SUBMISSION INTO

Inquiry into Indigenous economic development in Queensland and Review of the Wild Rivers (Environmental Management) Bill 2010.

Prepared by: Australia Zoo
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Australia Zoo is a world leading Zoological institution with the mission of 'wildlife conservation through exciting education'.
Australia Zoo manages the 'Steve Irwin Wildlife Reserve' on north west Cape York and is involved in an expanding program supporting regional Indigenous people in conservation, educational and economic programs.

OVERVIEW

1) **Natural Values of the Cape York Region**

   Cape York is a remote tropical region that features diverse and outstanding natural, cultural and scenic values that are of national and global significance.

2) **Condition of Cape York.**

   A large proportion of Cape York remains in a largely intact or near intact, natural state.

3) **Physical and Climatic Characteristics.**

   Cape York features a rugged landscape with significantly diverse geomorphological and ecological characteristics, and mostly poor soils.
   It receives a tropical/ monsoonal climate that is characterised by a long, warm to hot dry season, and a shorter hot, humid, and intensive wet season.

4) **Characteristics and Effects of the Wet Season on Cape York.**

   The annual monsoon season is a major constraining factor on Cape York.
   It isolates most properties and communities Cape York for approximately four to five months due to flooded and boggy roads.
   This impacts significantly on travel, and many economic and social activities.

   Air travel can also be curtailed due to boggy airstrips and/or intensive thunderstorm activity. Delivery of food and mail supplies is regularly disrupted to virtually all areas.
   As an example, in the 2004 wet season Australia Post had to return to delivering mail by packhorse to the Wujal Wujal/Ayton communities south of Cooktown as long term, boggy conditions prevented any vehicular travel.

Extensive annual flooding during the 'wet' is normal for all watercourses on Cape York. In the lower parts of many catchments, floodwaters may extend for many kilometres across expansive flood plains. Other low lying or poorly drained areas also typically become seasonally inundated for many months.

The wet season rains and associated flooding are crucial natural processes, essential in maintaining the regions' biodiversity, hydrological characteristics, natural landscape features, and transporting and dispersing water borne nutrients.

However annual flooding and regular heavy rainfall event impose unavoidable constraints on many potential land use activities, for example agriculture along flood plains. Crops or trees planted in flood prone areas would be subject to damage or inundation each wet season, along with significant loss of topsoil Areas that are subject to large scale land disturbance are also typically prone to increased erosion and altered hydrological/run off characteristics.

5) Impacts of the Physical and Climatic Characteristics of Cape York.

The environmental characteristics describe in Points **3** and **4** above have resulted in Cape York receiving minimal development in terms of large townships or cities, extensive industry and agriculture and associated infrastructure. The main exceptions are agriculture/horticulture in the Lakeland Downs and the Cooktown areas in the region's far south, and the Weipa area in the north west.

The inherent barriers to normal development on the Cape however have provided rare opportunities for a new economy based on sustainable assets. An example would be Australia zoo's investment into exploring, documenting and researching the Wenlock and Ducie rivers and relevant associated catchments areas, which are of national and international ecological value. (The economic value of such work over the past three years now exceeds one million dollars.) Filming of the areas diverse natural values and associated research has also commenced.
The values here and elsewhere on the Cape offer outstanding opportunities for further research, natural resource management, and linked diverse ecotourism/filming activities.

6) Economic Activities on Cape York.

The main economic activities on the Cape are:

- **Cattle Grazing**. This typically involves free range breeding on uncleared country.
  Clearing for grazing has been minimal, and that undertaken has often unsuccessful due to vigorous sucker regrowth over subsequent wet seasons. Aboriginal people have historically been significantly involved in Cape York's grazing industry.
  The only abattoir currently in operation on the Cape is at Seisia in the far north. This provides an important local meat supply and employment for Northern Peninsula communities.

However an additional abattoir is currently being developed at York Downs via Weipa, and a fledgling live cattle export industry has commenced, with cattle being exported from Weipa in 2009 from York Downs and other cattle properties

- **Tourism**. Visitors are comprised of mostly 'self drive' four wheel drive travellers, also with a significant 'safari tour' and fishing charter component. These tourists come to explore and experience the Cape's diverse natural, scenic and remote landscapes. The region tends to attract more adventurous type visitors, who enjoy camping, photography, natural history (even in a general sense), fishing, and learning about the area's indigenous culture, and it's indigenous and non indigenous history.
  Driving on the regions gravel and four wheel drive roads and tracks is also another significant attraction of the Cape for some, although roads are improving yearly.
  In recent years Indigenous people have become successfully engaged in cultural and wildlife guiding, fishing charter operations, and developing camp grounds.
  Tourism operations providing a range of accommodation options have been particularly successful in the Northern Peninsula communities at Bamaga and Seisia.

  It is considered that the range and extent of 'guided bush experiences' available on Cape York is not operating at it's potential capacity.
  Many visitors express interest in participating in guided tours but are often unable to find such services.

  Tourism on Cape York is almost entirely confined to the dry season and months May to October/November due to travel and weather constraints imposed by the 'wet'.

  David Barker, Tourism Officer for the Cook Shire provided estimated figures of 60,000 to 80,000 visitors to Cape York each year. This figure will not capture all tourists that visit Cooktown and other parts of southern Cape York. It is noted that visits to the Shire are typically one week or more.
  Expenditure on fuel, services, charters, flights, camping fees etc is considered to be significant.

- **Mining.** The largest mining operation on the Cape involves bauxite strip mining on the Weipa plateau.
  This industry that has created employment and infrastructure development, generally related to mining, but is generally focussed on the Weipa area.
  However mining is not sustainable, and has a limited life span, and mining can be suspended during periods of poor commodity prices or economic downturn.

- **Agriculture** This is largely concentrated on the fertile lands in the Lakeland Downs area in the far south, and the Endeavour River valley near Cooktown. Cropping and horticulture includes bananas, paw paw, peanuts, passion fruit, water melons, lychees and mangoes.
  The supply of fresh fruit and vegetables to Cape York communities and stations is problematic.
  Most produce is typically sourced from southern areas.

This is often old when it arrives and invariably expensive.
Supply can be severely disrupted during the 'wet' and immediate 'post wet' season period due to transport difficulties.

- **Bush Medicines.** Some Cape York indigenous people have recently become involved in investigating and developing pharmaceutical products based on traditional bush medicines in partnership with universities and/or pharmaceutical companies.
  Royalties and other benefits from such products will benefit these Traditional Owners on an ongoing basis into the future.

