ACT FORESTS BRANCH

STROMLO TRAIL BIKE AREA - IMPACT ASSESSMENT REPORT NUMBER ONE (W.L. Bloomfield, K.J. Roberts, B.J. Terrill)

Introduction

This is a summary of an initial impact assessment carried out in the Stromlo trail bike area during early April 1974 (i.e. four months after the area was opened). Details of the full assessment are given in a larger report which includes area description, methods, results, discussion, photographs and diagrams.

The concept of allowing selected forest areas to be used exclusively for trail bike riding is not new but it was not until November 1973 that the 120 hectare trail bike area at Stromlo was opened to the public.

This provided a valuable opportunity to assess the impact of trail bikes on a specific forest area, both by immediate investigations and long term experiments. In Australia, assessments of this nature are apparently new. The scope of the report implied more than a subjective analysis and some quantification was required. Techniques used were simple and further refinement may be justified. Soil moisture was not excessively high at the time that this assessment was conducted.

Further assessments will be made from time to time.

Objectives

1. To investigate the effects of trail bikes on the Stromlo trail bike area and consider impact, if any, on surrounding areas.

2. To investigate problems associated with trail bike use of the area.

3. To observe rider behaviour in the area and determine its relationship to impact.

4. To make management recommendations by considering the impact assessment results and social factors.

Methods

An initial examination of the trail bike area indicated that usage is confined almost entirely to trails. All trails were examined and mapped. The percentage of the area used regularly by riders was calculated. Comparative measurements of ground cover and soil compaction were carried out on trail and non-trail areas. Trail width and trail depth measurements were also taken.

Comparative photography, showing the area before the opening and three months later was used to aid assessment of impact.

Changes in microtopography were assessed by observation. Rider behaviour observations were carried out throughout the study.

Three long term experiments were set up to monitor:

- (a) changes (if any) in trail depths and widths, and in trail location;
- (b) changes (if any) in the depth of the erosion gully;
- (c) trail revegetation patterns and recovery times.

Results

Results indicated that less than 3% of the area is regularly used by riders. Substantial reductions in ground cover were revealed on all trails but especially so in an erosion gully located near the trail bike area entrance. Trail widths were greatest in open grassy areas but use of wider sections rather than actual trails was seen in the entrance gate - barbeque vicinity.

Soil compaction was found on trails throughout the whole area but most compaction was on trails around the erosion gully.

Only minor indications of trail bike induced erosion were found. Noise, littering and vandalism were considered negligible.

Observation of rider behaviour revealed that the erosion gully is the most used section of the trail bike area. Open grassy sections appeared to be popular. Few riders were seen using forested sections.

Conclusions

1. Only a small percentage of the area is used by trail bikes. riders

2. The erosion gully is the most used part of the trail bike area and has consequently suffered the greatest impact. The popularity of the gully results partly from its location.

3. Trail bike activity has led to substantial reductions in ground cover and compaction of soil. However, riders have a tendency to stay on actual trails and so impact is confined almost entirely to trails.

4. Adverse impact is certainly occurring in the Stromlo trail bike area but the current level of impact is considered acceptable because:
(a) Only a small percentage of the area is effected;

- (b) Impact similar to that described in this report should be expected in a trail bike area;
- (c) The important recreational function of the area justifies a tolerance of current impact levels.

5. The ability of the area to absorb a substantial increase in use is doubtful. An increase in the numbers of riders using the area may lead to unacceptable impact.

6. Trail bike impact on the area increased during and for some time after heavy rain.

7. Further assessments of trail bike impact in Stromlo trail bike area are necessary.

Recommendations

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1. Further trail bike areas should be established in A.C.T. forests. (A guide to selection criteria is included at the rear of this report.)

2. Until the establishment of further areas, the trail bike area at Stromlo should remain open to the public.

3. Once further areas are opened, regular assessment should be carried out in all areas. The results should be used as a basis for a management plan which would make trail bike areas available to the public on a rotating basis. Trail bike areas suffering from significant impact can therefore be given time to recover. Some restoration work may also be necessary.

4. Additional trails should be planned and cleared in the southern pine stands of the Stromlo trail bike area. The possibility of providing a one-way short circuit track and a "skid pan" should be considered.

5. Further assessment of impact should be undertaken in the Stromlo trail bike area at regular intervals. The long term experiments presently underway should be continued. Special emphasis should be given to an assessment aimed at determining impact after heavy rain.

> A.C.T. FORESTS BRANCH MAY 1974

DEPARTMENT OF THE CAPITAL TERRITORY A.C.T. FORESTS BRANCH

CONSIDERATIONS REGARDING THE SELECTION OF TRAIL BIKE AREAS

CONFLICT:

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Consideration of adjacent land uses is essential to minimise conflicts. Trail bike areas should be located far enough away from residential areas to avoid noise problems but should still be convenient for riders and family groups.

SITE SELECTION:

Land subject to swampy or high soil moisture conditions is unsuitable for a trail bike area because it will attract heavy useage. This leads to rapid surface deterioration. Topography is an important selection criterion and sites on the lower slopes of some hills may be undesirable due to the prevailance of springs and seepages. Soil type and geology must also be considered.

SIZE:

Trail bike areas should be 100 to 400 ha in size, with definite boundaries (preferably completely fenced). Large areas permit rotation of trails within their boundaries.

CHALLENGE:

Trail bike areas should offer a wide variety of challenges. Ideally, steep and gently sloping terrain, rocky sections, gullies, forested sections and open grassland should be present.

PARKING:

Many riders transport their motorcycles to the trail bike area by car trailer. Parking must allow for wide turning circles.

FAMILY GROUPS:

Trail bike riding is popular with family groups, who often make use of the barbeque and table facilities.

ARTIFICIAL HAZARDS:

Provision of marked trails, skid pans, jumps, mounds etc. is recommended in trail bike areas.

BEHAVIOUR:

Rider preference for existing roads and trails, and for damp soil conditions results in intensive use of only a small percentage of the trail bike area and large sections remain unused.

MANAGEMENT:

Unacceptable impact at certain sites may necessitate some form of management action. Fencing off sections within the trail bike area and re-location of trails by moving slash has been used successfully at Stromlo Forest trail bike area.

ORGANISED EVENTS:

The Stromlo trail bike area has been used for organised events such as trials/trails competitions. The impact of such events is minor.

LIMITATIONS:

The type of area described in the above points does not satisfy all riders. In small areas, the solitude factor (which can be an important part of the trail bike experience) tends to be lost. Some riders prefer long circuit trails through large, usually natural regions, rather than specific trail bike areas with defined boundaries.

DEPARTMENT OF THE CAPITAL TERRITORY

A.C.T. FORESTS BRANCH

STROMLO TRAIL BIKE AREA - IMPACT ASSESSMENT REPORT NO. 2 (MAY 1974)

Introduction

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Most field work for the assessment described in the first report was carried out in fine conditions and before the heavy rainfall of mid-April 1974. A brief examination was made of the Stromlo Trail Bike Area towards the end of April, i.e. after the heavy rain.

Results

The majority of trails were in similar condition to that described in the first assessment report. However, a well used trail in the grassland area type was beginning to lose its formerly hard compacted surface in favour of a loose and in some places deep, mud surface.

A small seepage was just beginning to break out beside one particular section of this trail. This had apparently attracted trail bike riders and their activities led to the disturbed area, or "trail" being three times its former width. A section of about 3 x 6 metres was effected.

A further inspection of the trail bike area was made in early Hay. The muddy section on the grassland trail had increased greatly in area. Its size was now in the vicinity of 100 sq. metres. This section is now a quarmire, all traces of grass have been removed on the effected area and furrows caused by trail bikes are obvious.

