KEY TO DALY RIVER LAND USE MAPS

- Developing channel areas
- Potential channel areas
- Areas of high erosion potential
- Proposed fenceline
- Bank erosion and/or slumpage
- Present land use
- Potential land use
- Land unit boundary
- Boundary between cleared and uncleared land (not fenced boundary)
- Shaded area - cleared section.
PRESENT AND POTENTIAL LAND USE KEY - DALY RIVER MAP OVERLAYS.

1. Few limiting land use factors of low order of influence. Arable with few limitations, suitable for such cash cropping as seed production with seed harvesting by both heading and vacuum harvesting techniques.

2. As for 1. Soil however not as structured and therefore unsuitable for blowing and vacuum seed harvesting techniques.

3. Limiting land use factors of low order of influence. Slightly more marginal country and therefore better suited to fodder than cash crops.

4. Limiting land use factors of low to moderate order of influence. More suitable to improvement with perennial pastures.

5. Limiting land use factors of moderate order of influence. More suited to improvement with annual pastures.


9. Suitable for recreation or native reserve.

10. Cleared, not in use.

11. Not cleared, not in use.

Daly River Agricultural Area — Recommendations.

Format of Paddock Notes.

1. Name of property owner.
2. Property plan. — Scale approx 1:15,000. 1 cm = 0.15 km.
4. Detailed paddock notes:
   (i) Flood damage 1975/76 flood.
   (ii) Potentially unstable areas — see land unit fenceline overlay maps.
   (iii) Present land use. (Land use category).
   (iv) Land use pre 1975 flooding.
   (v) Recommended land use and remedial action.
   (vi) ACTION
VANDERAA

Sheet #5 4.15.
1. VANDERAA

2. Property plan.

   (a) Southern portion.
(b) Northern section.

Scale. 1 cm = 0.15 km.
4. **Paddock A.**

(i) Gullying of sandy levee area between turn in river's course and sandy flood channel area - land unit 6a. (1).

(ii) Closed fringing forest area, land unit 9a (3) is no doubt offering a fair degree of protection to this area from flood damage, however clearing of this dense vegetative cover to the north of this area (4) in an area adjacent to a turn in the river course has probably contributed to erosion particularly in areas adjacent to the sandy flood channel land unit 6a.

Land unit 6a, sandy flood channel in the northern part of the paddock represents a potentially unstable area and it is recommended in the Daly River Report that such areas are not suitable for any form of farming.

(iii) At this stage the area is not in use and attempts are being made to stabilize the sand throughout this area. Para grass is sown throughout the area. (This paddock was seen to be heavily stocked in August.)

(iv) Grazing. 

(v) The sandy levee area should be stabilized with dense stands of annual pastures - *E. lamata* and Pangola grass and once a dense cover is established limited grazing could be carried out.

Lower slopes, in particular areas adjacent to and including the 6a sandy channel unit, could be stabilized with perennial pastures - Para grass and limited grazing carried out late in the dry for a short period.

Bank vegetation should not be cleared and establishment of such trees as *E. canadulensis* and Casuarinas should take place along the river's edge particularly to the north of the paddock with *Bambusa* established beneath the trees.

(vi) ACTION

Re-establish and maintain a dense grass cover, particularly in areas adjacent to the sandy flood channel. Re-establishment of bank vegetation in the cleared bank areas - Approximately 0.45 km by 60m to be revegetated. Pioneer species such as *Acacia*, *holosericea* and *auriculiformis* should be densely sown along such bank areas. *A. auriculiformis* may grow 2-3m per year and such species should stabilize the soil for the slower growing Eucalypts and Casuarinas. Ideally the revegetated strip should be at least 60m wide and all stock should be kept off the area. This would necessitate fencing the area from the adjacent paddock if the paddock is to be grazed. In this case approximately 0.6 km of fencing may be needed.

**Paddock B.**

(i) ---

(ii) ---
(iii) Grazing on native grasses, some improvement with 3.8. and Para grass.

500 head of cattle distributed over paddocks B, D and E.

(iv) Grazing.

(v) Approximately one third of this area is occupied by sandy levee soils which should be treated as those in Paddock A. Most of this area is occupied by undulating clay flood channels which would be best stabilised with Para grass and grazed late in the dry when there is minimum chance of soil puddling.

Areas of 1c, low hills carry poor native grass cover and would best be used for poor, rough grazing and are probably uneconomical to improve.

(vi) ACTION: -

Paddock C.

(i) -

(ii) Areas of 2a, wash slopes to the west of the paddock may represent potentially erodible areas but no damage has occurred to date probably because of the relative unattractiveness of these poor pastures.

(iii) Grazing occurs particularly in low lying back channel areas on native grasses and improved areas of Phasey bean.

(iv) As above.

(v) Most of this area could be stabilised with para grass and limited grazing carried out.

The areas of land unit 2a are probably not worth improving and are useful only as areas for rough grazing.

