United States Department of Agriculture
Forest Service
Gallatin National Forest

2005 McLaren Pit Area Revegetation Monitoring Report

New World Mining District Response and Restoration Project

February 2006

ENGINEERING & ENVIRONMENTAL CONSULTANTS
A DIVISION OF TETRA TECH, INC.
MAXIM TECHNOLOGIES

2005 MCLAREN PIT AREA
REVEGETATION MONITORING REPORT

New World Mining District
Response and Restoration Project

Prepared for:

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INTRODUCTION

Maxim Technologies (Maxim) prepared this McLaren Pit Area Revegetation Monitoring Report for the United States Department of Agriculture (USDA) Forest Service, Gallatin National Forest. The USDA Forest Service is undertaking non-time-critical removal actions in the New World Mining District (District) to respond to human health and environmental impacts attributed to historic gold, silver, copper, and lead mining activities.

This report describes results of monitoring preformed in 2005 in the McLaren Pit cap area as part of the New World Mining District Response and Restoration Project. **Figure 1** shows the project vicinity and **Figure 2** shows the cap area. The McLaren Pit cap area and associated borrow area were reclaimed in the fall of 2003 as part of the McLaren Pit Response Action. Reclamation at the McLaren Pit cap area involved incorporating compost and fertilizer in the upper four inches of soil, seeding the sites, and covering the seeded areas with erosion control blanket. The seed mixture contained tufted hairgrass (*Deschampsia cespitosa*) (1.8 kilograms pure live seed kilograms per hectare (kg pls/ha)), alpine bluegrass (*Poa alpina*) (4.5 kg pls/ha), alpine timothy (*Phleum alpina*) (3.5 kg pls/ha), and slender wheatgrass (*Agropyron trachycaulum*) (28.6 kg pls/ha).

At the McLaren Triangle, a surface application of lime (0.18 metric tons per hectare or 1,000 pounds per acre) and compost was added to the soil in 2003 to amend acid conditions that had developed since the triangle area was initially regraded and revegetated in 1993. The triangle was then fertilized, seeded, and covered with erosion control blanket in the same manner as the other two sites. Area-wide monitoring was conducted at the McLaren Triangle, McLaren Pit cap Area and the borrow area in 2004 (Maxim, 2005a).