- **Natural Resource Management and Ecological Research.**

  Employment and engagement of people in such work provides significant economic input into the region with important associated social benefits

  However, effective natural resource management and scientific research is also crucial in maintaining of the health of the natural values and processes of Cape York.
  This in turn provides a healthy landscape and the necessary knowledge that are essential to manage sustainable economic and social activities and initiatives on Cape York.

  The combination of traditional and western science is essential in providing the knowledge of how the landscape and it's diverse natural features and processes connect, work, and support each other, and how threats to it's integrity can be identified and mitigated.

  Ranger Units and other Indigenous people are currently undertaking diverse and significant tasks in the areas of natural and cultural resource management, ecological research and monitoring, and participating with co-operative support/partnerships with government and non government agencies.

  Examples include;
- fire, weed, and feral animal management
- research into crocodiles and turtles
- removal of ghost nets along beaches and rescue/rehabilitation of marine turtles.
- cultural heritage surveys and cultural site management.
- biodiversity surveys comprising both wildlife and botanical surveys.
- sea grass mapping and water quality monitoring.
- visitor management and education, including patrols, permitting, and campground construction and maintenance.
- surveillance of coastlines/rivers for incidents and matters of Quarantine AQUIS) and Customs interest.

  These examples show the significant importance of such ranger work towards managing and protecting the natural values of the Cape.

  The number of indigenous people employed as rangers and in other land/sea protection/monitoring roles, in a diverse network of ranger units, has expanded significantly in recent years.

The highly successful and effective Wild River Ranger program is one such example.

The fact of indigenous people working on and managing, researching and protecting country is of major significance to these people, and should never be underestimated. It provides major tangible and less tangible cultural, social, economic, and environmental benefits.

Direct economic opportunities are also available from ecological research. This is evidenced by the Mapoon Marine Turtle research camp that operated until recently at Janie Creek, where paying participants assisted with turtle nesting monitoring and protection.
In another program off the east coast in the Howick Island area, participants paid conservation organisation "Earth Watch" to be involved with marine turtle research led by the Queensland Parks and Wildlife Service.

7) Discussion with Regard to Terms of Reference of the Inquiry, with discussion on specific Cape York regional geographical and social characteristics.

The difficult environmental/climatic conditions, remoteness, and generally poor soils of Cape York have largely hindered the type of development that has occurred across many other parts of Australia.

7.1) Existing environmental regulation.

- The Wild Rivers Act (QLD) 2005 is regarded as a key, strategic piece of legislation because it protects the natural and cultural values of Cape York's ecologically significant rivers on a sub landscape/catchment scale, while allowing compatible, sustainable economic and social activities within protection areas/buffer zones.

  This legislation is a strategic because it will protect the Cape's river catchments from the type of environmental damage that has occurred along many other of Australia's rivers, damage that is typically very costly to repair, with effective rehabilitation often impossible
  The areas protected though are generally narrow, and certainly do not inhibit other activities away from these zones.
  Furthermore, and far from denying economic opportunities for Cape York's indigenous people, it is considered that 'Wild Rivers Act' is crucial in providing the necessary protection of the very natural and cultural values that would support a diverse, sustainable range of compatible economic activities for indigenous people into the future.

- The Environment Protection and Biodiversity Conservation Act 1999 too is a key piece of legislation. However it's framework and provisions generally doesn't offer the same opportunity for a 'wholistic' approach protecting natural and cultural values on a sub catchment/landscape scale as does the 'Wild River's Act'.

- The Nature Conservation Act (QLD) 1994 is the key conservation legislation for Queensland. National park declaration is strong in terms of protection, but not necessarily practical for some areas/situations. Nature Refuge status over

properties is an important layer of conservation protection, but doesn't necessarily prevent destructive land use activities (eg mining) over key ecological areas.

7.2) The impact of the Wild Rivers (Environmental Management) Bill 2010 would have, if passed.

The 'Wild Rivers Environment Bill 2010' as introduced into Federal Parliament, would overturn Queensland's key, and strategic 'Wild Rivers Legislation'.
This would inevitably have huge detrimental impacts on the significant natural and cultural values of Cape York, and a broad range of compatible, truly sustainable economic activities, as it would allow river, tributary and adjacent riparian and environmentally supporting areas would be potentially subject to damaging land use activities.

Revocation of the current 'Wild Rivers Act' would also see the loss of the Indigenous Ranger Units that have been developed across the Cape who have been very effectively involved in natural resource management, and ecological research and monitoring.

Effective legislation such as provided by the Wild Rivers Act (QLD) is needed to ensure ongoing protection of river systems which support a wide range of compatible and sustainable economic activities.

7.3 Facilitating economic development for the benefit of Indigenous people and the protection of environmental values

Bauxite mining around Weipa currently provides economic benefits including employment and contract opportunities.

While mining will continue to provide such benefits into the future, this industry is not sustainable. The mine has a limited life span. Once all the ore has been removed, these benefits will cease abruptly and there will be highly significant detrimental impacts on the area's economic and social wellbeing.

Thus other, sustainable and strategic economic opportunities that are suited to Cape York's specific geographical and demographic characteristics need to be developed as a priority.

Opportunities for further medium to large scale agriculture are very limited due to the generally poor soils, and constraints imposed by annual flooding of alluvial areas adjacent to watercourses.
Potential does exist however for smaller market gardens and/or fruit orchards.
These are seen as particularly important for both providing economic benefits, and a regular supply of produce for local communities (as currently exists at Napranum near Weipa).

As evidence and recognition of their outstanding ecological/conservation value, the Wenlock River and associated Coolibah Springs have been listed as a "Wild River" under Queensland's "Wild River's" legislation, which of course comes under the terms of reference of the current inquiry.

The area of interest is also known to be of crucial cultural importance to it's Indigenous Traditional Owners who possess strong spiritual connections with this land and watercourses, and it's diverse cultural sites and story places. (C. Arthur – personal communication 2009).

Queensland's Wild Rivers legislation was introduced to protect watercourses and adjacent, sensitive and important contributing catchment or flood plain areas of high conservation value as described above, by preventing damaging or potentially damaging land use activities

The mining company concerned with exploration on the SIWR has recently stated that the 500 metre buffer employed around the Coolibah Springs has rendered their potential mining operation unviable.