(vi) ACTION: -

Paddock D.

(i) -

(ii) -

(iii) Used for hay production on T.S. pasture.

(iv) As above and grazing.

(v) This area could be used as arable land if appropriate soil conservation measures are adhered to. The area is located on sandy levee soils, land unit 5a2, and recommendations as per the Daly River Report are for limited grazing on improved pastures. Due to its relative height above river level however, it is generally unaffected by flooding and a more intensive form of land use such as fodder production for hay could be carried out with conservation measures. (These have already been carried out.)
(vi) ACTION: -

PADDOCK E.

(i) -

(ii) -

(iii) Grazing on native pastures, improved with Sudan in areas, and Para grass about low lying swampy areas - the northern half of the paddock.

(iv) Grazing.

(v) The southern half of the paddock located on sandy levee soils is potentially arable with extensive conservation measures. None have been carried out to date. Perennial stylo, *S. hamata* could be harvested for hay production with the appropriate conservation measures or limited grazing carried out.

The northern half of the paddock is located within an undulating clay flood channel area which could be improved with Siratro and Para grass and grazed later in the dry with close management supervision.

(vi) ACTION: -

PADDOCK F.

(i) Severe scouring occurred in both arms of the 6a land unit with large areas of sand deposition to the north of the unit. Some sheet erosion occurred in the paddock.

(ii) A large relatively unstable area of sandy flood channel, land unit 6a exists in the eastern part of this paddock. This unit acts to conduct floodwaters from the 6a unit of paddock A. In past years erosion and deposition of sand have resulted within this unit and adjacent areas within the paddock.

(iii) Limited grazing on improved pastures - Para grass around billabongs. Sabi grass on sandy levee.

(iv) Grazing - heavy

(v) It is recommended here that a north-south fence be constructed approximately at the centre of the paddock to allow limited grazing in the western half of the paddock and regeneration of grass and close management of the sandy flood channel area to the east.

Annual pasture species such as Townsville Stylo and Sabi grass could be used for improvement on sandy soils within the western paddock area, with the small area of undulating clay flood channel in the north-west corner being stabilized with permanent pastures - Para grass.
The sandy channel area should be revegetated with perennial species in the central channel area and such species as *G. hamata* and Townsville Stylo on the surrounding sandy washout areas. A dense canopy cover should be maintained with some limited grazing possible after this has occurred.

A V shaped approximately, west-east fenceline could also be erected in the north-east section of this area to allow more intensive land use on a flat, relatively stable area of sandy levee. With simple conservation measures this area could be used for grazing, fodder production and some seed production where harvesting doesn't involve vacuum and blowing techniques. A dense vegetative cover should be maintained during the wet season potential flooding period.

(vi) **ACTION:**

Revegetation and maintenance of dense vegetative cover within 6a unit and adjacent sloping sand deposition area to the west.

No grazing at all within this area until such cover is maintained and extremely limited grazing with close management thereafter.

If the rest of the paddock is to be used more intensively a north-south fence and V shaped east-west fence to be constructed - as above to isolate the highly unstable sandy channel area.

\[ \sim 1 \text{ km} \text{ N-W fencing} \]
\[ \sim 0.6 " \text{ V shaped E-W fencing}. \text{ } \]
\[ \sim \$220 / \text{km - fencing. (for materials only.)} \]
PADDOCK G.

(i) Large area down the centre of the paddock badly eroded and large sand deposition area. Bulldozer currently smoothing out area.

(ii) Entire area relatively high sandy levee, flooded approximately once in 18 years. No particularly unstable areas.

(iii) Not in use, machinery work taking place to redistribute sand.

(iv) Grazing on improved pastures. Townsville Stylo. Preparations were being made to irrigate this area before the flooding.

(v) The area should be stabilized with a strong perennial cover, e.g. Siratro, Calopo with limited grazing once this cover is maintained. The area could be used for fodder cropping providing a strong vegetative cover is present during the flooding period - e.g. December, January, February.

(vi) ACTION:
Stabilization with strong vegetative cover. Cover maintained with some limited grazing possible.

PADDOCK H. (Irrigated paddock)

(i) -

(ii) -

(iii) Grazing and hay production - Sudax, Sudan grass. Now under irrigation.

(iv) Irrigated pastures.

(v) This area could be used as is, providing a strong vegetative cover is maintained during the wet season flood period, e.g. such species as Calopo, Siratro, S. hamata etc.

Some seed production could be carried out providing blowing and vacuum harvesting techniques are not used.

PADDOCK I.

(i) -

(ii) -

(iii) Grazing and hay production - Stylo and Calopo.

(iv) Same.

(v) As "H".
PADDOCK J.

(i) Badly channelled particularly in the western side of the paddock where floodwaters flow out from sandy flood channel in paddock F.

(ii) To western edge of paddock, areas of 6a, sandy flood channel.