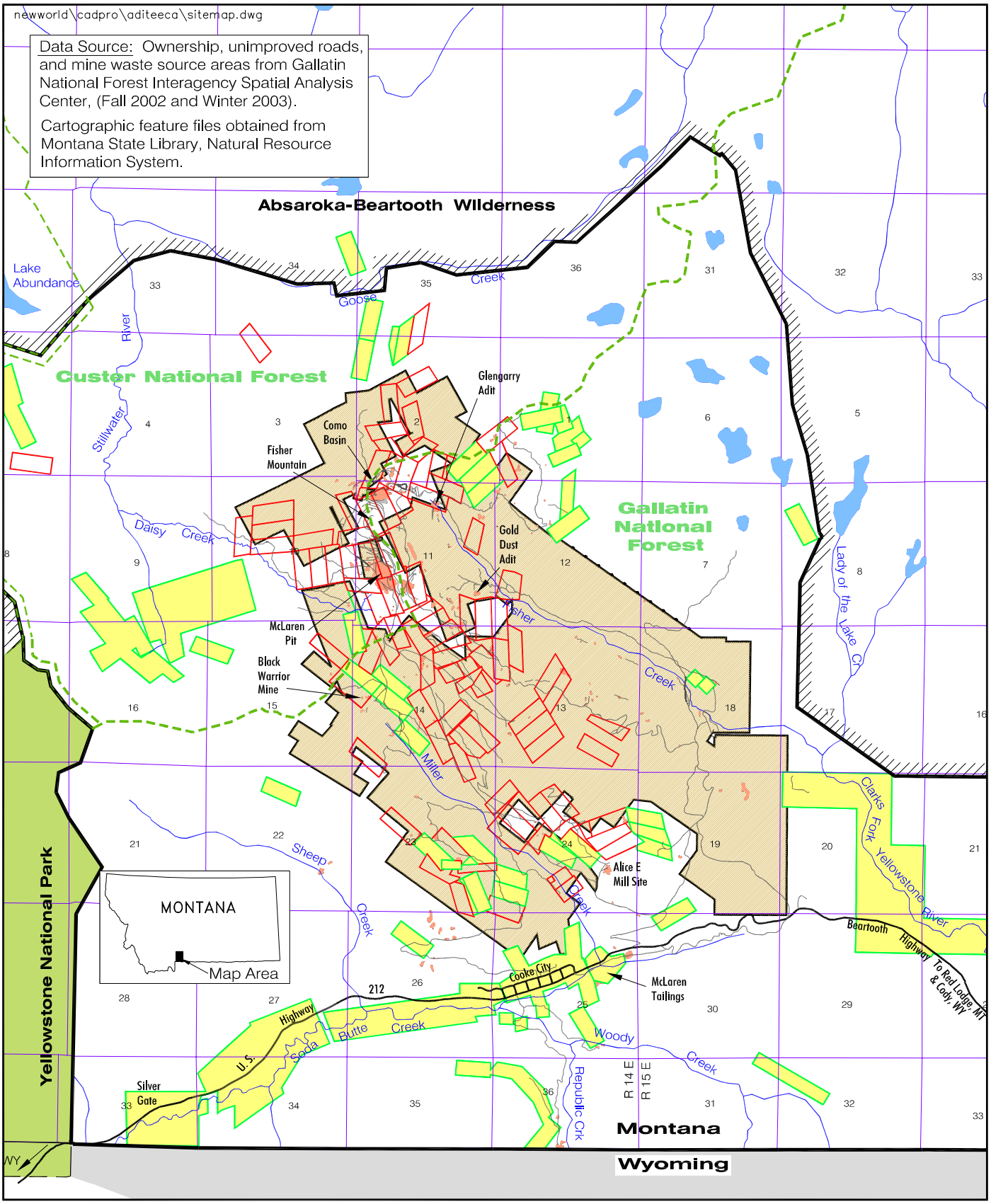
METHODS

Maxim conducted revegetation monitoring according to methods described in the 2005/2006 Work Plan (Maxim, 2005b), the Long-Term Revegetation Monitoring Plan (Maxim, 1999a), and the Site-Wide Sampling and Analysis Plan (Maxim, 1999b). The 2005 monitoring effort included both the point-quadrat and the 35 millimeter (mm) slide methods. The goal of revegetation monitoring is to document the condition of revegetation on reclaimed areas in the District, to document erosion problems, and to determine if revegetation cover is meeting the project objective of 20% (Maxim, 2005b). Reclamation monitoring was conducted during the period of August 30 and 31, and September 1, 2005.

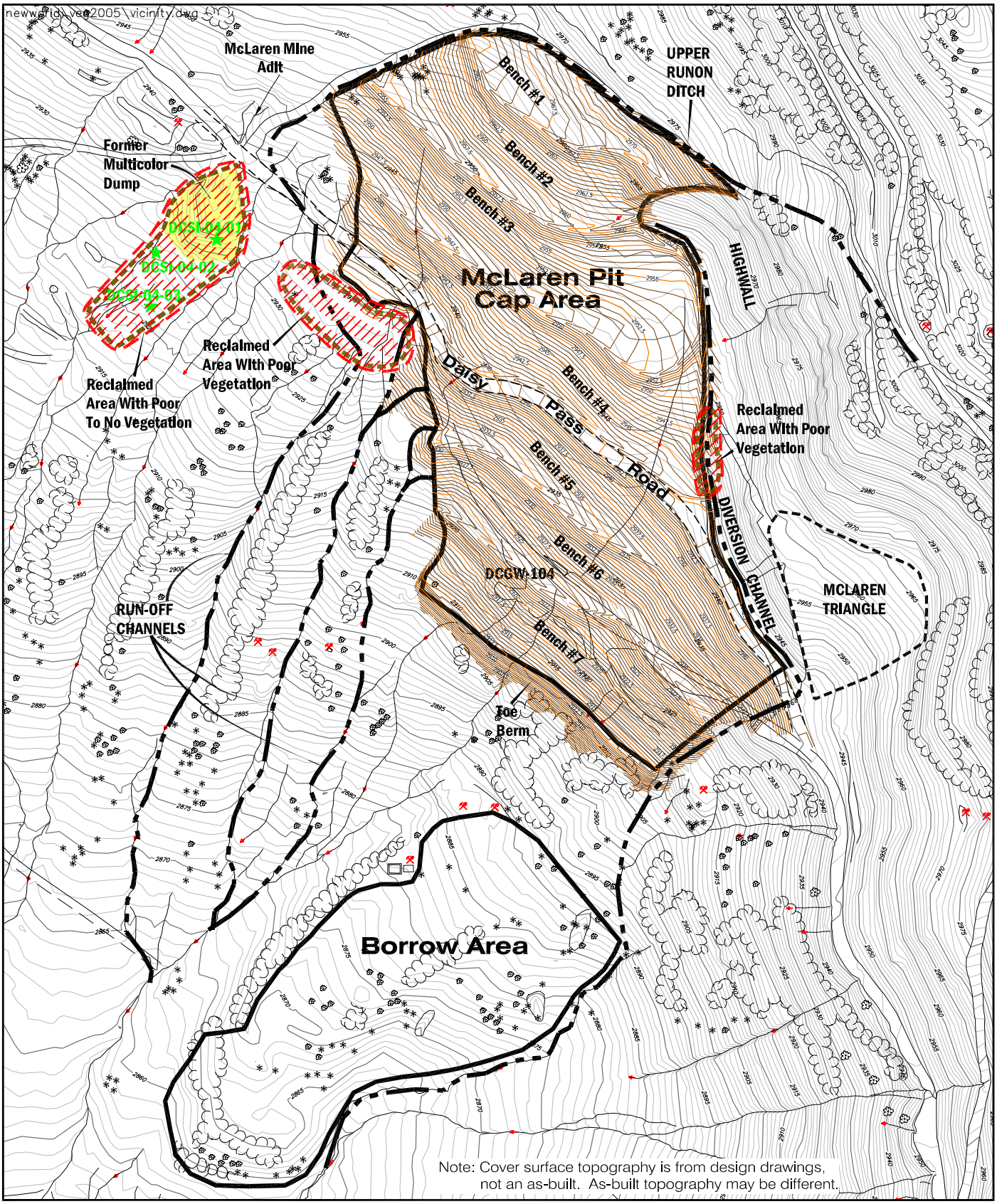
POINT-QUADRAT METHOD

Field measurements used with the point-quadrat method are described in the Long-Term Revegetation Monitoring Plan (Maxim 1999a). Field data sheets were used to record monitoring data and field conditions and site impressions were recorded in a field book.

