



**Impacts of flooding on
the South and East
Alligator Rivers and the
coastal margin between
30th and 31st of January
1998**

MJ Saynor

R Hall

March 1998



supervising scientist

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Wetland Protection and Management Group

Environmental Research Institute of the Supervising Scientist

Jabiru, Northern Territory, Australia

MJ Saynor & R Hall

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1.0 Introduction

The top half of the Northern Territory received substantial rain during the last two weeks of January as a result of a rain depression travelling from east to west across the Top End. The rain depression (ex Tropical Cyclone Les) had circled around most of the Top End before becoming stationary and dumping large amounts of rain in the upper catchments of the Katherine and South Alligator River. This rain resulted in extensive 'record' flooding in the township of Katherine on the 1998 Australia Day weekend and substantial flooding down the South Alligator River over the course of the next week. In Kakadu National Park (KNP) flooding of the Arnhem and Kakadu Highways resulted in their closure for various periods of time.

The flight was instigated by a request from Mike Saynor (Mouse) (Wetlands) to record (photograph and video) the wetlands and coastal margins (salt water intrusions etc) of KNP during the Wet season, in particular during a period of flooding. Dr Arthur Johnston agreed with the request and suggested that it was a good idea to record the impacts of the flooding for the entire length of the South Alligator River catchment, starting from the head waters and flying down the length of the river to where it enters van Diemen Gulf.

2.0 Background

The South Alligator River rises in the Arnhem Land escarpment and flows some 280 km in a generally northward direction before debouching into van Diemen Gulf. Initially as the river flows through the escarpment country of the South Alligator River valley it is a sand bed stream. It then flows out onto a lowland plain which has a discontinuous system of billabongs and a poorly defined braided channel section. Finally the South Alligator River flows into the tidal section, still some 100 km upstream from the river mouth. The South Alligator River has a catchment size of 9000 km² (Woodroffe et al 1986; Wolanski & Chappell 1996) and is contained entirely within the boundaries of KNP.

3.0 Equipment used

Video equipment consisted of a Panasonic VHS-C (NV-R30A) hand held video camera taking approximately 1 hour and 10 minutes of footage. Eleven rolls of slide film (24 x 200 Kodak Elite) were taken using a Cannon EOS 500 with a 28 to 105 mm lens. Nine rolls of print film (mainly 24 X 200 Konica) were taken using a Cannon EOS 500 with a 28 to 80 mm lens. The video tape was edited using the video camera for playback, plugged into and an Akai hi-fi stereo VHS video recorder. A Kawasaki helicopter was hired from Heli-North Pty Ltd.

4.0 Flight path details

As the area to be flown was extremely large, two separate flights were flown. One flight of four hours was flown on Friday 30th of January and another flight of two hours was flown on Saturday 31st of January. This allowed for refuelling of the helicopter and enabled camera batteries to be recharged and film stocks to be replenished. For the flight the doors were taken off each side of the helicopter to make videoing and photography easier.

4.1 Friday 30th January 1998

The flight commenced at Jabiru Airport at 2:10 pm with the following seating arrangements;

- Mike Saynor—Slides and Prints (on right of helicopter looking forward)

- Ray Hall—Video (on left of helicopter)
- Peter Hull—Heli-North Helicopter Pilot

The flight plan is shown in figure 1.

After take off from Jabiru airport the helicopter tracked south-west directly to Kakadu Highway near Malabanjbanjdu Creek where the first view of flooding could be seen. This area was circled to obtain good views out of each side of the helicopter and then the highway was followed, south, (with the helicopter flying to the west of the highway) past Burdulba Creek to the Nourlangie bridges. These bridges had been inundated with water in the previous days with the Parks Australia North (PAN) road report listing the Kakadu Highway at Nourlangie bridges as impassible on 27/01/98 with approximately 0.5 m over the bridges and a very strong current. The depth of water was reduced to 0.3 m on 29/1/98 and was reported as clear on 30/1/98, which is confirmed on the video and by personal observations. From Nourlangie bridges we tracked south west directly to Cooinda and Yellow Water, where large expanses of water were covering the floodplains. The pontoons at Yellow Water were riding extremely high on their moorings and there was no evidence of the car park. One could only guess as to the location of Yellow Water billabong by the tree lines.

Turning to track up Jim Jim Creek past Cooinda and Home Billabong, lots of water was visible near the buildings at Cooinda. Continued on up Jim Jim Creek to Mardugal Billabong where a large crocodile was visible swimming up the billabong and then circled over the bridges spanning Mardugal and Jim Jim Billabongs. These bridges had also been inundated with water in the previous days and there was still some lying water covering the bridge approaches. The PAN road report listing the Kakadu Highway at Jim Jim bridges as impassible on 28/01/98 with water over 0.2 m in depth over the bridges, this was increased to 0.5 m on 29/1/98 with a very strong current and rising. The depth of water was reduced to 0.3 m on 30/1/98 and falling and was reported as clear on 31/1/98. Observations on the flight indicated that the road was essentially clear by 3:00 pm 30/1/98 with cars able to negotiate the shallow water still evident on the road.

The flight path then followed the flooded Jim Jim Creek south east up to the escarpment (several unnamed waterfalls could be seen flowing off the escarpment). A figure of 8 was flown over Jim Jim Gorge and falls to record the majestic beauty of the falls which were flowing with full fury. Leaving Jim Jim Falls the helicopter tracked directly south to land and refuel at Sliesbeck. Which is located in the headwaters of the Katherine River and adjacent to the headwaters of the South Alligator River. Difficult to know which rivers and tributaries were being flown over, with some of these flowing at bankfull. Much larger flows, (well above the channel capacity) were indicated by flattened vegetation and grasses in a downstream direction and there were also instances of bank erosion, particularly on sweeping bends as well as occasional cutoffs.

A total of 15 minutes was spent on the ground refuelling the helicopter and on take-off the seating arrangements had changed as follows;

- Mike Saynor—Slides and Prints (now on left of helicopter looking forward)
- Ray Hall—Video (on right of helicopter)

After take-off the helicopter tracked in a north-westerly direction towards the upper reaches of the South Alligator River. Many small creeks not discernible as major river channels were flown over until a large sizeable channel appeared after cresting a low ridge. After locating the South Alligator River it was followed downstream in the north-westerly direction. Big Sunday was identified by its flat top and Coronation Hill was distinctive with bright green

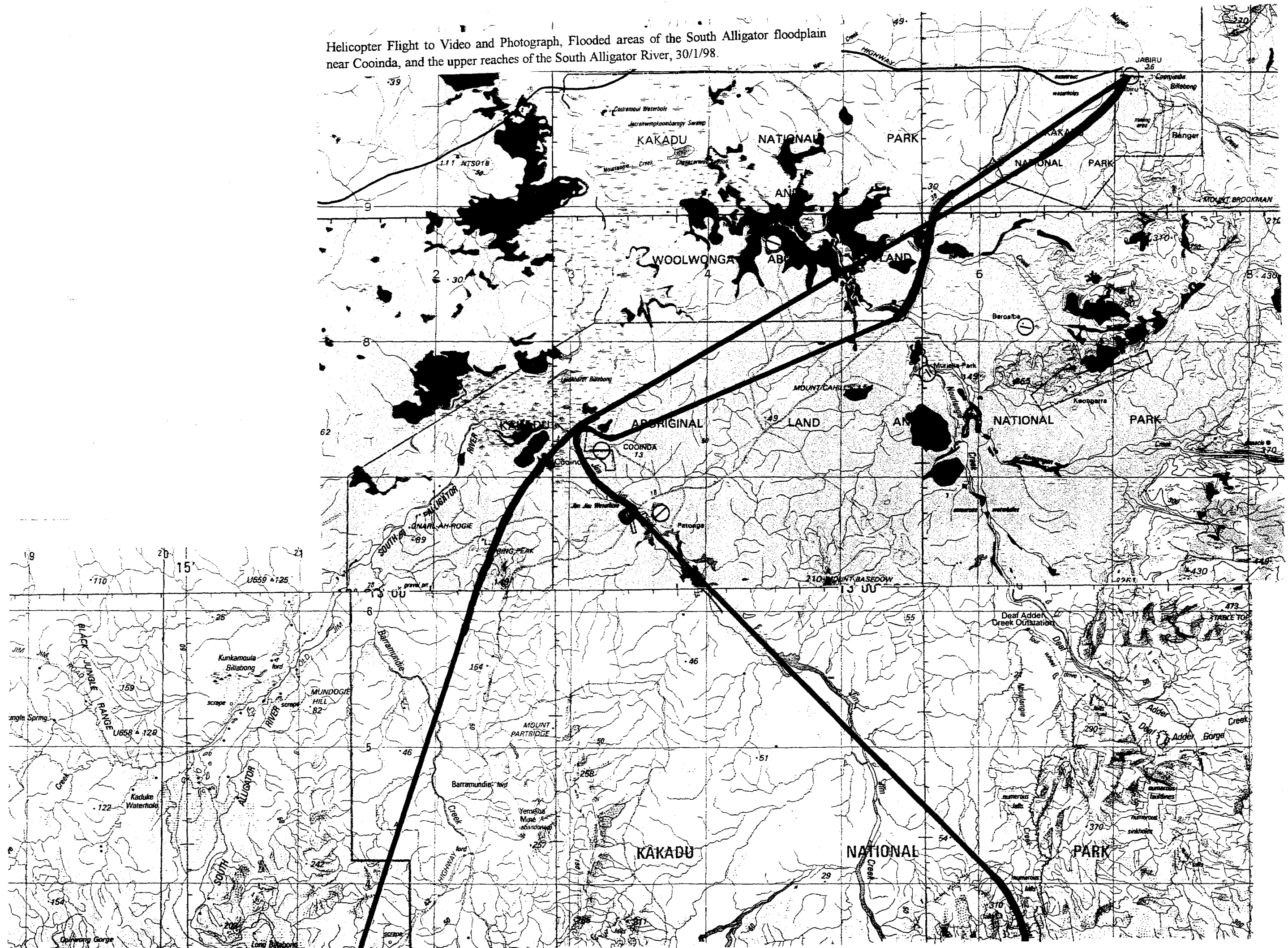
indicating previous mining activities on the eastern side. The research station at Gimbat (formerly maintained by *eriss* but now managed by the Jawoyn Association) was also visible on the sweeping bend opposite Coronation Hill. Continued to follow the South Alligator River down through the escapement country of the South Alligator valley past Koolpin Creek (entering on the right bank) and Kurrudie and Motor Car Creek (entering on the left bank), although the actual confluences could not be identified.

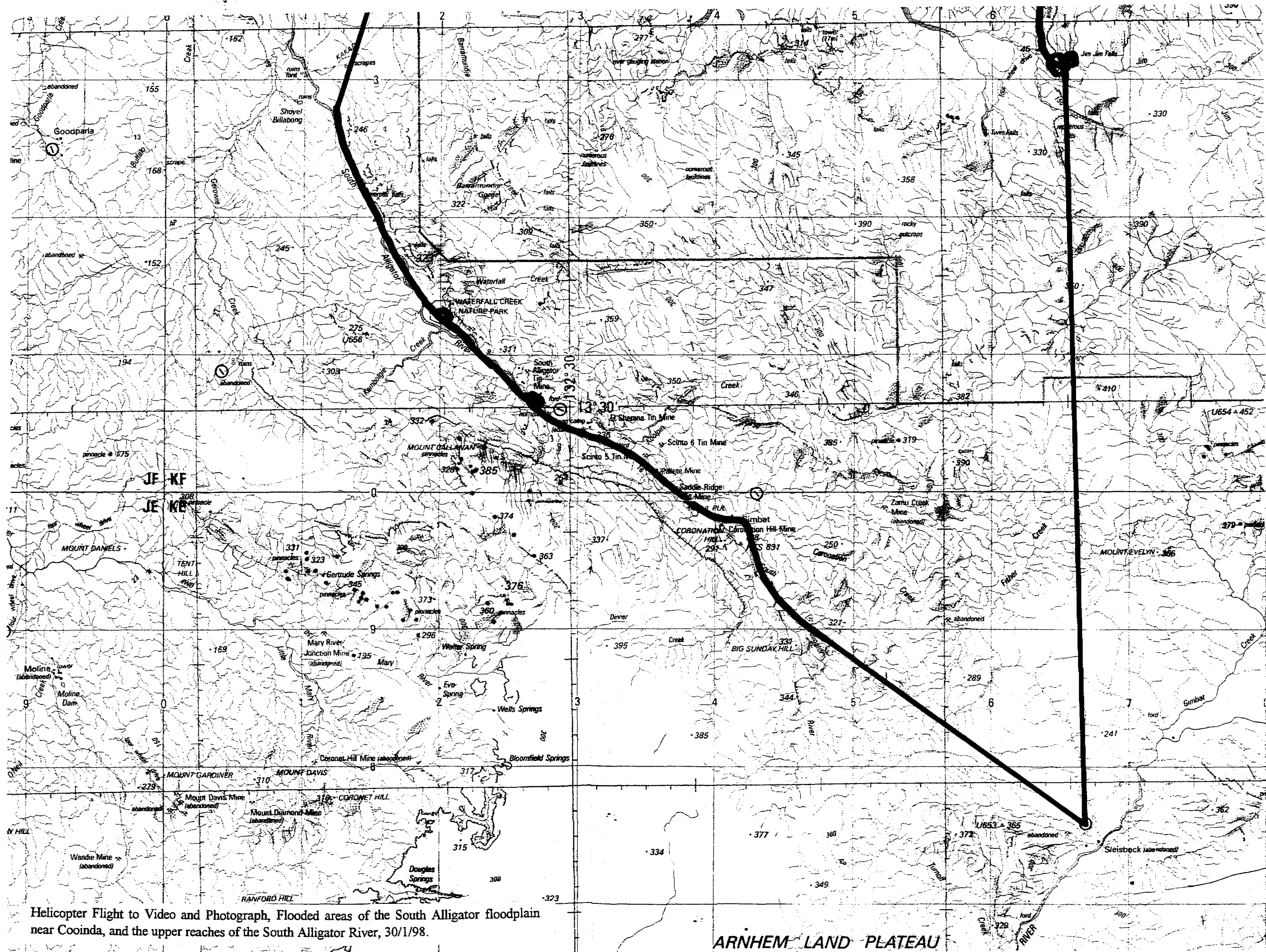
Located where the access road to the South Alligator valley crosses the South Alligator River via a concrete bridge and circled around over where the bridge should have been as it was covered with water, with water also covering both approach roads. The sign warning against swimming due to crocodiles could be seen just above the water level on the southern bank. Continued to follow the South Alligator River downstream (north-westerly direction) to Gunlom Falls (also called Waterfall Creek or UDP Falls). Circled around the falls, water was still powering over the falls, and sand in the campground and carpark was evidence that it had been much higher. Continued down the river to where the Kakadu Highway crosses it by way of a bridge. There was ponded water upstream of the bridge, caused by the embankment built to elevate the roadway acting like a dam. There was no visible evidence that water had gone over either the road or the bridge. Followed the South Alligator River downstream for several minutes and then made the decision to miss out the part of the river downstream to near Cooinda as the helicopter time was mounting, the braided channel is not easily discernible and there are not many identifying features.

Tracked north towards the floodplains near Cooinda with the idea of flying down the (flooded) South Alligator floodplain from Cooinda to the Arnhem Highway. Discovered that the second video camera that we had brought along was not getting a picture so decided to head straight for Jabiru. On the flight back to Jabiru again flew over Cooinda and Yellow Water. Took various still shots (print and slide) of the water around Cooinda and Yellow Water as well as looking north over the flooded South Alligator flood plain. Plenty of water on the floodplains which was helped by the high tides occurring at this time. Tracked in a straight line (north east) to Jabiru which took us to the west of the bridges along the Kakadu Highway (Nourlangie, Malabanjbanjdju etc). Various photographs were taken of the floodwater on Nourlangie Creek downstream of the bridges as well as several large bodies of water presumably including Nourlangie Billabong.

Landed at Jabiru Airport at 6:10 pm, flight time of four hours.

Helicopter Flight to Video and Photograph, Flooded areas of the South Alligator floodplain near Cooinda, and the upper reaches of the South Alligator River, 30/1/98.





Helicopter Flight to Video and Photograph, Flooded areas of the South Alligator floodplain near Cooida, and the upper reaches of the South Alligator River, 30/1/98.

4.2 Saturday 31st January 1998

The flight commenced at Jabiru Airport at 9:45 am with the following seating arrangements;

- Mike Saynor—Slides and Prints (on left of helicopter looking forward)
- Ray Hall—Video (on right of helicopter)
- Peter Hull—Heli-North Helicopter Pilot

The flight plan is shown in figure 2.