Without such protection however it is believed that most of the natural and cultural values listed above would be lost, on a landscape scale, if the mining went ahead.

These are values and processes that on their own are of outstanding significance, and a crucial part of Australia's natural and cultural heritage.

However they are also the values and resources crucial to developing and sustaining landscape compatible economic opportunities for both indigenous and non indigenous people, well into the future, and well past the life of any bauxite mine.

These include, but are not limited to; ecotourism, bush pharmaceutical development, natural resource management, monitoring and ecological research activities, making of natural and cultural documentaries, and low stocking grazing using best practice management and procedures are sustainable into the future.

Some extremely beneficial pharmaceutical products have already been developed, or are in the development stage, based on traditional bush medicines.
These are being developed by Traditional Owners in partnership with Universities and Pharmaceutical companies, with the Traditional Owners set to receive ongoing royal royalties from medicine development.
The opportunities for undertaking the research field work also offers significant economic benefits.

Ecotourism too is a burgeoning industry on the Cape.
Tourists are yearning for guided bush trips that show the Cape's unique landscapes, wildlife, culture, and fishing, with many already taking advantage of existing operations.
Other untapped opportunities undoubtedly also exist.

For example greenhouse gas emission sequestration projects linked to wildfire management, such as one currently in progress with the Traditional Owners of Arhnem Land in the Northern Territory, offer huge potential economic and social benefits if undertaken on the Cape.
As well as employment, such projects enable indigenous people to return to the land to undertake traditional land management practices.

Furthermore, and of major significance, such sustainable activities compliment and are complimented by the natural and cultural vales, and the near natural condition of this globally significant bioregion.

The partnership of Western and Traditional Science provide the basis to investigate the characteristics functions, and values of the natural landscape, and the knowledge of how to best manage it.

The scientific work already undertaken on the Steve Irwin Wildlife Reserve is a case in point.
Here lies an area of significant scientific discovery which has already spawned a new research and educational economy that is capable of achieving international scale and significance, with huge potential for crucial indigenous partnerships.

There is also huge potential for documentary film making on the wildlife, landscapes, and culture of Cape York, as has already commenced on the Steve Irwin Wildlife reserve.
Some such activities are already being undertaken, others are being developed and there are undoubtedly numerous untapped sustainable economic initiatives available. These activities are also clearly consistent with indigenous traditional and historical connections with the land.

An excellent example of a sustainable Indigenous Land Management and Ecotourism operation is that at Chuulangan on Kaanju Ngaachi country, neighbouring country to the SIWR upstream on the Wenlock River.
Here, a pro – active Ranger Unit and other clan members are involved in diverse and substantial traditional land management, ecotourism, bush pharmaceutical research and development, and ecological surveying, monitoring and research work.
Teapathigghi clan member Cecil Arthur from the Wenlock country on and west of the SIWR also has approved plans to build a traditional house, develop a natural, cultural history and fishing guiding operation, and bush pharmaceutical project while partnering with Australia Zoo in natural resource management and ecological research work.

Revocation of the current ‘Wild Rivers Act’ would see a complete reversal of this situation with inevitable irrevocable impacts on ecological and cultural values and compatible, sustainable economic activities.

There are rumours and reports of a range of activities, including traditional activities and economic initiatives that are now prohibited due to the implementation of the Queensland’s Wild Rivers Act.
These reports, which imply that activities such as hunting and fishing are now banned, are clearly untrue as any reference to the legislation will show.
Indigenous and non indigenous people continue to hunt, fish, camp, and along the Wenlock River, as they are entitled to.
Furthermore, it is understood that over 100 applications for developments along Cape York’s wild rivers have been received by the Queensland Government, with not one knocked back.

This clearly shows the untruths that have been spread around.
In the implementation of the legislation, it is strongly recommended that the Queensland Government provide clear, effective, pathways with minimal bureaucratic

impediments to ensure Indigenous and other people can develop/continue appropriate economic initiatives.
A further challenge, common to virtually the entire Cape York community, is to tackle the challenge and effects of the cyclical economic downturn that occurs each wet season.
In conclusion, in is considered that economic activities compatible with, and with minimal impact on, the natural and near natural condition of Cape York offer the best potential for a strong, sustainable, economy in the region, an approach that is also consistent with traditional values and aspirations of the majority of indigenous people in the region.

Queensland's Wild Rivers legislation helps protect the natural environments that would support such sustainable economic activities, which in turn help provide untold social benefits for indigenous and non indigenous people.

In contrast The Wild Rivers (Environmental management) Bill 2010 would seriously negate and undermine this protection and associated sustainable economic benefits.
Some people say that they don't want to see rivers or country damaged and that legislation and laws aren't needed to ensure this.

The reality is that protective legislation is needed. In it's absence, damaging developments can largely go ahead unheeded.
Additionally Queensland's Wild Rivers legislation provides protection in a strategic manner that prevents the damaging and often irreversible activities that has occurred in many other places around Australia.

Australia Zoo is committed to supporting and/or developing a significant range of projects with indigenous people on Cape York.

Attatchment 1 provides details of Australia's Zoo's current and some proposed initiatives with the indigenous people of Cape York.

7.4. Protection of the environmental values of undisturbed river systems

Bauxite strip mining is also highly destructive across the broader landscape, resulting in extensive vegetation clearing and significant lowering of the landscape following ore removal, of up to 12 metres.
While revegetation is undertaken, the natural landscape has been significantly altered and it is impossible to redevelop the original vegetation community types.
Hydrological processes are also significantly altered, by both the changes to the landscape, and the extensive quantity of water that is used for washing the ore.

For example, with regards with the latter, the mining company with two mining exploration permits on the Steve Irwin Wildlife Reserve has applied for a lease to mine bauxite and kaolin over 12300 hectares. As part of the process it proposes to use up to 8,000 megalitres per day to wash the ore, drawn from the Wenlock River.
This level of extraction of freshwater during the dry season is likely to have significant detrimental impacts on the Wenlock River, it's natural flow characteristics, aquatic ecology, and associated riparian rainforests.

The sum effect and result of strip mining is a significantly altered landscape, no longer to be regarded as natural and intact, and significantly altered ecological processes.
Natural and cultural values are lost on a landscape scale.