Sampling methods follow Chambers and Brown (1983) and are similar to cover monitoring methods followed previously for the project (Maxim, 2004). A baseline was established through the center of each sampling area. Transects were placed systematically on the baseline every 10 meters (m) with a random start and, depending on size and shape of sampling areas, transects were placed on alternating sides of the baseline. In areas that were not seeded, such as gravel beds and roads, the transect line was bent 90 degrees when these areas were encountered so that only seeded areas were represented. Quadrats were placed systematically on transects every 3 m with a random start.



Project Vicinity Map
New World Mining District
Response and Restoration Project
Cooke City Area, Montana
FIGURE 1



N

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Contour Interval = 1 meter

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DCSI-04-01 ★ Soil Sample Location

Prospect Pit

Existing Index Contour

Existing Intermediate Contour

Index Contour of Cover Surface

Intermediate Contour of Cover Surface

2005 Revegetation Maintenance Areas

Vicinity Map

McLaren Pit Cap Area

New World Mining District

Response and Restoration Project

Cooke City, Montana

FIGURE 2

Baseline and transects were marked with survey stakes and their locations were recorded with a Global Positioning System (GPS) instrument. Transect azimuth was marked at an origin stake and recorded in the field notes.

Quadrats were constructed using a standard Daubenmire frame with a wire grid of 10 intersections. A pin flag was used to determine 'hits' of vegetation, litter, rock, or bare ground. Vegetation 'hits' were recorded by species. If more than one species was encountered, the tallest was recorded. Litter was defined as dead, dry, vegetative material, and included organic portions of erosion control blanket. The current season's growth, whether green or dormant, was recorded as vegetation. Rocks that were larger than 1.25 centimeters (cm) were recorded as rocks; rocks smaller than 1.25 cm were recorded as bare ground as was inorganic material.

35 MM SLIDE METHOD

A 35 mm slide method was employed to document transect location and provide a reference for cover in herbaceous and shrubby vegetation on reclaimed transects. Individual sample quadrats were photographed in the field and cover determined from a digital photograph.

Quadrat photos were taken as a subsample of the sampling locations used in the point-quadrat method. One picture was taken along the transect length to document transect location. Along the transect, three quadrats (Q) with a ten-point intersect wire grid were systematically photographed at the 9 (Q3), 18 (Q6), and 27 (Q9) meter marks. In addition, a fourth photograph was taken at a random location along the transect over a standard Daubenmire frame without a wire grid. A quality digital camera was employed and positioned over the center of the quadrat, with the facing edge of the quadrat frame lined with the preview screen on the camera. Individual quadrat locations were recorded in a field notebook and on data sheets. Photographs were uploaded to a computer and labeled as to the location, date, transect, and quadrat number.

A 100-square grid was overlaid on each photograph with a computer program and viewed on a computer monitor to determine cover. The number of grids intersected by vegetation, bare ground, rock, or litter was recorded. Counts were made at the bottom, right-hand corner intersection of each grid square. Cover was calculated as a percentage of area covered and compared to cover estimates derived from the point-quadrat method. To ensure unbiased results, the biologist who performed the point-quadrat method did not interpret the slides.

RESULTS

This section presents data obtained during the 2005 revegetation cover monitoring event. **Table 1** summarizes cover data collected along transects. Appendices contain raw data, field notes, a list of species encountered, and photographs.

TABLE 1
COVER MONITORING RESULTS – MCLAREN CAP AREA
2005 Revegetation Monitoring

Species	McLaren Pit Cap Area			McLaren Triangle			Borrow Area		
	Hits[1]	Cover[2] (%)	35 mm Slide Cover (%)	Hits	Cover (%)	35 mm Slide Cover (%)	Hits	Cover (%)	35 mm Slide Cover (%)
Alpine bluegrass	72	3.60		220	36.67		50	5.00	
Alpine timothy	304	15.20		102	17.00		68	6.80	
Slender wheatgrass	964	48.20		27	4.50		322	32.20	
Tufted hairgrass	2	0.01		10	1.67		4	0.40	
Bluegrass	3	0.15		-	0.00		0.00	0.00	
Bromus spp.	6	0.30		-	0.00		0.00	0.00	
Algae*	-	0.00		-	0.00		15	1.50	
Moss	-	0.00		-	0.00		8	0.80	
Fireweed	-	0.00		2	0.33		-	0.00	
Bent grass	-	0.00		2	0.33		-	0.00	
Payson's sedge	-	0.00		10	1.67		-	0.00	
Smooth brome	2	0.01		-	0.00		-	0.00	
Red clover	1	0.05		-	0.00		-	0.00	
Unknown forb	3	0.15		-	0.00		-	0.00	
Black medick	3	0.15		-	0.00		-	0.00	
Vegetated	1360	68.00	54.75	373	62.17	43.00	467	46.70	42.30
Litter	377	18.85	25.70	137	22.83	16.50	347	34.70	42.10
Rock	89	4.45	4.30	26	4.33	4.67	35	3.50	3.00
Bare Ground	174	8.70	15.25	64	10.67	35.80	151	15.10	12.60
Non-Vegetated	640	32.00	45.25	227	37.83	57.00	533	53.30	57.70
Quadrats	200			60			100		
Transects	20			6			10		

Notes 1 Hits=Number of hits or the total number of species hits per sampling area.
2 Percent Cover or the total number of species hits / the total number of hits per sampling area multiplied by 100.
* Point intersects labeled "water" on the field data forms were tallied as algae due to the high concentrations of algae present in the water.