An examination of the fully revealed another quagmire on the southern side of the fully. A seepage had broken out and trail bikes have turned an area of about 200 sq. metres into mud. Small sections of the fully area around the entrance gate are just beginning to show signs of similar impact.

Discussion

Some changes have occurred since the first impact asserbment. The current level of impact is still considered acceptable because the mud sections occupy only a small percentage of the total area. The presence of the gully mud patch is considered undesirable as it may tend to give a misleading indication of trail bike impact in the area. This problem emphasises the need for careful selection of entrance points to trail bike areas as was mentioned in the assessment report.

Conclusions

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The recent impact would appear to further increase the validity of conclusions 5 and 6 of Report No. 1 and indicates a need for urgent consideration of recommendation 1. of that Report, i.e. further trail bike areas should be established in A.C.T. forests. It has become obvious that the hydrology of new sites needs to be considered and it is suggested that potential trail bike areas be examined during the wetter months of the year. This will facilitate prediction of sections that are susceptible to trail bike damage.

(W. Bloomfield)

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A.C.T. FORESTS BRANCH

STROMLO TRAIL BIKE AREA - IMPACT ASSESSMENT REPORT NO. 3 SEPTEMBER 1974

Introduction

This report is part of a continuing series of assessments of the impact of trail bikes in the area set aside for their use at Stromlo Forest.

Impact Assessment Report No. 2 described the formation of quagmire sections and an overall increase in trail bike impact within the trail bike area.

During June, July and August, wet conditions were common and impact in the Stromlo Trail Bike Area continued to increase, especially in the vicinity of the erosion gully. The quagmire sections became larger and some new ones were formed. Ground cover around the erosion gully was gradually reduced. Width of trails described in Report No. 1 increased and several new trails were established by riders.

Nature of the Impact

The type of impact that occurred is illustrated in Plates 1 - 12. The interaction of damp, damage prone soil and rider behaviour quickly produced the effect shown in plates 1 and 2. A widening of the trail and loss of ground cover can be seen. In the grassland section of the trail bike area the sudden appearance of a water seepage on a trail attracted riders and a quagmire section (Plate 3) was formed. Nearby, increased traffic resulted in ground cover reduction over a wide section where previously only a narrow trail was present (Plates 4 and 5).

In the erosion gully, behaviour such as that illustrated in Plate 6 has led to severe impact (Plates 7, 8, 9). An attempt to control this with logs (Plate 10) was undertaken, but with limited success.

The problem of greatest concern however, came on gently sloping, formerly grassy areas near the gully. Some reduction in ground cover had occurred here prior to rain but the combination of wet conditions, sparse ground cover and intense use by riders soon led to quagmire sections as shown in Plate 11.

Fencing Off of Gully Section

By mid-July impact in the barbeque-erosion gully area was considered to have reached unacceptable levels. There was also evidence that riders were using the gravel around the barbeques as skid pans. Forestry personnel reported that the barbeque-erosion gully area was being used as a short circuit track by some riders and this was interferring with the proper use of the barbeques and tables.

A decision was made to fence off the section shown on Map 1, and the fence was completed by the end of July. Three gates were included in the fence (Plate 12). These gates allow access to pedestrians but not to motorcycles. Signs explaining the reason for closure were posted around the fence.

. The condition of the area enclosed by the fence was recorded by photography and quadrats. Recovery patterns will be investigated at regular intervals.

Temporary Closing of the Trail Bike Area

The trail bike area was closed temporarily for one week in August following heavy rain. An inspection of the area had revealed conditions highly susceptible to trail bike damage.

Assessment of Impact

During the first week of September a brief assessment of impact was carried out. The fenced gully section was also examined and state of recovery noted. The long-term experiment sites were examined and measurements taken. The length of all new trails (trails created since the first impact assessment) was measured with the aid of a motorcycle speedometer and the percentage of the area regularly used by riders was calculated.

The entire trail bike area was examined thoroughly using a trail bike and areas of high impact noted. An attempt was made to identify the common features of such sections.

Assessment Results

An examination of the area revealed 2,500 metres of additional trails to those mapped in the first assessment. For the calculation of the percentage of area used in the first report, the average trail

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STROMLO FOREST

TRAIL BIKE AREA

MAP 1 LOCATION OF FENCED SECTION IN TRAIL BIKE AREA



Fenced section



width was estimated as 2 metres. However, increases in trail width and reductions in ground cover make an adjustment to this figure necessary. An estimate of 2.5 metres now seems appropriate. Calculation reveals that presently about 4% of the trail bike area is regularly used by riders. This represents an increase of 25% in the area occupied by trails.

Within the fenced gully section, evidence of revegetation was found and on some formerly bare areas small green shoots of grass were appearing. But in the upper gully and vicinity, the recent heavy rain has caused some sediment movement from bare areas. In other bare sections of the trail bike area there were also indications of soil movement during rain.

Although the fenced section is only a small percentage of the whole area, it had previously absorbed a large proportion of usage. It appears that riders are now concentrating their activities around the grassland/hill area.

A section of trail bike caused erosion was noted. Several gullies have been formed along a former trail.

Measurements at Experimental Sites

The results of experimental site measurements are given in Table 1 and Fig. 1.

The forest and grassland trails have a minus value for depth (i.e. their depth has decreased). This can be explained as sediment which has been washed down from more elevated parts of the trail. The substantial increase in width of the forest and grassland trails (positive value) is probably linked with greater susceptibility of ground cover to damage and an increase in the numbers of riders using the trail bike area.

The gully depth experiment is located in the middle of the main gully but the gully profile experiment is near the bottom. Table 1 reveals that 8 cm of material has been lost from the mid-gully and as seen in Fig. 1, a substantial amount of sediment has been deposited at the bottom. Evidence of soil movement from the upper gully vicinity has already been mentioned. It is probable that sediment is also collecting in the dam.



GULLY PROFILE, STROMLO TRAIL BIKE AREA

FIG 1

September, 1974 May, 1974

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After four months with-out use, small sections of the fenced trail showed some evidence of revegetation and the width of the trail has decreased slightly (4 cm less). Revegetation is hampered by compaction and slight erosion.

TABLE 1.

MEASUREMENTS AT EXPERIMENTAL SITES MAY TO SEPTEMBER 1974

Experimental Site	Depth Change (cm)	Width Change (cm)
Gully Depth/Width	+ 8	+ 2
Forest Trail Depth/Width	- 3	+ 56
Grassland Trail Depth/Width	- 9	+ 115
Grassland Trail Revegetation	+ 1	- 4
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Plus (+) value : increase in width or depth Minus (-) value : decrease in width or depth

Conclusions

The recent high level of impact in the Stromlo Trail Bike Area seems to result mainly from the interaction of high soil moisture and rider behaviour. The soil moisture problem is linked partly with the unusually wet weather experienced in 1974, but recent observations suggest that the area may not be ideally located. Precipitation that infiltrates into the upper slopes of Mt Stromlo often breaks out in the form of springs and seepages on the lower slopes - this has been the case in the trail bike area.

Fencing off the gully has not really solved the general impact problem because use has been diverted to other parts of the area, which, in time, may also require fencing. Extra trails could spread impact more evenly. Some sections of the trail bike area are showing signs of revegetation but an upsurge in usage, associated with warmer weather, is predicted. Further, recent observations indicate that a "fallow" period for the whole area is desirable.

Recommendations

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1. Impact assessments should be carried out at three-monthly intervals.

2. Recovery patterns of damaged sections of the gully now enclosed by a fence should be investigated at regular intervals.

