CM202

Chris, Just ran across this. Has there been any further thought given to this that you are aware of? Note CO, Cath

Noted @ 24/6/1996.

A BRIEF INSPECTION OF DRAGON TREE SOAK NATURE RESERVE (A35918)

10 - 12 October 1995

The following is an account of a 3 day sojourn to Dragon Tree Soak Nature Reserve as conducted by staff from The Department of Conservation and Land Management's West Kimberley District Office and a contract geologist. (Includes strategies to control camel degradation at Dragon Tree Soak.)

Don't forget your shovel!

Peter Trembath
December 1995

FAX .....

.....

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Peter, - Sorry not responded to soon.
Agree that a shooting program would not be practical - fencing the way to go.
N.T. sources also recommend increasing visibility by putting a small trench along + close to the outside perimeter (outside).
all depends on funding I guess.
Dave
24/6

M.J & A.R. Bamford,
CONSULTING ECOLOGISTS.
23 Plover Way,
Kingsley, WA, 6026.
ph/fx: 09 309 3671
14/06/'96

Mr C. Done,
Regional Manager,
Department of conservation and Land Management,
PO Box 942,
Kununurra, 6743.

Dear Chris,

Just a quick note to inform you that our final plans for the trip into the Joanna Spring/Dragon Tree Soak area are being drawn up. We have applied for appropriate permits from the Como office, including entry permits into Dragon Tree Soak Nature Reserve. The first members of our party will be passing through Broome around 21 June and we will be leaving the desert (via Anna Plains Station) around 16 July.

If you have any queries or require further information, please call of fax me at the above number.

Yours faithfully,

Mike Bamford

Al Grose - to note
Done. 14/6.

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The following is an account of a 3 day sojourn to Dragon Tree Soak Nature Reserve as conducted by staff from The Department of Conservation and Land Management's West Kimberley District Office and a contract geologist. (Includes strategies to control camel degradation at Dragon Tree Soak.)

Peter Trembath
December 1995

A Brief Inspection of Dragon Tree Soak Nature Reserve (A35918). 10 - 12 October 1995.

P.W. Trembath (District Wildlife Officer. Dept. of Conservation & Land Management, P.O. Box 65 Broome 6725) with contributions from A.K. Grosse (District Manager. Dept. of Conservation & Land Management, Broome), K.P. White (Ranger. Dept. of Conservation & Land Management, Broome) and G.H. Morris (Consultant Geologist. P.O. Box 504 Broome 6725).

ABSTRACT

Dragon Tree Soak is a permanent fresh water peat swamp situated in the central region of the Great Sandy Desert. The actual soak area is approximately 2 hectares and elliptical in shape. The centre of the soak is dominated by "an almost pure stand" of *Baumea articulata* whilst the dragon flower tree (*Sesbania formosa*) grows as a low forest at the northern and southern ends of the soak. *S.formosa* also occurs amongst the *B.articulata* and the bulrush, *Typha domingensis*, provides an almost impenetrable under-story. The fringing vegetation includes spinifex and native grasses with tall groups of *Acaia ampliceps*.

Habitat away from the soak is characterised by loam flats and claypans which carry dense low heath to dwarf scrub and occasional sandy rises which are covered with hummock grass. The loam flats also support thickets "mostly dominated by *Acacia ampliceps*" and low scrub is associated with dunes and swales.[1]

The area sustains representative desert faunal species, however it would appear that the soak itself is the most prominent characteristic. McKenzie, Burbidge, George and Mitchell (1983) described the soak as unique and stated that "No similar association of plants is known to occur in any of the Western Australian deserts."

1. Habitat description adapted from Burbidge, A.A., McKenzie, N.L. & Kenneally, K.F. (1991). *Nature Conservation Reserves in The Kimberley*. Dept. of Conservation & Land Management. pp 95-96.

INTRODUCTION

In March 1979, the soak was included in Jarmura Location 1 and proclaimed as an A Class Nature Reserve with a total area of 14,182 hectares. However an area to the north of the soak (described as Jarmura Location 2) was subject to a Petroleum Exploration Permit and was excluded from the proclamation. This resulted in the soak itself having undesirable proximity to the Reserve's northern boundary. Several attempts to correct this anomaly proved unsuccessful until the reserve boundaries were amended in December 1994 to include Location 2 (with the total area of the Reserve being increased to 17,729 hectares).