(iii) Bull paddock, grazing on native and some improved (Stylo) pastures.

(iv) Same.

(v) Not to be further cleared. Stabilize sandy areas with perennial species such as Para grass in depressions, S. hamata or Townsville Stylo on higher areas.

Limited grazing to be carried out. No more intensive form of land use to be carried out.

PADDOCK K.

(i) -

(ii) No erosion problems to this stage with the current form of land use.

(iii) Rough grazing.

(iv) 

(v) Most of this large area is taken up with hilly units or undulating clay levee. One small area of land unit 6a, sandy flood channel, exists in the south-east corner of this area but could easily be stabilized with Para grass.

Generally pasture improvement with perennial species such as Para take place in areas of 6a, 6b and 6c2 and such areas should remain stable with limited grazing, particularly if late in the dry to avoid excessive soil pugging.

Hilly areas, units 1c, 2a etc., are only suitable for extremely rough grazing, such areas may represent potentially erodible situations although cattle would no doubt favour lower, more densely vegetated channel areas.

(vi) ACTION: -

PADDOCK L.

(i) -

(ii) -

(iii) Grazing - limited, poorly grassed with Stylo improved pasture, weed infested.
(iv) Grazing - steer fattening paddock.

(v) 75% of paddock could be considered arable with a clay flood channel area through the centre. The flood channel area and closely adjacent sandy levee could be stabilized with Para grass.

Due to the relative lowness of this area it would best be used for grazing on permanent or annual pasture providing a dense vegetative cover is maintained throughout the potential flooding period.

(vi) ACTION: -

Paddock M.

As with Paddock L.
1. JUDGES - now LIM.

2.

3.

4. (i) No erosional damage noted.
   
   (ii) -
   
   (iii) Cashew orchard covering approximately 10% of area. Rest of the area cleared with native pastures - not in use.

   (iv) Same as (iii)

   (v) As for sandy levee 5a2, limited grazing or annual pastures.

N.B. Road to Judges and Nancar area appears to be in an extremely unstable condition in some areas of sandy levee. Vehicle access in the future may have to be limited if tourism and visitor pressure increases, as large tracts of the land may be rendered unstable by repeated use by four wheel drive vehicles and repeated bogging of two wheel drive vehicles. In certain very sandy areas, multiple tracks exist where vehicles have detoured around impassable areas.
3. Adjacent to police station. No erosional problems at this stage.

4. (i) -

(ii) An extremely complex system of channels exists to the north-east half of the block. (Too small to be mapped on land unit map).

(iii) Two small areas to the south-west. A and B have been cleared and support native pasture and are not in use. The remainder of the block is uncleared and not in use.

(iv) Same as (ii)

(v) Most of this area contains loamy levee soils land unit 5b2 which are inherently more stable, display a better water holding capacity and are possibly more fertile than the sandy levee soils further upstream. Such soils have been grouped in an arable category in the Daly River Report but in this case however due to the apparent complex channel system to the north-east of the area it would be advisable not to clear channel areas or small areas of loamy soil obviously amongst channel systems.

Clearing and improvements would best be restricted to the south-west corner indicated by a -/-/ line above.
The north-east area could be used for grazing on improved pastures with preferably no clearing taking place.

(vi) ACTION: -
MISSION - POLICE STATION AREA

Sheet # 5.
AREA BETWEEN POLICE STATION AND MISSION.

FAIRWETHERS HOTEL.

The original problem in this area was due to clearing bank vegetation, and tracks down to the river.

ACTION: 1. The hotel should be restored. (i.e. melville's re-occupy).

2. Bank stabilized with *Bambusa*, *Casuarinae* and *E. camaldulensis*. (and Acacia sp. see Vanderach 8).

3. Reforming batters.

4. Grassing the reformed channel areas.

5. Fencing off these areas to establish dense pasture and also the establishment of trees.

Vehicle tracks running parallel to the river between the hotel and mission should be closed to vehicle access due to gullying along these tracks by floodwaters. Vehicle access to the mission should be by the main mission gravel road.
1. CATHOLIC MISSION.

2. [Diagram of land parcels labeled A, B, C, D, E, with Daly River indicated.]


4. Paddock A.

(i) This area provides access to back channel areas, land unit 6c2, and has been badly eroded in past floods.

(ii) As above.

(iii) Presently not in use - recovering 1975/76 floods.

(iv) Baling hay on Townsville Stylo, Siratro pasture.

(v) This area should be stabilized with a dense cover of such perennial pasture as Pangoa with extremely limited grazing once dense pasture is maintained. The area contains loamy levee soils which would normally be classed as arable but the channel situation in this case precludes use of the area for more intensive land use.

(vi) ACTION:

Dense pasture growth to be established and maintained, no more intensive land use than very limited grazing, to be carried out.

Paddocks B, C, D, E.