What can be lost is clearly demonstrated on the Steve Irwin Wildlife Reserve, on the aforementioned 12,300 proposed mining area

The bauxite land system here, with it's associated perennial Coolibah Springs and the Wenlock River are of outstanding ecological conservation significance and cultural importance. These features are not independent of each other, they are crucially linked and co –supportive across that section of the catchment landscape in terms of ecological function

This combined area supports significant refugial spring habitats; a unique, a 'location specific' spring rainforest type; and diverse, uncommon, rare and threatened, disjunct, endemic plant and wildlife communities, and migratory wildlife species.

In terms of ecological process, the bauxite plateau serves as the catchment area during the annual summer monsoon period that recharges the groundwater aquifer which then feeds the perennial Coolibah springs.
The bauxite plateau is an excellent representative area of what has been described as 'a world class example of a 'laterite' profile that has concentrated aluminium as well as iron in it's upper layers', and is part of the world's largest bauxite deposit, - the broader Weipa bauxite plateau. (Willmott 2009).
The plateau is largely vegetated by tall Eucalypt woodlands, Regional Ecosystem 3.5.2 These tall woodlands represent the maximum structural development of *Eucalyptus tetrodonta* (trees 32-34 metres tall) throughout its entire range in tropical Australia (REDD 2009).
This regional ecosystem type is virtually unrepresented in existing protected areas. (B. Wannan 2010).

The Coolibah Springs feature a complex of 7 perennial springs that meet all six criteria listed for identifying 'Wetlands of Importance' under the Queensland Department of Environment and Resource Management Criteria, a score only met by a handful of other listed, freshwater wetlands. (B.J. Lyon et al, 2009, D.G. Fell 2009, Blackman et.al 2004)

They are assessed as meeting Criteria 1, 2, 3, 4, and 7, of the 'Criteria for identifying Wetlands of International Importance' under the RAMSAR convention.
The Coolibah Springs support six listed rare and threatened, and 14 disjunct plant species, a significant range.
They fulfil crucial ecological functions including the provision of (multiple) water flow across the landscape and into the Wenlock river, and providing refugial habitat for plants and wildlife, particularly during the annual drought of each dry season. (B. Wannan, 2008)

The springs serve as crucial refugial habitats over long geological periods of time, as evidenced by the outstanding examples of disjunct, primitive, and rare and threatened flora present.

They support an evergreen spring forest that feature a 'single occurrence type rainforest' type co-dominated by a national and state threatened tree *Calophyllum bicolor*. (D.G. Fell, 2009)

They also support more than 1% of the national population of two plants species, one nationally threatened (*Calophyllum bicolor),* the other the primitive *Hanguana malayana,* known from only a few localities in Queensland and the Northern Territory. (D.G. Fell, 2009)

They support listed rare and threatened terrestrial wildlife species that include the Spotted Cuscus *Spilocuscus maculatus,* Rufous Owl *Ninox rufa,* Red Goshawk *Erythrotriorhis radiatus,* Grey Goshawk *Accipiter novaehollaniae,* Palm Cockatoo *Probicosger aterrimus,* and Marbled Frogmouth *Podargus papuensis,* as well as a significant range of other species of conservation importance. (B.J. Lyon et al 2009).

The spring comples also supports a rich freshwater fish fauna, with between 9 and16 species documented in the various spring streams.
Species of conservation significance recorded include; the Short finned Catfish *Neosilurus brevidorsarlis* – an extension of range of a fish previously only known from the Jardine River 150 kilometres to the north, and a couple of drainages on the east coast of Cape York; and the Aru Gudgeon *Oxyeleotris aruensis,* a species also only known from the east coast of Cape York the Wet Tropics and Aru Island off the southern coast of New Guinea. (L. O'Reilly et al 2009; B.J Lyon et al 2009).

The outstanding conservation values and associated threats to their survival are expertly outlined in the extracts from a report on the Coolibah Springs by Rainforest Botanist D.G. Fell:

Reference Extract

Flora Survey of Freshwater Spring Forests, Steve Irwin Wildlife Reserve, Cape York Peninsula, Australia.

David G. Fell[1]

2009

Abstract

The flora of permanent spring wetland complexes on the Steve Irwin Wildlife Reserve (Bertiehaugh Holding) in north-western Cape York Peninsula, Queensland, is described from a survey carried out in December 2008. The complex of permanent freshwater springs is reliant on local recharge of the groundwater aquifer which is replenished by annual wet season rains. The springs support three distinct vegetation communities and form a complex mosaic with adjacent vegetation types. They contain broadly similar vegetation types and flora species as other groundwater dependant swamp and spring habitats in the Cape York Peninsula bioregion and the Northern Territory. However, they maintain considerable biological significance and importance on account of their biogeographic representativeness, geographic isolation, functional hydro-ecological processes, floristic assemblages,

provision of habitat for rare, threatened, endemic, and highly disjunct flora, and value as ecological refuge for flora and fauna. One spring supports a rainforest type not previously recorded in Cape York Peninsula which features the Nationally listed "Vulnerable" tree *Calophyllum bicolor* as a co-dominant canopy tree species.

The flora of the spring wetlands and immediate ecotones includes 85 taxa dependant on spring forests. Seven of these are assigned national and state significance on account of their endangered, vulnerable or rare status on Commonwealth and State legislation with an additional three species occurring in nearby woodlands and riparian rainforests. An additional 15 taxa which are either state and/or bioregional endemics, have a restricted and/or disjunct regional distribution, or are at the limits of geographical range, and are considered significant at the bioregional level. These taxa have restricted ecological opportunities across the region, and are reliant on refugial habitat to maintain viable populations.

These high biodiversity values are reliant on maintaining the local hydro-ecological processes; in particular, the level of groundwater, the discharge flux from the aquifer, and the water quality. The integrity of these processes is subject to potential impacts associated with proposed bauxite mining. Sensitive land management within a structured and culturally inclusive research and management framework requires an understanding and integration of indigenous cultural heritage values, detailed vegetation and habitat mapping and inventory, fire management planning, feral animal control, and monitoring programs. These are essential to maintain the significant biodiversity, conservation and heritage values identified within the spring landscapes of the Steve Irwin Wildlife Reserve.

5. Conclusion

The permanent source of fresh water at the surface and in the root zone of the springs on the margins of the bauxite plateau enables the persistence of a suite of taxa, many of which have disjunct distributions across broadly similar habitat types in northern Australia. The springs support a complex of vegetation types that are differentiated from the surrounding landscape and offer regionally disjunct refugial palustrine wetland habitats for a suite of mesic fire sensitive species adapted to saturated acidic soils. Such habitats are rare in the regional landscape and, as suggested for similar ecosystems in the Northern Territory by Russell-Smith and Dunlop (1987), their rarity may be a function of climatic deterioration and oscillations over the last several million years. As an integral part of the regional landscape, these springs remain critical for the persistence of important elements of the flora. This is evidenced by their provision of core habitat for 16 threatened or regionally significant flora species or 18% of the total spring flora.