3. Additional trails should be provided at the Stromlo trail bike area. Possible locations for two trails are shown on Map 2. Trail 1'is specifically aimed at reducing impact on a section receiving heavy usage. Trail 2 includes creek crossings, a flat rock area and other suitably challenging sections.

4. Urgent consideration should be given to the provision of further trail bike areas near Canberra, followed by implementation of any decisions at an early date.





Plate 1. A well used trail located in a northern section of the trail bike area, (May, 1974).



Plate 2. The same trail in late September, 1974. Note loss of ground cover, increase in trail width and disturbance of top soil.



Plate 3. Effect of trail bikes on a formerly grassy area after a water seepage had attracted heavy usage by riders, (May, 1974).



Plate 4. A trail in an open section of the trail bike area in March, 1974.



Plate 5. The same area in June 1974. Previously, disturbance of ground cover had been confined to a narrow trail but heavy usage by trail bike riders soon led to a large section of bare ground.



Plate 6. Typical rider behaviour at the erosion gully.



Plate 7. Effect of trail bikes on the erosion gully walls.



Plate 8. Part of the erosion gully in May 1974. Soil has been moved off the gully walls by trail bike activity and has accumulated on the gully floor.



Plate 9. A section of the erosion gully in June 1974. Trail bike activity has led to ground cover reduction and erosion of the gully walls.



Plate 10. Logs were used in an attempt to control erosion in furrows caused by trail bikes.



Plate 11. A large quagmire section on a gently sloping formerly grassy area near the erosion gully.



Plate 12. A pedestrian gate in the fence erected around the barbeque-erosion gully area.

DEPARTMENT OF THE CAPITAL TERRITORY

A.C.T. FORESTS BRANCH NO.

STROMLO TRAIL BIKE AREA - IMPACT ASSESSMENT REPORT NO. 4 - JANUARY 1975

Introduction:

This report is the fourth in a continuing series of assessments of trail bike impact at the Stromlo Trail Bike Area.

Soil moisture at the trail bike area gradually decreased during November and December 1974 but high rainfall during winter and spring resulted in a vigorous growth of grass.

Former Quagmire Areas

These areas were formerly bare and muddy as a result of trail bike disturbance. Fencing the gully area proved very successful. Although the fence was cut on several occasions, few trail bikes entered the enclosed section.

A good cover of grass became established on the unused sections within the fence and the impact sections revegetated as described later in this report. The former quagmire in the open grassland section of the trail bike area (plate 1) did not revegetate.

The disturbed topsoil had dryed out in early spring but a heavy fall of rain removed most of this. The subsoil is now visible and there is no evidence of revegetation.

Other sections of minor impact in the trail bike area were examined, the majority of these showing evidence of revegetation.

Trail Rotation and New Trails

A trail rotation experiment was carried out near the northern dam. Slash was placed on the old trail and a new train cleared nearby. Observations showed that riders accepted the new trail and there was no attempt to remove the slash.

A new trail was cleared in compartment 149 of the trail bike area. The trail follows basically the same route as that proposed in Impact Assessment Report No. 3, but extra zig-zags were included to increase the length to approximately 1,100 metres, Three permanent experimental sites have been established on this trail. Compaction, trail depth and trail width have been recorded at each site and further measurements will be made at regular intervals.

Another trail has been surveyed in compartment 145 and its length will be at least 600 metres.



Plate 1 The former quagmire in the open grassland section of the trail bike area. Heavy usage had continued at this site and there is no evidence of revegetation.

Trials Demonstration

A demonstration of trail bike riding was given in the trail bike area in December 1974 by Mick Andrews, a rider of international class. An estimated 400-500 spectators were present. An examination of the area the following day revealed negligible impact.

Impact Assessment

An assessment of impact was carried out in January 1974. Methods used were similar to those of the third impact assessment, but in addition, studies of plant species re-colonising trail bike damaged sections on a former trail, were undertaken.

Results

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An additional 1,000 metres of new trails have been created by riders since the third impact assessment. Approximately 1,100 metres of new trail has also been established by the Branch. The present location of all trails is shown on Map 1.

A trail width estimate of 2.5 metres was used for calculations in the previous report. However, recent revegetation on trail edges has led to a general decrease in trail width throughout the trail bike area and an estimate of 2 metres now seems appropriate.

Calculations reveal that presently about 3.3% of the trail bike area is regularly used by riders. This represents a decrease of 0.7% since the previous impact assessment. The decrease can be explained by reduced trail widths.

Measurements at Experimental Sites

The results of experimental site measurements are given in Table 1 and Fig. 1. Unfortunately a fire break was ploughed through the middle of the grassland trail depth/width experiment so measurements could not be taken. The forest trail shows a large decrease in width. There appears to be intensive use of the mid section of the trail only (and hence the increase in depth). This may be linked with the dryer conditions which allow the rider improved control over his machine (less deviation from mid trail) or simply to rapid revegetation along the trail edges.

The increase in depth at the trail revegetation experiment is probably due to erosion. The trail edges are no longer clearly defined. Changes at the trail revegetation site have been recorded also by photography, (Plates 2, 3 and 4).

Unlike previous measurements, the gully depth experiment showed a decrease. This is obviously due to sedimentation but the reason for the change is not certain. It may be caused by decreased velocity of water in the gully, due to a large build up of sediment (Fig. 1, Plates 5, 6 and 7) in the vicinity of the gully profile experimental site. This continuing sediment build up may be partly linked with heavy use of the area between the main entrance gate and the four wheel drive barrier. Loose soil up to 2 cm in depth was noted over much of this area. MAP 1

STROMLO FOREST

TRAIL BIKE AREA

LOCATION OF TRAILS JANUARY, 1974

____ Trail

Road







FIG 1 GULLY PROFILE, STROMLO TRAIL BIKE AREA



Plate 2 Revegetation experiment May 1974



Plate 3 September 1974



Plate 4 January 1975



Plate 5 Gully profile experiment site in June, 1974. Note particularly the log in the foreground.



Plate 6 The same site in September 1974. The log is now almost covered by sediment and the colvert is blocked with mud.



Plate 7 Gully profile experiment site in January 1975. The log referred to previously is completly covered by sediment. The situation shown in Plates 5,6 and 7 can be seen diagramatically in Fig 1.

Revegetation Investigations

1. Trail Revegetation Experiment

Adjacent to the trail revegetation experiment, on an area not used by trail bikes, the following plant species were found:

> <u>Themeda australis</u> (kangaroo grass) <u>Vulpia bromaides</u> (Squirrel Tail Fescue) <u>Bromis mallis</u> (soft brome)

Acaena ovina (sheep burr) <u>Trifolium campestre</u> (hop c.oves) <u>Chondrilla juncea</u> (skeleton weed) <u>Centaurium erythraea</u> (pink stars) <u>Trifolium glomeratum</u> (clustered clover) <u>Cinaphalium involucratum</u> (sunweed) <u>Tolpis umbellata</u> (yellow hawkweed)

The former trail within the fence was examined and the species present noted (this trail was fenced in May 1974). Vegetative cover was estimated at about 50%, but this was decreasing since the two dominant species are annuals. The main species on the trail were <u>Trifolium compestre</u> (hop clover) and <u>Tolpis umbellata</u> (yellow hawkweed), with a few plants of <u>Trifolium glomeratum</u> (clustered clover), <u>Acaena ovina</u> (sheeps burr) and <u>Chondrilla juncea</u> (skeleton weed).

It is interesting to note that the main recolonising species, <u>T.campestre</u> and <u>Topis umbellata</u> are introduced. This is to be expected since introduced species have a tendency to recolonise dry disturbed ground in preference to natives. Further, an undesirable introduced plant, skeleton weed, is one of the recolonising species.