(i) -

(ii) -

(iii) Paddocks B, C, D, E - not in use since 1975/76 flooding
(iv) PADDOCKS B, C, D.
Baling hay for fodder production and grazing on Siratro improved pastures.

PADDOCK E.
Townsville Stylo and Siratro for hay production.

(v) PADDOCKS B, C, D.
Sandy levee soils, but due to the relative stability of these areas they could be safely used for hay production with grazing at a later date, providing a strong grass cover is maintained during the potential flooding months.

PADDOCK E.
This area contains relatively more stable soils and could be used as above with some seed harvesting taking place where it does not involve blowing or vacuum harvesting techniques.

Erosion problems will continue to exist in the intensively used urban area but these will be kept to a minimum by maintenance of a dense vegetative cover, grass lawns etc.
JAKEL.

Sheet 5
4. **Paddock A.**

(i) Area opposite mission airstrip extensive scouring of sandy levee. Further damage to the small areas of bank vegetation opposite the mission airstrip.

(ii) The area of sandy flood channel, land unit 6a, has suffered a great deal of scouring and sand deposition in both of the last two flood periods.

Two cleared areas within an upland, 2a wash slope unit (above diagram) are showing evidence of erosion to the sides of the cleared areas. Erosion is occurring from the eastern edge of the larger cleared area back into this paddock.

(iii) Generally most of this area supports grazing on native pastures with some areas of improved pasture.

(iv) As above.

(v) Due to the presence of the extremely unstable 6a, sandy flood channel unit and the lack of internal fencing within this large paddock area either a fenceline should be constructed following the western contour of the flood channel so that this area can be carefully managed or all grazing should be stopped throughout the entire paddock A area.

Revegetation and maintenance of a dense grass or vegetative cover should take place e.g. with Para grass throughout the channel area, and the sides of the channel vegetated with Pangola, Siratro or Calopo.

Once such a cover is maintained light grazing could proceed providing the cover is dense during the potential flooding period.
To alleviate the effects of floodwaters on this particular area revegetation of the bank opposite the end of the mission runway should take place. The bank area could be stabilized with such tree species as *E. camaldulensis* and *Casuarina*, with under-story of *Albizzia* and *Leucaena* sp.. (See Section (v) Vandaea.)

No further clearing should take place to the west of this paddock within the 2a wash slope unit as there is already evidence of erosion within the two cleared areas and intensive soil conservation measures will be needed to correct this. Once such measures are taken, however, these two cleared areas could be used for grazing or fodder or seed production. (Header harvesting only).

Some improvement of areas within the 2a unit could take place with simple soil conservation measures. No general clearing should take place however, though improvement with such species as *E. hamata* soon throughout the native open forest would provide valuable improved pasture to limited stock numbers.

(vi) ACTION:

(i) Stabilize 6a, sandy flood channel unit, revegetate and either remove all stock from this paddock or fence off this unstable unit with a fenceline following the western contour of the channel. (See land unit map).

(ii) Revegetate and stabilize bank vegetation. (Section VI Vandaea.)

(iii) No further clearing to take place to the west of this area within the 2a wash slope area.

Conservation measures required for two cleared areas to the west.

Extremely limited grazing only, throughout this area.

(iv) 4a, drainage line unit to the north-west, should either be fenced off and stabilized with Para or Calopo or grazing throughout the entire area be limited to ensure no further removal of vegetation in the area.

PADDOCKS B, C, D.

(i) Some scouring about the homestead within paddock D.

(ii) -

(iii) Paddock B.

Grazing on improved pastures.

PADDOCKS C, D.

Harvesting Townsville Stylo seed.

(iv) Probably same as above C and D have been used to seed production.
(v) These three areas would most safely be used for grazing on improved pastures however fodder production and subsequent grazing should not prove too intensive a land use, providing a dense vegetative cover is maintained throughout the December, January, February potential flooding period. These areas are probably not stable enough for seed harvesting, involving blowing and suction harvesting techniques.

PADDock E.

(i)

(ii) A small area of highly erodible sandy flood channel, land unit 6a, occurs in the south west of this paddock.

(iii) Grazing on improved pastures.

(iv) Probably as above.

(v) This area should only be used for grazing with seed and fodder production being too intensive a land use. Vegetation should take place and a dense vegetative cover be maintained particularly throughout the wet season flooding period. Such grasses as Pangola and Sabi grass in the higher areas and Para in lower depressional areas.

(vi) ACTION:

Revegetation and maintenance of a dense vegetative cover. Grazing should be limited so that such cover is maintained particularly throughout the wet.
3. Currently being grazed by H. Jakel's cattle.

4. **PADDOCK A.**
   (i) Some scoring has taken place in one section of the paddock.
   (ii) -
   (iii) Not in use. (Possibly grazed by Jakel's cattle as to paddock B.)
   (iv) As above (iii).
   (v) Reasonably stable area on sandy levee soils, arable providing dense vegetative cover is maintained throughout wet season. Grazing, fodder production and seed harvesting could be carried out in such an area. Providing harvesting methods do not involve blowing or vacuum techniques such a land use would not be too intensive for this area.