Since proclamation the Reserve does not appear to have benefited from direct management, however in May 1991 staff from the Department of Conservation and Land Management's (C.A.L.M.) Kimberley Region and a Norforce Officer did inspect the Reserve. In a subsequent report the Department's Regional Manager, Chris Done, reported the following management considerations:

- The area had been impacted by fire (lightning strike probable) although the soak itself had not been effected and other areas were "regenerating strongly".

❒ Although no camels were seen, there was evidence that indicated that a small number of camels were regular visitors to the soak. Some trampling of vegetation had occurred and "dust baths" were observed around the soak perimeter. Mr Done recommended that there should be an attempt to eradicate camels in the area of the soak, however there is no record of any subsequent eradication attempt.

❒ Mr Done also attached a copy of a report concerning Aboriginal interest in Dragon Tree Soak. The report was prepared by C.A.L.M.'s Aboriginal Training & Liaison Officer and recommended that provision be made for Aboriginal access to the Reserve including camping and the lighting of fires. Mr Done supported the recommendations contained within the report.

Available records indicate that C.A.L.M.'s Regional Ecologist, Gordon Graham, visited the Reserve some 12 months later to specifically consider appropriate techniques to control camel initiated degradation. Although he observed only a single camel in the area of the soak (40 Kms. to the north), he also recorded evidence of camel related damage to the immediate soak area:

"Evidence of camel activity at the soak included pads, wallows and the trampling of vegetation. It was also noticed that camels are digging around the base of large termite mounds."

Mr Graham considered that shooting would be an inadequate method of controlling the camels and recommended further research into control techniques.

In 1994 Dr Michael Bamford visited the Reserve to complete an Australian Geographic sponsored study of Dragon Tree Soak (Dr Bamford first visited the Soak in 1981). In a subsequent article published in issue No. 38 of Australian Geographic's *Society News*, it was reported that Dr Bamford found that camels had "cropped" 8 metre dragon trees to the size of small trees and "trampled" reed beds into the mud. The article quoted Dr Bamford's description of the damage as a "disaster".

Dr Bamford's observations certainly indicated a much more severe degree of degradation than had previously been recorded and the matter was brought to the attention of staff from C.A.L.M.'s West Kimberley District Office. It was decided that District staff should inspect the Reserve as soon as possible to confirm the extent of damage and also to develop immediate remedial strategies.

The following is an account of that inspection and the strategies considered most likely to result in the practical and effective control of camel degradation at Dragon Tree Soak.

INVENTORY

The inspection was conducted by the author and co-authors using 2 four wheel drive vehicles.

Both vehicles were self-sufficient in fuel, camping equipment, stores, fresh water and first aid items. Each vehicle also carried 3 spare tyres complete with rims, an additional spare tyre and tube, and puncture repair kits. The provision of such spares proved to be essential (see below under "ACCESS").

The vehicles were fitted with Global Positioning Systems (GPS), High Frequency radios which permitted state-wide communication and Very High Frequency radios which enabled vehicle to vehicle communication.

❖ Note: Due to the remote and sometimes inhospitable nature of the area of interest, it is highly recommended that future management teams carry the above items as minimum inventory.

ACCESS

The Nature Reserve was accessed via the McLarty Track which runs east from the Great Northern Highway. This former mineral access proved to be in relatively good condition and allowed both vehicles to travel at reasonable speeds.

After travelling approximately 226 kms. from The Great Northern Highway, the group proceeded in a southerly direction along a survey cut-line. The cut-line was overgrown and traversed numerous sand dunes. Despite travelling at slow speeds one vehicle in particular sustained several punctures on this section of the journey.

The cut-line terminated to the north-west of the soak and the group travelled the last few kilometres "across-country".

GPS reference data is provided at Appendix A.

❖ Note: Due to the remote and sometimes inhospitable nature of the area of interest, single vehicle access is not recommended.