Such refugial ecosystems generally have a low tolerance to environmental change and occupy a very narrow ecological range. They are on the brink of survival in that even small changes in the watertable

may facilitate changes in the structure, function and composition of the ecosystem. The pristine condition of the springs is attributable to the current integrity of hydro-ecological processes across the region (Earth Tech 2005), where recharge areas remain in a natural state as a function of innate remoteness, low numbers of destructive feral animals notably pigs and cattle, and the contemporary fire regime.

Understanding these processes and the extant biological and evolution responses is of paramount importance toward securing the integrity and persistence of the springs. Consequently, it is appropriate that sensitive land management be approached within a structured and culturally inclusive research and management framework. This should be founded on an understanding and integration of indigenous cultural heritage values together with detailed property vegetation and habitat mapping and inventory, fire management planning, feral animal control, and monitoring programs. These are essential toward the long-term maintenance of the significant biodiversity and conservation values present within springs and surrounding landscapes of the Steve Irwin Wildlife Reserve

Exposed ferricrete also exists along the banks and bed of the Wenlock River and is described as a good example of this geological feature. (Abrahams ‘et al’ 1995).

Conclusion

Our rivers are our lifeblood.
They provide us with food and water as they weave across and through the landscape.
Cape York's rivers are amongst Australia's healthiest in what is the driest country on earth, (apart from Antarctica).
Many run freely with fresh, clear running water, drinkable straight out of the river, year round.
Others feature permanent waterholes that survive even during the peak of the annual dry season - veritable oasis for wildlife and man during the long months of the annual drought period.
During the wet season these rivers swell and flood, they link with swamps and billabongs, replenishing water levels, and allowing fish and other wildlife to breed on a grand scale. As the rivers flood, they also spread life giving nutrients across the flood plains, and downstream into the estuaries and mangroves.

Because they remain in a largely natural, unaltered state, Cape York' s rivers are home to abundant and diverse populations of fish, crabs, oysters, mussels and other aquatic, estuary and marine life that have been crucial food resource for indigenous people for tens of thousands of years, and remain so today for both Indigenous and non Indigenous people.
The rivers, flood plains, springs and other tribuaries and their banks, are rich with tropical wildlife and plant species, many of which are unique, rare, have very limited distributions, and some are threatened with extinction. Many are found nowhere else in Australia, or the world.
Cape York's rivers are a crucial and integral part of Australia's natural, cultural and

historical heritage, and they were sustaining the cape's landscape long before any people inhabited the region.

Cape York's rivers survive in a healthy condition in a country, and a world where rivers have been seriously degraded.
Many Australian rivers are badly polluted, silted up, have lost their healthy fish and other wildlife poplulations, and the natural riparian vegetation that helps stabilise and support the ecology of the rivers. Many have lost crucial water flow and some rarely, if ever flood or flow enough to regularly spread those all important nutrients and naturally fertilise the flood plains and estuaries.
Rehabilitation of such rivers is extremely costly, and in many cases, impossible.

Cape York's rivers are the envy of those from other parts of Australia and the world - Europe, Japan, most parts of South Asia, the USA etc. One only has to talk to a any Cape York visitor to appreciate this.
The causes of such degradation are well known, and ignored only by the ignorant or those who have no concern or appreciation of our life giving rivers.

Excessive/extensive land clearing and water extraction, changing landscape water flows, chemical and fertilizer run off.
Every action has a reaction, and it's an irrevocable fact that what happens on land effects what happens in rivers and estuaries.

Queensland's Wild Rivers legislation was passed to provide strategic protection along significant Cape York river systems, to protect their natural values and functions, and to prevent the type of costly and often irrepairable damage that has occurred in many other Australian rivers.

The legislation does not stop mining or other developments.
It does provide effective, buffers zones where such developments cannot occur simply to help protect and sustain these rivers and their linked springs, tributaries, swamps and billabongs - river systems that are crucial to Cape York's survival in the long term, and key rivers in Australia's national heritage.

It also does allow for sustainable economic activities within those buffer/protection zones, particularly in the areas of eco - tourism, a burgeoning industry on Cape York. Activities such as camping, fishing and hunting are also not affected, contrary to some rumours being spread about.
Queensland's Wild Rivers legislation is not only necessary, it's essential. For without this, it's open slather and destruction of these rivers will inevitable happen. It would be a tragic legacy to leave

This submission totally opposes the 'Wild Rivers Environment Bill 2010' which was introduced into Federal Parliament, which would overturn Queensland's key, and strategic 'Wild Rivers Legislation'.
We ask that Parliament opposes the 'Wild Rivers Environment Bill 2010' which if passed, would inevitably have huge detrimental impacts on the significant natural and cultural values of Cape York, and a broad range of compatible, truly sustainable economic activities.

Attachment 1

9.1) Steve and Terri Irwin, and Australia Zoo have been variously involved with ecological research on Cape York since .
Examples of major initiatives are detailed below:

- In 1996 the Australia Zoo crocodile team led by Steve Irwin partnered with Queensland Parks and Wildlife Service rangers to trial a new 'nuisance' crocodile management technique on Lakefield National Park.
  This involved catch and release and employment of 'hazing' techniques to modify the crocodiles' nuisance behaviour towards humans, as an alternative to removal or destruction.
  The trial method proved successful, with "Old Faithful" the crocodile involved no longer proving a 'nuisance'. The employment of this technique was filmed and made into a broader educational documentary on estuarine crocodiles.

- Formal estuarine crocodile research, including radio tracking and surveys was undertaken on a freshwater section of the North Kennedy River on Lakefield National Park in 2002, once again led by Steve Irwin.

- A major research project, named "Crocs in Space" was undertaken in partnership with Queensland Parks and Wildlife Service and the University of Queensland in the Weipa and Wenlock River area on north western Cape York in 2004.
  A total of crocodiles were captured during this project, with fitted with satellite trackers, and a number relocated to study movement subsequent movement patterns.