**PADDOCK B.**

(i) -

(ii) This area contains a complex of unstable land units, 6a sandy flood channel areas to the east and 4a drainage lines throughout the higher terrain to the west.

(iii) This area is currently grazed by cattle from the adjacent Mango Farm E and F paddocks.

(iv) Grazing.

(v) Due to the extremely erodible nature of the 4a and 6a land units within this paddock such areas should either be fenced off from the rest of the paddock or grazing be limited throughout the entire area.
Since these sensitive units are scattered throughout the paddock it would seem uneconomical and impractical to fence them off from the rest of the area particularly when most of the adjacent units offer only poor grazing potential.

One of either two proposed fencelines could be built to protect these unstable land units—(see following enlarged map).

**Action:**

**Fence a.**

This fence would result in separation of all of the unstable areas from the arable levee soils. The existing fenceline separating paddock A and B could then be removed and the whole arable area treated as one farming unit. (apart from a small area of semi-swamps to the north.)

**Fence b.**

Approximately 1.2 km, twice the length of fence a. If the two areas of sandy flood channel could be stabilized with dense vegetative cover and maintained in such a manner, these areas could then be incorporated with the large area of undulating clay flood channel, land unit 6c2 to form a perennial improved pasture area suitable for limited grazing. The unstable 4a drainage line units and very poor wash slope areas would both be fenced out and should not be grazed.
3. Epworth's farms sold to S. Raskin & Co.

4. **Paddock A**. (Cleared area to west). // // //

(i) Scouring channels from bend in river to billabong area. Very badly affected in 1974/75 floods.

   (rest of paddock A)

   No damage - all high country\textsuperscript{2} to the east.

(ii) The cleared sandy levee area is potentially unstable without dense wet season vegetative cover due to its position on the outward side of the bend in the river's course. The momentum of floodwater directs the river flow across the cleared area to the billabong and system of back channels.
(iii) Cleared area - cleared but not in use.

Remainder of paddock - rangeland grazing on native pasture.

(iv) As above.

(v) This area is potentially too unstable to be used for fodder or seed cropping, however limited grazing with maintenance of dense vegetative cover should not be too intensive a land use.

This area currently needs to be sown with a pasture species such as Siratro and left for two wet seasons to establish a dense cover. Limited grazing could then be carried out providing the dense cover is maintained throughout the wet season months.

The remainder of the paddock is probably uneconomical to improve and is suitable for limited grazing during the wet season.

(vi) ACTION:

Establishment and maintenance of dense pasture growth on cleared sandy levee area. Area to be used for limited grazing only.

Paddock B.

(i) -

(ii) A drainage line area, land unit 4a, exists in the eastern central part of this paddock. Such areas should not be utilized at all. Erosion throughout this area was visible during the Daly River Survey and appeared to be due to over-grazing and padding by cattle.

An area of sandy flood channel, land unit 6a, to the west of the paddock represents a potentially unstable area as the area directs floodwaters from the large billabong northwards to link up with further back channel areas.

(iii) The major part of the paddock consists of hilly country and is used for rangeland grazing on native pastures. The cleared sandy levee area to the west is not presently in use.

(iv) Hilly areas - same as above.

Sandy levee - heavily grazed on Townsville Stylo improved pastures.

(v) Due to the presence of an erodible 4a drainage line unit in the hilly areas to the east, this entire area should be very lightly grazed and the drainage line stabilized.

As the land on the sandy levee area can be utilized to a more intensive level than in the rest of the paddock, this area should be fenced off to allow the correct management practices to be carried out in each of the two areas.
The cleared levee area could safely be used for limited grazing of perennial improved pastures, hay production or seed production where harvesting for seed does not involve blowing or vacuum techniques.

Such legumes as Calopo and Siratro or grass such as Sabi could be used for pasture improvement with seed production from Sabi grass. Legumes such as the Stylos, Calopo and Siratro needing blowing or vacuum harvesting methods should not be used for seed production.

(vi) ACTION:

1. Fencing between the sandy levee area and hilly country to the east. Needed only if stock are to be grazed in one of these two areas.
2. No grazing to be carried out in eastern area until stabilization of the drainage channel has occurred, either with natural regeneration of native grasses or such introduced species as Para grass. Very limited grazing may be allowed after such regeneration and stabilization has occurred.
3. Stabilization of the sandy levee with dense vegetative cover and such cover to be maintained, particularly throughout wet season period.
4. Stabilization of the sandy floodline area to the north of the cleared sandy levee, with such a grass as Para, and careful management of this area. Once a dense vegetative cover is established and maintained, limited grazing may be carried out, harvesting of fodder crops and seed production too intensive a land use for such an area. Area B suitable for limited grazing only.