2. Former Quagmire Section Near Gully

This area was formerly bare. Conditions were damp and muddy. During Spring 1974, a cover of the native annual, <u>Juncus bufonius</u> (toad rush) appeared on the muddy sections. By early December 1974 this plant had begun to die and it now appears that <u>Lythrum hyssopifolia</u> (Hyssop loosestrife) is becoming established. This species is usually an annual (sometimes biennial) but whether it is a native is uncertain.

A few plants of <u>Plantage lanceolata</u> (Ribwort plaitain) and <u>Holcus lanatus</u> (Yorkshire fog) were also noted on this section.

Former quagmire sections appear to revegetate much faster than former trails. The species which recolonise ground disturbed by motorcycles varies according to moisture conditions and compaction, with a tendency for natives to invade damp, muddy sections. On both sites examined, the dominant recolonising species were annuals.

Ground Cover on Former Gully Quagmire

A series of quadrat measurements were taken to monitor revegetation of the former gully quagmire in early September 1974. Eighteen quadrats were selected in a straight line on the area between the fence and the gully edge. The percentage of grass cover in each quadrat was estimated and an average calculated. Further measurements of the same quadrats were made in October 1974 and January 1975. The results are given in Table 2.



Plate 8 Quagmire before the gully section was closed to trail bikes, (May 1974).



Plate 9 The same area in January 1975. Successful revegetation has been achieved.



Plate 10 The bare, muddy ground of the gully quagmire was recolonised by <u>Juncus bufonius</u>, (Toad Rush).

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	Investigation Date		
	September 1974	October 1974	January 1975
Average Percentage Ground Cover	12.3	47.3	66.6

The large increase in ground cover was due to a prolific growth of toad rush <u>Juncus bufonius</u> and this can be seen in Plates 8, 9 and 10.

The results demonstrate the ability of a quagmire area to revegetate if usage is excluded while high soil moisture conditions are still present.

Vandalism

The fence around the gully was cut on several occasions, as was the main boundary fence. It is probable that unlicensed riders or riders of unregistered bikes are travelling through other parts of Stromlo Forest and cutting the fence to gain access to the trail bike area.

Conclusions

The trail bike area at Stromlo has now been open for more than a year. Some undesirable impact has been described in previous assessment report but recent observations suggest a diminishing impact level.

There are several possible reasons for this trend. At present the area appears to have a greater resistance to impact because of increased ground cover and dryer conditions. Fencing and slash relocation has reduced impact in the gully area and new trails in other parts of the T.B.A. have spread usage more evenly.

The decreased usage is probably linked with seasonal factors and does not necessarily indicate a permanent trend. An increase in use pressure is expected during autumn and winter when high soil moisture conditions provide a greater challenge to riders.

Ideally further trail bike areas are needed to allow the area at Stromlo a fallow period over the winter of 1975. Presently such an arrangement seems unlikely but even so it should be possible to keep the Stromlo trail bike area open throughout the year, while keeping impact to a minimum. Methods such as fencing, trail rotation and clearing of new trails have proven successful in controlling impact and will be used again if necessary.

In addition we now have a better understanding of potential impact sites, the relationship between impact and rider behaviour, and the maximum levels of deterioration that can be tolerated before action is necessary to ensure successful restoration of a site.

Recommendations

(1) Further impact assessments should be carried out at regular intervals.

(2) Investigation of recovery patterns of damaged sections should be continued.

(3) The trail surveyed in compartment 145 of the trail bike area should be cleared.

(4) The fence around the gully should be retained for at least twelve months.

(5) The trail bike area should remain open throughout 1975 but impact must be closely observed and management action taken where necessary.
DEPARTMENT OF THE CAPITAL TERRITORY

A.C.T. FORESTS BRANCH

STROMLO TRAIL BIKE AREA -REPORT NO. 5 JUNE 1975

Introduction

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This report is the fifth in a continuing series relating to the trail bike area at Stromlo Forest. Trends since the fourth report are described and recommendations for management action are presented.

Trails

The location of all trails as at June 1973 is shown on Map 1. A comparison with the April 1974 situation, Map 2, reveals that the length of trails has increased considerably.

There are several new trails in the open section between compartments 146 and 150. A trials demonstration was given there by international rider, Mick Andrews, and no doubt this has influenced other riders to try their skills over the same sections.

The new trail cleared by Forests Branch in compartment 149 has proved popular with riders. Further clearings of similarily designed trails in compartments 145, 148 and 150 could easily be carried out. A short trail has already been cleared in compartment 145 presumably by the organisers of the April (1975) trials competition.

Usage

Trends similar to those noted for 1974 (Impact Assessment No. 3) appear to be emerging. The extra trails which have recently appeared are probably associated with the attraction of muddy conditions.

Rocky areas are currently receiving more attention from riders than in the past, especially those rocks used in the April trials competition and the "Andrews" demonstration.

A user survey in the trail bike area, similar to that conducted in 1974 could be helpful in correlating impact with numbers of riders.

Long Term Experiments

All long term experiments including those on the newly constructed trail in compartment 149 were checked. Only small changes had occurred since the fourth impact assessment, except for the forest trail experiment where a large decrease in trail width is due to litter accumulation.



The gully profile (Fig. 1) has deepened slightly, probably due to the large flow of water associated with the recent rains.

The large sediment buildup which accumulated between May 1974 and January 1975 was previously explained by soil loss from the area between the main entrance gate and the motorcycle gate. However recent observation indicates that culverts which flow into the gully from Uriarra Road have contributed a significant percentage of this sediment.

Reveretation

Both the trail revegetation experiment and the fenced gully area were examined for revegetation trends. The former now has a 60% grass cover. This section of trail has been closed since April 1974 and thus the experiment indicates that natural revegetation of trails is a very slow process.

Within the fenced area at the erosion gully, ground cover is less than 50.3. This decrease is due to the death of the annual native <u>Juncus Bufonius</u> which became established in the spring of 1974. The old <u>Juncus</u> is being succeeded by a new generation of plants which includes four main species. Some problems have been encountered with identification but one is almost certainly a <u>Juncus</u>. Positive identification will be possible when the plant matures.

The present species should be regarded as early colonisers only. Cthers can be expected to follow when suitable conditions are present but complete revegetation is unlikely for some time. The fence should remain for at least another twelve months.

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1

The extra trails mean that the level of impact has increased since the previous report. However the area regularly used by riders is still less than 5% because riders generally stay on actual trails.

The section on the east side of the road between the entrance gate and motorcycle gate is showing the effect of heavy usage. The impact here is very obvious to the public and may give a misleading impression of overall impact in the trail bike area. Some form of management action may be necessary at this site in the near future. Other areas receiving heavy usage are the section below the northern dem and the former quagmire section adjoining compartment 146.

As seen in Plate 1, the latter area has become completely bare. However the impact can be tolerated because this section is located away from the public eye, and has proved attractive to riders thus diverting usage away from the carpark/barbeque area.

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Plate 1: The section of bare ground near Opt 146

DEPARTMENT OF THE CAPITAL TERRITORY

A.C.T. FORESTS BRANCH

STROMLO TRAIL BIKE AREA - IMPACT ASSESSMENT REPORT NO. 6 OCTOBER 1975

Introduction

This report is the sixth in a continuing series of assessments of the impact of trail bikes in the area set aside for their use at Stromlo Forest.

The area has now been open for two years and riders are continuing to establish trails on previously unused sections.

Usage

Once established, the majority of trails continue to be used. So as riders create new trails, the percentage of the area used increases. It was estimated in April 1974 that less than 3% of the total area was regularly used but today the proportion is approximately twice this figure.

However, the increase in numbers of riders visiting the area does not appear to have kept pace with the increase in extra trails. Information on average length of stay of riders would be helpful because it is probable that the extra trails require more time for exploration, especially if riders are visiting the trail bike area for the first time.