GENERAL OBSERVATIONS

Tight scheduling meant that the group was not able to collect any significant data relating to local biota. However the following observations warrant mention:

❒ Allen Grosse and George Morris sighted what appeared to be a group of ~20 letter-winged kites (*Elanus scriptus*) 23 kilometres north of Dragon Tree Soak. The letter-wing kite is difficult to distinguish from the endemic black-shouldered kite (*Elanus notatus*) and the sighting would represent a significant extension of the species' range, however a tendency to gather in "loose flocks" and "roost in company" is considered to be a behavioural characteristic that is not shared with the black-shouldered kite.

❒ Recent bilby (*Macrotis lagotis*) tracks and diggings were noted at several sites along the cut-line mentioned above. (The bilby is gazetted as being rare and endangered under relevant provisions of the Western Australian Wildlife Conservation Act.)

CAMEL DEGRADATION AT DRAGON TREE SOAK

Although no camels were sighted, there was obvious evidence of camel intrusion at Dragon Tree Soak. The soak was surrounded by "well trodden paths" and several dragon tree saplings on the perimeter of the soak were badly damaged at "camel height". The group also noted recent camel (and cattle) tracks, "dust baths" and areas of the soak that were being used as watering points.

In addition to the damaged trees, group members who had visited the soak previously (Grosse and Morris) noted an apparent decline in the number of saplings, however the dense *T.domingensis* under-storey has prevented damage to mature trees located in the centre of the soak.

(See photographs at Appendix B.)

Notwithstanding the damage described above, the group did not consider that the level of degradation could be described in disastrous proportions, however it was agreed that some remedial action was necessary to prevent any further degradation.

STRATEGIES FOR THE PRACTICAL AND EFFECTIVE CONTROL OF CAMEL DEGRADATION AT DRAGON TREE SOAK

As has been previously stated, it is likely that shooting would prove to be an ineffectual method of protecting Dragon Tree Soak from intrusion by nomadic feral animals. Alternatively, the installation of a perimeter barrier that would exclude camels (and cattle) from most (but not all) immediate areas of the soak is favoured.

Advice from the Conservation Commission of The Northern Territory indicates that the following fence design is effective against camels:

* A standard suspension fence with sturdy strainers.

* The fence should be of normal stock height with 1/4" steel cable above 2 runs of barbed (optional) wire.

* The fence should be constructed in sections to provide for discreet damage.

* It is important to ensure that the fence is highly visible (orange flagging tape has been found to be effective) and that the fence line is cleared of vegetation.

It is unlikely that even a fence built according to the above specifications would prevent camels from attempting access to water, therefore it is recommended the perimeter fence be constructed so as to prevent access to most immediate areas of the soak whilst providing for strategic watering points.

The cost of such a fence would be **relatively** inexpensive and construction materials could easily be transported using light four wheel drive vehicles. Depending on available expertise, it may be necessary to employ a contract fencer to supervise construction, however local C.A.L.M. personnel may be able to erect the fence without assistance. (The project is also well suited to volunteer involvement.)

To prevent any serious degradation, the fence should be installed as soon as practical (early in the 1996 dry season). Thereafter the fence should be subject to annual maintenance.

REFERENCES

Anon. (1994). Camels Slaying The Dragon. An article in *Society News* #38. Australian Geographic.

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Done, C.C. (1991). Dragon Tree Soak (35918). In correspondence. Dept. of Conservation and Land Management.

Graham, G.R. (1992). Proposed McLarty Hills Nature Reserve (including the existing Dragon Tree Soak Nature Reserve). In an internal report. Dept. of Conservation and Land Management.

Pizzey, G., & Doyle, R. (1980) *A Field Guide to the Birds of Australia*. Collins.

McKenzie, N.L., Burbidge, A.A., George, A.S. & Mitchell, A.S. Environment. In: Burbidge, A.A., & McKenzie, N.L. (Eds.). (1983). *Wildlife of the Great Sandy Desert, Western Australia.* Department of Fisheries and Wildlife.