  Amongst a wide range of invaluable findings, the research clearly showed that the practice of relocation of large crocodiles does not work.
  All animals that were relocated returned to their original point of capture.
  One crocodile swam from it's relocation position on the east coast to the tip of Cape York, and down the west coast back 'home' to the Wenlock River taking advantage of ocean currents to assist it's lengthy swim.

  Led by Steve Irwin, Australia Zoo provided a crocodile capture team, all equipment required, and the bulk of the funding for this research.

- Further intensive crocodile research was undertaken at Lakefield National Park in the North Kennedy and Bizant Rivers in 2005, 2006, and 2007, in a collaborative project between Australia Zoo and University of Queensland with integral support from Queensland Parks and Wildlife Service.
  Australia Zoo once again provided capture expertise, extensive funding and resources.
  The team was once again led by Steve Irwin in 2005, 2006, and by Terri Irwin in 2007 after the passing of Steve Irwin.
  Professor Craig Franklin of the University of Queensland led the scientific research component.

  This project involved crocodiles being tracked by a combination of satellite trackers and acoustic pingers.

- Australia Zoo has further expanded into or supported a wide range of wildlife research and conservation projects, ecological surveys, and natural and

cultural resource management work on Cape York since the inception of the Steve Irwin Wildlife Reserve in September 2007.
This has been detailed in Section **9.2** below.

9.2) The Steve Irwin Wildlife Reserve

This 135,000 hectare nature reserve is dedicated to Australia's world leading conservation and wildlife educator, Steve Irwin.
In addition to operating the world class leading facility, 'Australia Zoo', Steve and Terri Irwins' wildlife documentaries have reached 50 countries worldwide, and viewed by over 500 million people.

The reserve is located on the catchments of the Wenlock and Ducie Rivers in remote north west Cape York, rivers which are of outstanding national and global significance.
It was acquired in 2007 after formal application through the Australian Governments' 'National Reserve System'.
The majority of the area is the traditional land of the Teapathiggi Clan, with a smaller area to the north being the traditional country of the Attambya Clan.

Extensive ecological field work has identified that this nature reserve remains in natural or near condition; it's diverse range of ecosystems are in good health.
Natural processes such as landscape hydrology are also functioning with little or no impact from human activity.

Weeds are virtually non existent.
Feral pigs are subject to an ongoing management program with over 1200 destroyed over the past two years, with a readily noticeable reduction in overall numbers.

The Steve Irwin Wildlife Reserve has been set aside to:

- Protect and maintain it's diverse range of significant natural and cultural values.
- Provide an expansive tropical landscape for a broad range of ongoing environmental and cultural research.
- Enable the reconnection to the land of the area's Traditional Owners, and the ongoing pursuit of cultural practices.
- Facilitate environmental and cultural education visits and camps for both indigenous and non indigenous people, particularly school students.
- Partner with other communities and stakeholders along the Wenlock River catchment in natural resource management and protection.
- Undertake, partner and support other nature conservation and research initiatives across the Cape York Bioregion.
-

The reserve is being managed under the framework of a comprehensive management plan with linked strategies and action plans.

Specific Research/Natural Resource Management Work undertaken to date includes: (CRAIG)

- Crocodile research.

- Ecological surveys of the 'Coolibah Bauxite Springs'.
- Research into Bullsharks.
- Research into Cape York Whiptail Rays.
- Research into Arafura File Snakes.
- Botanical surveys and ecosystem ground truthing.
- Initial field work on small fossil deposits only recently discovered.
- Identification of Indigenous and non Indigenous Cultural Sites.
- Implementation of extensive fire, feral animal, and weed management and ecosystem monitoring programs.

9.3) Partnerships with Cape York Indigenous People.

Australia Zoo has developed or been involved in the following initiatives and partnerships since the declaration of the Steve Irwin Wildlife Reserve in August 2007:

- Australia Zoo has been working towards developing an 'Indigenous Land Use Agreement' with the Traditional Owners of the SIWR, including the provision of 'a package of benefits'.
  This includes:
  - employment of Traditional owners as 'Rangers on country' with one currently employed.
  - support for an Indigenous pharmaceutical development project
  - 'orbiting', involving people to come to Australia Zoo for employment, training and personal development.
  - potential wildfire management program for greenhouse gas emission offset.
  - cultural site recording and management
  - establishment of multi use bush camps for use by Traditional Owners, school groups, and researchers and managers.
  - support for traditional art and dance including at Australia Zoo.

  Of particular importance however, is simply supporting traditional Owners to come back onto and reconnect with country, and continue and pass on cultural traditions with young and upcoming generations.

- Signed a Memorandum of Understanding with the Queensland Government through the Department of Environment and Resource Management to provide training in natural resource management and wildlife research with Indigenous Wild River Ranger units, including training at Australia Zoo.

- Development of draft Memorandum of Understanding with Mapoon Aboriginal Shire Council to undertake co – operative natural resource management and ecological research/monitoring initiatives.

- Participation in, and delivery of training in wildlife survey work with Mapoon Aboriginal Rangers on Mapoon country, as part of a wetland biodiversity survey with Cape York Marine Advisory Group (CYMAG).

- Co – operative ecological/cultural survey work with Mapoon Aboriginal Rangers on the Steve Irwin Wildlife Reserve and adjacent Mapoon 'Deed of Grant in Trust' lands.

- Delivery of training in crocodile capture/research with Kaanju Aboriginal Rangers on the SIWR.

- Support/assistance with marine turtle rescue, and rehabilitation of marine turtles with Napranum and Mapoon Aboriginal Ranger units.
  This has included satellite tracking of rehabilitated endangered Olive Ridley Turtles.

- Employment initially of a Tepathigghi Traditional Owner as a Ranger on the SIWR, with more engagements planned.

In addition, in the broader Cape York community, Australia Zoo has:

- Delivered educational talks on wildlife/conservation at (Weipa) Western Cape Colleges from Years 1 – 12, Napranum Pre School, Mapoon State School, and Bamaga State School.

- Delivered crocodile and snake awareness sessions to 'Rio Tinto' employees at Weipa.

- Undertaken vertebrate wildlife surveys for the South Cape York Catchment Group at Keatings Lagoon via Cooktown as part of an extensive monitoring program in relation to the erection of pig exclusion fencing.

- Undertaken vertebrate wildlife surveys as part of a broader wetland biodiversity survey at the Muck River area, adjacent to the Cape Melville National Park, in conjunction with CYMAG.