Impact

The region around the northern dam is receiving intense use and the dam shows signs of siltation. The southern dam is now showing signs of slight usage.

Intense use of the bare section adjoining compartment 146 has continued. The associated gully is eroding in the mid section and siltation is evident in the lower parts.

Around the north-eastern corner of the trail bike area some over-use is evident, apparently the result of riders demonstrating their talents to spectators. Attention was drawn to this problem in Report No. 5.

Two new quagmire patches have recently appeared. One is on the powerline break between compartments 149 and 150, the other on the new trail in compartment 149 (see Map 1).

Long Term Experimental Sites

Only minor changes were noted at these sites.

MAP 1

STROMLO FOREST TRAIL BIKE AREA

the sector have been a sector of the

North-eastern bare section

New quagmire



After reaching a peak in January 1975, sedimentation in the lower gully has ceased and in fact, measurements showed slight sediment loss. Some sedimentation was recorded at the mid gully site where a 1 cm decrease in depth was recorded.

Slight depth increases were noted on the trail in Compartment 149, and this, coupled with expansion of muddy sections at two creek crossings, suggests increased popularity of this trail.

The trail at the revegetation experiment has not yet returned to its original condition, despite the long recovery period that has been available (17 months). Grass cover is presently about 70%.

Photography

Further photographs were taken for the impact series, which involves photographing the same site at regular intervals. Other photographs of new impact areas were also taken.

Accidents

A motorcycle rider was injured on Sunday 21/9/75 in the trail bike area. His friend experienced difficulty obtaining assistance since the Stromlo Headquarters was not manned and this was the only phone number listed on the trail bike area notice board.

Further problems arose when an ambulance arrived at the scene but could not reach the injured rider due to locked gates.

Vandalism

Cutting of the boundary fence has continued. This problem recently caused concern when stock wandered into the area.

Assessment of Trail Bike Impact in N.S.W.

Garretty (1974) studied trail bike riding as a recreational landuse on the N.S.W. South Coast. The methods used were similar to those employed at the Stromlo Trail Bike Area and included measurement of trail widths, vegetation height and ground cover measurement, penetrometer testing of soil compaction and measurement of trail lengths from aerial photographs.

Results indicated that changes in trail width are related to rider use patterns and ground cover vegetation. He found compaction causes compression of vegetation root and rhizome layers in a narrow and dense band beneath the soil surface.

Trail bikes caused ground cover reduction for most plant species. Species not reproducing vegetatively were most affected.

Garretty also considered recolonisation: "There is some evidence from areas where use has discontinued that periods in excess of two years are necessary for significant recolonisation of trails". Similar conclusions were reached in the investigations at the Stromlo trail bike area.

Discussion

Six impact assessments have now been carried out at the Stromlo trail bike area and so far the impact has been within acceptable limits. However, new sections are continually being brought into use by riders and the result is a slow reduction in ground cover. Experiments have shown that revegetation is a slow process and, with the exception of a few small sections where management action has been undertaken, little natural revegetation has occurred.

If trends continue the area will become progressively depleted of ground cover and the stage will be reached where some form of management action is required, possibly even the closing of the area for restoration. Such action could be necessary within two years.

Recommendations

1. The culvert under the road between compartments 141 and 142 should be cleared of sediment.

2. The bare section in the north-east corner of the trail bike area should be developed as a carpark.

3. Consideration should be given to the possibility of using slash to control erosion around the northern dam and in the gully beside compartment 146.

4. A trail should be cleared in compartment 148.

5. Other sites suitable for a trail bike area in Stromlo Forest should be considered in anticipation of the need for a spelling period for the present area. If no alternative area is available, plans for intra-site rotation of the Stromlo trail bike area should be devised.

References

Burbidge, N.T., and M. Gray (1970) "Flora of the A.C.T.". A.N.U. Press, Canberra.

Garretty J. (1974) "Trail Bike Riding as a Recreational Landuse on the N.S.W. South Coast", B.Sc. (Honours) Thesis, University of Sydney.

DEPARTMENT OF THE CAPITAL TERRITORY

ACT FORESTS BRANCH

STROMLO TRAIL BIKE AREA - IMPACT ASSESSMENT REPORT NO. 7 - FEBRUARY 1976

Introduction

This report is part of a continuing series of impact assessments at the Stromlo Trail Bike Area. Methods similar to those of previous assessments were used. The area was examined using a trail bike. Note was taken of condition of trails, presence of new trails, revegetation patterns etc. Measurements at all long term experiment sites were undertaken. The vegetation recolonising Compartment 141 was examined and specimens collected for identification. Photographs for the time lapse photography series were taken.

Observation Results

Revegetation along edges of trails, especially those in the grassland section was noticeable. Only a few new trails were seen, the majority of these being in Compartment 141. This compartment was the site of a major section in a recent trials event. Maps 1 and 2 compare trails present in October 1975 and February 1976.

The forest trail in Compartment 149 has continued to receive moderate use but usage of the Compartment 142 network is minor and some of these trails are disappearing under a cover of pine needles.

Long Term Experiments

Only minor changes in trail depths and widths were recorded but there was a trend towards increased trail depths in Compartment 149. For the three experimental sites in this compartment, depth increases of between one and four centimetres were recorded. Width of the forest trail in Compartment 141 was similar to that for the previous assessment but there was a decrease for the grassland trail.

The measurements at the erosion gully in Compartment 141 revealed reverse trends to those noted for October 1975. Some of the mid gully sedimentation has been removed (increase in depth) and extra sediment has accumulated at the gully profile site.

Revegetation

Significant increases in revegetation along trail edges, recent quagmire sites and former quagmire sites were observed. Of particular importance is the rapid revegetation



MAP 1

STROMLO FOREST

TRAIL BIKE AREA

Location of Trails

February - 1976

of the quagmire between Compartment 149 and 150 (see Report No. 6). The situation is different here in that unlike the Compartment 141 gully quagmire (see Report No. 4) the initial recoloniser is Lythrum hyssopifolia (Hyssop loosestrife) rather than Juncus bufonious (Toad rush).

The former quagmire section near the barbeque area was examined. Vegetative ground cover is approaching 90%. The dominant species are <u>Themeda australis</u> (Kangaroo grass) and <u>Holcus lanatus</u> (Yorkshire fog), with other minor species including <u>Plantago lanceolata</u> (Ribwort plaintain) and Panicum laevifolium (Sweet Panic Grass).

It appears that former quagmire sections may take longer to revegetate than previous observations indicate. Even so, the feasibility of revegetating intensively disturbed soil by excluding motorcycles has been proven. At the former quagmire near Compartment 146, motorcycle use was not excluded and the continuing use has prevented any revegetation taking place.

Trail Revegetation Experiment

A small section of trail near Compartment 146 was closed to motorcycles in May 1974 but revegetation is still incomplete, with grass cover about 80%. The experiment has shown that revegetation of trails used by motorcycles is a very slow process and these findings are in agreement with Garretty (1974) who found that periods in excess of two years are necessary for significant recolonisation of trails.

Discussion

The observations made during the seventh impact assessment suggest that the trail bike area is presently in a recovery phase following a period of continuing impact as described in the previous two reports. There are several indications of this, including revegetation along trail edges and on the recently formed quagmire area near Compartment 150.

Usage of the area appears to be distributed more evenly, as opposed to situations seen in the winters of 1974 and 1975. The extra trails shown on Map 2 have aided in distributing usage more uniformly.

The majority of older trails (formed shortly after the opening of the area) have reached a stage where increases in depth and width are zero or very small.