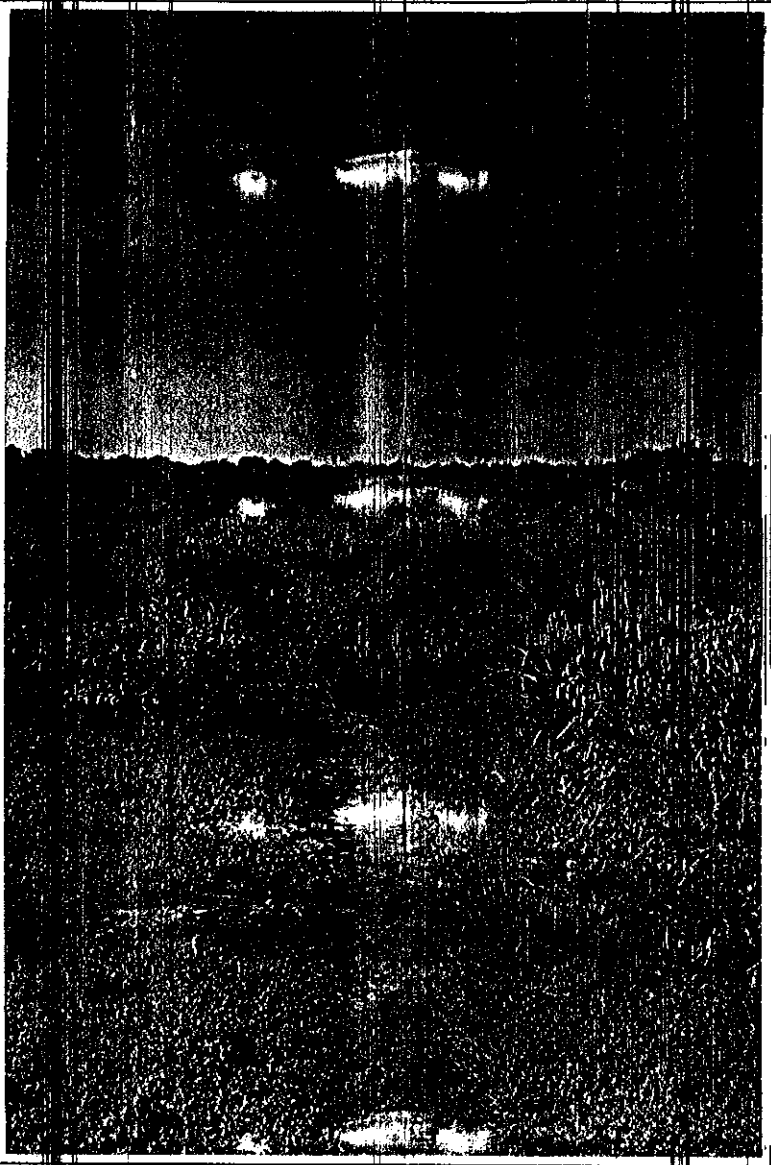
Wurst, D. (1995) Untitled. In correspondence. Conservation Commission of the Northern Territory.

APPENDIX A
Access Reference Data

Ref. No.	Grid Reference	Waypoint	Distance	Comments
X1	O364529			
	7902467	MLARTY	0	Turn off Great Northern Highway
X2	O401659			
	7881676		50	
X3	O406608			
	7875631		58	
X4	O407770			
	7875467	RIG21	59	Rig 21" drum
X5	O422557			
	7865104		80.8	Airstrip
X6	O433389			
	7873587		91.5	
X7	O447084			
	7870900	7	101.4	Disused track to the south
X8	O459411			
	7869537	8	113.8	Turn to right
X9	O472584			
	7864077	14	134.1	T-junction. Turn to right
X10	O472554			
	7860914	TEAST	137	Turn east onto the old McLarty track
X11	O482299			
	7860957	9	146.3	Fork - turn left
X12	O494320			
	7860499	10	159	Fork - turn right (disused track to north)
X13	O522326			
	7858144		187	
X14	O538434			
	7856608	12	~226	Turn south onto cut line
X15	O5[illegible]7			
	7828862	11		Cut line terminates. Proceed SSE across country
X16	O536838			
	7829189	13		East along dune crest
X17	O537830			
	7824275	DTREE		Dragon Tree Soak

APPENDIX B.