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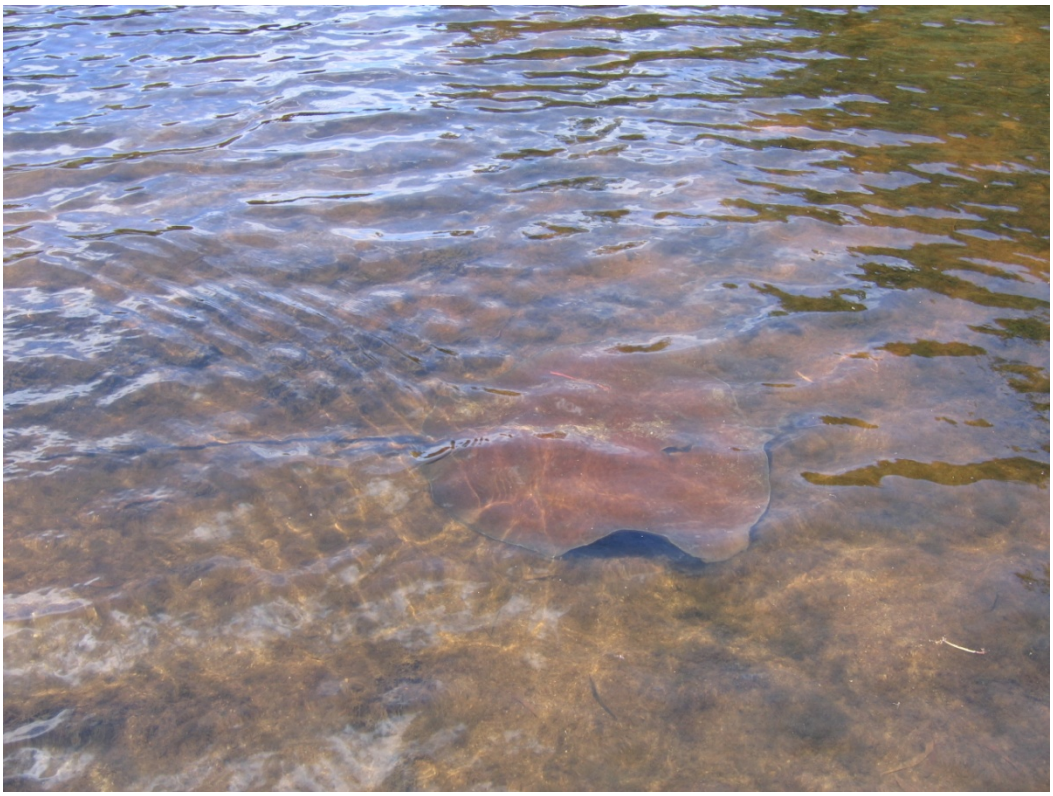
**The perennial Wenlock River is of outstanding ecological significance,
It supports the richest diversity of freshwater fish species of any Australian River. (Photo – B. Lyon)**

**This includes the endemic Cape York Freshwater Whiptail Ray pictured below,
This species is currently being researched on the Steve Irwin Wildlife Reserve.
(Photo B. Lyon)**



The Wenlock provides pristine habitat for a significant range of threatened species such as the endangered Freshwater Sawfish (above). (Photo – Sterling Peverell)
The Wenlock and nearby Ducie River are the two crucial refuge rivers for the critically endangered Queensland species of the Spear Toothed Shark .

The Wenlock supports the richest population of Estuarine Crocodiles in Queensland, and provides the best nesting habitat in the state for this 'vulnerable' listed species.

The Wenlock's riparian rainforests connects the rainforests of the east coast of Cape York with those of the west coast. This 250 kilometre band provides crucial habitat and corridor function for a significant range of plant and wildlife species.

The tall emergent rainforest tree (above) on the left bank is *Pterocarpus sp* which only occurs on the banks of the Wenlock and Archer Rivers on Cape York. (Photos. B. Lyon)

One of the many species of conservation importance occurring in the Wenlock Rainforests and adjacent evergreen springs is the Spotted Cuscus, listed as rare in Queensland. Others include the Magnificent Rifle Bird, Rufous Owl, Grey Goshawk, and Palm Cockatoo.

One of the Springs features a single occurrence type rainforest found only at that spring. This rainforest is dominated by the 'Tiger Stripe Tree', *Calophyllum bicolor*, a species that is listed as vulnerable under both federal and state legislation. It is pictured here with rainforest specialist botanist David Fell. (Photo – B. Lyon)

The previously unknown Coolibah Springs have been found to support a significant range of plants and wildlife species of conservation importance, and their spring forests did not fit any existing described ecosystem types.
The springs are also refuges for outlier, disjunct populations of many plant species, and primitive 'green dinosaur' plants. Examples are pictured below.

The very rare and only recently named (2006) insectivorous plant *Nepenthes tenax,* known from only a handful of other locations adjacent to the Jardine River. Photos. B. Lyon

The primitive and rare lily *Hanguana malayanna* known from only a few localities in Queensland on Cape York. The Coolibah Springs support more than 1% of the national population of this plant, the vulnerable tree *Calophyllum bicolor,* and the insectivorous plant *Nepenthes tenax.* Photo B. Lyon

Australia Zoo conducting hydrological and geological studies on the bauxite plateau. Photo: Trevor Newcomb

This illustration clearly shows water flowing out of the bauxite layer above the kaolin layer on the coastline south of Weipa. While the geology here is not identical to the bauxite plateau on the SIWR (there is no ferricrete at the coastal location) it clearly shows the water being held up by the kaolin after having soaked down through the permeable bauxite layer. Photo: J. Lyon

Australia Zoo and the University of Queensland currently have 64 crocodiles being tracked in the Wenlock River and surrounding areas of Cape York. This large male is having a satellite tracker fitted between the nuchal shields on it's neck. David Claudie, the Indigenous Head Ranger on the crocodile is a resident further upstream on the Wenlock and has the crocodile as a totem animal. (Photos B. Lyon)

An Australia Zoo ranger downloading electronic data from a hydrophone positioned in the Wenlock River. (Photo – B. Lyon)

The Coolibah Springs and adjacent bauxite plateau provide crucial habitat for the 'rare' listed Palm Cockatoo, found in Australia only in northern Cape York. The Palm Cockatoo occurs naturally only in small numbers, and research has found that only 21% of chicks reach maturity.
It requires a mosaic of rainforest and woodland/open forest habitat to provide the necessary range of seeds and fruit and suitable nesting trees to enable it's survival.
The Wenlock River rainforests, adjacent flood plains, and Coolibah Springs and bauxite plateau on the SIWR is ideal habitat for this iconic bird, the largest of Australia's Cockatoo species.