The trail bike area has now been open for 27 months and with the completion of the 7th impact assessment it is relevant to consider the overall impact pattern. A general trend has been established. Initial impact is rapid and pronounced, but tapers off with time. Given present trends it is likely that impact will continue to increase but at a decreasing level. A stage where natural recovery processes balance the effects of trail bikes may be reached in the future. However, the area may eventually require spelling and so the comments of Impact Assessment report No. 6 relating to this possibility are still relevant.

Recommendations

1. The fence around the barbeque area should remain for at least another year.

2. Some signs in the Trail Bike Area should be repainted.

3. Construction of extra trails should be delayed until use pressure warrants them.

4. The possibility of an alternate trail bike area to allow spelling of the existing one should be given consideration.

5. Assessment of impact should continue at regular intérvals.

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Garretty J. (1974) "Trail Bike Riding as a Recreational Land Use on the NSW South Coast", B.Sc. (Honours) Thesis, University of Sydney.

ACT FORESTS BRANCH

STROMLO TRAIL BIKE AREA - IMPACT ASSESSMENT REPORT NO. 8

JUNE 1976

INTRODUCTION:

Similar methods to previous impact assessments were employed for the eighth investigation at the Stromlo Trail Bike Area. Results indicate only minor changes since the seventh assessment. The colour time lapse photography series has reached a stage where useful comparisons of photographs can be made. Selected examples of photograph sets are presented and discussed.

GENERAL OBSERVATIONS:

Overall the T.B.A. was dry and dusty following the long period without rain but there appeared to be only a slight increase in impact level since the previous assessment.

The section below the northern dam is receiving much more use and some of the rocks used to control erosion in the gully have been disturbed. At present there is no need for management action but the area should be carefully watched. Increased usage was also noted at the southern dam.

EXPERIMENTAL SITES:

Gully in compartment 141. At the gully profile site there has been little change since February. This site has been reasonably stable for some time. At the mid gully site a 4 cm sediment accumulation (as opposed to a 2 cm loss for the previous assessment) was recorded. The reason for deposition and removal of sediment at this experimental site is not fully understood. The majority of the compartment 141 section of the gully has been closed to trail bikes by the fence, and the small changes that are occurring appear to be related to natural processes rather than trail bike activity.

Revegetation Experiment. Ground cover on the former trail is slightly less than previously, probably as a result of grass dying off in the dry conditions. A 3 cm increase in depth was recorded at this site. Such a large increase is unexpected but can be explained as erosion.

Trails. For the forest trail in compartment 141 depth and width showed little change but the trail had shifted slightly in position. The grassland trail between compartments 144 and 145 showed no change in width but a large increase in depth was noted.

At compartment 149 an increase in trail depth for all three sites was recorded. Width had increased for sites 1 and 3 and there was a shift in trail position for site 2. The latter site is on a trail that runs with the contour on a medium slope and the trail has been slowly moving downhill with time. The results in compartment 149 were not unexpected since general observation indicated that the compartment is receiving greater rider patronage than in the past.

PHOTOGRAPH SERIES:

Before the T.B.A. was opened it was decided that time lapse photography would be used in assessing impact. A series of both black and white and colour slide photographs were taken in November 1973 prior to the opening of the area. Early impact assessment work was based mainly on black and white photography but this was found to be inadequate and from October 1974 emphasis was placed on colour slides. A useful series of time lapse colour slides has been collected and some have been used to make colour prints.

Special attention was given to time lapse photography at the erosion gully in compartment 141. The gully suffered from severe over-use by trail bike riders and was closed off by a fence in July 1974. Plate 1 shows a section of the gully in 1974, about six weeks after the fence was erected. At this stage there is no evidence of recovery. By October (Plate 2) a few green shoots were appearing and in Plates 3 and 4 a gradual recovery can be seen, until by February 1976 (Plate 5) the grass cover is approaching a pre-trail bike damage level.

Previous impact assessment reports have described the formation and successful revegetation of quagmires that resulted from over-use of small sections by trail bike riders (see Report Nos. 2 and 4). Plate 6 shows the compartment 141 quagmire in October 1974 following the fencing in July. A good vegetative cover became established in the Spring and early Summer of 1974 and Plate 7, taken in March 1975 shows a cover of Toad Rush, the main recolonising species. Plate 8, taken a year later shows that successful revegetation of quagmires can be achieved. The importance of Toad Rush (Juncus bufonius) as the initial coloniser was seen again at a location near the entrance gate, and this is shown in Plates 9 and 10.

The situation at the open section near compartment 146 has been described in Report Nos. 2, 3 and 4. No restoration work of any kind has been undertaken here and the time lapse photography series, (Plates 11, 12 and 13), shows that little, if any revegetation has occurred. It is interesting to note however that the size of the section of bare ground has not increased with time. The same area, viewed from another point on the edge of the hill is shown in Plates 14, 15, 16 and 17.

The previous photographs have related to sections where usage by trail bike riders has caused significant disturbance to the soil. There are many examples where continuous heavy usage has resulted in only limited disturbance. Such is the case for the break between compartments 144 and 145. Plate 18 shows the break in November 1973 before the trail bike area was opened. In 1976 (Plate 19) this section is still in good condition, even though it received intense use both on the trail and on grassy sections of the break.

Problems can sometimes arise in determining impact trends from photographs. An example is shown in Plates 20, 21 and 22. In this case, determination of impact trends is complicated by factors such as time of year, seasonal conditions, grass cover and water seepage.

USAGE:

The location of trails for June 1976 is shown on Map 1. No information is available on numbers of riders using the area but trail wear and the rate of appearance of new trails is similar to that seen in previous impact assessment investigations. This suggests that the usage of the trail bike area is remaining reasonably constant.

MONITORING INTERVAL:

In the 1973 Stromlo Trail Bike Area proposal report it was recommended that the impact of trail bikes be monitored at four monthly intervals. From April 1974 impact assessments were carried out every 3-4 months. This interval proved satisfactory during the first two years of the areas existance but recent trends indicate a situation is approaching where natural recovery processes will come near to balancing disturbance. Now that this stage has been reached, it is considered that impact assessments conducted at six monthly intervals will be adequate. A brief visual inspection of the area every month is recommended.

MAINTENANCE:

The fence around the Barbeque area in compartment 141 has suffered from vandalism and natural depreciation to the extent that it is no longer effective in keeping motorcycles out of the erosion gully. The fence should be removed and replaced with another that is both functional and aesthetic.

Signs in the Trail Bike Area have been deteriorating with time and some require repainting. Attention to the main sign near the entrance gate should be given as soon as possible to avoid the possibility of legal problems arising if conditions applying to the use of the area become illegible.

STROMLO FOREST

TRAIL BIKE AREA

Location of Trails June 1976



----- Trail Road



Plate 1 The erosion gully in Cpt 141 proved very popular with trail bike riders. Overuse produced the conditions shown in the photograph (Sep. 1974).



Plate 2 The same section in October 1974, about 3 months after motorcycles were excluded by a fence.



Plate 3 January 1975. Recovery is proceeding slowly. Note the <u>Juncus bufonius</u> (Toad Rush) on the far bank.



Plate 4 March 1975 Conditions are very dry after the summer. Little change has taken place since January.



Plate 5 The same section almost a year later. The photograph demonstrates that satisfactory recovery of trail bike damaged ground can be achieved if usage is discontinued.



Plate 6 The Cpt 141 quagmire in October 1974



Plate 7 By March 1975 a good cover of <u>Juncus bufonius</u> was established.



Plate 8 March 1976. The majority of the former quagmire has revegetated.



Plate 9 Another quagmire near the entrance gate. There has been no motorcycle use since July but little revegetation has taken place at this stage. (September 1974)



Plate 10 The same area in January 1975, showing a good cover of Juncus bufonius.