PADDock C.

(i) Sand deposition from flood channel in paddock F, through D to C.

(ii) Most of this paddock is sandy flood channel area with a small area of higher wash slope to the east. Both the sandy flood channel and swamp area, land unit 8a to the north-east both represent potentially erodible areas unless stabilized with dense vegetative cover.

(iii) Not in use.

(iv) Fairly intensive grazing of wetland pastures.

(v) This area evidently carries an extremely dense cover of Para grass and represents an extremely valuable grazing area. Due to the relative instability of the unit however the paddock should be closely managed so that maintenance of dense vegetative cover is ensured.

(vi) ACTION:

Maintenance of dense vegetative cover. To be utilized for limited grazing only.
PADDOCK D.

(i) Large area of sand deposition in the northern half of the paddock from the flood channel in paddock F.

(ii) Continuation of flood channel from paddock F which directs floodwaters from the river to the sandy floodline area of paddock C.

(iii) Not in use.

(iv) Calopo grown for seed and hay production.

(v) Due to the unstable nature of the sandy channel within paddock F and the sand deposited from this area into the northern section of paddock D, a fenceline should be constructed as indicated in the farm plan so that intensive management of the northern deposition area may be achieved. (This would be needed only if the southern portion of the paddock was to be used for a more intensive form of land use - e.g. grazing.)

The northern section should be revegetated with a pasture species such as Siratro, heavily fertilized and the area left for two wet seasons until a dense cover is achieved. Limited grazing could then be implemented providing the dense pasture is maintained throughout the wet.

The southern area is stable enough to use for fodder and seed production again with the proviso that a dense canopy be maintained throughout the wet and seed harvesting be limited to heading methods only.

(vi) ACTION:

Construction of fence as shown on fenceline plan if grazing is to be carried out in the southern section.

Establishing dense cover of pasture on sandy deposition area to the north and maintaining the pasture throughout the wet. Limited grazing possible after one or two wet seasons.

PADDOCK E.

(i) Severe surface erosion.

(ii) —

(iii) Not in use. Was sown down to Siratro in January.

(iv) Was used for Townsville Stylo for seed and fodder production.

(v) As in southern section paddock D.

(vi) ACTION: —
PADDOCK F.

(i) The channel through this area has again been gouged out by the 1975/76 flood waters and sand has been deposited from here into paddocks D and C.

(ii) The central channel through this area forms a continuation of the land unit 6a, sandy flood channel area through paddocks E and F and is highly unstable if poorly vegetated.

(iii) Not in use.

(iv) This area has been used for grazing on improved pastures.

(v) The channel should be reformed and stabilized with dense pasture growth and should not be used for any form of land use until such pasture growth is maintained. Light grazing could then be carried out.

PADDOCK G.

(i) Some damage to fencelines.

(ii) -

(iii) Not in use.

(iv) Seed paddock - harvesting Townsville Stylo seed.

(v) Some land use as per paddock E.

PADDOCK H.

(i) -

(ii) -

(iii) Not in use.

(iv) Seed paddock - harvesting Townsville Stylo seed.

(v) Same as for paddock E.

PADDOCK I.

(i) -

(ii) -

(iii) Not in use.

(iv) Siratro grown for fodder and seed production.

(v) As for Paddock E. In peak flood periods this area may be more susceptible to erosion due to the presence of an adjacent back channel complex (billsbong area) which may conduct high velocity flood waters.
Paddock J.

(i) -

(ii) -

(iii) Not in use.

(iv) Stockyard area and Siratro for hay and seed.

(v) As for paddock E.

Paddock K.

As for J.

Paddock L.

(i) -

(ii) Several arms of potentially erodible, land unit 4a, drainage lines exist in the central section of this paddock. If overstocked, severe erosion could arise in such areas.

(iii) Not in use.

(iv) Rangeland grazing on native grasses.

(v) This area should be **lightly grazed** due to the presence of the highly erodible 4a units. Stabilizing such areas with say Para grass may in fact worsen the problem by attracting cattle to these lusher pastured areas.

It would appear impractical and uneconomical to fence such areas as the remainder of the paddock provides only poor grazing potential.

The remainder of the area could however be improved with annual pasture species but clearing should definitely not take place.
SINCLAIR

Sheet # 6
3. **Caretaker**: Bill Hargraves.

4. (i) Mainly damage to fences.
   (ii) -
   (iii) Not in use.
   (iv) Hay and seed production from mixed Stylo, Calopo and Siratro pasture.
   (v) Area is suitable for seed and fodder production providing seed is not harvested by blowing or vacuum techniques and a strong vegetative cover is maintained throughout the wet.
3. **Caretaker**: Bill Hargraves - presently living on Sinclair's property.

4. **Paddock A**.
   
   (i) -
   
   (ii) -
   
   (iii) 130 head grazing freely throughout all paddocks.
   
   (iv) Stylo, Siratro for seed production.
   