MCLAREN PIT CAP AREA

Point-quadrat data from revegetation monitoring in the cap area (**Figure 3**) indicate that percent vegetated cover was 68.00%. Slender wheatgrass had the highest cover (48.20%) followed by alpine timothy (15.20%), and alpine bluegrass (3.60%). Tufted hairgrass was relatively scarce at 0.01%. Other species recorded ranged from 0.30% to 0.01% and included bromus spp. (*Bromus spp*.), bluegrass spp. (*Poa spp.*), smooth brome (*Bromus inermus*), red clover (*Trifolium pratense*), black medick (*Medicago lupulina*), and an unidentified forb species. Litter was the most frequently recorded for non-vegetated cover at 18.85% followed by bare ground (8.70%) and rock (4.45%). Results from the 35 mm slide method show that 54.75% was vegetated cover and 45.25% was non-vegetated cover.

Similarly, slender wheatgrass was also the predominant species present during area-wide monitoring conducted in 2004 with overall cover ranging from 10% to 50% (Maxim, 2005a). A minor number of alpine bluegrass plants were observed and alpine timothy or tufted hairgrass were not recorded in 2004. Uniformity of cover observed in 2005 improved somewhat since 2004 in areas along the diversion channel at the base of the highwall and the upper bench.

MCLAREN TRIANGLE

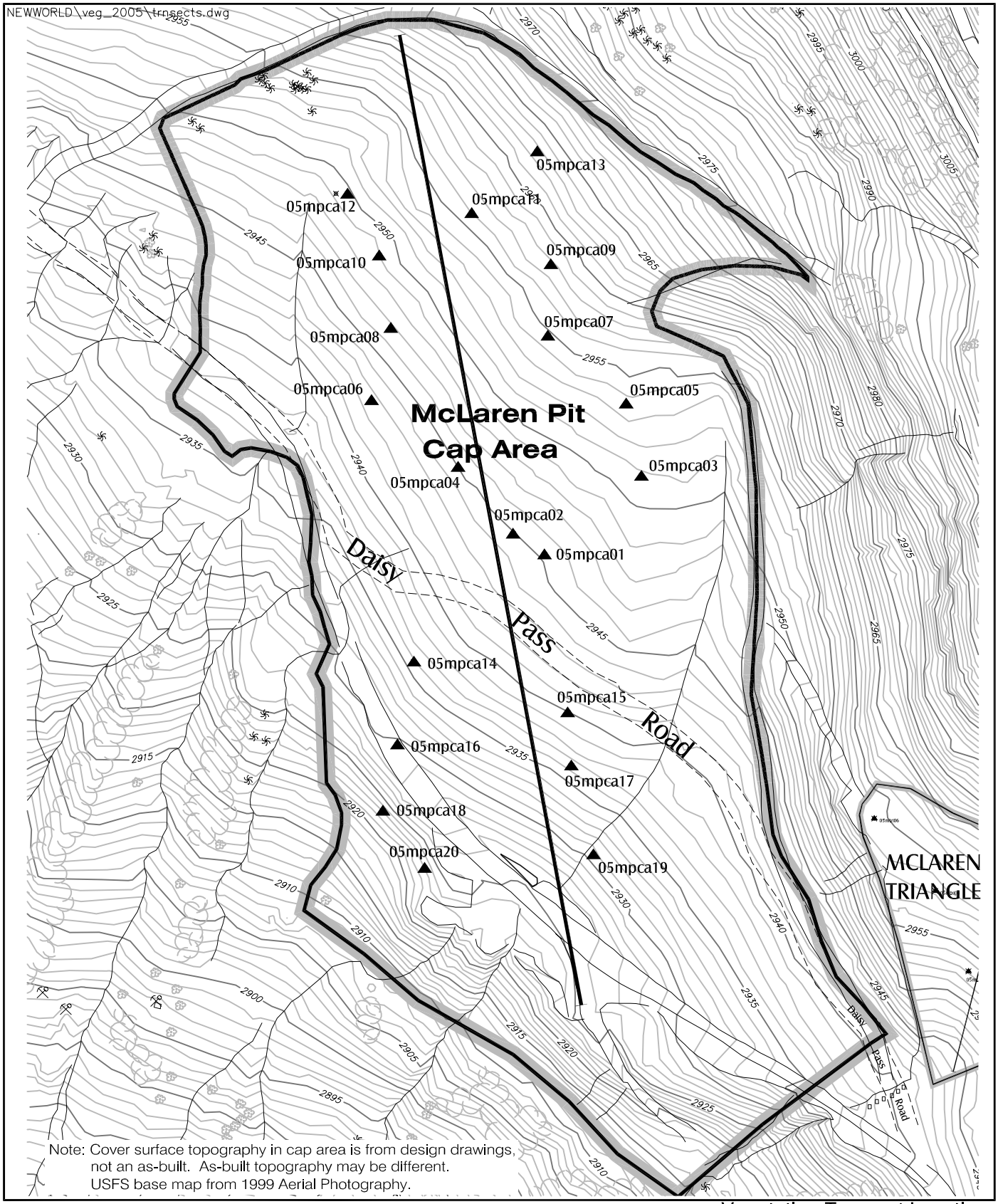
Maxim monitored revegetation at the McLaren Triangle (**Figure 4**) in 1999, 2000, 2002, 2003, and 2005. Data from long-term revegetation monitoring indicate that percent cover has improved substantially in 2005 (**Table 2**). Total percent cover measured with the point-quadrat method at the McLaren Triangle is 62.17%, higher than any other reclaimed monitoring strata measured in previous years.

