ecological function		
Viability of key species		
Functional communities		
Natural disturbance regime		
Ecosystem resilience		

Key Threats *

Key Threats *	Status & Trend	Persistence
(* relative to time of acquisition) Livestock grazing and cropping		✓
Feral herbivores – horses		~
Feral herbivores – stray cattle		~
Weeds – Johnson grass		\$\$
Weeds – Buffel grass		\$
Inappropriate fire regimes		\$\$
Soil erosion		\$

Commentary

The condition of most key conservation targets, particularly the lowland grasslands, grassy woodlands and springs, have improved or remained stable since acquisition. The threat of livestock, cultivation and clearing has been removed, feral herbivore grazing has been reduced, and fire management promotes a mosaic of fire-age classes and mitigates the intensity and extent of bushfires. Nonetheless, many brigalow patches were burnt in 2013 reducing condition (at least temporarily) and increasing susceptibility to buffel grass infestation. Weeds continue to pose a significant threat especially after recent wet years.

Scorecard Description

Key Conservation Targets are the ecological entities (communities, species or species assemblages) within the landscape upon which Bush Heritage has chosen to focus conservation effort; they are the basis for goals, carrying out conservation actions, and measuring conservation effectiveness. Each property has around 4-6 targets. The Targets allow prioritization of effort and resources. The scorecard shows the latest assessment of the Status (condition) and Trend (change in condition) of each Target. The ratings are derived from measures against a number of Indicators which define the Viability of key ecological attributes of the Target. Further details of the key ecological attributes, indicators and measures can be found in the Target Viability Table within Miradi. The Status and Trend symbols are defined below. The Confidence level reflects the extent and reliability of data available from which the ratings are derived.

Status Rating		Trend		Confidence Level	
Excellent		Strong increase / improvement		Very High	
Good		Mild Increase / improvement		High	
Fair		Steady		Medium	
Poor		Mild decrease / degrading		Low	
Uncertain		Unknown/Uncertain		Very Low	

Key Ecological Processes measures progress against the goals defined by the Ecological Outcomes Monitoring program.

- Maintain or restore **ecological function**. This goal refers to the biophysical processes that regulate the stocks and flows of water, nutrients and energy that sustain ecosystem productivity. Indicators for this process monitor ecological resource conservation, maintenance of refugia and source areas, and change in hydrological health.
- Maintain or restore the **viability (and evolutionary potential) of key species**. This goal recognizes that the long-term persistence of native species is a key conservation objective but places greater emphasis on threatened, keystone or locally endemic species. Indicators for this process monitor population demographics such as abundance, density and population structure.
- Maintain or restore **functionally integrated communities**. This goal relates to managing the biophysical habitat to support community assemblages and trophic interactions that enable species to fulfill their functional roles. Indicators for this process monitor factors such as carrying capacity and changes in vegetation structure.
- Maintain or restore **natural disturbance regimes**. This goal refers to the frequency, intensity, duration, spatial heterogeneity and magnitude of natural disturbance events. Indicators for this process monitor factors such as fire regimes and hydrological cycles.
- Increase **ecosystem resilience**. Resilience refers to the ability of an ecosystem to recover following disturbance or shocks (natural or anthropogenic). Indicators for this process monitor time and extent of recovery in factors such as primary productivity, vegetation structure and composition, and faunal assemblages.

The scorecard shows the latest Status and recent Trend for each process, using the same symbols as above. The ratings are derived from analysis of measures taken during on-site surveys at pre-defined EOM sites against a range of indicators. The raw data is recorded against each site in the Properties database. The Status & Trend ratings represent a judgment made of relevant measures across all EOM sites on the property, irrespective of which Key Conservation Target they might be located in. It therefore gives a whole-of-property assessment, and is also comparable across properties.

Key Threats are identified for each target, and for the property as a whole, and are the focus of management actions. A rating system is used to assess each threat in terms of its scope, severity and permanence to derive an overall Status rating. The Trend rating is a judgment on the degree of change since the last status rating. The key ongoing threats that are the focus of management activities are listed for each property, along with any major threats that have been removed or controlled through Bush Heritage's actions. The removed threats were often the motivation for property acquisition (e.g. land clearing, pastoralism, logging) and the benefits from these actions accrue in perpetuity. The Persistence rating gives an indication of the on-going effort required to manage the threat.

Status Rating		Trend		Persistence level	
Low		Strong increase / improvement		Permanently removed	✓
Medium		Mild Increase / improvement		Ongoing vigilance required	~
High		Steady		Ongoing investment required	\$
Very High		Mild decrease / degrading		Increased investment required	\$\$
Uncertain		Unknown/Uncertain			