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*The Australian Rangeland Society*

# ORD REGENERATION PROJECT REVISITED

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## BACKGROUND

It is now 42 years since the Ord River Regeneration Project in the East Kimberley area of Western Australia (Fitzgerald 1968), the largest and most ambitious of its kind in Australian rangelands, commenced. The project area which is now called the Ord River Regeneration Reserve (ORRR) initially covered about 10,000 km<sup>2</sup> of the total catchment area of Lake Argyle of 46,000km<sup>2</sup>.

The area was settled in the 1880's and cattle numbers, sustained by an abundance of surface waters and productive pastures, expanded rapidly. By the 1930's the dramatic increase in grazing pressure from cattle, compounded by bushfires and feral animals, was sufficient to exceed the resilience of the country (specifically the Nelson, Antrim and Gordon land systems, Stewart et al 1970) and large areas were degraded and eroded. Erosion on the friable, calcareous soils of the area contributed enormous silt loads to the Ord River.

Erosion in the Ord River catchment was described in the 1940's (Medcalf 1944, Teakle 1944) but was not recognised as being a problem of sufficient magnitude to warrant remedial action until plans to dam the Ord River were conceived. The silt load, estimated at 22 million tonnes per annum, was considered a sufficient threat to the long term storage capacity of the dam to necessitate a stabilisation program on the most severely eroded parts of the catchment. The regeneration project was commenced in 1960 by the Department of Agriculture, Western Australia under a co-operative arrangement with station lessees. However the arrangement did not prove workable and in 1967 a number of pastoral stations were resumed and the area gazetted as a Water Catchment Reserve. In 1987 a large part of the area in the west (which was not badly degraded) was gazetted as the Purnululu (Bungle Bungle) National Park and Conservation Reserve and is managed by the Department of Conservation and Land Management.

## THE REHABILITATION PROGRAM

The program involved:

- progressively fencing the area, between 1960 and 1968, into a number of large paddocks;
- progressively mustering for many years and final removal of nearly all cattle;
- almost complete eradication of donkeys which were in very large numbers in the 1960's and 70's;
- cultivation works and seeding from 1960 to the mid 1980's. Strip contour chisel ploughing, pitting, ridging and seeding with the introductions buffel grass (*Cenchrus ciliaris*), Birdwood grass (*C. setigerus*) and kapok bush (*Aerva javanica*). Many areas were treated more than once.

## RESULTS

Recovery within the project area has been described by Fitzgerald 1968, Ryan 1981 and de-Salis 1993. Eight years after the program of works commenced Fitzgerald outlined how the project was beset by difficulties in the early years, due mainly to a series of adverse seasons and an inability to exclude stock from the areas under treatment. However, following completion of the fencing program and two very good seasons (1966/67 and 1967/68) the whole area showed a marked improvement in vegetation cover.

Ryan considered that there was much observational and some quantitative evidence (Ryan and Payne 1976) that treatments had been effective at improving ground cover and reducing soil losses. Kapok bush had proven to be an excellent coloniser of bare ground, buffel and Birdwood grass had established widely and, in the absence of grazing, native grasses had recovered. Ryan considered that large gully systems on the lower slopes of the Nelson land system had all shown some stabilisation.

de-Salis reported that the regeneration program had re-established vegetation in most of the previously degraded areas but that his condition assessment results (in 1981) showed that the rehabilitation process was not complete and that the Regeneration Reserve still had the capacity to contribute large amounts of silt to Lake Argyle.

Internal reviews by the Department of Agriculture in the mid 1980's and in 1990 highlighted concerns that silt loads of the Ord River were still unacceptably high. With successful regeneration on the upper slopes it was thought that the majority of sediment entering the dam may originate from gully extension, widening and deepening. Gully control measures were tested on a small number of gullies with reasonable success.

Since 1990 observational evidence suggests that vegetative cover has continued to improve in the project area but there is no quantitative information concerning gully stabilisation or silt loads.

A comprehensive field inspection was undertaken in August 2002 to photograph old monitoring sites and reference areas to document and subjectively assess recovery and stability of the project area.

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