TABLE 2
MCLAREN TRIANGLE HISTORIC COVER MONITORING RESULTS
2005 Revegetation Monitoring

Year	Overall Percent Vegetative Cover
1999	11.30
2000	16.60
2002	15.00
2003	10.70
2005	62.17

Alpine bluegrass had the highest cover (36.67%) followed by alpine timothy (17.00%) and slender wheatgrass (4.50%). Tufted hairgrass and Payson's sedge (*Carex paysonis*) both had cover of 1.60%. Bent grass (*Agrostis spp*.) and fireweed (*Epilobium angustifolium*) were also recorded. Black medic, dandelion (*Teraxacum spp*.), lanceleaved stonecup (*Sedium lanceolatum*), aster (*Asteraceae spp*.), and yarrow (*Achillea millefolium*) were also incidentally observed during the survey. In addition, a few subalpine fir (*Abies lasiocarpa*) seedlings were present and presumed to be natural recruitment to the site. The 35 mm slide method results indicate that 43.0% was vegetated cover and 57.0% was non-vegetated cover.

Slender wheatgrass was recorded as the dominant to sub-dominant species and tufted hairgrass and alpine bluegrass as subdominant during area-wide monitoring in 2004. Alpine timothy presence was



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Contour Interval = 1 meter

MAXIM TECHNOLOGIES 5561065a.100

05mpca11 Transect Label and Origin

Approximate Baseline Location

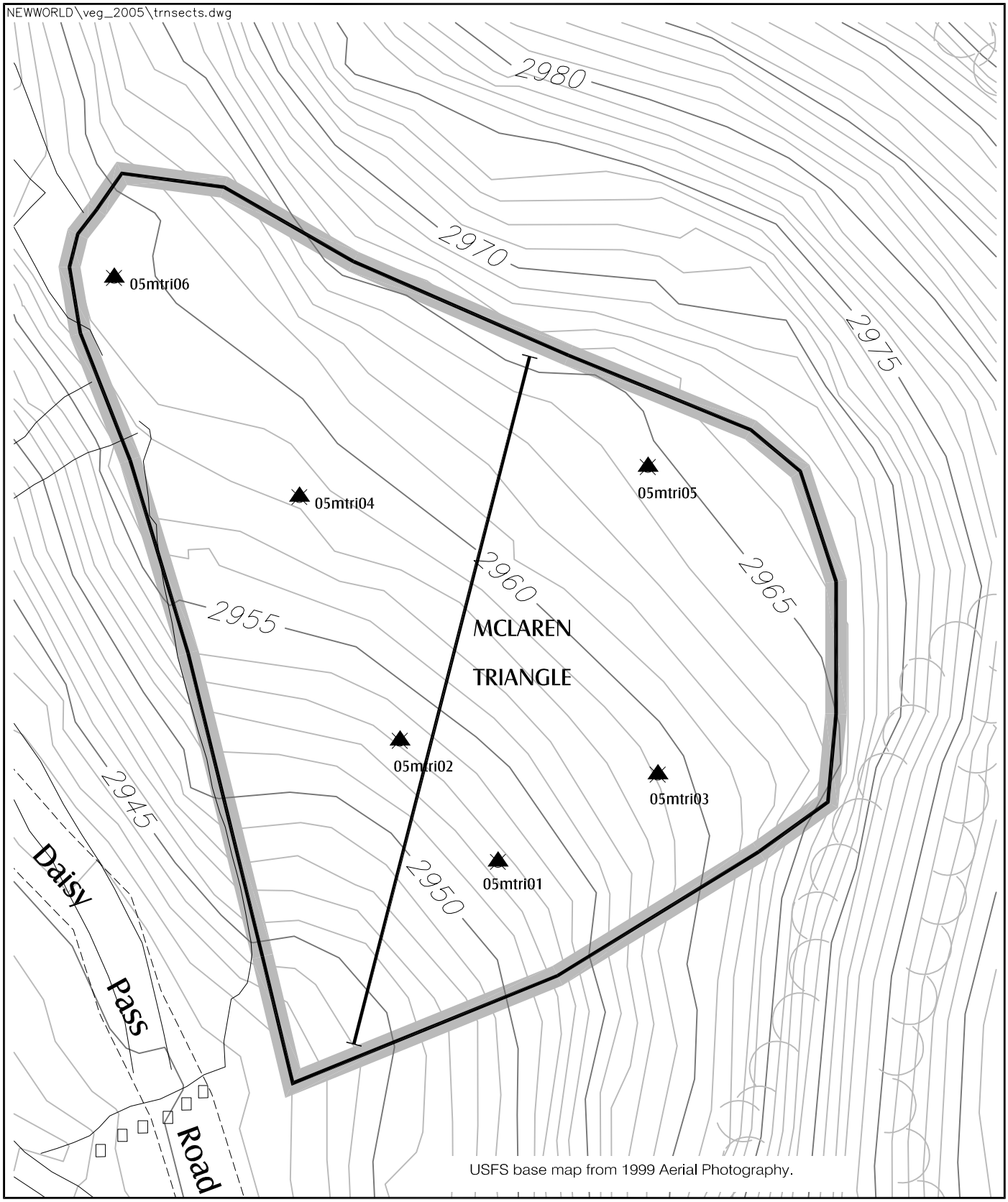
Prospect Pit

Existing Index Contour

Existing Intermediate Contour

McLaren Pit Cap Area Boundary

Vegetation Transect Locations
McLaren Pit Area
2005 Revegetation Monitoring
New World Mining District
Response and Restoration Project
Cooke City, Montana
FIGURE 3



N

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1:500

Contour Interval = 1 meter

MAXIM TECHNOLOGIES 5561065a.100

05mtri01 Transect Label and Origin

Approximate Baseline Location

Existing Index Contour

Existing Intermediate Contour

McLaren Triangle Area Boundary

Vegetation Transect Locations
McLaren Triangle Area
2005 Revegetation Monitoring
New World Mining District
Response and Restoration Project
Cooke City, Montana
FIGURE 4

not noted in 2004. Plant growth of the seeded species improved in the area of the triangle nearest the Daisy Pass Road in 2005, but was still less vigorous than the upper area.