Photographic Evidence Of Camel Degradation At Dragon Tree Soak.

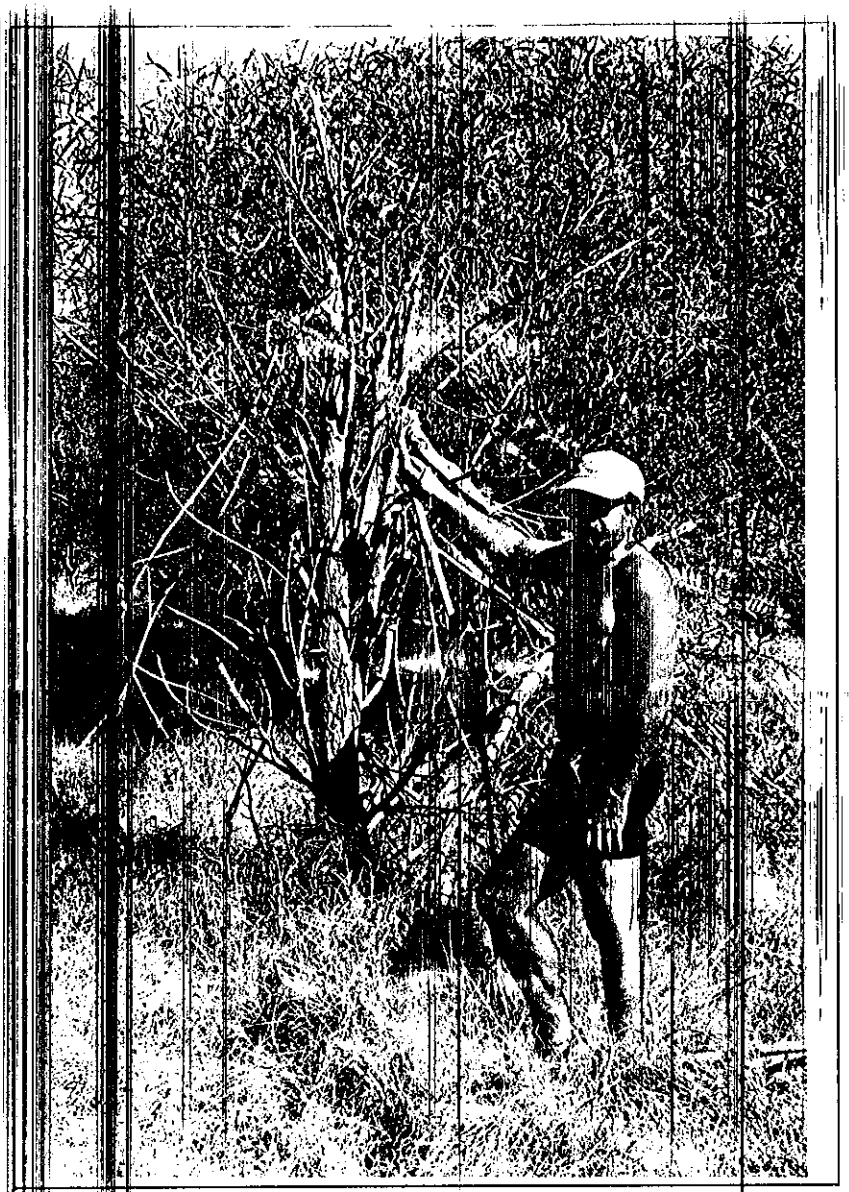


"Well trodden paths" were evident adjacent to the soak.

"Dust baths" were also noted adjacent to the soak.

Areas of the soak are being used as watering points.

Some areas of *T.domingensis* have been trampled by feral animals.



Many *S.formosa* saplings have been damaged at "camel height".

Camel damage to several *S.formosa* saplings was significant.

Dense *T.domingensis* discourages access to the centre of the soak.

The *T.domingensis* under-storey has prevented damage to dragon trees located in the centre of the soak.