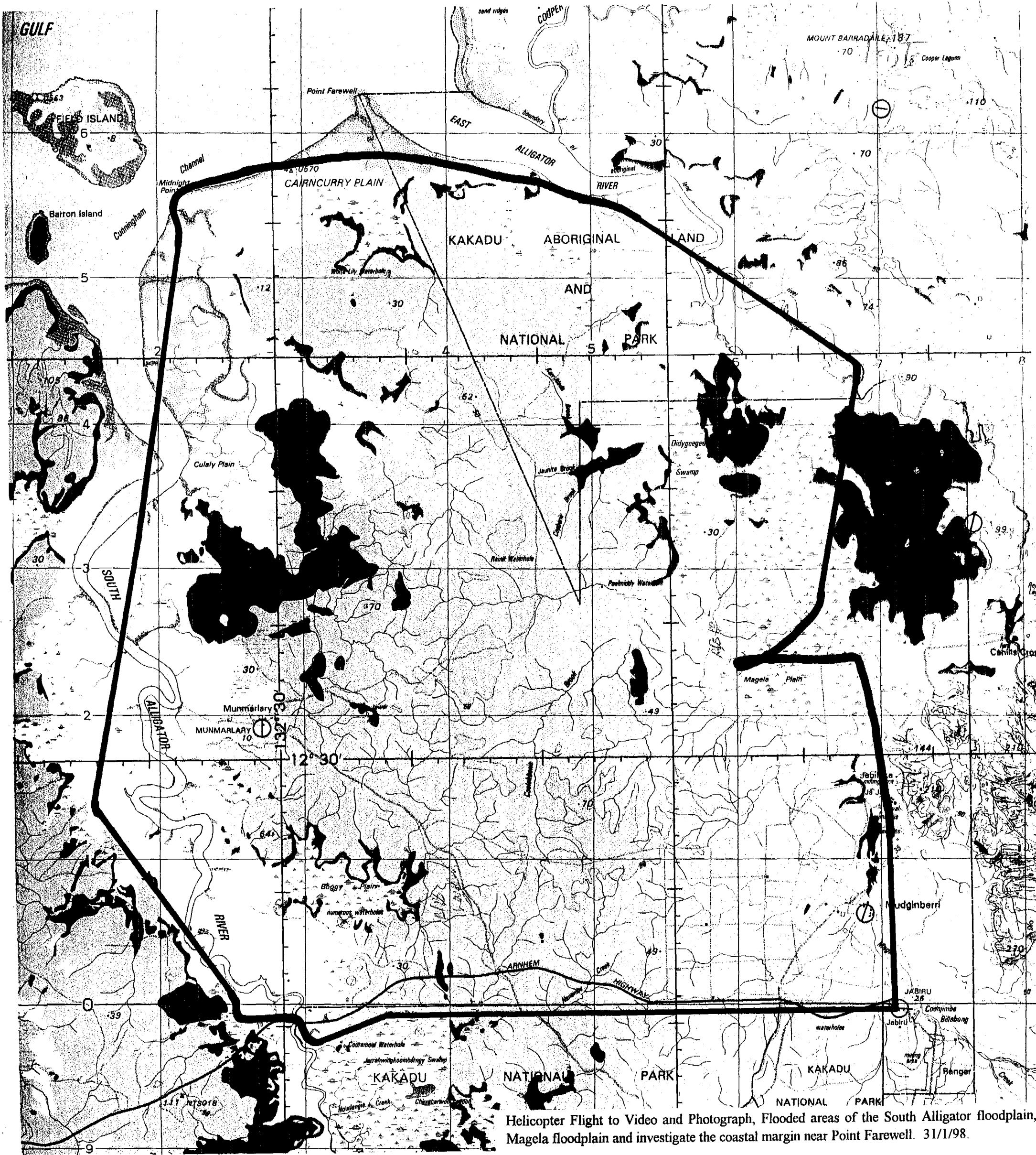
The flight again commenced at Jabiru Airport and after take-off the helicopter tracked to the South Alligator along the Arnhem Highway. Approaching the South Alligator River, vast expanses of water could be seen covering the floodplains towards the south. Flew over Mamukala billabong (taking stills and video for a Radarsat ground truthing site), which had extensive water with only the roof of the Mamukala observation and bird hide visible above the water. The helicopter then flew west to the South Alligator floodplain, where water covered the entire width of the floodplain. Two boats were seen out on the water covering the floodplain (not in the main channel) indicating that the water was at the very least deep enough for boating activities. Initially passed to the south of the bridge spanning the channel of the South Alligator to allow video coverage before turning and flying in a northerly direction to the east of the bridge to allow photographic shots to be taken as well. The water in the main channel was still visibly flowing whilst the water over the floodplains was essentially still. The boat ramp and the parking area could also be seen inundated with water. Tracked to the west from the main channel over the flooded western floodplain towards a saltwater intrusion site that is called Kapalga (Cobb (1997) field site and also a ground truthing site for Radarsat), this area was also covered by water.

From Kapalga the helicopter tracked north following the South Alligator downstream, staying on the left bank, towards Rookery Point (another Radarsat ground truthing site). As we continued north or downstream the amount of water lying on the floodplains appeared to decrease as more vegetation became evident. The water on the flood plains suggested that it was experiencing the usual Wet season flooding regime and not the extensive flooding regime that was upstream around the bridge. Possible reasons might be;

- the pulse of flood water has not reached this part of the river yet
- levee banks prevent the water from spilling onto the floodplain at this point of the river
- a large number of creeks perhaps, allowing the water to drain the width of the river at this point is wide enough to accommodate large flood flows.

Rookery Point was identified by the boat shed located on the point which also signified the start of another Radarsat ground truthing transect.

After Rookery Point the helicopter continued to track north down the South Alligator River towards the mouth or funnel section (Woodroffe et al 1986), flying over the last long straight section of river, before the river turns towards the open seas of van Diemen Gulf. Both sides of the river has mangrove along the banks, with extensive salt flats on the landward side. There are also several large mangroves lined tidal creeks in this region. The helicopter flew just to the west of Midnight Point and then east tracked along the coastline (videoing the mangroves) to almost at Point Farewell. The route was slightly to the south of Point Farewell which enabled a closer look at the saltflat, dead trees and salt water intrusions sites in the vicinity, during Wet season conditions. Various quad tracks were still visible (from Dry season field work) as was Paul Adam's Transect 1 (UNSW), which was also used by Darren Bell.



Helicopter Flight to Video and Photograph, Flooded areas of the South Alligator floodplain, Magela floodplain and investigate the coastal margin near Point Farewell. 31/1/98.

The barrage that was put in place by Gary Lindner (PAN) to stop salt water from inundating the fresh water swamps or meadows was clearly visible and intact. The tide along the coastal margin at 1100 am was approximately 1 hour after high tide.

Point Farewell marks the entrance to the funnel section of the East Alligator River and we tracked down the East Alligator River towards Turkey Dreaming and the mouth of Magela Creek. There was plenty of water lying on the lower Magela floodplain. Several small creeks flowing into the East Alligator had distinct colour changes, where fresh tannin coloured water flowed into the muddy brackish water of the main channel. The helicopter circled around the mouth of Magela Creek then tracked south along the flooded Magela floodplain, until just north of Djarr Djarr Billabong where we changed direction to track west across the floodplain to the Western Plain to a place titled 'Ant Bend' (the last of the Radarsat ground truthing sites). After circling a land mass with numerous termite mounds (presumably Ant Bend difficult to determine with large expanse of lying water) we then flew towards the escarpment at Jabiluka.

The Magela floodplain was followed south past Djarr Djarr and Jabiluka Billabongs to the Oenpelli Road. A brief glimpse of the flooded road at the 'S-Bends' was obtained (with several parked cars) before following Mudginberri Billabong up to the sand delta where the Magela enters it. Continued to follow Magela Creek upstream to Jabiru Airport where we landed at approximately 11:50 am. In the route description need to add in photographs.

5.0 Photographic description of flight

Photographs were taken in both print and slide format and some shots were taken with a digital camera. The digital camera was only used during periods of flight when time allowed as preference was given to photographic and video footage. The images (58) taken by the digital camera have been downloaded and are stored on a CD ROM and have been produced as a hard copy on a colour printer (stored in a ring binder).

The photographed print images (207) have been catalogued with a sequential numbering system. A caption label, containing the number of the print, a short description, the date and photographer has been stuck on the back of the photograph and the print stored in pouches in a ring binder. The negatives have been placed in the pouches behind the starting photo for each roll. A copy of the caption labels is contained in Appendix 1, and a selection of the photographs are contained in the following pages.

A total of 269 slide images were taken. These have also been catalogued with a sequential numbering system and are stored in slide pouches in a ring binder. Each slide has written on its border a unique number, the date and the photographers name. Descriptions of the slides are contained at the beginning of the ring binder and are also contained in Appendix 2.

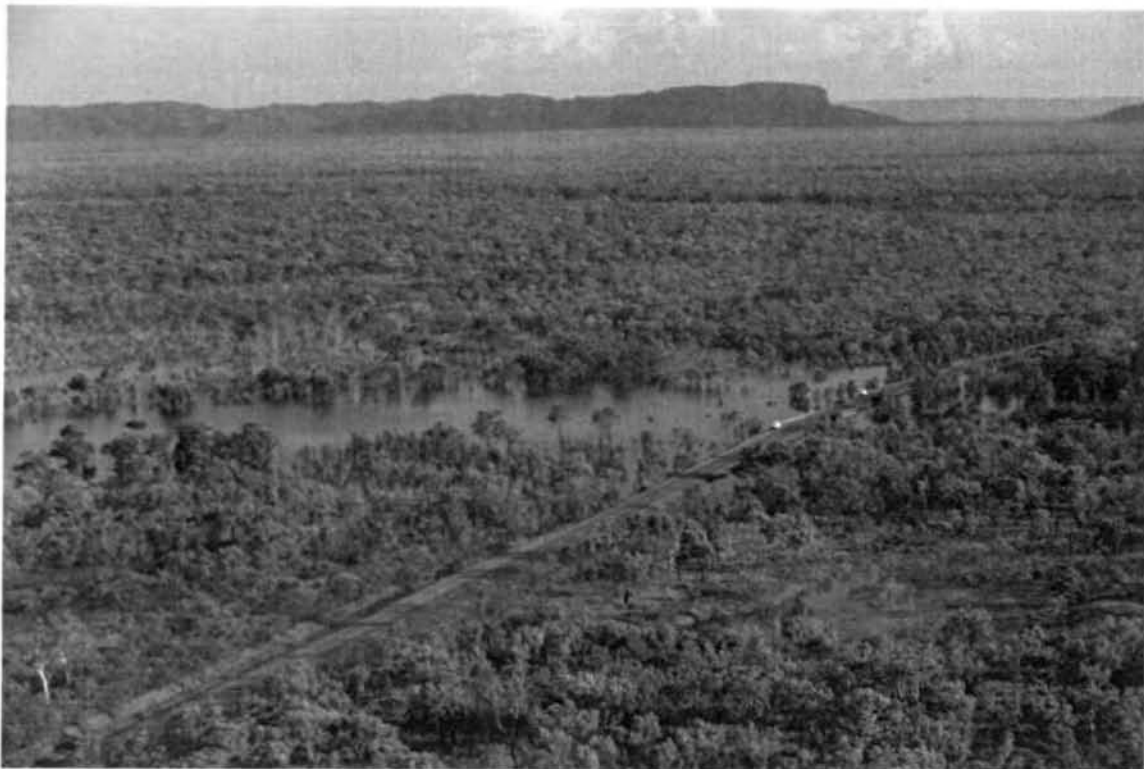


Plate 1 Kakadu Highway at Malabanjbanjdju Creek, flooded areas,
No. 103 Mike Saynor 30/1/98



Plate 2 Flooded Yellow Water, boat ramp and pontoon visible in far left, half way
up the photo, No. 9 Mike Saynor 30/1/98



Plate 3 Flooded Kakadu Highway at Jim Jim bridges,
No. 13 Mike Saynor 30/1/98

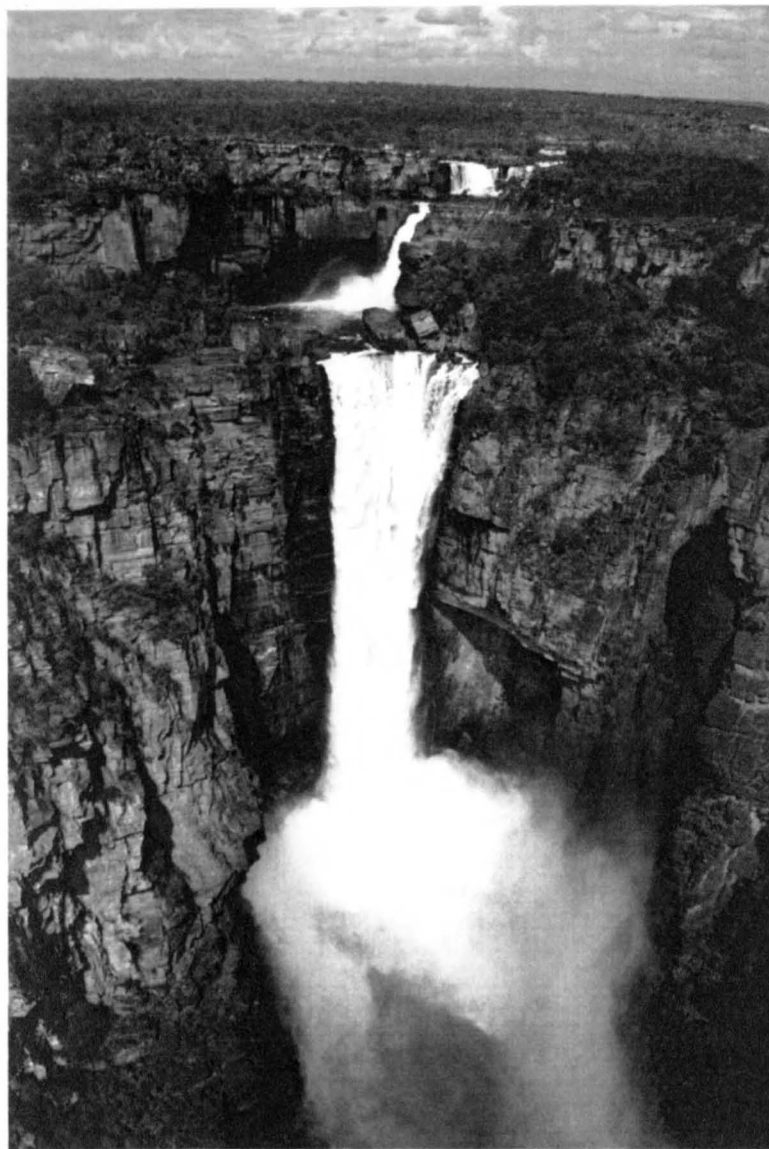


Plate 4: Jim Jim Falls, No. 22 Mike Saynor 30/1/98.



Plate 5: Looking from the top of Jim Jim Falls down the gorge, No. 21 Mike Saynor 30/1/98.



Plate 6: Bank erosion on the upper South Alligator River, No. 42 Mike Saynor 30/1/98.



Plate 7: River channel on the South Alligator River, and evidence of overbank flow, flattened grass downstream main access bridge/causeway, No. 52 Mike Saynor 30/1/98.



Plate 8: South Alligator River looking towards big Sunday,
No. 34 Mike Saynor 30/1/98.

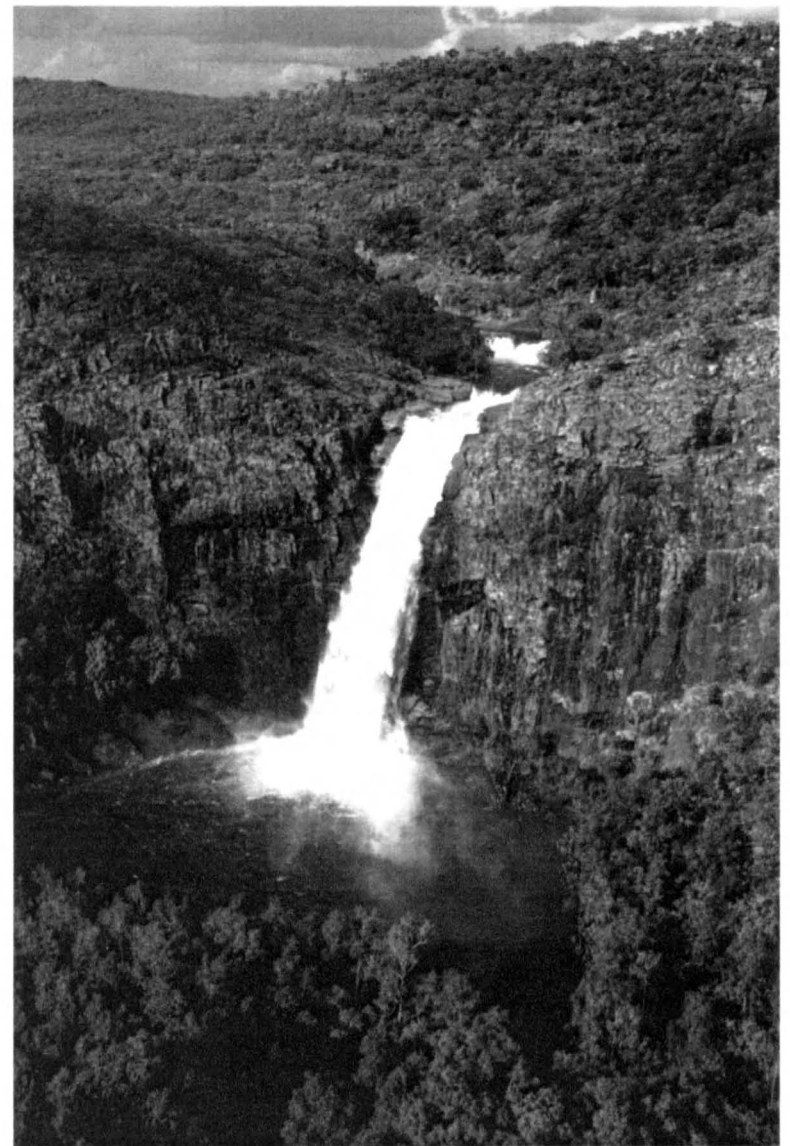


Plate 9: Gunlom Waterfall enters the South Alligator River Valley
from the escarpment country, No. 64 Mike Saynor 30/1/98



Plate 10 Main access bridge/causeway over the South Alligator River, just north is the T- intersection, No. 56 Mike Saynor 30/1/98



Plate 11 Kakadu Highway bridge over the South Alligator River, No. 79 Mike Saynor 30/1/98



Plate 12 Mamukala Billabong and bird hide building. South Alligator floodplain in the background, No. 114 Mike Saynor 31/1/98



Plate 13 The Arnhem Highway bridge over the South Alligator River, No. 124 Mike Saynor 31/1/98



Plate 14 Looking east across the right bank floodplain of the South Alligator River. The Arnhem Highway, a line through the trees disappears into water, No. 127 Mike Saynor 31/1/98



Plate 15 Close up of the mangrove lined South Alligator River and the surrounding flooded floodplain, looking downstream, No. 123 Mike Saynor 31/1/98



Plate 16 Mangrove line tidal creek snakes its way into salt flats near the mouth of the South Alligator River, No. 152 Mike Saynor 31/1/98



Plate 17 Zonation of mangroves looking towards Point Farewell, with the salt flats behind, No. 163 Mike Saynor 31/1/98



Plate 18 Areas of salt flats with a mangrove lined tidal creek. Quite distinctive depositional features delta's or alluvial fans deposited by the incoming tide, No. 170 Mike Saynor 31/1/98



Plate 19 Looking at the barrage constructed across a tidal creek near Point Farewell. Dead trees centre left, No. 180 Mike Saynor 31/1/98



Plate 20 Colour change of clear water entering the East Alligator River,
No. 185 Mike Saynor 31/1/98



Plate 21 Palaeochannel on right bank, opposite where Magela Creek enters the East Alligator.
Rocks are called Turkey Dreaming, No. 189 Mike Saynor 31/1/98

6.0 Video description of flight

The video footage was viewed and a description given of the particular area or feature that was recorded. The start and finish time given in H, M, S and are taken directly from the counter on the Akai Video, and are given as indications only as they will vary slightly from video machine to video machine. They do however allow for locating particular scenes of interest. Time refers to the time that the video was taken and is imprinted at the time of recording.