BORROW AREA

Cover, germination, and growth of seeded species improved in 2005, compared with area-wide monitoring recorded as none to 30% in 2004. Slender wheatgrass was recorded as the dominant species in both 2004 and 2005 and the only seeded species observed in 2004. Results of revegetation monitoring using the point-quadrat method indicate that vegetated cover was 46.70%, lower than non-vegetated cover at 53.30%. Slender wheatgrass was most frequently recorded at 32.20%, followed by alpine timothy (6.80%), and alpine bluegrass (5.00%). Tufted hairgrass was relatively uncommon with 0.40% cover. Other recorded vegetated cover included algae (1.50%) and moss at 0.80%. Algae was present in most spring and seep areas throughout the site. Other species incidentally observed included fireweed, smooth brome, sticky arnica (*Arnica diversifolia*), Parry's clover, kittentails (*Synthyris missurica*), bluebunch wheatgrass, mustard (*Brassicacae spp*.), sheep sorrel (*Rumex acetosela*), and black medic. Subalpine fir seedlings and saplings were also observed rarely. Litter cover was most prevalent at 34.70%. Bare ground and rock were less frequently recorded at 15.10% and 3.50%, respectively. Percent cover measured with the 35 mm slide method produced results similar to the point-quadrat method and indicate 42.3% vegetated and 57.7% non-vegetated. A map of the borrow area is presented in **Figure 5**.