   (v) Seed and fodder production and grazing providing only heading techniques are used for seed harvesting and a dense pasture cover is maintained throughout the dry.

**Paddock B**.

(i) -

(ii) -

(iii) As for A.

(iv) Fodder and seed production. Calopo crop washed out in 1975/76 flood.

(v) As for paddock A.
PADDOCK C.

(i) -
(ii) -
(iii) As for A.
(iv) Possibly used for rangeland grazing.
(v) A small area of sandy levee to the west, approximately 1/4 of this paddock could be used for fodder and seed production. The remainder of the paddock should only be used for limited grazing, possibly on improved perennial pastures of Para grass on the 6c2 land unit with grazing taking place from June to the end of the dry to avoid excessive pugging. A low hill area, land unit 1c approximately in the centre of the paddock could be used for very limited grazing on native grasses or could be improved with annual species though such improvements on such a small area would no doubt be uneconomical.

PADDOCK D.

(i) -
(ii) -
(iii) As for A.
(iv) Used for feed production on Sudax pasture.
(v) Most of this paddock is situated on sandy levee and could therefore be used for seed and fodder production with the proviso that seed should be harvested by heading methods only and that a dense pasture cover should be maintained throughout the wet. A narrow strip of undulating clay levee to the east should be grazed only, and is not suitable for more intensive land use. Such an area could be grazed together with the 5a1 area after the seed or fodder crop had been harvested. An area of land unit 8a, densely vegetated swamp to the south of this paddock which has since been cleared could similarly be stabilized with say Para grass and lightly grazed.

PADDOCK E.

(i) -
(ii) -
(iii) As for A.
(iv) Rangeland grazing. Some areas may be improved with Stylo, Siratro and Calopo.
(v) This paddock should be used for grazing only. Approximately half the paddock area, the 6c2, clay flood line area could be improved with perennial grasses such as Para and grazed from mid dry season to the early wet, grazing during the wet being avoided to check soil pugging. The remainder of the paddock particularly in the south-east corner should be used for limited rangeland grazing only, possibly be improved with annual pasture species and grazed.
BEST

Sheet #3 2,6.
(i) Washouts from Butterfly Creek (1) across the access track. This washout may in fact have been following an old overflow line from Butterfly Creek north through the 6b, narrow clay flood line unit to the west of the paddocks B, C, and (1) area.

(ii) -

(iii) Rough grazing on native grasses. Two areas within broken lined perimeter - cleared with rough grazing on native pastures.

(iv) Rough grazing.

(v) The washout area from Butterfly Creek should be levelled and the channel stabilized with such grasses as Pangola or Para or legumes such as Centro, Calopo etc.
Most of this area is situated on 5a2 sandy levee and could safely be used for grazing on improved pastures. Fodder production providing a dense pasture stand is maintained throughout the wet season flooding period, and seed harvesting providing blowing and vacuum harvesting techniques are not used and similarly a dense pasture cover is maintained. The remainder of the paddock is dominated by clay head-channel and plains land units which could be pastured with perennial species and limited grazing carried out, providing a dense vegetative cover is maintained throughout the wet season.

(iii) Townsville Stylo is currently being grown for seed and hay production. A strip of cowpea is grown along the western edge of this area.

(v) The gully area should be revegetated with grasses such as Siratro and the track through this area blocked to exclude vehicles. Limited grazing, fodder and seed production could be carried out within this area providing a dense cover of grass is maintained throughout the wet season flooding period and seed is not harvested using blowing or suction techniques.

(vi) ACTION:

Revegetate and stabilize gully (2).

PADDOCK C.

(i) Bank slumping in area adjacent to turn in river course. (3).

(ii) -

(iii) Not in use.

(iv) Grazing improved Townsville Stylo, native grass pasture.

(v) The slumping bank area should be revegetated with Casuarinas, Bamboo and E. camaldulense and a mulch and netting system similar to that used by the Reserves Board near the crossing could also be incorporated. Land use in the paddock is the same as for paddock B.

(vi) ACTION:

Revegetation and stabilization of bank area. (See Vanderaa (vi)) The strip to be revegetated should be approximately 60m wide and 0.6 km in length, extending from the north eastern corner of paddock B through paddock C to link with the strip of fringing forest in paddock D. This strip should be fenced from the adjacent C and D paddocks if these areas are to be used for grazing stock. Without a revegetation programme along this bank area any remedial work to the adjacent flood damaged track, gully and paddocks will ultimately be in vain.
PADDOCK D.
(i) Some bank slumping in the southern part of the paddock. (4).
(ii) -
(iii) Grazing on improved pastures.
(iv) Grazing on Townsville Stylo improved pastures.
(v) As for paddock C.