6.1 Edited version

Approximately 1 hour and 10 mins of video was recorded during both days. The full video was described (section 5.2) and has been edited into a shorter 45 mins version. A soundtrack of songs referring to rain has been added to make the viewing more interesting and relieve the monotony of the helicopter noise.

6.1.1 Day One—30th January 1998

START 0H 00M 00S – FINISH 0H 02M 17S Time 14:28

Large expenses of water to the west of the Kakadu Highway downstream of Malabanjbandju, Burdulba and Nourlangie Creeks. Circled around back to Malabanjbandju bridges to give Mouse a chance to get photographs of the highway. Flew over Burdulba bridges.

START 0H 02M 17S – FINISH 0H 02M 44S Time 14:31

Close up towards Nourlangie Rock, then back to the highway (shows how green the vegetation is) and the turn off to Nourlangie Rock.

START 0H 02M 44S – FINISH 0H 03M 59S Time 14:31

Nourlangie bridges with flood water either side of the highway. Days before these bridges had been under 0.5 metres of water. Need to check the Parks reports

START 0H 03M 39S – FINISH 0H 04M 04S Time 14:32

Water either side of the third or southern Nourlangie bridge.

START 0H 04M 04S – FINISH 0H 04M 28S Time 14:45

Unknown water bodies looking west towards the South Alligator, in particular Yellow Water.

START 0H 04M 28S – FINISH 0H 04M 43S Time 14:46

Flooded South Alligator floodplain in particular Yellow Water. The airstrip at Cooina can be seen on the left of screen at 0H 05M 48.S.

START 0H 04M 43S – FINISH 0H 05M 18S Time 14:47

Getting closer to Yellow Water, might be water over the car park not sure difficult to distinguish.

START 0H 05M 18S – FINISH 0H 07M 30S Time 14:48

Water near the Warradjan Center (near Cooina) flying towards the west see the pontoons near the Yellow Water boat ramp. Can see the line of the road into the Yellow Water car park. Circled around to fly over Home Billabong and to the back of Cooina. Lots of water visible. Yellow Water tour boat moving down Home Billabong 0H 08M 19S. Flew past Cooina could see water through the trees not sure how close to the buildings it got. Close up of Cooina's water supply.

START 0H 07M 30S – FINISH 0H 11M 02S Time 14:50

Became clear again moving between Home and Mardugal Billabongs. Flying over Mardugal spotted a large crocodile swimming up stream—first sighting. Mardugal campground is underwater. Kakadu Highway over Mardugal billabong very close to the road level. These bridges were covered by 0.5 m of water according to Parks reports dated. Flying up Jim Jim Creek above the bridges, vast expanses of water with trees poking through. Faded to black.

START 0H 11M 02S – FINISH 0H 11M 59S Time 14:54

Still on Jim Jim above the bridges, road near the Jim Jim Ranger Station is near the green patch. Buildings on a billabong (no trees in water) probably some out station. Fade to black.

START 0H 11M 59S – FINISH 0H 12M 06S Time 15:03

More of Jim Jim Creek flying up towards the falls.

START 0H 12M 06S – FINISH 0H 12M 18S Time 15:06

More of Jim Jim Creek flying up towards the falls, escarpment beginning to come into view.

START 0H 12M 18S – FINISH 0H 12M 33S Time 15:12

Flying along the escarpment.

START 0H 12M 33S – FINISH 0H 12M 40S Time 15:16

Escarpment country flying towards Jim Jim Gorge.

START 0H 12M 40S – FINISH 0H 14M 29S Time 15:20

Jim Jim Falls, circling around the falls and looking down the gorge, spectacular views. Also show the country around the fall as the helicopter circled around to let Mouse take some photo's.

START 0H 14M 29S – FINISH 0H 14M 39S Time 16:31

Upper reaches of the South Alligator Rivers. Looks like a sand bed stream. Water levels are much lower than during the peak floods. Evidence of large flows well above the channel capacity was indicated by flattened vegetation and grasses in a downstream direction as well as areas of bank erosion.

START 0H 14M 39S – FINISH 0H 14M 56S Time 16:32

Bed Rock Gorge on the upper South Alligator River. Various waterfalls and areas of white water.

START 0H 14M 56S – FINISH 0H 15M 07S Time 16:36

Section of upper South Alligator River, also vegetation as the helicopter cut a corner.

START 0H 15M 07S – FINISH 0H 15M 10S Time 16:37

Coronation Hill, green areas show the various benches on the side of the hill.

START 0H 15M 10S – FINISH 0H 15M 35S Time 16:38

Flying towards Gimbat field research station, then over flying it.

START 0H 15M 35S – FINISH 0H 15M 52S Time 16:39

South Alligator River channel downstream of the causeway that goes to Gimbat field station

START 0H 15M 52S – FINISH 0H 16M 01S Time 16:40

Section of the South Alligator River which is flanked on the right side of the river by a large range which has mine such as Saddle Ridge. The river is getting larger and more flow is visible.

START 0H 16M 01S – FINISH 0H 15M 06S Time 16:47

Muddy water flowing in the channel.

START 0H 15M 06S – FINISH 0H 17M 09S Time 16:49

Flying over and circling round the location of causeway/bridge that crosses the South Alligator River and allows access to Gunlom, Koolpin etc. The bridge and access roads are well covered by water. The sign warning about crocodiles is just visible above the water.

START 0H 17M 09S – FINISH 0H 17M 26S Time 16:51

Initially shows the area beside the river that has been inundated by flood water, flattened grass etc, then shows the ever widening river with increasing flows of muddy waters.

START 0H 17M 26S – FINISH 0H 17M 37S Time 16:55

Gunlom waterfall coming into view with water pouring over it.

START 0H 17M 37S – FINISH 0H 18M 09S Time 16:56

Still Gunlom, with the waterfall swinging into view, close up of the falls and views of the campground and car park. Also some footage of the creek exiting the plunge pool.

START 0H 18M 09S – FINISH 0H 18M 40S Time 16:59

Sections of the South Alligator below Gunlom.

START 0H 18M 40S – FINISH 0H 19M 54S Time 17:05

Ponded water behind the road embankment of the Kakadu Highway, which it acting like a dam. Flying over the Kakadu Highway bridge with lots of muddy water beneath it. No evidence from the air that this bridge has been covered with water. Continued to fly downstream—lots of ponded water.

6.1.2 Day two—31th January 1998

START 0H 19M 56S – FINISH 0H 20M 03S Time

Flooded South Alligator floodplain looking south ie upstream, just east of Mamukala.

START 0H 20M 03S – FINISH 0H 20M 11S Time

Still over the flooded South Alligator flood looking south ie upstream, just east of Mamukala.

START 0H 20M 11S – FINISH 0H 20M 22S Time

Mamukala with the bird hide and also Ben Bayliss' transect in the scene.

START 0H 20M 22S – FINISH 0H 20M 35S Time

Looking north up the South Alligator floodplain, the cutting through the trees signifying the Arnhem Highway is visible on the left.

START 0H 20M 35S – FINISH 0H 21M 05S Time

Getting closer to where the Arnhem Highway crosses the South Alligator floodplain and also a shot across the floodplain through the front of the helicopter.

START 0H 21M 05S – FINISH 0H 21M 29S Time

Started looking south down the floodplain and then panning round to be looking north up the floodplain. Arnhem Highway clearly visible.

START 0H 21M 29S – FINISH 0H 21M 36S Time

Getting out over the flood plain with the cuttings through the trees visible—a look to the north and some vehicles are seen parked on the Arnhem highway in the pandanus grove. Close up of the highway stuck out into the water like a peninsula.

START 0H 21M 36S – FINISH 0H 22M 56S Time

Looking north across the floodplain the river is defined by a line of mangroves sticking up out of vast expanse of water. Glimpsed the road bridge over the main channels, the camera was panned round to look upstream (south). Clearly see the channel defined by mangroves. Good shots of where the Arnhem Highway should have been if it was not covered by water.

START 0H 21M 56S – FINISH 0H 22M 06S Time

Close up of the Arnhem Highway's access to the bridge, right bank side (looking downstream).

START 0H 22M 06S – FINISH 0H 22M 13S Time

Close up of the Arnhem Highway's access to the bridge, left bank side (looking downstream), including the car park near the bridge under water.

START 0H 022M 13S – FINISH 0H 23M 33S Time

Close of the boat ramp of the South Alligator under water, then a view downstream looking to the north. More vegetation visible through the lying water.

START 0H 23M 33S – FINISH 0H 23M 44S Time

View north downstream of the South Alligator large expanses of water shown in the foreground.

START 0H 23M 44S – FINISH 0H 23M 56S Time

Look west across the flood plain just south of the Kapalga field site, usually drive a quad bike across this grassland.

START 0H 23M 56S – FINISH 0H 24M 19S Time

Kapalga field site with the upstream extent of the mangroves that were mapped by Stephanie Cobb, Ben Bayliss also has a field site here.

START 0H 24M 11S – FINISH 0H 24M 21S Time 10:21

Looking east across the flood plain with the main channel clearly defined by the mangroves.

START 0H 24M 21S – FINISH 0H 24M 36S Time 10:26

Further downstream on the South Alligator River, not much visible water covering all the vegetation, just the usual (I think) lying water.

START 0H 24M 36S – FINISH 0H 24M 46S Time 10:29

Flying down the left bank of the South Alligator looking for Rookery Point.

START 0H 24M 46S – FINISH 0H 24M 56S Time 10:30

More scenes of the river channel and the green vegetated but water logged floodplain.

START 0H 24M 56S – FINISH 0H 25M 19S Time 10:34

Mangrove lined tidal creeks, water visible outside the limits of the mangroves.

START 0H 25M 19S – FINISH 0H 25M 39S Time 10:37

Mangrove lined tidal channel with water either side of the mangroves giving the impression of twin channels due to the extent of the water. Quite an extensive channel (almost dendritic from what I can see on the video).

START 0H 25M 39S – FINISH 0H 25M 53S Time 10:38

Main channel of the South Alligator, much closer to where it debouches into van Diemen Gulf.

START 0H 25M 53S – FINISH 0H 26M 23S Time 10:38

Close up of the mangroves lining the main channel with water visible behind.

START 0H 26M 23S – FINISH 0H 26M 27S Time 10:42

Looking across the last straight stretch of the river before the long run towards open water.

START 0H 08M 27S – FINISH 0H 26M 50S Time 10:42

Close up of the mangroves on the banks and the salt flats behind them on this last straight stretch of the river before the long run towards open water. Pan across the river and the last point on the left bank can be seen.

START 0H 26M 50S – FINISH 0H 27M 25S Time 10:43

Flying across the river towards the left bank, large areas of water can be seen in the top left. Mangroves on the banks and the salt flats behind them are also clearly shown on the left bank.

START 0H 27M 25S – FINISH 0H 28M 17S Time 10:44

Close up of the mangroves on the left bank and the salt flats behind them, before showing the floodplain and the expanses of water on the salt flat behind the mangroves along the funnel section. Good view of the funnel section and the water lying around behind the mangroves.

START 0H 28M 17S – FINISH 0H 28M 41S Time 10:45

Water on the salt flats of the left bank of the funnel. The mangroves define the boundary between the channel and the salt flats.

START 0H 28M 41S – FINISH 0H 29M 20S Time 10:45

Close up of the mangroves delineating the water covered saltflats from the main channel.

START 0H 29M 20S – FINISH 0H 29M 30S Time 10:46

Flying across the wide expanse of the funnel looking upstream.

START 0H 29M 30S – FINISH 0H 30M 02S Time 10:47

Looking at the right bank of the funnel and the extensive salt flats covered in water.

START 0H 30M 02S – FINISH 0H 30M 21S Time 10:48

Close up of the mangroves and saltflats of the right bank of the funnel, the salt flats immediately behind the mangroves don't appear to be completely inundated, although there are areas of water on the salt flats further away from the shoreline.

START 0H 30M 21S – FINISH 0H 30M 30S Time 10:48

Looking at a tidal creek channel and the extensive areas of water further away from the coastline.

START 0H 30M 30S – FINISH 0H 30M 46S Time 10:49

Flying along the right bank showing the extensive areas of water covering the salt flats.

START 0H 30M 46S – FINISH 0H 30M 50S Time 10:51

Mangroves along the shoreline of the funnel heading towards Midnight Point, also shows some of the salt flats behind the mangroves. Looks like a large tidal creek pattern towards the end of the shot.

START 0H 30M 50S – FINISH 0H 31M 02S Time 10:52

End of a mangrove lined tidal creek with water lying on the salt flats. Followed the creek line until it disappeared under the helicopter.

START 0H 31M 02S – FINISH 0H 31M 25S Time 10:52

Large mangrove lined tidal creek extends into the salt flats of the funnel (right bank) towards Midnight Point. Can see extensive areas of salt flat, not entirely covered by water, also several smaller creek (and mangroves) branching off the larger creek.

START 0H 31M 25S – FINISH 0H 31M 56S Time 10:54

Looking at dendritic pattern of mangrove lined tidal creeks through the salt flats near Midnight Point.

START 0H 31M 56S – FINISH 0H 33M 13S Time 10:55

Midnight Point, the mangrove lined tidal creek just south of it and along the shoreline from Midnight Point towards Point Farewell. Large expanses of salt flats with water glistening in the sunlight no real indication of depth. Can see differences in colour (zonation perhaps) in the mangroves at Midnight Point. Good shots of the mangroves along the shorelines and the salt flats behind, flying from Midnight Point towards Point Farewell.

START 0H 33M 13S – FINISH 0H 33M 33S Time 10:58

Mangroves along the shoreline between Midnight Point and Point Farewell.

START 0H 33M 13S – FINISH 0H 33M 33S Time 10:59

Following along from a mangrove lined creek to the benchmark on Cairncurry Plains. The benchmark should be to the right of the body of water and to the left of the large Kapok tree.

START 0H 33M 33S – FINISH 0H 34M 14S Time 11:00

Looking towards Point Farewell along the mangroves as the helicopter fly's to the south of the Point.

START 0H 34M 14S – FINISH 0H 34M 29S Time 11:01

Areas of salt flat (lying water and the vegetated areas below Point Farewell).

START 0H 34M 29S – FINISH 0H 34M 55S Time 11:02

Good close up of the tidal creek and mangrove pattern for the large creek that enters van Diemen Gulf just west of Point Farewell. Seems to be quite a bit of lying water again no indication of depth.

START 0H 34M 55S – FINISH 0H 36M 17S Time 11:04

Tidal creek that flows into an area of dead trees that we have visited during the Dry. It separates Paul Adam's transects 1 and 3 (2 is further west near the Kapok tree and the bench mark). Dead trees are visible and there is vast expanses of water lying on the salt flats (no depth indicated). There must be a boundary between the fresh and the salt water, difficult to see. Small channel visible for short distance—not mangrove lined or very long.

START 0H 36M 17S – FINISH 0H 36M 25S Time 11:06

Area just past Paul Adam transect 1, coming on one of the branches of the creeks which has had the barrage place across the larger main channel.

START 0H 36M 25S – FINISH 0H 37M 13S Time 11:06

Entrance of the tidal creek with the barrage on it. Pan from the entrance around to follow it up and look south towards the fresh water meadows or swamps. Vast expanses of water can be seen in the area that Max Finlayson studied in 1995. The barrage is visible along the mangroves about mid screen.