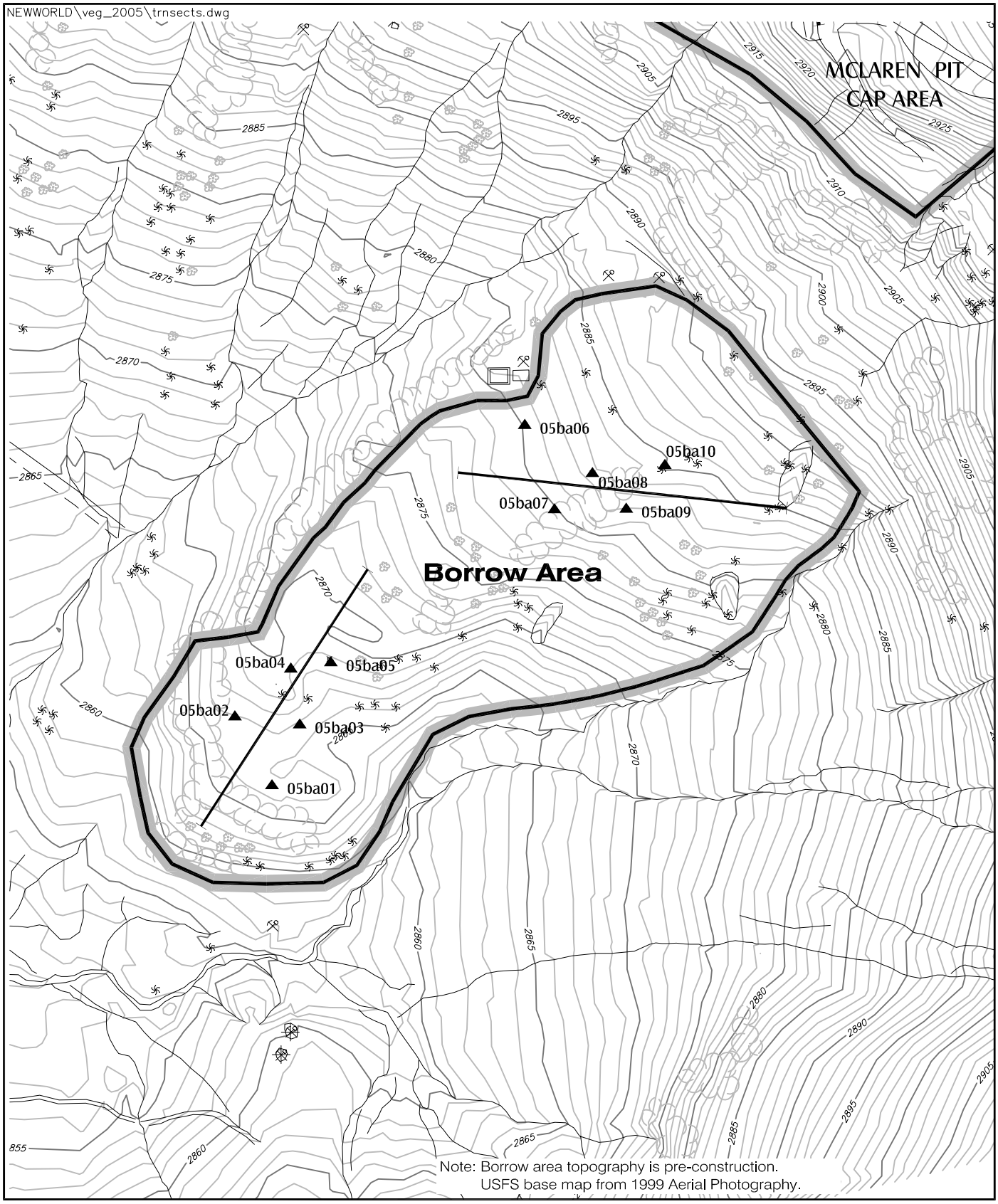
DISCUSSION

Overall, the monitoring areas were well vegetated and exceeded the revegetation objective of 20% cover. Monitoring areas within the McLaren Pit area that had more vegetated area than non-vegetated area using the point-quadrat method included the McLaren Pit cap area and the McLaren Triangle. Slender wheatgrass, alpine bluegrass and alpine timothy were most frequently encountered. Tufted hairgrass was rarely encountered. The borrow area had more non-vegetated cover than vegetated with measurements from the point-quadrat method of 53.30% and 46.70%, respectively. Measurements for non-vegetated cover ranged from 37.83% (McLaren Triangle) to 32.00% (McLaren Pit cap area). Non-vegetative cover most frequently encountered was litter, ranging from 34.70% (borrow area) to 18.85% (McLaren Pit cap area). Bare ground had lower cover, ranging from 15.10% (borrow area) to 8.70% (McLaren Pit cap area). Rock was least frequently encountered. The 35 mm slide method data produced similar results to the point-quadrat method with one exception: vegetated cover was less than non-vegetated cover in the McLaren Triangle.

Slender wheatgrass was the most frequently encountered and dominant species in both the McLaren Pit cap area and the borrow area. Alpine bluegrass was most frequently recorded in the McLaren triangle. Alpine timothy was encountered fairly consistently in all three areas. Tufted hairgrass was present at all three locations but was rarely recorded. All four species seeded were present on all sites. Several additional native species were observed, especially along edges of monitoring areas.

Subalpine fir and native forb recruitment was most noticeable at the McLaren Triangle and the borrow area, presumably due to the bordering habitats present. The McLaren Pit cap area appeared to have the most uniform vegetated cover. The borrow area had the least uniform cover, especially in areas of standing and flowing water and where coir blankets were used in drainage channels. Cover in these areas was patchy.

No erosion problems were noted at any of the sites. No maintenance, reseeding, or refertilization is necessary at any of the sites monitored based on 2005 revegetation monitoring results.



N

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Contour Interval = 1 meter

MAXIM TECHNOLOGIES 5561065a.100

05ba01 Transect Label and Origin
Approximate Baseline Location
Prospect Pit
Existing Index Contour
Existing Intermediate Contour
Borrow Area Boundary

Borrow Area - Vegetation Transect Locations
2005 Revegetation Monitoring
New World Mining District
Response and Restoration Project
Cooke City, Montana
FIGURE 5

REFERENCES

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APPENDIX A
DATA SUMMARY TABLES

2005 McLaren Pit Area Revegetation Monitoring
New World Mining District Response and Restoration Project

APPENDIX A-I
POINT-QUADRAT METHOD

TABLE A-1 1
TRANSECT DATA SUMMARY
McLaren Pit Cap Area

Species	Total Number of Hits by Transect Number																				Total Hits	Percent Cover
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Alpine bluegrass	5	1	4	1	8	6	3	2	5	9	4	3	3	6	-	3	2	3	3	1	72	3.60
Alpine Timothy	16	24	28	22	15	6	9	14	30	3	14	10	23	10	1	13	17	24	1	24	304	15.20
Slender wheatgrass	54	32	4	54	6	73	68	65	1	72	67	73	44	-	89	61	2	55	90	54	964	48.20
Tufted hairgrass	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	2	0.01
Bluegrass	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0.15
Smooth Brome	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2	0.01
Red Clover	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	0.05
Black medick	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	2	3	0.15
Bromus spp.	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-	3	-	-	-	-	6	0.30
Unknown forb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	3	0.15
Litter	12	24	58	13	51	11	6	12	23	10	7	9	13	43	4	14	38	13	6	10	377	18.85
Rock	4	8	-	5	5	3	7	2	25	3	4	-	3	8	2	2	4	1	-	3	89	4.45
Bare ground	9	11	6	2	15	1	7	3	15	-	4	2	14	33	4	4	34	4	-	6	174	8.70

TABLE A-1 2
TRANSECT DATA SUMMARY
McLaren Triangle

Species	Total Number of Hits by Transect Number						Total Hits	Percent Cover
	1	2	3	4	5	6		
Alpine bluegrass	15	18	46	57	50	34	220	36.67
Alpine Timothy	17	14	28	20	3	20	102	17.00
Slender wheatgrass	10	5	-	-	-	12	27	4.50
Tufted hairgrass	4	-	1	2	-	3	10	1.67
Bentgrass	2	-	-	-	-	-	2	0.33
Payson's sedge	10	-	-	-	-	-	10	1.67
Fireweed	-	-	-	2	-	-	2	0.33
Litter	22	43	15	9	29	19	137	22.83
Rock	7	4	1	2	8	4	26	4.33
Bare ground	13	16	9	8	10	8	64	10.67

TABLE A-1 3
TRANSECT DATA SUMMARY
McLaren Pit Borrow Area

Species	Total Number of Hits by Transect Number										Total Hits	Percent Cover
	1	2	3	4	5	6	7	8	9	10		
Alpine bluegrass	1	3	5	8	2	6	7	6	8	4	50	5.00
Alpine Timothy	8	2	10	5	-	15	5	8	7	7	67	6.70
Slender wheatgrass	22	54	7	17	64	39	11	31	13	64	322	32.20
Tufted hairgrass	-	-	-	1	-	1	1	11	1	-	5	0.50
Green algae	-	-	-	-	-	-	-	1	4	-	15	1.50
Moss	-	-	-	-	-	-	-	1	7	-	8	0.80
Litter	49	32	66	42	16	23	52	28	24	15	347	34.70
Rock	10	1	3	8	5	4	2	-	2	-	35	3.50
Bare ground	10	8	9	19	13	12	22	14	34	10	151	15.10