Plate 11 The large bare area near Cpt 146. (October 1974).



Plate 12 March 1975



Plate 13 The same area in February 1976. Little, if any revegetation has taken place.

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Plate 14 The open section near Cpt 146 before the trail bike area was opened to the public. (November 1973)



Plate 15 October 1974. The same section following heavy use by motorcycle riders.



Plate 16 March 1975.



Plate 17 March 1976.



Plate 18 The break between Cpts 144 & 145 shortly before the area was opened to the public (November 1973).



Plate 19 The same break . in February 1976. Despite heavy usage by motorcycle riders, this section is still in good condition.



Plate 20 September 1974 - near Cpt 146. In this photograph dry grass and water seepage make impact appear worse than it actually is. (Ektachrome).



Plate 21 The same area in April 1975. Comparision between this photograph and Plate 20 is complicated because of differences in soil moisture, grass cover and colour, time of day and type of film (Kodachrome).



Plate 22 A print from a Kodachrome slide taken in March 1976. In this example impact appears less than in Plate 21 even though the opposite is the case. This results partly from the green grass cover which followed good summer rains. Differences in light conditions are also involved.

ACT FORESTS BRANCH

STROMLO TRAIL BIKE AREA -IMPACT ASSESSMENT REPORT NO. 9 - MARCH 1977

Introduction:

This report is the ninth in a series dealing with the impact of trail bikes at the Stromlo Trail Bike Area. Originally assessments were carried out at regular intervals of approximately 3 months but in 1976 it was decided that a stage had been reached where this interval could be extended. The last assessment was in June 1976.

General Observations:

The 1976-77 spring and early summer period was dryer than normal. Usage and impact levels appeared to drop off slightly. Rains in February and March 1977 greatly increased the soil moisture of the Trail Bike Area and several soaks have broken out. Some of these have attracted extra usage but not to the extent seen in 1974.

Long Term Experiments:

The measurements at the experimental sites were carried out as usual. Some changes were recorded, mainly around the gully.

At the mid gully site an increase in depth of 3 cm was recorded and extra sediment has accumulated at the gully profile site. These results are probably attributable to increased rider use of the gully. Usage has gradually increased as the fence has become less effective in keeping out riders.

The trail near compartment 146 was closed almost three years ago but revegetation is still incomplete. It is doubtful if it will ever return to its former condition because the slope of the trail encourages slight erosion.

Proposal for Improvements and Maintenance:

In December 1976 a proposal was put forward for improvements and maintenance at the Trail Bike Area. The proposal included replacement of the fence around the barbecue and gully section, expanded parking facilities, improvements to drainage, maintenance of signs and provision of a drinking water tank.

To date some work on carpark expansion has been carried out and signs are currently being repainted. The old barbecue and gully section fence has been removed and construction of the new fence is expected to begin shortly.

New Trails:

The location of all trails is shown on Map 1. Several new trails have been constructed by either Forests Branch or trials competition organisers.

In December 1976 Forests Branch workers extended the trail network in compartment 145 and put two new trails in compartment 150. One of these is a circuitous type, designed to make maximum use of the compartment.

A recent trials event in compartment 150 changed the trail system slightly and has added two additional exit points on the original trail. There was also an extra trail noted in compartment 145 and this could have been associated with a trials event also.

Map 1 shows that part of the road and fence at the western junction of compartments 142 and 144 has been removed. This has been done to make way for a large water supply pipeline.

Vandalism and Littering:

Occasional incidents of boundary fence and signpost vandalism are still occurring. Some small signs have been removed completely. One of the large signs explaining the conditions of use for the Trail Bike Area was removed from its supporting post and left lying on the ground. Most vandalism occurs in the vicinity of the carparks.

The same is true of littering. Both the eastern and western carparks have received increasing amounts of litter. Extra bins were provided but even more may be required.

Photograph Series:

The time lapse photography programme is continuing, based on colour slides. The earliest slides date back to 1973 and useful comparisons with the latest slides can be made.

Discussion:

The barbecue and gully section fence was removed because of aesthetic problems and its limited value in deterring usage in the gully. When equipment problems caused delays in construction of a new fence, increased usage of the barbecue and gully section by riders soon began.

The possibility of closing the area was raised, especially since there were also delays in repainting of signposts. Closing the area appears to be impractical, since problems with trail bike riders in other parts of Stromlo are likely.

The recent discussions have revealed two points relating to the Trail Bike Area that need further consideration:

- 1. Should an alternative trail bike area be provided in Stromlo for occasions when the present one needs to be closed for maintenance.
- 2. Should the barbecue and gully section continue to receive protection by means of a fence or should high levels of impact and associated aesthetic problems in this section be tolerated.

Recommendations:

- 1. At present it seems unlikely that the policy on protection of the barbecue and gully section will be changed and therefore the proposed fence should be constructed.
- 2. Impact assessments should be continued. Two assessments per year are considered adequate.



Location of Trails March 1977





ACT FORESTS BRANCH

STROMLO TRAIL BIKE AREA

IMPACT ASSESSMENT REPORT NO. 10 - OCTOBER 1977

Introduction

This report is the tenth in a continuing series of assessments of trail bike impact at the Stromlo Trail Bike Area. The previous assessment, described in Report No. 9, was in March 1977.

General Observations

The 1977 winter in Canberra was reasonably average. Usage appeared to be similar to 1976. Impact levels have remained similar to those seen in previous assessments although there is evidence of an increased tendency towards erosion at some sites. Only a few extra trails were observed. The locations of all present trails are shown on Map 1.

Bare Area Adjacent to Cpt. 146

Observations suggest that usage on this area is lower than usual (possibly because of the far better challenges provided by the pipeline disturbance). However, erosion appears to be increasing and there is evidence of gullying caused by water coming down from the adjacent hill trail which links with Cpt 150. Some form of management action such as use of slash may be required shortly.

Long Term Experiments

 Cpt 149. This trail was cleared by Forest Branch workers in December 1974. Three experimental sites were established and trail depth and width measured. In the last year this trail has become increasingly popular.
Table 1 shows the changes in depth since the trail was established. It can be seen that for sites 2 & 3 there has been a considerable increase in depth. Site 1 has remained the same according to the depth measurement figures but in fact there has been some soil removed. This situation can be explained by a shift in the position of the trail.

Table 7	1.	Changes	in	Trail	Depth	in	Cpt.	149
		Site 1			Site 2		S	ite 3
Depth o	change 1974	0		+11		+10		

It was not until October 1975 that the location of the trail edge on Site 1 could be properly determined, so for the purposes of comparison with the latest readings, the October 1975 readings are used. The changes in trail width and location between pegs are shown in Fig. 1.

As a trail becomes more clearly defined the width can sometimes decrease. This is the case at sites 1 and 2 where the original poorly defined, wide trail is now narrower but very obvious. At Site 3, however, the trail has gradually become wider. This is due to erosion in the trail centre which causes riders to be diverted towards the trail edge.

2. Forest trail in Cpt 141. The present position of this trail compared to 1974 is shown in Fig 2. The trail has a tendency to shift position regularly, thus complicating depth measurement. Depth is always measured in the centre of the trail and a shift in position can, and has, caused considerable variation in depth readings. The alternative is to measure trail depth half way between the two pegs but this method is not used because it could result in measurement at a point where the trail is no longer used.

3. Grassland trail between Cpts 144 & 145. Trail depth at this site has increased by 4 cm since 1974. Width has increased (see Fig 2)

4. Grassland revegetation site near Cpt 146. Revegetation at this site is still

- 2 -



Fig 2 CHANGES IN WIDTH AND LOCATION OF FOREST AND GRASSLAND TRAILS



incomplete and shows little indication of over returning to its former condition.