START 0H 37M 13S – FINISH 0H 37M 31S Time 11:07

Looking north towards the funnel section of the East Alligator River and the mangrove lined left bank. Floodplains on the right bank can be seen to have water lying on them in the distance.

START 0H 37M 31S – FINISH 0H 37M 43S Time 11:14

Looking up the East Alligator river at the cusate or sinuous sections.

START 0H 37M 43S – FINISH 0H 38 M 08S Time 11:15

Colour changing indicating mixing of fresher water with the brackish water of salt water in the main channel, from a creek running of the left bank floodplain. Views of the floodplain and the water lying on it.

START 0H 38M 08S – FINISH 0H 38M 27S Time 11:16.

Section of the East Alligator just downstream from Flying Fox Island.

START 0H 38M 27S – FINISH 0H 38M 44S Time 11:18.

Thick area of mangroves on the left bank, good colour change at the creek's mouth.

START 0H 38M 44S – FINISH 0H 40M 17S Time 11:19.

Magela Creek section with evidence of water lying on the narrow area between Magela and the main channel. Follow the East Alligator upstream showing the left bank with the Magela Creek getting closer to its mouth with the main channel. Circled around the Point to over fly the creek entrance.

START 0H 40M 17S – FINISH 0H 40M 29S Time 11:28.

Flooded area of the Magela as it is flown over, no distinguishing landmarks.

START 0H 40M 29S – FINISH 0H 40M 43S Time 11:28.

Flooded area of the Magela looking towards the escarpment (Jabiluka) as we flew towards the western plain.

START 0H 40M 43S – FINISH 0H 40M 51S Time 11:34.

Large expanse of water on Magela floodplain somewhere near Jabiluka Billabong.

START 0H 40M 51S – FINISH 0H 40M 56S Time 11:34.

More expanses of water to the west of the Jabiluka outlier.

START 0H 40M 56S – FINISH 0H 41M 22S Time 11:36.

Jabiluka Billabong on the Magela floodplain, where the airboat is usually launched.

START 0H 41M 22S – FINISH 0H 41M 28S Time 11:38.

Looks like a billabong close to the Oenpelli Road and also the Jabiluka outlier, next one downstream from Djarr Djarr. Mine valley section of the Jabiluka outlier.

START 0H 41M 28S – FINISH 0H 41M 48S Time 11:40.

Areas of Magela floodplain covered in water, flanked by Jabiluka outlier and also Mine Valley Billabong.

START 0H 41M 48S – FINISH 0H 41M 51S Time 11:41.

Coming up to Island Billabong.

START 0H 41M 51S – FINISH 0H 43M 00S Time 11:43.

Areas of woodland and water, looking toward, where the Oenpelli Road crossed the Magela. Oenpelli Road has come into view at. Can see water on the road and also parked cars. On up past Mudginberri Billabong and the outstation.

START 0H 43M 00S – FINISH 0H 43M 26S Time 11:46.

Waters in the sand bed section of Magela Creek, several billabongs, Corndol (larger), Gulungul (smaller and closest).

START 0H 43M 26S – FINISH 0H 43M 34 Time 11:48.

Coming into land at Jabiru Airport, looking across towards Ranger uranium mine and RP1.

START 0H 43M 34S – FINISH 0H 43M 40 Time 11:48.

Coming into land at Jabiru Airport.

6.1.3 Soundtrack

Day 1 (20 minutes)

Lightning Man–**Kakadu**, Tony O'Connor.

Rain–**Incarnations**, Dragon.

Rain Fell Down–**The Yearning**, Things of Stone and Wood.

Can't Stand the Rain–**Simply the Best**, Tina Turner.

Day 2 (25 minutes)

Floodplain–**Kakadu**, Tony O'Connor.

It's Raining Again–**Autobiography**, Supertramp.

January Rain–**Collectables**, Hunters and Collectors.

One Perfect Day–**Aussie Rock**, Little Heroes.

Here comes the rain again–**Greatest Hits**, Eurythmics.

6.2 Full version

The description of the full video footage is given below.

6.2.1 Day One–30th January 1998

Took off at 2:10 pm, landed at 6:10 pm.

START 0H 00M 00S – FINISH 0H 00M 24S Time 14:17

Take off from Jabiru Airport views across to the escarpment. Very shaky as first part of video.

START 0H 00M 24S – FINISH 0H 00M 48S Time 14:25

Initially woodland, then flooded areas above the Kakadu Highway at Malabanjbanjdju bridges. Rather shaky.

START 0H 00M 48S – FINISH 0H 01M 06 Time 14:26

Kakadu Highway at Malabanjbanjdju bridges showing water on either side of the highway.

- START 0H 01M 06S – FINISH 0H 00M 16S** Time 14:27
Close up of Malabanjbanjdju bridges at Kakadu Highway.
- START 0H 01M 16S – FINISH 0H 00M 16S** Time 14:27
Flying up the highway can see water lying either side of the highway. The turn off to one of the camping areas is shown before it disappears under water (0H 01M 32S).
- START 0H 01M 40S – FINISH 0H 03M 37S** Time 14:28
Large expenses of water to the west of the Kakadu Highway downstream on Nourlangie Creeks. Circled around back to Malabanjbanjdju bridges to give Mouse a chance to get photographs of the highway. Flew over Burdulba bridges (approximately 0H 02M 43S). Close up at approximately 0H 02M 56S.
- START 0H 03M 37S – FINISH 0H 04M 06S** Time 14:30
Close up towards Nourlangie Rock, then back to the highway (shows how green the vegetation is) and the turn off to Nourlangie Rock.
- START 0H 04M 06S – FINISH 0H 05M 20S** Time 14:31
Nourlangie bridges with flood water either side of the highway. Days before these bridges had been under 0.5 metres of water. Need to check the Parks reports
- START 0H 05M 20S – FINISH 0H 05M 26S** Time 14:32
Water either side of the third or southern Nourlangie bridge.
- START 0H 05M 26S – FINISH 0H 05M 33S** Time 14:42
Flooded South Alligator floodplain off in the distance.
- START 0H 05M 33S – FINISH 0H 05M 38S** Time 14:45
Unknown water bodies looking east towards the escarpment.
- START 0H 05M 38S – FINISH 0H 06M 18S** Time 14:46
Flooded South Alligator floodplain in particular Yellow Water. The airstrip at Cooida can be seen on the left of screen at 0H 05M 48S.
- START 0H 06M 18S – FINISH 0H 06M 55S** Time 14:47
Getting closer to Yellow Water, might be water over the car park not sure difficult to distinguish. Able to see some sort of structure or road at 0H 06M 48S.
- START 0H 06M 55S – FINISH 0H 09M 04S** Time 14:48
Water near the Warradjan Center (near Cooida). Flying towards the west see the pontoons near the Yellow Water boat ramp 0H 07M 28S. Can see the line of the road at approx time 0H 07M 42S. Circled around to fly over Home Billabong and to the back of Cooida. Lots of water visible. Yellow Water tour boat moving down Home Billabong 0H 08M 19S. Flew past Cooida could see water through the trees, not sure how close to the buildings it got. Close up of Cooida's water supply 0H 08M 41S. Faded to black at 0H 09M 04S.
- START 0H 09M 10S – FINISH 0H 12M 47S** Time 14:48
Became clear again moving between Home and Mardugal Billabongs. Flying over Mardugal spotted a large crocodile swimming up stream first sighting at 0H 09M 57. Mardugal campground is underwater show around 0H 0M 27S. Kakadu Highway over Mardugal very close to the road level. These bridges were covered by 0.5 m of water according to Parks reports. Flying up Jim Jim Creek above the bridges, vast expanses of water with trees poking through. Faded to black.

START 0H 12M 47S – FINISH 0H 13M 45S Time 14:54
 Still on Jim Jim above the bridges, road near the Jim Jim Ranger Station is near the green patch. Buildings on a billabong (no trees in water) Patonga airstrip and outstation. Fade to black at 0H 13M 47S

START 0H 12M 47S – FINISH 0H 15M 32S Time 14:58
 Areas of water on the way up Jim Jim Creek. Lots of water amongst the trees.

START 0H 15M 32S – FINISH 0H 16M 07S Time 15:01
 Zoomed in towards the escarpment, very shaky though, zooming in is perhaps not a good idea.

START 0H 16M 07S – FINISH 0H 16M 38S Time 15:03
 More of Jim Jim Creek flying up towards the falls.

START 0H 16M 38S – FINISH 0H 16M 58S Time 15:07
 Zoomed towards the escarpment again, rather shaky.

START 0H 16M 58S – FINISH 0H 17M 35S Time 15:12
 Flying along the escarpment.

START 0H 17M 35S – FINISH 0H 18M 15S Time 15:13
 Unnamed waterfall coming of the escarpment, zoomed in parts shaky

START 0H 18M 15S – FINISH 0H 18M 15S Time 15:16
 Escarpment country flying towards Jim Jim Gorge.

START 0H 18M 27S – FINISH 0H 20M 41S Time 15:20
 Jim Jim Falls, circling around the falls and looking down the gorge, spectacular views. Also show the country around the fall as the helicopter circled around to let Mouse take some photo's.

START 0H 20M 41S – FINISH 0H 20M 50S Time 16:31
 Upper reaches of the South Alligator River. Looks like a sand bed stream. Water levels are much lower than during the peak floods. Evidence of large flows well above the channel capacity was indicated by flattened vegetation and grasses in a downstream direction as well as areas of bank erosion.

START 0H 20M 50S – FINISH 0H 21M 10S Time 16:32
 Bed Rock Gorge on the upper South Alligator River. Various waterfalls and areas of white water.

START 0H 21M 10S – FINISH 0H 21M 34S Time 16:32
 Various part of the upper South Alligator River with different amounts of flood damage.

START 0H 21M 34S – FINISH 0H 22M 00S Time 16:35
 Two straight sections of the South.

START 0H 22M 00S – FINISH 0H 22M 23S Time 16:36
 Various shots of Ray's leg and also the console of the helicopter.

START 0H 22M 23S – FINISH 0H 23M 09S Time 16:36
 Section of Upper South Alligator River. Also vegetation as the helicopter cut a corner.

START 0H 23M 11S – FINISH 0H 23M 14S Time 16:37
 Coronation Hill, green areas show the various benches on the side of the hill.

- START 0H 22M 14S – FINISH 0H 23M 40S** Time 16:38
Flying towards Gimbat field research station, then over flying it.
- START 0H 23M 40S – FINISH 0H 23M 58S** Time 16:39
South Alligator channel downstream of the causeway that goes to Gimbat field station.
- START 0H 23M 58S – FINISH 0H 24M 19S** Time 16:40
Section of the South Alligator which is flanked on the right side of the river by a large range which has mine such as Saddle Ridge. The river is getting larger and more flow is visible.
- START 0H 24M 19S – FINISH 0H 24M 36S** Time 16:40
Unnamed section of the South Alligator.
- START 0H 24M 36S – FINISH 0H 24M 46S** Time 16:41
Close up of some fresh bank erosion up stream of the entry of Koolpin Creek.
- START 0H 24M 46S – FINISH 0H 24M 51S** Time 16:41
Section of South Alligator with evidence of larger flows, downward pointing trees and flattened trees.
- START 0H 24M 51S – FINISH 0H 24M 56S** Time 16:46
Look at the skyline and hills alongside the South Alligator.
- START 0H 24M 56S – FINISH 0H 25M 01S** Time 16:47
Muddy water flowing in the channel.
- START 0H 25M 01S – FINISH 0H 26M 04S** Time 16:49
Flying over and circling round the location of causeway/bridge that crosses the South and allows access to Gunlom, Koolpin etc. The bridge and access roads are well covered by water. The sign warning about crocodiles is just visible above the water.
- START 0H 26M 04S – FINISH 0H 26M 26S** Time 16:51
Initially shows the area beside the river that has been inundated by flood water, flattened grass etc, then shows the ever widening river with increasing flows of muddy waters.
- START 0H 26M 26S – FINISH 0H 26M 37S** Time 16:53
Water flooding over the access road into Gunlom.
- START 0H 26M 37S – FINISH 0H 26M 45S** Time 16:53
Right bank side of the river, water not visible (as Mouse taking some shots) and hills to the side of the river.
- START 0H 26M 45S – FINISH 0H 26M 58S** Time 16:55
Gunlom waterfall coming into view with water pouring over it.
- START 0H 26M 58S – FINISH 0H 27M 31S** Time 16:56
Still Gunlom, with the waterfall swinging into view, close up of the falls and views of the campground and car park. Also some footage of the creek exiting the plunge pool.
- START 0H 27M 31S – FINISH 0H 27M 36S** Time 16:58
Hills to the right of the South Alligator River.
- START 0H 27M 36S – FINISH 0H 27M 53S** Time 16:59
Sections of the South Alligator below Gunlom.

START 0H 27M 53S – FINISH 0H 28M 08S Time 17:03

Channel of the South Alligator is becoming wider, lots of water across the various channels in this sand bed section.

START 0H 28M 08S – FINISH 0H 28M 23S Time 17:05

Ponded water behind the road embankment of the Kakadu Highway, which is acting like a dam.

START 0H 28M 23S – FINISH 0H 29M 24S Time 17:06

Flying over the Kakadu Highway bridge with lots of muddy water beneath it. No evidence from the air that this bridge has been covered with water. Continued to fly downstream lots of ponded water.

START 0H 29M 24S – FINISH 0H 29M 59S Time 17:08

Flying due north over woodland areas to rejoin the South Alligator near Cooida. No water visible on the ground.

START 0H 29M 59S – FINISH 0H 30M 26S Time 17:10

Sparsely populated woodland with water lying ponded on the ground.

START 0H 30M 26S – FINISH 0H 30M 41S Time 17:11

More sparsely populated woodland with water lying ponded on the ground. Also a close up towards the escarpment.

START 0H 30M 41S – FINISH 0H 30M 57S Time 17:11

More low lying water in the woodlands (ponded).

START 0H 30M 57S – FINISH 0H 31M 07S Time 17:11

Shots of distant hills and cloud formations, no water.

START 0H 31M 07S – FINISH 0H 31M 37S Time 17:13

Flying over some low hills, rather close to them.

START 0H 31M 37S – FINISH 0H 31M 47S Time 17:19

More low lying water in the woodlands.

End of Tape 1

6.2.2 Day Two--31st January 1998

Took off at 9:40 am, landed at 11:50 am.

START 0H 00M 00S – FINISH 0H 00M 10S Time

Flooded South Alligator flood plain looking south ie upstream, just east of Mamukala.

START 0H 00M 10S – FINISH 0H 00M 18S Time

Still over the flooded South Alligator flood looking south ie upstream, just east of Mamukala.

START 0H 00M 18S – FINISH 0H 00M 29S Time

Mamukala with the bird hide and also Radarsat ground truthing site, underwater.

START 0H 00M 29S – FINISH 0H 00M 42S Time

Looking north up the South Alligator floodplain, the cutting visible through the trees signifies the Arnhem Highway.

START 0H 00M 42S – FINISH 0H 00M 55S Time

Getting closer to where the Arnhem Highway crosses the South Alligator Floodplain and also a shot across the floodplain through the front of the helicopter.

START 0H 00M 55S – FINISH 0H 001M 12S Time

Started looking south down the floodplain and then panning round to be looking north up the floodplain. Arnhem Highway clearly visible.

START 0H 01M 12S – FINISH 0H 01M 36S Time

Getting out over the flood plain with the cuttings through the trees visible a look to the north and some vehicles are seen parked on the Arnhem Highway in the pandanus grove.

START 0H 01M 36S – FINISH 0H 01M 43S Time

Close up of the highway stuck out into the water like a peninsula.

START 0H 01M 36S – FINISH 0H 03M 03S Time

Looking north across the floodplain the river is defined by a line of mangroves sticking up out of vast expanse of water. Glimpsed the road bridge over the main channel at approximately 0H 02M 14S as the camera was panned round to look upstream (south). Clearly see the channel defined by mangroves. Good shots of where the Arnhem Highway should have been if it was not covered by water.

START 0H 03M 03S – FINISH 0H 03M 14S Time

Close up of the Arnhem Highway's access to the bridge, right bank side (looking downstream).

START 0H 03M 14S – FINISH 0H 03M 20S Time

Close up of the Arnhem Highway's access to the bridge, left bank side (looking downstream), including the car park near the bridge under water.

START 0H 03M 20S – FINISH 0H 03M 40S Time

Close of the boat ramp of the South Alligator under water, then a view downstream looking to the north. More vegetation visible through the lying water.

START 0H 03M 40S – FINISH 0H 03M 51S Time

View north downstream of the South Alligator large expanses of water shown in the foreground.

START 0H 03M 51S – FINISH 0H 04M 02S Time

Look west across the flood plain just south of the Kapalga field site, usually drive of quad bike across this grassland.

START 0H 04M 02S – FINISH 0H 04M 17S Time

Kapalga field site with the upstream extent of the mangroves that were mapped by Stephanie Cobb. Ben Bayliss also has a field site here.

START 0H 04M 17S – FINISH 0H 04M 27S Time 10:21

Looking east across the floodplain with the main channel clearly defined by the mangroves.

START 0H 04M 27S – FINISH 0H 04M 45S Time 10:26

Further downstream on the South Alligator River, not much visible water covering all the vegetation, just the usual (I think) lying water. Several buffalo swim channels just before the scene was changes.

START 0H 04M 45S – FINISH 0H 04M 51S Time 10:26

Looking back upstream (south) towards the lying water covering the floodplains. Very shaky to begin with.