This photograph at "Pitcher Plant Spring" shows the 'vulnerable' listed Pitcher Plant *Nepenthes mirabilis* and tree *Calophyllum bicolor,* the very rare *Nepenthes tenax* (yet to be listed on the schedules), a lily species that is otherwise found some 2100 kilometres away in south east Queensland, and a sleeping Amethystine Python. (Photos – B. Lyon)

An area cleared and about to be strip mined for bauxite. The landscape will be lowered between two and eight metres after the bauxite layer has been removed unavoidable significant effects on landscape hydrology and the natural ecosystems are totally destroyed.
In time, almost all the Weipa Plateau will be cleared for mining, thus recognition of a key representative area, viz; on the Steve Irwin Wildlife Reserve on the National Heritage Register is considered essential

The rare Shovel Headed Snake *Brachyuophis* sp has been recorded from the bauxite plateau on the SIWR. A specialist egg feeder, it may represent a new species, endemic to Cape York. The Northern Death Adder *Acanthophis praelongis* below, is common on the plateau and around the Coolibah Springs. (B. Lyon photos)

The very rare and 'vulnerable' listed ground orchid *Spathoglottis plicata* at Bluebottle Spring.

The handsome Arafura File Snake is an aquatic reptile that inhabits both the spring streams and the Wenlock River and has been researched on the SIWR

The Coolibah Springs comprise a series of perennial springs flowing into the Wenlock River and have been found to be of major conservation importance. The springs are fed from an aquifer underlying the bauxite plateau that is recharged each wet season by monsoonal rain. (B. Lyon photo)

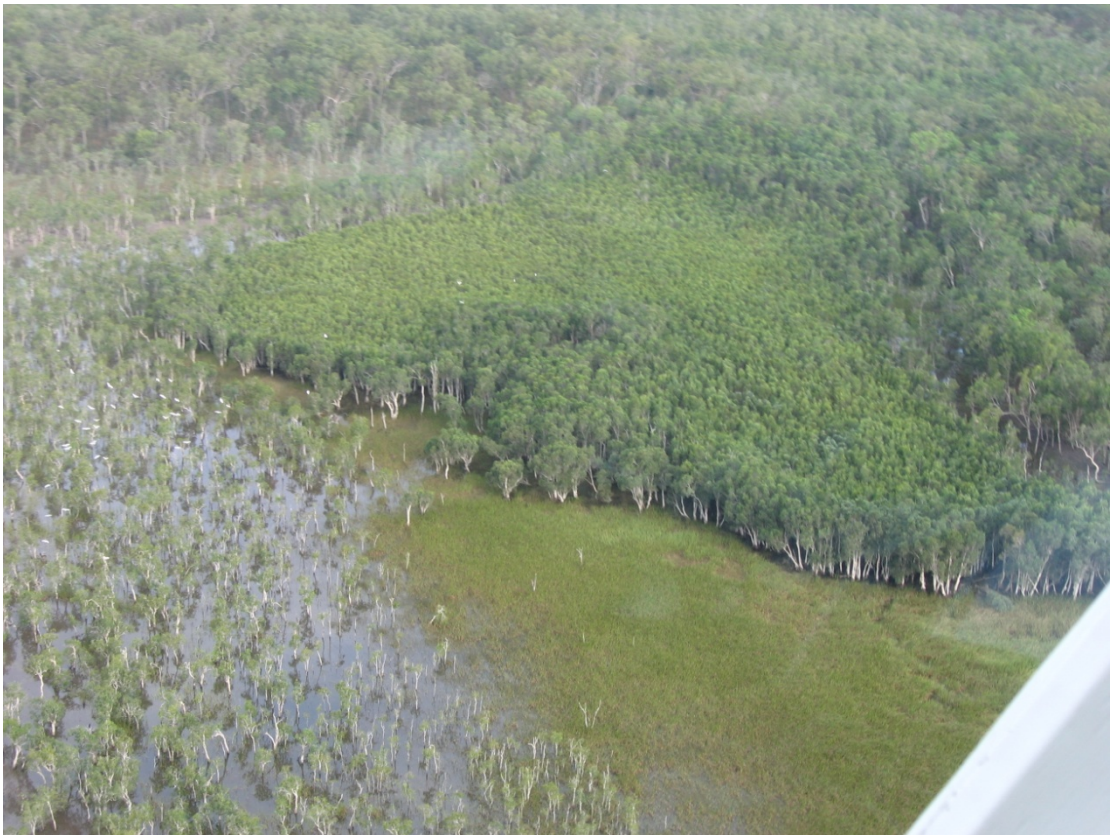
The springs fulfil all six criteria listed by the Queensland Department of Environment and Resource Management to be described as 'Important Wetlands', a position shared by only a very small number of other freshwater wetlands. They are also assessed at meeting 5 criteria to meet Ramsar requirements. (B. Lyon photo)

The tall stringybark woodlands of the bauxite plateau on the Steve Irwin Wildlife Reserve. This grows at it's greatest structural development in this regional ecosystem type (RE 3.5.2) and none of this plant and wildlife rich

ecosystem on the Weipa bauxite land system is currently protected conservation tenure and will eventually be cleared in coming years by strip mining for bauxite over the Weipa Plateau. Approximately 12000 hectares occurs on the SIWR, or 1.3% of the total area. Photo B. Lyon

Mapoon Aboriginal Rangers and Scientists collaborating with Australia Zoo Rangers to document the natural and cultural values of the Coolibah Springs and bauxite plateau. Photo: B. Lyon

The Wenlock Floodplain features abundant wetlands such as 'Whoop Whoop Lagoon above'. Orchid Swamp below features an unusual low/medium, closed Melaleuca forest. (Photos B. Lyon)



Exposed ferricrete – a geological feature of the Wenlock River, is visable in the foreground.

The Cape York endemic *Pandanus lauterbachii* flowering at Fan Palm Spring. The potential pharmaceutical benefits of the rare and endemic plants present is unknown, but some may provide significant health benefits, with long term economic benefits to the area's Traditional Owners who would possess the intellectual rights.
Australia Zoo is providing support for Traditional Owners in developing a native plant pharmaceutical reserach project.