5. Gully in Cpt 141. Despite very heavy use by riders the depth of the gully at the upper experimental site has increased only 6 cm since May 1974. At the gully profile site however there has been considerable sediment accumulation. In the mid-section of the profile 55 cm of sediment has accumulated. Trail bike activity upstream is only partly responsible for this. A significant proportion comes from the Uriarra Crossing Road culverts.

Western Boundary Fence.

Part of this fence was removed during the construction of a large water pipeline but the missing section has still not been replaced. This situation has created several problems.

Firstly, the legal requirement of the Trail Bike Area are no longer satisfied because there is unlimited access via Block 12 to the Uriarra Crossing Road. Secondly the trail bike area cannot be closed to the public if management activities require this. Thirdly riders are being encouraged to use Block 12 as an extension of the Trail Bike Area, thus creating a serious fire risk. BBQ Area Fence

The original plan for the BBQ area and gully section fence was modified. The new plan involves fencing both picnic areas and leaving the gully open to riders.

The change to the plan stems from a change in Trail Bike Area policy which places emphasis on the functional aspects of the area. The trail bike area is a recreation facility provided for riders, and the gully appears to play a major role in satisfying their requirements. It was decided therefore, that despite some problems with impact and aesthetics, the gully should be available to riders.

Because of manpower problems only the upper picnic area has been fenced at this stage. The fence is simply a post and rail type using treated pine poles. It has been reasonably successful in keeping out riders but some vandalism problems have been encountered.

Vandalism

Vandalism has become a serious problem and it appears to stem from inadequate weekend ranger patrols. Recent vandalism (since Impact Assessment Report No. 9)

- 3 -

has included:

Removal of long-term experiment peg Tearing boom gate off hinges Defacing sign Damaging lower picnic table Damaging rubbish bin Removing rail from BBQ area fence Riding over BBQ area fence Damaging lock on gate Eucalypt seedling removal Steel dropper removal

The lower picnic table vandalism is of an unusual type and this is shown in plate 1.

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CCAE Student Studies

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CCAE students recently examined environmental and ecological effects of trail bikes at the Stromlo Trail Bike Area. Their studies included some weekend observation of usage. Results indicated levels of impact similar to those described in the Forests Branch impact assessment reports. All students reports referred to the problems of vandalism.

Recommendation

1. Consideration should be given to the possibility of upgrading weekend ranger patrols at the TBA.

2. The western boundary fence should be repaired.

MAP 1

STROMLO FOREST

TRAIL BIKE AREA

Location of Trails

October 1977



Road

s coverses constantion to



STROMLO TRAIL BIKE AREA - IMPACT ASSESSMENT REPORT NO. 10 - OCTOBER 1977

Introduction

This report is the tenth in a continuing series of assessments of trail bike impact at the Stromlo Trail Bike Area. The previous assessment, described in Report No. 9, was in March 1977.

General Observations

The 1977 Winter in Canberra was reasonably average. Usage appeared to be similar to 1976. Impact levels have remained similar to those seen in previous assessments although there is evidence of an increased tendency towards erosion at some sites. Only a few extra trails were observed. The locations of all present trails are shown on Map 1.

Bare Area Adjacent to Compartment 146

Observations suggest that usage on this area is lower than usual (possibly because of the far better challenges provided by the pipeline disturbance). However, erosion appears to be increasing and there is evidence of gullying caused by water coming down from the adjacent hill trail which links with Compartment 150. Some form of management action such as use of slash may be required shortly.

Long Term Experiments

1. Compartment 149. This trail was cleared by Forests Branch workers in December 1974. Three experimental sites were established and trail depth and width measured. In the last year this trail has become increasingly popular.

Table 1 shows the changes in depth since the trail was established. It can be seen that for sites 2 and 3 there has been a considerable increase in depth. Site 1 has remained the same according to the depth measurement figures but in fact there has been some soil removed. This situation can be explained by a shift in the position of the trail.

Table 1. Changes in Trail Depth in Compartment 149

		Site	1	Site	2	Site	3	
Depth change 1974	since	0		+11		+10		

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STROMLO FOREST

TRAIL BIKE AREA

Location of Trails

October 1977

0

Trail

Road



It was not until October 1975 that the location of the trail edge on Site 1 could be properly determined, so for the purposes of comparison with the latest readings, the October 1975 readings are used. The changes in trail width and location between pegs are shown in Fig. 1.

As a trail becomes more clearly defined the width can sometimes decrease. This is the case at sites 1 and 2 where the original poorly defined, wide trail is now narrower but very obvious. At Site 3, however, the trail has gradually become wider. This is due to erosion in the trail centre which causes riders to be diverted towards the trail edge.

2. Forest trail in Compartment 141. The present position of this trail compared to 1974 is shown in Fig. 2. The trail has a tendency to shift position regularly, thus complicating depth measurement. Depth is always measured in the centre of the trail and a shift in position can, and has, caused considerable variation in depth readings. The alternative is to measure trail depth half way between the two pegs but this method is not used because it could result in measurement at a point where the trail is no longer used.

3. Grassland Trail between Compartments 144 and 145. Trail depth at this site has increased by 4 cm since 1974. Width has also increased (see Fig. 2).

4. Grassland revegetation site near Compartment 146. Revegetation at this site is still incomplete and shows little indication of returning to its former condition.

5. Gully in Compartment 141. Despite very heavy use by riders the depth of the gully at the upper experimental site has increased only 6 cm since May 1974. At the gully profile site however there has been considerable sediment accumulation. In the mid-section of the profile 55 cm of sediment has accumulated. Trail bike activity upstream is only partly responsible for this. A significant proportion comes from the Uriarra Crossing Road culverts.

Western Boundary Fence

Part of this fence was removed during the construction of a large water pipeline but the missing section has still not been replaced. This situation has created several problems.

Firstly, the legal requirements of the Trail Bike Area are no longer satisfied because there is unlimited access via Block 12 to the Uriarra Crossing Road. Secondly, the trail bike area cannot be closed to the public if management activities require this. Thirdly, riders are being encouraged to use Block 12 as an extension of the Trail Bike Area, thus creating a serious fire risk.

BBQ Area Fence

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The original plan for the BBQ area and gully section fence was modified. The new plan involves fencing both picnic areas and leaving the gully open to riders.

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	KEY					
xnorthern	peg	8	•••••••May	1974	trail	position
*southern	peg	1	••••••••0ct	1977	trail	location

Because of manpower problems only the upper picnic area has been fenced at this stage. The fence is simply a post and rail type using treated pine poles. It has been reasonably successful in keeping out riders but some vandalism problems have been encountered.

Vandalism

Vandalism has become a serious problem and it appears to stem from inadequate weekend ranger patrols. Recent vandalism (since Impact Assessment Report No. 9) has included:

Removal of long-term experiment peg; Tearing boom gate off hinges; Defacing sign; Damaging lower picnic table; Damaging rubbish bin; Removing rail from BBQ area fence; Riding over BBQ area fence; Damaging lock on gate; Eucalypt seedling removal; Steel dropper removal.

The lower picnic table vandalism is of an unusual type and this is shown in plate 1.



Plate 1

CCAE Student Studies

CCAE students recently examined environmental and ecological effects of trail bikes at the Stromlo Trail Bike Area. Their studies included some weekend observation of usage. Results indicated levels of impact similar to those described in the Forests Branch impact assessment reports. All students reports referred to the problems of vandalism.

Recommendations

- 1. Consideration should be given to the possibility of upgrading weekend ranger patrols at the Trail Bike Area.
- 2. The western boundary fence should be repaired.