START 0H 04M 51S – FINISH 0H 05M 03S Time 10:27

The left bank floodplain of the South Alligator a myriad of green vegetation and some lying water with a couple of straight channels, swim channels. Very quick flash of some swim channels at 0H 05M 03S.

START 0H 05M 03S – FINISH 0H 05M 16S Time 10:29

Flying down the left bank of the South Alligator looking for Rookery Point.

START 0H 05M 16S – FINISH 0H 05M 31S Time 10:31

More scenes of the river channel and the green vegetated but water logged flood plain.

START 0H 05M 31S – FINISH 0H 05M 39S Time 10:31

Water holes and billabongs on the floodplain margin near the woodlands.

START 0H 05M 39S – FINISH 0H 05M 59S Time 10:33

Very quick glimpse of the boat shed at Rookery Point and the transect. Should have some photographs and slides, before panning round to look at the floodplain nearer to the river.

START 0H 05M 59S – FINISH 0H 06M 12S Time 10:34

More views of the South Alligator left bank flood plain, well vegetated with greenery and visible water holes.

START 0H 06M 12S – FINISH 0H 06M 37S Time 10:34

Mangrove lined tidal creeks, water visible outside the limits of the mangroves.

START 0H 06M 37S – FINISH 0H 06M 54S Time 10:35

South Alligator channel and views of the left bank flood plain, well vegetated with greenery and visible water holes.

START 0H 06M 54S – FINISH 0H 07M 15S Time 10:37

Mangrove lined tidal channel with water either side of the mangroves giving the impression of twin channels due to the extent of the water. Quite an extensive channel (almost dendritic from what I can see on the video).

START 0H 07M 15S – FINISH 0H 07M 29S Time 10:38

Main channel of the South Alligator, much closer to where it debouches into van Diemen Gulf.

START 0H 07M 29S – FINISH 0H 07M 49S Time 10:38

Close up of the mangroves lining the main channel with water visible behind.

START 0H 07M 49S – FINISH 0H 07M 49S Time 10:39

Close up of the river with a quick glimpse of the left bank mangroves and the pan cross to the right bank.

START 0H 08M 00S – FINISH 0H 08M 09S Time 10:39

Look back upstream, south.

START 0H 08M 09S – FINISH 0H 08M 19S Time 10:40

Cutting across one of the corners on the right bank shows the green floodplain.

START 0H 08M 19S – FINISH 0H 08M 27S Time 10:42

Looking across the last straight stretch of the river before the long run towards open water.

START 0H 08M 27S – FINISH 0H 08M 50S Time 10:42

Close up of the mangroves on the banks and the salt flats behind them on this last straight stretch of the river before the long run towards open water. Pan across the river and the last point on the left bank can be seen (0H 08M 43S).

START 0H 08M 50S – FINISH 0H 09M 25S Time 10:43

Flying across the river towards the left bank, large areas of water can be seen in the top left. Mangroves on the banks and the salt flats behind them are also clearly shown on the left bank.

START 0H 09M 25S – FINISH 0H 010M 17S Time 10:44

Close up of the mangroves on the left bank and the salt flats behind them, before showing the floodplain and the expanses of water on the salt flat behind the mangroves long the funnel section. Good view of the funnel section and the water lying around behind the mangroves.

START 0H 10M 17S – FINISH 0H 010M 41S Time 10:45

Water on the salt flats of the left bank of the funnel. The mangroves define the boundary between the channel and the salt flats

START 0H 10M 41S – FINISH 0H 011M 20S Time 10:45

Close up of the mangroves delineating the water covered salt flats from the main channel.

START 0H 11M 20S – FINISH 0H 010M 30S Time 10:46

Flying across the wide expanse of the funnel looking upstream.

START 0H 11M 30S – FINISH 0H 12M 03S Time 10:47

Looking at the right bank of the funnel and the extensive salt flats covered in water.

START 0H 12M 03S – FINISH 0H 012M 21S Time 10:48

Close up of the mangroves and salt flats on the right bank of the funnel, the salt flats immediately behind the mangroves don't appear to be completely inundated, although there are areas of water on the salt flats further away from the shoreline.

START 0H 12M 21S – FINISH 0H 012M 31S Time 10:48

Looking at a tidal creek channel and the extensive areas of water further away from the coastline.

START 0H 12M 31S – FINISH 0H 012M 46S Time 10:49

Flying along the right bank showing the extensive areas of water covering the salt flats.

START 0H 12M 46S – FINISH 0H 013M 22S Time 10:49

Looks like area of freshwater, with vegetation between the coastline and the salt flats covered in water. Not sure what the vegetation is or what its salt tolerance is.

START 0H 13M 22S – FINISH 0H 013M 32S Time 10:50

Tidal creek channel not full of water indicating that the tide is not high (need to check).

START 0H 13M 32S – FINISH 0H 014M 10S Time 10:51

Mangroves along the shoreline of the funnel heading towards Midnight Point, also shows some of the salt flats behind the mangroves. Looks like a large tidal creek pattern towards the end of the shot.

START 0H 14M 10S – FINISH 0H 014M 23S Time 10:51

End of a mangrove lined tidal creek with water lying on the salt flats. Followed the creek line until it disappeared under the helicopter.

START 0H 14M 23S – FINISH 0H 014M 48S Time 10:52

Large mangrove lines tidal creek extends into the salt flats of the funnel (right bank) towards Midnight Point. Can see extensive areas of salt flat, not entirely covered by water, also several smaller creek (and mangroves) branching off the larger creek.

START 0H 14M 48S – FINISH 0H 015M 02S Time 10:52

Looking down on a drainage channel off the salt flats with a colour change visible in the channel, could be fresh or some colouration caused by vegetation.

START 0H 15M 02S – FINISH 0H 015M 26S Time 10:53

Close up of the colour change in the water, water overlying the salt flats and then vegetation. Also look toward the fresh water ? closer to the woodlands and away from the shoreline.

START 0H 15M 26S – FINISH 0H 015M 59S Time 10:54

Looking at dendritic pattern of mangrove lined tidal creeks through the salt flats near Midnight Point.

START 0H 15M 59S – FINISH 0H 020M 36S Time 10:55

Midnight Point, the mangrove lined tidal creek just south of it and along the shoreline from Midnight Point towards Point Farewell. Large expanses of salt flats with water glistening in the sunlight no real indication of depth. Can see differences in colour (zonation perhaps) in the mangroves at Midnight Point. Good shots of the mangroves along the shorelines and the salt flats behind, flying from Midnight Point towards Point Farewell. The benchmark on Cairncurry Plain should be in the shot at 0H 20M 38S), to the right of the body of water and to the left of the large Kapok tree.

START 0H 20M 36S – FINISH 0H 020M 58S Time 11:00

Looking towards Point Farewell along the mangroves as the helicopter fly's to the south of the Point.

START 0H 20M 58S – FINISH 0H 022M 13S Time 11:01

Areas of salt flat (lying water and the vegetated areas below Point Farewell). At 0H 21M 48S get close up of the tidal creek and mangrove pattern for the large creek that enters van Diemen Gulf just west of Point Farewell. Seems to be quite a bit of lying water again no indication of depth.

START 0H 22M 13S – FINISH 0H 023M 38S Time 11:04

Tidal creek that flows into an area of dead trees that we have visited during the Dry. It separates Paul Adam's transects 1 and 3 (2 is further west near the Kapok tree and the bench mark). Dead trees are visible and there is vast expanses of water lying on the salt flats (no depth indicated). There must be a boundary between the fresh and the salt water 0H 22M 57S, difficult to see. Small channel visible at 0H 23M 24S for short distance—not mangrove lined or very long.

START 0H 23M 38S – FINISH 0H 024M 07S Time 11:06

Area just past Paul Adam transect 1, coming on one of the branches of the creeks which has had the barrage place across the larger main channel.

START 0H 23M 38S – FINISH 0H 025M 00S Time 11:06

Entrance of the tidal creek with the barrage on it. Pan from the entrance around to follow it up and look south towards the fresh water meadows or swamps. Vast expanses of water can be seen in the area that Max Finlayson studied in 1995. The barrage is visible along the mangroves about mid screen 0H 24M 33S.

START 0H 25M 00S – FINISH 0H 025M 24S Time 11:07

Looking north towards the funnel section of the East Alligator River and the mangrove lined left bank. Floodplains on the right bank can be seen to have water lying on them in the distance.

START 0H 25M 00S – FINISH 0H 025M 31S Time 11:08

Brown (tannin?) coloured water on a drain fresh water floodplains on the left bank of the East Alligator, funnel section of just up stream.

START 0H 25M 31S – FINISH 0H 026M 00S Time 11:09

Mangrove lined tidal creeks along the left bank of the East Alligator, areas of water shown on the vegetated areas away from the river presumably fresh?

START 0H 26M 00S – FINISH 0H 026M 05S Time 11:12

Area of vegetated floodplain, left bank away from the river.

START 0H 26M 05S – FINISH 0H 026M 11S Time 11:13

Green vegetated floodplain with areas of standing water bodies.

START 0H 26M 11S – FINISH 0H 026M 16S Time 11:13

Green vegetated floodplain with areas of standing water bodies.

START 0H 26M 11S – FINISH 0H 026M 34S Time 11:14

Several channels cut through the vegetated floodplains, looks like fresh water.

START 0H 26M 11S – FINISH 0H 026M 48S Time 11:14

Looking up the East Alligator River at the cusped or sinuous sections.

START 0H 26M 48S – FINISH 0H 027M 16S Time 11:15

Colour changing indicating mixing of fresher water with the brackish water of salt water in the main channel, from a creek running of the left bank floodplain. Views of the floodplain and the water lying on it.

START 0H 27M 16S – FINISH 0H 027M 34S Time 11:16

Fresh water lying on the floodplains away from the main channel left bank side.

START 0H 27M 34S – FINISH 0H 028M 00S Time 11:16.

Section of the East Alligator just downstream from Flying Fox Island (approximately 0H 27M 58S).

START 0H 28M 00S – FINISH 0H 028M 20S Time 11:18.

Thick area of mangroves on the left bank, good colour change at the creek's mouth.

START 0H 28M 20S – FINISH 0H 028M 34S Time 11:18.

Looking up the East Alligator, the mangrove lined tidal section of Magela Creek can be seen, where it curves very close to the main channel. Pan to look upstream of the tidal channel at the water lying on the flood plain.

START 0H 28M 34S – FINISH 0H 030M 54S Time 11:19.

Close up look at mangrove on the main channel with the Magela Creek section slowly coming into view. Evidence of water lying on the narrow area between Magela and the

main channel. Follow the East Alligator upstream showing the left bank with the Magela Creek getting closer to its mouth with the main channel. Circled round the point to over fly the creek entrance at (0H 30M 10S). Small creek good colour change at 0H 30M 35S.

START 0H 30M 54S – FINISH 0H 31M 00S Time 11:21.

Quick look out the other side of the helicopter for a shot of the main channel East Alligator.

START 0H 30M 54S – FINISH 0H 31M 20S Time 11:22.

Initial shot woodland with some under lying water, then view of water on Magela floodplain before panning back to look at the East Alligator.

START 0H 31M 20S – FINISH 0H 31M 35S Time 11:28.

Flooded area of the Magela as it is flown over, no distinguishing landmarks.

START 0H 31M 35S – FINISH 0H 31M 57S Time 11:28.

Looking out of the left of the helicopter across the flooded area towards the general area of the East Alligator, Ubirr, Cannon Hill? Not really identifiable.

START 0H 31M 57S – FINISH 0H 32M 24S Time 11:29.

Looking straight down at the waters on the flood plain and then flying over flooded woodland areas. Believe that it is looking west not identifiable.

START 0H 32M 24S – FINISH 0H 33M 55S Time 11:30

Flying across the western plain part of Magela looking for Ant Bend, one of Ben Bayliss' sites. Think that it is coming into view at approximately 0H 33M 23S.

START 0H 33M 55S – FINISH 0H 34M 17S Time 11:32.

Looking out the left side of the helicopter at Ant Bend I believe.

START 0H 34M 17S – FINISH 0H 34M 40S Time 11:33.

Unknown area, perhaps Ant Bend as the helicopter turns to track back towards the Jabiluka escarpment and the up Magela Creek.

START 0H 34M 40S – FINISH 0H 34M 52S Time 11:34.

Large expanse of water on Magela flood plain some where near Jabiluka and Djarr Djarr.

START 0H 34M 52S – FINISH 0H 35M 04S Time 11:34.

More expanses of water to the west of the Jabiluka outlier.

START 0H 35M 04S – FINISH 0H 35M 23S Time 11:34.

Vegetation patterns on the water on the floodplain to the west of Djarr Djarr

START 0H 35M 23S – FINISH 0H 35M 58S Time 11:34.

Areas of water on the Magela floodplain opposite the Jabiluka outlier. Is there a billabong visible at 0H 35M 39S—if so what is it Djarr Djarr?

START 0H 35M 58S – FINISH 0H 36M 11S Time 11:38.

Water on Magela floodplain opposite Djarr Djarr Billabong.

START 0H 36M 11S – FINISH 0H 36M 18S Time 11:38.

Looks like a billabong close to the Oenpelli Road and also the Jabiluka outlier, next one up from Djarr Djarr.

START 0H 36M 18S – FINISH 0H 36M 40S Time 11:40.

Areas of Magela floodplain covered in water, flanked by Jabiluka outlier and also Jabiluka Billabong

START 0H 36M 40S – FINISH 0H 36M 51S Time 11:41.

Coming up on a Island Billabong.

START 0H 36M 51S – FINISH 0H 38M 57S Time 11:42.

Areas of woodland and water, looking toward, where the Oenpelli Road crossed the Magela. Oenpelli Road has come into view at 0H 37M 30S. Can see water on the road and also parked cars. On up past Mudginberri Billabong and the homestead.

START 0H 38M 57S – FINISH 0H 39M 19S Time 11:46.

Waters in the sand bed section of Magela Creek, several billabongs, Corndol???, Gulungul???

START 0H 39M 19S – FINISH 0H 39M 31 Time 11:48.

Coming into Jabiru Airport, view across towards the mine can see RP1 and ?? Billabong downstream of RP1.

START 0H 39M 31S – FINISH 0H 40M 40S Time 11:48.

Coming in to land at Jabiru Airport

7.0 References

- Cobb SM 1997. Channel expansion and the geomorphology of tidal creeks in Kakadu National Park, Northern Territory. Unpub. Hons. University of Western Australia.
- Wolanski E & Chappell J 1996. The response of tropical Australian estuaries to a sea level rise. *Journal of Marine Systems* Vol. 7. 267–279.
- Woodroffe CD, Chappell JMA, Thom BG & Wallensky E 1986. Geomorphological dynamics and evolution of the South Alligator tidal river and plains, Northern Territory. In *Mangrove Monograph No. 3*, ANU North Australia Research Unit, Darwin, 1–190.

Appendix 1

Description labels that have been stuck to the back of the photographs.