PADDOCK E.
(i) -
(ii) -
(iii) Not in use now.
(iv) Small seed paddock - Calopo.
(v) Due to the very small size of this area seed harvesting using blowing and vacuum techniques would appear to be possible without any deleterious effects. A dense vegetative cover during the wet, flooding period however would still be necessary.
BAUER

Sheet #6
1. BAUER.

2. 

3. 

4. PADDOCKS A, B, C.
   (i) -
   (ii) -
   (iii) Not in use.
   (iv) PADDOCK A & B.
       Siratro and Townsville Stylo for seed, grazed off after harvesting.
   PADDOCK C.
       Grazing improved pastures.
   (v) Fodder and seed production providing seed harvested by heading methods only and dense pasture cover is maintained throughout the wet.
4. **PADDOCKS A & B.**

(i) -

(ii) -

(iii) Calopo grown for seed and hay production.

(iv) As for (iii).

(v) This area is situated on the more stable loamy levee soils which should remain stable under more intensive management techniques. For this reason grazing, fodder production and seed production involving blowing and vacuum harvesting techniques should be possible without deleterious effects. A dense vegetative cover should however be maintained throughout the wet season flooding period.
(iii) Sabi grass for seed production.

(iv) Not known.

(v) This paddock area is situated on very stable loamy levee soils and for this reason could be used for grazing, fodder production and seed production using both heading and suction and blowing harvesting techniques. It would be advisable however to maintain a dense vegetative cover throughout the wet season flooding period to further stabilize the soil.
PADDOCK B.

(i) -

(ii) -

(iii) Calo po grown for seed and hay cropping, grazed by cattle after harvesting.

(iv) Not known.

(v) As for paddock A.

PADDOCK C.

(i) -

(ii) -

(iii) Rangeland grazing on native pastures. 500 head grazed here and over areas of the Kilfoyle plains.

(iv) Probably as above.

(v) Most of this area is vegetated with closed canopy forest and clearing costs would be extremely high. It is advised in the Daly River Survey report that such areas should be left uncleared and are unsuitable for any form of land use.

Area C1 however to the east of the 7a1 closed forest unit is situated on loamy levee soils and could be used as for section (v) of paddock A and B.

PADDOCK D.

(i) -

(ii) -

(iii) Rangeland grazing - vegetation cleared within the lined area. (See map).

(iv) Rangeland grazing.

(v) Most of this paddock area is also situated on loamy levee soil and could be treated as for paddocks A and B. An area of land unit 7a (see map) to the south of this paddock should be left uncleared and is unsuitable for agricultural use. It would appear that this densely vegetated area could suffer flood damage if cleared, particularly in areas close to the river channel.

Severe slumping is occurring along approx. 0.5km of river bank adjacent to the Browns Creek area. (photographs - Daly River Flood 1974 - file) This appears to be due to natural erosion which has been accelerated by clearing of the bank fringing forest. Dense regrowth of mixed scrub is taking place along the most rapidly eroding face where the most significant change in river course direction occurs, and this is probably slowing the eroding rate. Further upstream little natural revegetation is occurring however. Revegetation work is necessary in this area to check bank erosion however it should not take precedence over the work that is urgently needed along similar areas of Jakels and Bests properties where slumping is posing an immediate threat to the main paddocks.
APPENDIX 4

LAND UNIT KEY AND REFERENCE, DALY RIVER AGRICULTURAL AREA

HILLS
- high hills; relief 50-200 m; slopes 20-40%; shallow lithosols; low open woodland-woodland 1a
- low hills; relief 10-50 m; slopes 10-30%; shallow lithosols; low open woodland-low woodland 1b
- rounded hills; relief 5-15 m; slopes 5-10%; lithosols; low woodland 1c
- residual rises; relief 2-10 m; slopes < 5%; lithosols; woodland-low woodland 1d

WASH SLOPES
- slope 5-10%; gravelly surface; lithosols; low woodland 2a
- slope < 5%; gravelly yellow earths; woodland 2b

COLLUVIAL SLOPES
- poorly drained; slopes 1-3%; deep yellow earths; tall shrubland-low closed forest 3a
- well to moderately well drained; slopes 3-5%; yellow earths; woodland-low woodland 3b

DRAINAGE AREAS
- drainage lines; grey and yellow earths or solodics; low open woodland-woodland 4a
- seepage areas - restricted occurrence; organic sands; closed forest 4b

SANDY
- flat to gently undulating; relief 2 m; uniform sandy yellow earths; woodland-open forest 5a1
- undulating; relief 2-5 m; earthy sands; woodland-open forest 5a2

LOAMY
- flat to gently undulating; relief < 2 m; yellow earths; woodland-open forest 5b1
- broadly undulating; relief 2-5 m; yellow earths; woodland-open forest 5b2
- closely undulating; relief 2-5 m; yellow earths; tall shrubland 5b3

CLAY
- undulating; relief 2-5 m; light to medium uniform clays; grassland or open woodland 5c

SANDY
- uniform earthy sands; low woodland, woodland or open forest 6a