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| <p>Kakadu Highway south of Mirray Lookout, looking towards flooded South Alligator floodplain near Yellow Water.</p> <p>No. 1 Mike Saynor 30/1/98</p> | <p>Kakadu Highway south of Mirray Lookout, looking towards flooded South Alligator floodplain near Yellow Water.</p> <p>No. 2 Mike Saynor 30/1/98</p> | <p>Flooded South Alligator floodplain near Yellow Water.</p> <p>No. 3 Mike Saynor 30/1/98</p> |
| <p>Flooded South Alligator floodplain near Yellow Water.</p> <p>No. 4 Mike Saynor 30/1/98</p> | <p>Flooded South Alligator floodplain near Yellow Water.</p> <p>No. 5 Mike Saynor 30/1/98</p> | <p>Flooded South Alligator floodplain near Yellow Water.</p> <p>No. 6 Mike Saynor 30/1/98</p> |
| <p>Flooded South Alligator floodplain near Yellow Water.</p> <p>No. 7 Mike Saynor 30/1/98</p> | <p>Flooded Yellow Water, boat ramp and pontoon visible in far left, half way up the photo.</p> <p>No. 8 Mike Saynor 30/1/98</p> | <p>Flooded Yellow Water, boat ramp and pontoon visible in far left, half way up the photo.</p> <p>No. 9 Mike Saynor 30/1/98</p> |
| <p>Mardugal Billabong and bridge over Jim Jim Creek.</p> <p>No. 10 Mike Saynor 30/1/98</p> | <p>Closer shot of Mardugal Billabong and bridge over Jim Jim Creek.</p> <p>No. 11 Mike Saynor 30/1/98</p> | <p>Flooded Kakadu Highway at Jim Jim bridges.</p> <p>No. 12 Mike Saynor 30/1/98</p> |
| <p>Flooded Kakadu Highway at Jim Jim bridges.</p> <p>No. 13 Mike Saynor 30/1/98</p> | <p>Close up of flooded Kakadu Highway at Jim Jim bridges with a white utility crossing the bridge.</p> <p>No. 14 Mike Saynor 30/1/98</p> | <p>Flooded area above the Jim Jim bridges on Jim Jim Creek.</p> <p>No. 15 Mike Saynor 30/1/98</p> |

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| Main escarpment just north of Jim Jim Falls with two unnamed waterfalls flowing off it. No. 16 Mike Saynor 30/1/98 | Main escarpment just north of Jim Jim Falls with two unnamed waterfalls flowing off it. No. 17 Mike Saynor 30/1/98 | Jim Jim Falls. No. 18 Mike Saynor 30/1/98 |
| Jim Jim Creek just above the falls. No. 19 Mike Saynor 30/1/98 | Looking from the top of Jim Jim Falls down the gorge. No. 20 Mike Saynor 30/1/98 | Looking from the top of Jim Jim Falls down the gorge. No. 21 Mike Saynor 30/1/98 |
| Jim Jim Falls. No. 22 Mike Saynor 30/1/98 | Jim Jim Falls. No. 23 Mike Saynor 30/1/98 | Jim Jim Falls. No. 24 Mike Saynor 30/1/98 |
| Small unnamed channel (running at bankfull) near the headwaters of the Katherine and South Alligator Rivers. No. 25 Mike Saynor 30/1/98 | Upper South Alligator River. No. 26 Mike Saynor 30/1/98 | Upper South Alligator River, with water flow and channel suggested by flattened grass. No. 27 Mike Saynor 30/1/98 |
| Bed rock section of the upper South Alligator River. No. 28 Mike Saynor 30/1/98 | Flattened grass gives an indication of flood levels in the upper South Alligator River. No. 29 Mike Saynor 30/1/98 | Flattened grass gives an indication of flood levels in the upper South Alligator River. No. 30 Mike Saynor 30/1/98 |
| Bend on the South Alligator River. No. 31 Mike Saynor 30/1/98 | South Alligator River looking towards Big Sunday. No. 32 Mike Saynor 30/1/98 | South Alligator River looking towards big Sunday. No. 33 Mike Saynor 30/1/98 |

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| <p>South Alligator River looking towards Big Sunday. No. 34 Mike Saynor 30/1/98</p> | <p>Sand bar and splays on the South Alligator River. No. 35 Mike Saynor 30/1/98</p> | <p>Dead trees in the South Alligator River channel. No. 36 Mike Saynor 30/1/98</p> |
| <p>Dead trees in the South Alligator River channel. No. 37 Mike Saynor 30/1/98</p> | <p>Sand bed section of the South Alligator River, near Coronation Hill and Gimbat. No. 38 Mike Saynor 30/1/98</p> | <p>Coronation Hill on the South Alligator River. No. 39 Mike Saynor 30/1/98</p> |
| <p>Causeway across the South Alligator river to Gimbat homestead and the old <i>eriss</i> research station called Gimbat. No. 40 Mike Saynor 30/1/98</p> | <p>River channel on the South Alligator River, downstream of the causeway in photograph 40. No. 41 Mike Saynor 30/1/98</p> | <p>Bank erosion on the South Alligator River, between the causeway (photograph 40) and main access bridge/causeway. No. 42 Mike Saynor 30/1/98</p> |
| <p>More bank erosion on the South Alligator River, between the causeway (photograph 40) and main access bridge/causeway. No. 43 Mike Saynor 30/1/98</p> | <p>Some bank erosion and evidence of overbank flow on the South Alligator River, same areas as photo's 42 and 43. No. 44 Mike Saynor 30/1/98</p> | <p>River channel on the South Alligator River, between the causeway (photograph 40) and main access bridge/causeway. No. 45 Mike Saynor 30/1/98</p> |
| <p>River channel on the South Alligator River, between the causeway (photograph 40) and main access bridge/causeway. No. 46 Mike Saynor 30/1/98</p> | <p>T intersection just north of the main access bridge/causeway, left to Gunlom right to Gimbat. No. 47 Mike Saynor 30/1/98</p> | <p>River channel on the South Alligator River, downstream main access bridge/causeway. No. 48 Mike Saynor 30/1/98</p> |
| <p>River channel on the South Alligator River. No. 49 Mike Saynor 30/1/98</p> | <p>River channel on the South Alligator River. No. 50 Mike Saynor 30/1/98</p> | <p>River channel on the South Alligator River, and evidence of overbank flow, flattened grass downstream main access bridge/causeway. No. 51 Mike Saynor 30/1/98</p> |

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| River channel on the South Alligator River, and evidence of overbank flow, flattened grass downstream main access bridge/causeway. No. 52 Mike Saynor 30/1/98 | River channel on the South Alligator River, downstream of main access bridge/causeway. No. 53 Mike Saynor 30/1/98 | Blurred picture of a log jam on the South Alligator River, downstream main access bridge/causeway. No. 54 Mike Saynor 30/1/98 |
| Main access bridge/causeway over the South Alligator River, just north is the T intersection. No. 55 Mike Saynor 30/1/98 | Main access bridge/causeway over the South Alligator River, just north is the T-intersection. No. 56 Mike Saynor 30/1/98 | Access road to the bridge/ causeway over the South Alligator River. No. 57 Mike Saynor 30/1/98 |
| River channel on the South Alligator River, downstream of main access bridge/causeway. No. 58 Mike Saynor 30/1/98 | River channel on the South Alligator River, downstream of main access bridge/causeway. No. 59 Mike Saynor 30/1/98 | Billabong on the left floodplain of the South Alligator River, downstream of main access bridge/causeway. No. 60 Mike Saynor 30/1/98 |
| Flattened grass indicating flow direction and evidence of flooding on the South Alligator River. No. 61 Mike Saynor 30/1/98 | River channel on the South Alligator River, approaching Gunlom. No. 62 Mike Saynor 30/1/98 | Gunlom waterfall enters the South Alligator River valley from the escarpment country. No. 63 Mike Saynor 30/1/98 |
| Gunlom waterfall enters the South Alligator River valley from the escarpment country. No. 64 Mike Saynor 30/1/98 | Gunlom waterfall enters the South Alligator River valley from the escarpment country. No. 65 Mike Saynor 30/1/98 | Crooked shot of Gunlom waterfall. No. 66 Mike Saynor 30/1/98 |
| Water on floodplain downstream of Gunlom waterfall. No. 67 Mike Saynor 30/1/98 | South Alligator River channel downstream of Gunlom waterfall. No. 68 Mike Saynor 30/1/98 | South Alligator River channel downstream of Gunlom waterfall. No. 69 Mike Saynor 30/1/98 |

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| <p>South Alligator River channel downstream of Gunlom waterfall.</p> <p>No. 70 Mike Saynor 30/1/98</p> | <p>Water in channel and on the left floodplain, South Alligator River, downstream of Gunlom waterfall.</p> <p>No. 71 Mike Saynor 30/1/98</p> | <p>Water in channel and on the left floodplain, South Alligator River, downstream of Gunlom waterfall.</p> <p>No. 72 Mike Saynor 30/1/98</p> |
| <p>Water floodplain, South Alligator River, between Gunlom waterfall and Kakadu Highway bridge.</p> <p>No. 73 Mike Saynor 30/1/98</p> | <p>Water floodplain, South Alligator River, between Gunlom waterfall and Kakadu Highway bridge.</p> <p>No. 74 Mike Saynor 30/1/98</p> | <p>Water floodplain, South Alligator River, between Gunlom waterfall and Kakadu Highway bridge.</p> <p>No. 75 Mike Saynor 30/1/98</p> |
| <p>Water floodplain, South Alligator River, between Gunlom waterfall and Kakadu Highway bridge.</p> <p>No. 76 Mike Saynor 30/1/98</p> | <p>Water on floodplain, approaching the Kakadu Highway bridge over the South Alligator River. Causeway can just be seen.</p> <p>No. 77 Mike Saynor 30/1/98</p> | <p>Causeway across floodplain to the Kakadu Highway bridge over the South Alligator River, left bank.</p> <p>No. 78 Mike Saynor 30/1/98</p> |
| <p>Kakadu Highway bridge over the South Alligator River.</p> <p>No. 79 Mike Saynor 30/1/98</p> | <p>Kakadu Highway bridge over the South Alligator River.</p> <p>No. 80 Mike Saynor 30/1/98</p> | <p>Close up of water flowing along the approach to the Kakadu Highway bridge over the South Alligator River.</p> <p>No. 81 Mike Saynor 30/1/98</p> |
| <p>Flooded channel and floodplain downstream of the Kakadu Highway bridge. South Alligator River.</p> <p>No. 82 Mike Saynor 30/1/98</p> | <p>Flooded channel and floodplain downstream of the Kakadu Highway bridge. South Alligator River.</p> <p>No. 83 Mike Saynor 30/1/98</p> | <p>Flooded channel and floodplain downstream of the Kakadu Highway bridge. South Alligator River.</p> <p>No. 84 Mike Saynor 30/1/98</p> |
| <p>Flooded areas upstream of Cooinda and Yellow Water.</p> <p>No. 85 Mike Saynor 30/1/98</p> | <p>Distant view towards the flooded area near Yellow Water, South Alligator River.</p> <p>No. 86 Mike Saynor 30/1/98</p> | <p>Flooded areas upstream of Cooinda and Yellow Water. A billabong can just be made out, middle top.</p> <p>No. 87 Mike Saynor 30/1/98</p> |

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| <p>Flooded areas upstream of Cooinda and Yellow Water. A billabong can just be made out, middle top.</p> <p>No. 88 Mike Saynor 30/1/98</p> | <p>Flooded areas upstream of Cooinda and Yellow Water. A billabong can just be made out, middle top.</p> <p>No. 89 Mike Saynor 30/1/98</p> | <p>Downstream end of Home Billabong flows into a flooded Yellow Water.</p> <p>No. 90 Mike Saynor 30/1/98</p> |
| <p>Flooded areas of floodplain, Yellow Water. Dark row of trees indicates downstream channel on Yellow Water.</p> <p>No. 91 Mike Saynor 30/1/98</p> | <p>Flooded areas of floodplain, Yellow Water. Dark row of trees indicates channel on Yellow Water. The Warradjan centre, bottom right.</p> <p>No. 92 Mike Saynor 30/1/98</p> | <p>Flooded areas of floodplain, Yellow Water. Dark row of trees indicates downstream channel on Yellow Water.</p> <p>No. 93 Mike Saynor 30/1/98</p> |
| <p>Flooded areas of floodplain, Yellow Water. Dark row of trees indicates downstream channel on Yellow Water.</p> <p>No. 94 Mike Saynor 30/1/98</p> | <p>Flooded areas of floodplain, Yellow Water. Dark row of trees indicates downstream channel on Yellow Water.</p> <p>No. 95 Mike Saynor 30/1/98</p> | <p>Flooded areas of floodplain, Yellow Water. Dark row of trees indicates downstream channel on Yellow Water.</p> <p>No. 96 Mike Saynor 30/1/98</p> |
| <p>Distant view to flooded areas South Alligator floodplain between Yellow Water and the Arnhem Highway crossing the river.</p> <p>No. 97 Mike Saynor 30/1/98</p> | <p>Nourlangie Creek and billabongs downstream from the Nourlangie bridges (Kakadu Highway).</p> <p>No. 98 Mike Saynor 30/1/98</p> | <p>Nourlangie Creek and Billabongs downstream from the Nourlangie bridges (Kakadu Highway).</p> <p>No. 99 Mike Saynor 30/1/98</p> |
| <p>Flooded areas of Nourlangie Creek Malabanjbanjdu Creek from Kakadu Highway. Area of dead trees, result of chemical tests on Salvinia.</p> <p>No. 100 Mike Saynor 30/1/98</p> | <p>Flooded areas of Nourlangie Creek Malabanjbanjdu Creek from Kakadu Highway. Area of dead trees, result of chemical tests on Salvinia.</p> <p>No. 101 Mike Saynor 30/1/98</p> | <p>Kakadu Highway at Malabanjbanjdu Creek, flooded areas.</p> <p>No. 102 Mike Saynor 30/1/98</p> |
| <p>Kakadu Highway at Malabanjbanjdu Creek, flooded areas.</p> <p>No. 103 Mike Saynor 30/1/98</p> | <p>Jabiru Township and Jabiru Lake.</p> <p>No. 104 Mike Saynor 30/1/98</p> | <p>Jabiru Township and the turn off from the Arnhem Highway.</p> <p>No. 105 Mike Saynor 31/1/98</p> |

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| <p>South Alligator floodplain in flood, just south of the Arnhem Highway. No. 106 Mike Saynor 31/1/98</p> | <p>South Alligator floodplain in flood, just south of the Arnhem Highway. No. 107 Mike Saynor 31/1/98</p> | <p>South Alligator floodplain in flood, just south of the Arnhem Highway. No. 108 Mike Saynor 31/1/98</p> |
| <p>South Alligator floodplain in flood, south of the Arnhem Highway, looking towards Mamukala. No. 109 Mike Saynor 31/1/98</p> | <p>South Alligator floodplain in flood, south of the Arnhem Highway, looking towards Mamukala. Bird hide just visible. No. 110 Mike Saynor 31/1/98</p> | <p>Mamukala Billabong, bird hide building visible mid left. No. 111 Mike Saynor 31/1/98</p> |
| <p>Mamukala Billabong, bird hide building visible mid left. No. 112 Mike Saynor 31/1/98</p> | <p>Mamukala Billabong, access road visible. Radarsat ground truthing site. No. 113 Mike Saynor 31/1/98</p> | <p>Mamukala Billabong and bird hide building. No. 114 Mike Saynor 31/1/98</p> |
| <p>Flying directly over the bird hide building on Mamukala Billabong. No. 115 Mike Saynor 31/1/98</p> | <p>Flying towards the flooded South Alligator floodplain. The Arnhem Highway can be seen mid left of photo as a line in the trees. No. 116 Mike Saynor 31/1/98</p> | <p>The Arnhem Highway and the flooded South Alligator flood plain to the north of the highway. No. 117 Mike Saynor 31/1/98</p> |
| <p>Flooded South Alligator River floodplain with the channel marked by mangroves, just south of the Arnhem Highway bridge. No. 118 Mike Saynor 31/1/98</p> | <p>Flooded South Alligator River floodplain with the channel marked by mangroves, just south of the Arnhem Highway bridge. No. 119 Mike Saynor 31/1/98</p> | <p>Flooded South Alligator river floodplain with the channel marked by mangroves, just south of the Arnhem Highway bridge. No. 120 Mike Saynor 31/1/98</p> |
| <p>Flooded South Alligator River floodplain with the channel marked by mangroves, just south of the Arnhem Highway bridge. No. 121 Mike Saynor 31/1/98</p> | <p>Boat out on the flooded South Alligator River floodplain, just south of the Arnhem Highway bridge. No. 122 Mike Saynor 31/1/98</p> | <p>Close up of the mangrove lined South Alligator River and the surrounding flooded floodplain. No. 123 Mike Saynor 31/1/98</p> |

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| <p>The Arnhem Highway bridge over the main channel of the South Alligator River.</p> <p>No. 124 Mike Saynor 31/1/98</p> | <p>The Arnhem Highway bridge over the main channel of the South Alligator River.</p> <p>No. 125 Mike Saynor 31/1/98</p> | <p>Flooded left bank of the South Alligator River with the car park under water. Bridge approaches are also under water.</p> <p>No. 126 Mike Saynor 31/1/98</p> |
| <p>Looking east across the right bank floodplain of the South Alligator River. The Arnhem Highway, a line through the trees disappears into water.</p> <p>No. 127 Mike Saynor 31/1/98</p> | <p>Flooded area on the western floodplain, (dead tree site), called Kapalga. Radarsat ground truthing site and Stephanie Cobb field site.</p> <p>No. 128 Mike Saynor 31/1/98</p> | <p>Flooded area on the western floodplain, (dead trees site), called Kapalga. Radarsat ground truthing site and Stephanie Cobb field site.</p> <p>No. 129 Mike Saynor</p> |
| <p>Mangrove lined tidal creek extending into the Kapalga field site. Radarsat ground truthing site and Stephanie Cobb field site.</p> <p>No. 130 Mike Saynor 31/1/98</p> | <p>Looking down the mangrove lined tidal creek that extends into the Kapalga field site.</p> <p>No. 131 Mike Saynor 31/1/98</p> | <p>Looking downstream on the South Alligator River whilst flying over the left bank.</p> <p>No. 132 Mike Saynor 31/1/98</p> |
| <p>Left bank flood plain of the South Alligator River, not much visible water.</p> <p>No. 133 Mike Saynor 31/1/98</p> | <p>Buffalo swim channels on the left bank flood plain of the South Alligator River.</p> <p>No. 134 Mike Saynor 31/1/98</p> | <p>Sinuuous section of the South Alligator River.</p> <p>No. 135 Mike Saynor 31/1/98</p> |
| <p>Left bank flood plain of the South Alligator River, boundary between woodland and freshwater meadows or swamps.</p> <p>No. 136 Mike Saynor 31/1/98</p> | <p>Looking toward Rookery Point on the left bank flood plain of the South Alligator River. Radarsat ground truthing site.</p> <p>No. 137 Mike Saynor 31/1/98</p> | <p>The boatshed at Rookery Point on the left bank flood plain of the South Alligator River. Radarsat ground truthing site.</p> <p>No. 138 Mike Saynor 31/1/98</p> |
| <p>The boat shed at Rookery Point on the left bank flood plain of the South Alligator River. Radarsat ground truthing site.</p> <p>No. 139 Mike Saynor 31/1/98</p> | <p>The boat shed at Rookery Point on the left bank flood plain of the South Alligator River. Radarsat ground truthing site.</p> <p>No. 140 Mike Saynor 31/1/98</p> | <p>Mangrove lined tidal creek on the left bank South Alligator River.</p> <p>No. 141 Mike Saynor 31/1/98</p> |

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| <p>Mangrove lined tidal creek on the left bank South Alligator River.</p> <p>No. 142 Mike Saynor 31/1/98</p> | <p>Palaeochannel on the left bank floodplain of the South Alligator River.</p> <p>No. 143 Mike Saynor 31/1/98</p> | <p>Palaeochannel on the left bank floodplain of the South Alligator River.</p> <p>No. 144 Mike Saynor 31/1/98</p> |
| <p>Magpie geese flying over the left bank floodplain of the South Alligator River.</p> <p>No. 145 Mike Saynor 31/1/98</p> | <p>The broad expanses of the South Alligator River, near its mouth.</p> <p>No. 146 Mike Saynor 31/1/98</p> | <p>Mangroves along the bank of the South Alligator River, near its mouth.</p> <p>No. 147 Mike Saynor 31/1/98</p> |
| <p>The broad expanses of the South Alligator River, looking towards its mouth.</p> <p>No. 148 Mike Saynor 31/1/98</p> | <p>Mangroves along the right bank of the South Alligator River, near its mouth.</p> <p>No. 149 Mike Saynor 31/1/98</p> | <p>Close up of mangroves along the right bank of the South Alligator River, near its mouth.</p> <p>No. 150 Mike Saynor 31/1/98</p> |
| <p>Extensive salt flats (covered in water) near the mouth of the South Alligator River.</p> <p>No. 151 Mike Saynor 31/1/98</p> | <p>Mangrove line tidal creek snakes its way into salt flats near the mouth of the South Alligator River.</p> <p>No. 152 Mike Saynor 31/1/98</p> | <p>Looking along the left bank of the South Alligator River near its mouth.</p> <p>No. 153 Mike Saynor 31/1/98</p> |
| <p>Looking down the broad expanses of the South Alligator River to its mouth.</p> <p>No. 154 Mike Saynor 31/1/98</p> | <p>Looking down the right bank of the South Alligator River to its mouth.</p> <p>No. 155 Mike Saynor 31/1/98</p> | <p>Salt flats and mangroves along the South Alligator River at its mouth.</p> <p>No. 156 Mike Saynor 31/1/98</p> |
| <p>Salt flats and mangroves along the South Alligator River at its mouth.</p> <p>No. 157 Mike Saynor 31/1/98</p> | <p>Mangroves along the bank and a sandy chenier behind the tree line, right bank of the South Alligator River.</p> <p>No. 158 Mike Saynor 31/1/98</p> | <p>Formations in the salt flats, right bank near the mouth of the South Alligator River.</p> <p>No. 159 Mike Saynor 31/1/98</p> |

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| <p>Large mangrove lined tidal creek on the right bank of the South Alligator near Midnight Point.</p> <p>No. 160 Mike Saynor 31/1/98</p> | <p>Zonation of mangroves east along the coast from Midnight Point.</p> <p>No. 161 Mike Saynor 31/1/98</p> | <p>Looking towards the benchmark at Cairncurry Plain (U570). Next mound east of the mound with the Kapok tree.</p> <p>No. 162 Mike Saynor 31/1/98</p> |
| <p>Zonation of mangroves looking towards Point Farewell, with the salt flats behind.</p> <p>No. 163 Mike Saynor 31/1/98</p> | <p>Looking towards Point Farewell across the salt flats and vegetated areas.</p> <p>No. 164 Mike Saynor 31/1/98</p> | <p>Looking towards Point Farewell across the salt flats and vegetated areas.</p> <p>No. 165 Mike Saynor 31/1/98</p> |
| <p>Tidal creek that enters near Point Farewell extends into the extensive salt flats.</p> <p>No. 166 Mike Saynor 31/1/98</p> | <p>Large expansive areas of salt flats near Point Farewell. (Paul Adam's transect No. 3 is across these flats.)</p> <p>No. 167 Mike Saynor 31/1/98</p> | <p>Large expansive areas of salt flats near Point Farewell. (Paul Adam's transect No. 3 is across these flats.)</p> <p>No. 168 Mike Saynor 31/1/98</p> |
| <p>Flying towards the East Alligator River across areas of salt flats to the east of Point Farewell. The tidal creek shown extends into an area of dead trees.</p> <p>No. 169 Mike Saynor</p> | <p>Areas of salt flats with a mangrove lined tidal creek. Quite distinctive depositional features delta's or alluvial fans deposited by the incoming tide.</p> <p>No. 170 Mike Saynor 31/1/98</p> | <p>Area of dead tress that the tidal creek shown in photograph 169 has cause. on the salt flats to the east of Point Farewell.</p> <p>No. 171 Mike Saynor 31/1/98</p> |
| <p>Looking up the East Alligator River across salt flats near Point Farewell. Paul Adam's transect No. 1 runs iacross these flats).</p> <p>No. 172 Mike Saynor 31/1/98</p> | <p>Looking up the East Alligator River across salt flats near Point Farewell. Paul Adam's transect No. 1 runs across these flats).</p> <p>No. 173 Mike Saynor 31/1/98</p> | <p>Looking toward East Alligator River channel across salt flats near Point Farewell. Paul Adam's transect No. 1 (quad track).</p> <p>No. 174 Mike Saynor 31/1/98</p> |
| <p>Areas of salt flats with a mangrove lined tidal creek. Again distinctive depositional features also Paul Adam's transect visible.</p> <p>No. 175 Mike Saynor 31/1/98</p> | <p>Areas of salt flats with a mangrove lined tidal creek, near Point Farewell.</p> <p>No. 176 Mike Saynor 31/1/98</p> | <p>Areas of salt flats with a mangrove lined tidal creek, near Point Farewell.</p> <p>No. 177 Mike Saynor 31/1/98</p> |

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| <p>Mangrove lined creek, near Point Farewell that has had the barrage constructed on it in an attempt to halt further salt water intrusions.</p> <p>No. 178 Mike Saynor 31/1/98</p> | <p>Looking at the barrage constructed across a tidal creek near Point Farewell. Dead trees centre left.</p> <p>No. 179 Mike Saynor 31/1/98</p> | <p>Looking at the barrage constructed across a tidal creek near Point Farewell. Dead trees centre left.</p> <p>No. 180 Mike Saynor 31/1/98</p> |
| <p>Salt flats and tidal creeks on the funnel section of the East Alligator River.</p> <p>No. 181 Mike Saynor 31/1/98</p> | <p>Salt flats and tidal creeks on the funnel section of the East Alligator River.</p> <p>No. 182 Mike Saynor 31/1/98</p> | <p>Salt flats and tidal creeks on the funnel section of the East Alligator River.</p> <p>No. 183 Mike Saynor 31/1/98</p> |
| <p>Tidal Creek entering the left bank of the East Alligator River in the sinuous section.</p> <p>No. 184 Mike Saynor 31/1/98</p> | <p>Colour change of clear water entering the East Alligator River.</p> <p>No. 185 Mike Saynor 31/1/98</p> | <p>The East Alligator River looking towards Turkey Dreaming.</p> <p>No. 186 Mike Saynor 31/1/98</p> |
| <p>Looking up (south) Magela Creek from the tidal section into the flooded areas behind.</p> <p>No. 187 Mike Saynor 31/1/98</p> | <p>Magela Creek, entering the East Alligator River.</p> <p>No. 188 Mike Saynor 31/1/98</p> | <p>Palaeochannel on right bank, opposite where Magela Creek enters the East Alligator. Rocks are called Turkey Dreaming.</p> <p>No. 189 Mike Saynor 31/1/98</p> |
| <p>Right bank, on East Alligator River opposite where Magela Creek enters the river.</p> <p>No. 190 Mike Saynor 31/1/98</p> | <p>Unnamed flooded area on Magela Creek.</p> <p>No. 191 Mike Saynor 31/1/98</p> | <p>Flooded area on Magela Creek, with escarpment at Jabiluka visible in the distance.</p> <p>No. 192 Mike Saynor 31/1/98</p> |
| <p>Flooded area on Magela Creek, with escarpment at Jabiluka visible in the distance.</p> <p>No. 193 Mike Saynor 31/1/98</p> | <p>Flooded area on Magela Creek, with escarpment at Jabiluka visible in the distance.</p> <p>No. 194 Mike Saynor 31/1/98</p> | <p>Looking towards Ant Bend on the western Magela floodplain. Radarsat ground truthing site.</p> <p>No. 195 Mike Saynor 31/1/98</p> |

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| Close up of Ant Bend on the western Magela floodplain. Radarsat ground truthing site. No. 196 Mike Saynor 31/1/98 | Looking towards Ant Bend on the western Magela floodplain. Radarsat ground truthing site. No. 197 Mike Saynor 31/1/98 | Looking towards Ant Bend on the western Magela floodplain. Radarsat ground truthing site. No. 198 Mike Saynor 31/1/98 |
| Looking towards Ant Bend on the western Magela floodplain. Radarsat ground truthing site. No. 199 Mike Saynor 31/1/98 | Grass patterns on the flood waters of Magela Creek. No. 200 Mike Saynor 31/1/98 | Flooded area of Magela Creek flying towards the escarpment and Jabiluka Billabong. No. 201 Mike Saynor 31/1/98 |
| Jabiluka Billabong on Magela Creek. No. 202 Mike Saynor 31/1/98 | Flying up Magela Creek, over the flooded floodplain with the Jabiluka escarpment on the left. No. 203 Mike Saynor 31/1/98 | Flying up Magela Creek, over the flooded floodplain with the Jabiluka escarpment on the left. No. 204 Mike Saynor 31/1/98 |
| Mine Valley on Jabiluka Escarpment near Magela Creek (flooded). No. 205 Mike Saynor 31/1/98 | Flooded areas of Magela Creek, up towards the Magela Creek Crossing. No. 206 Mike Saynor 31/1/98 | Flooded areas of Magela Creek, up towards the Magela Creek Crossing. No. 207 Mike Saynor 31/1/98 |

Appendix 2

Descriptions of the slides taken on the helicopter flight 30/1/98 and 31/1/98. Page numbers refer to the order of slide holding pages in the ring binder.

Page one

Photographer Mike Saynor No. 1 to No. 20 taken 30/1/98.

- No. 1 Preparing the helicopter for the flight at Jabiru Airport.
- No. 2 Looking towards the escarpment country of Mt Brockman.
- No. 3 Water in culvert under the Kakadu Highway approx 10 km south of the Arnhem Highway.
- No. 4 First view of water near Malabanjbanjdju.
- No. 5 Cars stopped to fish at the Malabanjbanjdju bridge, Kakadu Highway.
- No. 6 Cars stopped to fish at the Malabanjbanjdju bridge, Kakadu Highway.
- No. 7 Water visible between the trees near Malabanjbanjdju bridge, Kakadu Highway.
- No. 8 Vast expanses of water on each side of the Kakadu Highway, Malabanjbanjdju bridges.
- No. 9 Vast expanses of water on each side of the Kakadu Highway, Malabanjbanjdju bridges.
- No. 10 Close up of cars stopped to fish at the Malabanjbanjdju bridge, Kakadu Highway.
- No. 11 Close up of cars stopped to fish at the Malabanjbanjdju bridge, Kakadu Highway.
- No. 12 Third bridge (closest to Cooida) at Nourlangie Creek, Kakadu Highway, poor shot.
- No. 13 Distant shot looking back towards the Malabanjbanjdju bridge, Kakadu Highway.
- No. 14 Distant shot looking back towards the Malabanjbanjdju bridge, Kakadu Highway.
- No. 15 Distant shot looking back towards the Malabanjbanjdju bridge, Kakadu Highway.
- No. 16 Shelter at one of the Malabanjbanjdju camping grounds surrounded by water.
- No. 17 Water amongst the trees in the vicinity of Nourlangie bridges, Kakadu Highway.
- No. 18 View across towards Nourlangie Rock.
- No. 19 Water downstream of Nourlangie bridges, Kakadu Highway.
- No. 20 Water downstream of Nourlangie bridges, Kakadu Highway.

Page Two

Photographer Mike Saynor No 21. to No 40. taken 30/1/98.

- No. 21 Water around the third Nourlangie bridge, Kakadu Highway.
- No. 22 Water around the third Nourlangie bridge, Kakadu Highway.
- No. 23 Water around the third Nourlangie bridge, Kakadu Highway, slightly darker.
- No. 24 Water amongst the trees on way to Cooida, location not discernible.
- No. 25 Water amongst the trees on way to Cooida, location not discernible.
- No. 26 Distant view towards the flooded South Alligator floodplain.
- No. 27 Distant view towards the flooded South Alligator floodplain.
- No. 28 Flooded South Alligator floodplain near Yellow Water.
- No. 29 Flooded South Alligator floodplain near Yellow Water.
- No. 30 Flooded South Alligator floodplain near Yellow Water.
- No. 31 Flooded South Alligator floodplain near Yellow Water.
- No. 32 Water amongst the trees near Yellow Water, behind Cooida.
- No. 33 Water amongst the trees near Yellow Water, behind Cooida.
- No. 34 Looking north over the flooded South Alligator floodplain near Yellow Water.
- No. 35 Water amongst the trees near Yellow Water, behind Cooida.

- No. 36 Buildings at Cooinda, some water visible.
- No. 37 Water visible amongst the buildings at Cooinda.
- No. 38 Water visible amongst the buildings at Cooinda.
- No. 39 Home Billabong in the foreground across to the flooded South Alligator floodplain.
- No. 40 Boat on Home Billabong.

Page Three

Photographer Mike Saynor No 41 to No 60 taken 30/1/98.

- No. 41 Home Billabong.
- No. 42 Mardugal Billabong and bridge over Jim Jim Creek.
- No. 43 Up stream end of Jim Jim Billabong above Jim Jim bridges, Kakadu Highway.
- No. 44 Floodwater amongst the trees on Jim Jim Creek above the Kakadu Highway.
- No. 45 Main escarpment just north of Jim Jim Falls with unnamed waterfall flowing off it.
- No. 46 Jim Jim Falls.
- No. 47 Jim Jim Falls.
- No. 48 Jim Jim Creek just above the falls.
- No. 49 Helicopter on the ground at Sliesbeck.
- No. 50 Upper South Alligator River.
- No. 51 Upper South Alligator River.
- No. 52 Sand bar and splays on the upper South Alligator River.
- No. 53 Sandy bed and channel of the upper South Alligator River.
- No. 54 Channel section of the upper South Alligator River.
- No. 55 Tributary entering the South Alligator River, Dinner Creek perhaps?
- No. 56 Tributary entering the South Alligator River, Dinner Creek perhaps?
- No. 57 Channel South Alligator River near Coronation Hill.
- No. 58 Coronation Hill, dark slide.
- No. 59 Coronation Hill, dark slide.
- No. 60 Channel of the South Alligator River in the South Alligator valley.

Page Four

Photographer Mike Saynor No. 61 to No 80. taken 30/1/98.

- No. 61 Closer view to the channel of the South Alligator River in the South Alligator valley.
- No. 62 Flattened grass gives an indication of flood levels in the upper South Alligator River.
- No. 63 Flattened grass gives an indication of flood levels in the upper South Alligator River.
- No. 64 Coming up to the T-intersection just north of the main access bridge/causeway, left to Gunlom right to Gimbat.
- No. 65 River channel on the South Alligator River, downstream of main access bridge/causeway.
- No. 66 River channel on the South Alligator River, downstream of main access bridge/causeway.
- No. 67 River channel on the South Alligator River, and evidence of overbank flow, flattened grass downstream main access bridge/causeway.
- No. 68 Landforms of the South Alligator River valley.
- No. 69 River channel on the South Alligator River, downstream of main access bridge/causeway.
- No. 70 River channel on the South Alligator River, approaching Gunlom Waterfall.
- No. 71 River channel on the South Alligator River, approaching Gunlom Waterfall.
- No. 72 Distant view towards Gunlom Waterfall.
- No. 73 Gunlom Waterfall enters the South Alligator River from the escarpment country.

- No. 74 Gunlom Waterfall enters the South Alligator River from the escarpment country.
- No. 75 Gunlom Waterfall enters the South Alligator River from the escarpment country.
- No. 76 Gunlom Waterfall enters the South Alligator River from the escarpment country.
- No. 77 Gunlom Waterfall enters the South Alligator River from the escarpment country.
- No. 78 Gunlom Waterfall enters the South Alligator River from the escarpment country.
- No. 79 South Alligator River channel downstream of Gunlom Waterfall.
- No. 80 South Alligator River channel downstream of Gunlom Waterfall.

Page Five

Photographer Mike Saynor No. 81 to No. 100 taken 30/1/98.

- No. 81 South Alligator River channel downstream of Gunlom Waterfall.
- No. 82 South Alligator River channel downstream of Gunlom Waterfall.
- No. 83 South Alligator River channel downstream of Gunlom Waterfall.
- No. 84 South Alligator River channel downstream of Gunlom Waterfall.
- No. 85 South Alligator River channel downstream of Gunlom Waterfall.
- No. 86 Water in channel and on the left floodplain, South Alligator River, D/S of Gunlom.
- No. 87 Water in channel and on the left floodplain, South Alligator River, D/S of Gunlom.
- No. 88 Water in channel and on the left floodplain, South Alligator River, D/S of Gunlom.
- No. 89 Water in channel and on the left floodplain, South Alligator River, D/S of Gunlom.
- No. 90 Water on floodplain, approaching the Kakadu Highway bridge over the South Alligator River. Causeway can just be seen.
- No. 91 Causeway across floodplain to the Kakadu Highway bridge over the South Alligator River, left bank.
- No. 92 Kakadu Highway bridge over the South Alligator River.
- No. 93 Kakadu Highway bridge over the South Alligator River.
- No. 94 Flooded channel and floodplain downstream of the Kakadu Highway bridge South Alligator River.
- No. 95 Flooded channel and floodplain downstream of the Kakadu Highway bridge South Alligator River.
- No. 96 Flooded channel and floodplain downstream of the Kakadu Highway bridge South Alligator River.
- No. 97 Flooded channel and floodplain downstream of the Kakadu Highway bridge South Alligator River.
- No. 98 Distant view towards the flooded area near Yellow Water.
- No. 99 Distant view towards the flooded area near Yellow Water.
- No. 100 Flooded areas upstream of Cooina and Yellow Water.

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Photographer Mike Saynor No. 101 to No. 120 taken 30/1/98.

- No. 101 Flooded areas upstream of Cooina and Yellow Water.
- No. 102 Flooded areas upstream of Cooina and Yellow Water. A billabong can just be made out, middle top.
- No. 103 Water near buildings at Cooina.
- No. 104 Flying over the downstream end of Home Billabong.
- No. 105 Flooded areas of floodplain near Yellow Water.
- No. 106 Flooded areas of floodplain near Yellow Water.
- No. 107 Flooded areas of floodplain, Yellow Water. Dark row of trees indicates downstream channel on Yellow Water.
- No. 108 Water on the access road to Cooina, can also see the Warradjan Centre.

- No. 109** Water on the access road to Cooinda, can also see the Warradjan Centre.
- No. 110** Flooded areas of floodplain, Yellow Water. Dark row of trees indicates downstream channel on Yellow Water.
- No. 111** Flooded areas of floodplain near Yellow Water.
- No. 112** Flooded areas of floodplain near Yellow Water.
- No. 113** Flooded areas of floodplain near Yellow Water.
- No. 114** Flooded areas of floodplain near Yellow Water.
- No. 115** Nourlangie Creek and billabongs downstream from the Nourlangie bridges (Kakadu Highway).
- No. 116** Nourlangie Creek and billabongs downstream from the Nourlangie bridges (Kakadu Highway).
- No. 117** Nourlangie Creek and billabongs downstream from the Nourlangie bridges (Kakadu Highway).
- No. 118** Nourlangie Creek and billabongs downstream from the Nourlangie bridges (Kakadu Highway).
- No. 119** Flooded areas of Nourlangie Creek-Malabanjbanjdju Creek from Kakadu Highway. Area of dead trees, result of chemical tests on Salvinia.
- No. 120** Flooded areas of Nourlangie Creek Malabanjbanjdju Creek from Kakadu Highway. Area of dead trees, result of chemical tests on Salvinia.

Page Seven

Photographers Mike Saynor No. 121 to No. 122 taken 30/1/98.

Ray Hall No. 123 to No. 130 taken 30/1/98.

- No. 121** Flooded areas of Nourlangie Creek Malabanjbanjdju Creek from Kakadu Highway. Area of dead trees, result of chemical tests on Salvinia.
- No. 122** Flooded areas of Nourlangie Creek Malabanjbanjdju Creek from Kakadu Highway. Area of dead trees, result of chemical tests on Salvinia.
- No. 123** Water from Nourlangie and Malabanjbanjdju Creeks downstream from the Kakadu Highway.
- No. 124** Water from Nourlangie and Malabanjbanjdju Creeks downstream from the Kakadu Highway.
- No. 125** Water from Nourlangie and Malabanjbanjdju Creeks downstream from the Kakadu Highway.
- No. 126** Possible main creek channel of Nourlangie Creek.
- No. 127** Water from Nourlangie Creek lying upstream of the Kakadu Highway.
- No. 128** Kakadu Highway at Malabanjbanjdju Creek, flooded areas.
- No. 129** Kakadu Highway at Malabanjbanjdju Creek, flooded areas.
- No. 130** Coming in to land over the western end of Jabiru Airstrip looking towards a rainstorm cell in the north.

Page Eight

Photographer Mike Saynor No. 131 to No. 150 taken 31/1/98.

- No. 131** South Alligator floodplain in flood, just south of the Arnhem Highway.
- No. 132** South Alligator floodplain in flood, just south of the Arnhem Highway.
- No. 133** Vast expanses of water over the South Alligator floodplain, just south of the Arnhem Highway.
- No. 134** Vast expanses of water over the South Alligator floodplain, just south of the Arnhem Highway.

- No. 135** South Alligator floodplain in flood, south of the Arnhem Highway, looking towards Mamukala.
- No. 136** South Alligator floodplain in flood, south of the Arnhem Highway, looking towards Mamukala. Bird hide just visible.
- No. 137** Mamukala Billabong, bird hide building visible mid left.
- No. 138** Mamukala Billabong, bird hide building visible mid left.
- No. 139** Looking across the Mamukala bird hide towards the South Alligator River floodplain.
- No. 140** Looking across the Mamukala bird hide towards the South Alligator River floodplain.
- No. 141** Flying towards the flooded South Alligator floodplain. The Arnhem Highway can be seen mid left of photo as a line in the trees.
- No. 142** Flying towards the flooded South Alligator floodplain. The Arnhem Highway can be seen mid left of photo as a line in the trees.
- No. 143** Flying towards the flooded South Alligator floodplain. The Arnhem Highway can be seen mid left of photo as a line in the trees.
- No. 144** The Arnhem Highway and the flooded South Alligator flood plain to the north of the highway.
- No. 145** Flooded South Alligator River floodplain with the channel marked by mangroves, just south of the Arnhem Highway bridge.
- No. 146** Flooded South Alligator River floodplain with the channel marked by mangroves, just south of the Arnhem Highway bridge.
- No. 147** Closer view of the South Alligator River floodplain with the channel marked by mangroves, just south of the Arnhem Highway bridge.
- No. 148** Close up view of the mangrove lined main channel.
- No. 149** Clear water from the floodplain entering the muddier main river channel.
- No. 150** The Arnhem Highway bridge over the main channel of the South Alligator River.

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Photographer Mike Saynor No. 151 to No. 170 taken 31/1/98.

- No. 151** The Arnhem Highway bridge over the main channel of the South Alligator River.
- No. 152** Looking east across the right bank floodplain of the South Alligator River. The Arnhem Highway, a line through the trees disappears into water.
- No. 153** Looking east towards the main channel, downstream of the Arnhem Highway bridge.
- No. 154** Flooded area on the western floodplain, (dead tree site), called Kapalga. Radarsat ground truthing site and Stephanie Cobb field site.
- No. 155** Flooded area on the western floodplain, (dead tree site), called Kapalga. Radarsat ground truthing site and Stephanie Cobb field site.
- No. 156** Mangrove lined tidal creek extending into the Kapalga field site. Radarsat ground truthing site and Stephanie Cobb field site.
- No. 157** Looking down the mangrove lined tidal creek that extends into the Kapalga field site.
- No. 158** Flying directly over the mangroves shown in slides 156 and 157.
- No. 159** Looking downstream on the South Alligator River whilst flying over the left bank.
- No. 160** Looking eastwards over the main channel towards the flooded right bank floodplain.
- No. 161** Looking eastwards over the main channel towards the flooded right bank floodplain.

- No. 162 Vegetated left bank flood plain of the South Alligator River, not much visible water.
- No. 163 Buffalo swim channels on the left bank flood plain of the South Alligator River.
- No. 164 Sinuous section of the South Alligator River.
- No. 165 Left bank flood plain of the South Alligator River, boundary between woodland and freshwater meadows or swamps.
- No. 166 Looking toward Rookery Point on the left bank flood plain of the South Alligator River. Radarsat ground truthing site.
- No. 167 The boatshed at Rookery Point on the left bank flood plain of the South Alligator River, indicates the beginning of a transect for Radarsat ground truthing site.
- No. 168 The boatshed at Rookery Point on the left bank flood plain of the South Alligator River, indicates the beginning of a transect for Radarsat ground truthing site.
- No. 169 The boatshed at Rookery Point on the left bank flood plain of the South Alligator River, indicates the beginning of a transect for Radarsat ground truthing site.
- No. 170 The boatshed at Rookery Point on the left bank flood plain of the South Alligator River, indicates the beginning of a transect for Radarsat ground truthing site.

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Photographer Mike Saynor No. 171 to No. 190 taken 31/1/98.

- No. 171 Vegetated left bank flood plain of the South Alligator River, not much visible water.
- No. 172 Mangrove lined tidal creek on the left bank South Alligator River.
- No. 173 Mangrove lined tidal creek on the left bank South Alligator River.
- No. 174 Mangrove lined tidal creek entering the South Alligator River.
- No. 175 Mangrove lined tidal creek entering the South Alligator River.
- No. 176 Palaeochannel on the left bank floodplain of the South Alligator River.
- No. 177 Palaeochannel on the left bank floodplain of the South Alligator River.
- No. 178 Magpie geese flying over the left bank floodplain of the South Alligator River.
- No. 179 The broad expanses of the South Alligator River, near its mouth.
- No. 180 Mangroves along the bank of the South Alligator River, near its mouth.
- No. 181 The broad expanses of the South Alligator River, looking towards its mouth.
- No. 182 Mangroves along the right bank of the South Alligator River, near its mouth.
- No. 183 The broad expanses of the South Alligator River, looking towards its mouth.
- No. 184 Close up of mangroves along the right bank of the South Alligator River, near its mouth.
- No. 185 Extensive salt flats (covered in water) near the mouth of the South Alligator River.
- No. 186 Mangrove line tidal creek snakes its way into salt flats near the mouth of the South Alligator River.
- No. 187 Looking along the left bank of the South Alligator River near its mouth.
- No. 188 Looking down the broad expanses of the South Alligator River to its mouth.
- No. 189 Salt flats and mangroves along towards Midnight Point, South Alligator River at its mouth.
- No. 190 Mangroves along the bank and a sandy chenier behind the tree line, right bank of the South Alligator.

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Photographer Mike Saynor No. 191 to No. 210 taken 31/1/98.

- No. 191 Formations in the salt flats, right bank near the mouth of the South Alligator River.

- No. 192 Large mangrove lined tidal creek on the right bank of the South Alligator near the mouth.
- No. 193 Large mangrove lined tidal creek on the right bank of the South Alligator near the mouth.
- No. 194 Tannin coloured fresh water on the salt flats on the right bank of the South Alligator near Point Farewell.
- No. 195 Mangroves and salt flats on the right bank of the South Alligator near Point Farewell.
- No. 196 Mangroves and salt flats on the right bank of the South Alligator near Point Farewell.
- No. 197 Small scale formations in the salt flats, right bank near the mouth of the South Alligator River.
- No. 198 Entrance to a large mangrove lined tidal creek on the right bank of the South Alligator near Midnight Point.
- No. 199 Zonation of mangroves east along the coast from Midnight Point.
- No. 200 Zonation of mangroves east along the coast from Midnight Point.
- No. 201 Looking towards Point Farewell across the salt flats and vegetated areas.
- No. 202 Looking towards the benchmark at Cairncurry Plain (U570). Next mound east of the mound with the Kapok tree.
- No. 203 Tidal creek that enters near Point Farewell extends into the extensive salt flats.
- No. 204 Large expansive areas of salt flats near Point Farewell. Paul Adam's transect No. 3 is across these flats).
- No. 205 Large expanses of salt flats near Point Farewell.
- No. 206 Flying towards the East Alligator river across areas of salt flats to the east of Point Farewell. The tidal creek shown extends into an area of dead trees.
- No. 207 Areas of salt flats with a mangrove lined tidal creek. Quite distinctive depositional features delta's or alluvial fans deposited by the incoming tide.
- No. 208 Area of dead tress that the tidal creek shown in photograph 206 has caused. on the salt flats to the east of Point Farewell.
- No. 209 Area of dead tress that the tidal creek shown in photograph 206 has caused. on the salt flats to the east of Point Farewell.
- No. 210 Looking up the East Alligator River across salt flats near Point Farewell. (Paul Adam's transect No. 1 runs is across these flats.)

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Photographer Mike Saynor No. 211 to No. 230 taken 31/1/98.

- No. 211 Salt flats with vegetated chenier to the east of near Point Farewell.
- No. 212 Salt flats and vegetated area east of Point Farewell in vicinity of Paul Adam's Transect Farewell.
- No. 213 Areas of salt flats with a mangrove lined tidal creek. Quite distinctive depositional features delta's or alluvial fans deposited by the incoming tide.
- No. 214 Areas of salt flats with a mangrove lined tidal creek. Quite distinctive depositional features delta's or alluvial fans deposited by the incoming tide.
- No. 215 Looking toward East Alligator River channel across salt flats near Point Farewell. Paul Adam's transect No. 1 (Quad track).
- No. 216 Quite distinctive depositional features delta's or alluvial fans deposited by the incoming tide on a drainage channel to the east Point Farewell.
- No. 217 Mangrove lined creek, near Point Farewell that has had the barrage constructed on it in an attempt to halt further salt water intrusions.

- No. 218** Extensive areas of water (fresh most of the time behind the creek that has had the barrage constructed on it.
- No. 219** Extensive areas of water (fresh most of the time behind the creek that has had the barrage constructed on it.
- No. 220** Looking at the barrage constructed across a tidal creek near Point Farewell. Dead trees centre left.
- No. 221** Tidal Creek entering the left bank of the East Alligator River.
- No. 222** Salt flats and tidal creeks on the funnel section of the East Alligator River.
- No. 223** Salt flats, tidal creeks and vegetated areas on the left bank of the funnel section of the East Alligator River.
- No. 224** Looking across the vegetated left bank flood plain up towards the sinuous section of the East Alligator River.
- No. 225** Looking across the vegetated left bank flood plain up towards the sinuous section of the East Alligator River.
- No. 226** Looking across the vegetated left bank flood plain up towards the sinuous section of the East Alligator River.
- No. 227** Mangrove lined creek entering from the left bank into the sinuous section of the East Alligator River.
- No. 228** Colour change of clear water entering the East Alligator River from a mangrove lined creek on the left bank.
- No. 229** Looking up the East Alligator River towards Turkey Dreaming.
- No. 230** Looking up the East Alligator River near Turkey Dreaming with Magela Creek snaking its way toward the main channel mid left of the slide.

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Photographer Mike Saynor No. 231 to No. 250 taken 31/1/98.

- No. 231** Looking up Magela Creek from the tidal section (mangrove lined) to the flooded areas behind.
- No. 232** Clearer water of Magela Creek flowing in its channel as it passes close to the main channel of the East Alligator River, before it turns away to enter the main channel some distance away.
- No. 233** Magela Creek, entering the East Alligator River.
- No. 234** Palaeochannel on right bank, opposite where Magela Creek enters the East Alligator. Rocks are called Turkey Dreaming.
- No. 235** The East Alligator River near Turkey Dreaming.
- No. 236** Mangrove lined creek entering the main channel just upstream from where Magela Creek debouches.
- No. 237** Unnamed flooded area on Magela Creek.
- No. 238** Flooded area on Magela Creek, with escarpment at Jabiluka visible in the distance.
- No. 239** Flooded area on Magela Creek, with escarpment at Jabiluka visible in the distance.
- No. 240** Flooded area on Magela Creek, with escarpment at Jabiluka visible in the distance.
- No. 241** Looking towards Ant Bend on the western Magela floodplain. Radarsat ground truthing site.
- No. 242** Close up of Ant Bend on the western Magela floodplain. Radarsat ground truthing site.
- No. 243** Close up of Ant Bend on the western Magela floodplain. Radarsat ground truthing site.
- No. 244** Close up of Ant Bend on the western Magela floodplain. Radarsat ground truthing site.

- No. 245 Flooded area of western Magela floodplain near Ant Bend.
- No. 246 Flooded area of western Magela floodplain near Ant Bend.
- No. 247 Flooded area of Magela Creek flying towards the escarpment and Jabiluka Billabong.
- No. 248 Flooded area of Magela Creek flying towards the escarpment and Jabiluka Billabong.
- No. 249 Flooded area of Magela Creek flying towards the escarpment and Jabiluka Billabong.
- No. 250 Jabiluka Billabong on Magela Creek.

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Photographer Mike Saynor No. 251 to No. 269 taken 31/1/98.

- No. 251 Flying up Magela Creek, over the flooded floodplain with the Jabiluka escarpment on the left.
- No. 252 Mine Valley on Jabiluka Escarpment near Magela Creek (flooded).
- No. 253 Flying up Magela Creek, over the flooded floodplain with the Jabiluka escarpment on the left.
- No. 254 Djarr Djarr Billabong on Magela Creek floodplain.
- No. 255 Flooded areas of Magela Creek, up towards the Magela Creek crossing.
- No. 256 Airboat track visible on the flooded areas of Magela Creek, up towards the Magela Creek crossing.
- No. 257 Flooded areas of Magela Creek, up towards the Magela Creek crossing.
- No. 258 The eastern end of the flooded Oenpelli Road at Magela crossing, parked cars, trailers and boats could be seen.
- No. 259 The eastern end of the flooded Oenpelli Road at Magela crossing, parked cars, trailers and boats could be seen.
- No. 260 Sandy section of Magela Creek upstream of Mudginberri Billabong.
- No. 261 Magela Creek looking upstream (or south) from Mudginberri Billabong in the sand bed section.
- No. 262 Magela Creek looking upstream (or south) from Mudginberri Billabong in the sand bed section.
- No. 263 Looking toward Ranger mine in the distance.
- No. 264 The tailings dam at Ranger mine in the distance.
- No. 265 The mill structures at Ranger mine in the distance.
- No. 266 The tailings dam at Ranger mine.
- No. 267 View of *eriss* from the air as the helicopter lands at Jabiru Airport.
- No. 268 View of Jabiru Airport from the air.
- No. 269 The helicopter on the ground at the conclusion of the flight, Jabiru Airport.