APPENDIX A-2
35 MM SLIDE METHOD

TABLE A-2-1
35 MM SLIDE METHOD RESULTS

Transect ID	Number of Hits				Vegetated (%)	Non-vegetated (%)
	Bare Ground	Litter	Rock	Vegetation		
McLaren Triangle						
MTR101R	38	15	1	46	46	54
MTR102R	25	25	15	35	35	65
MTR103R	40	18	3	39	39	61
MTR104R	12	9	3	76	76	24
MTR105R	82	0	5	13	13	87
MTR106R	18	32	1	49	49	51
Total	**215**	**99**	**28**	**258**	**43.0**	**57.0**
McLaren Pit Cap Area						
MPCA01R	13	27	3	57	57	43
MPCA02R	30	22	11	37	37	63
MPCA-3R	6	40	4	50	50	50
MPCA04R	11	11	3	75	75	25
MPCA05R	25	51	5	19	19	81
MPCA06R	0	0	0	100	100	0
MPCA07R	0	0	0	100	100	0
MPCA08R	4	13	3	80	80	20
MPCA09R	9	37	28	26	26	74
MPCA10R	0	6	4	90	90	10
MPCA11R	16	40	7	37	37	63
MPCA12R	17	11	2	70	70	30
MPCA13R	40	25	3	32	32	68
MPCA14R	48	26	3	23	23	77
MPCA15R	6	14	2	78	78	22
MPCA16R	18	44	1	37	37	63
MPCA17R	31	56	5	8	8	92
MPCA18R	17	14	1	68	68	32
MPCA19R	9	21	0	70	70	30
MPCA20R	5	56	1	39	39	61
Total	**305**	**514**	**86**	**1095**	**54.75**	**45.25**
Borrow Area						
BA01R	1	41	9	49	49	51
BA02R	1	0	0	99	99	1
BA03R	3	65	11	21	21	79
BA04R	24	35	4	37	37	63
BA05R	18	67	0	15	15	85
BA06R	37	22	3	38	38	62
BA07R	0	99	0	1	1	99
BA08R	7	51	0	42	42	58
BA09R	29	33	2	36	36	64
BA010R	6	8	1	85	85	15
Total	**126**	**421**	**30**	**423**	**42.3**	**57.7**

APPENDIX B
FIELD NOTES AND DATA SHEETS

2005 MCLAREN PIT AREA REVEGETATION MONITORING
New World Mining District Response and Restoration Project

AVAILABLE IN HARD COPY ONLY

APPENDIX C
SCIENTIFIC NAMES OF PLANT SPECIES

2005 MCLAREN PIT AREA REVEGETATION MONITORING
New World Mining District Response and Restoration Project

SCIENTIFIC AND COMMON NAMES OF PLANT SPECIES
2005 REVEGETATION MONITORING
New World Mining District Response and Restoration Project

Common Name	Scientific Name
Alpine bluegrass	*Poa alpina*
Alpine timothy	*Phleum alpina*
Aster	*Asteraceae*
Black medick	*Medicago lupulina*
Bentgrass	*Agrostis spp.*
Bluegrass.	*Poa spp.*
Bluebunch wheatgrass	*Agropyron spicatum*
Red Clover	*Trifolium pratense*
Dandelion	*Taraxacum*
Fireweed	*Epilobium angustifolium*
Green algae	*Algae spp.*
Kittentails	*Synthyris missurica*
Lanceleaved stonecup	*Sedium lanceolatum*
Mustard	*Brassicaceae*
Payson's sedge	*Carex paysonis*
Sheep sorrel	*Rumex acetosela*
Slender wheatgrass	*Agropyron trachycaulum*
Smooth brome	*Bromus inermus*
Sticky arnica	*Arnica diversifolia*
Subalpine fir	*Abies lasiocarpa*
Tufted hairgrass	*Deschampsia cespitosa*
Wild rye	*Elymus spp.*
Yarrow	*Achillea millefolium*

APPENDIX D
SITE PHOTOGRAPHS

2005 MCLAREN PIT AREA REVEGETATION MONITORING
New World Mining District Response and Restoration Project

Revegetation Monitoring Areas

McLaren Triangle

McLaren Pit Cap Area

Borrow Area

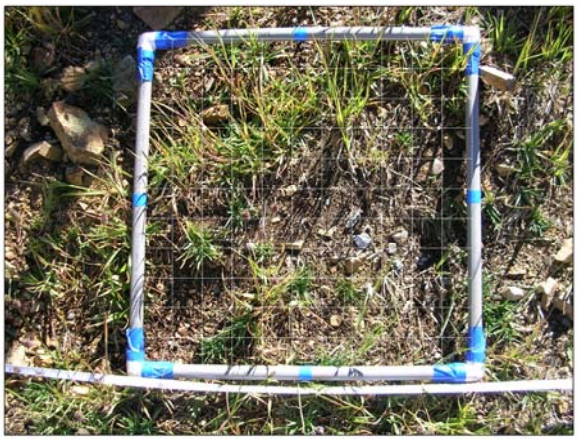
McLaren Triangle

Transect MTRI-01

Q3

Q6

Q9



QR

McLaren Triangle

Transect MTRI-02

Q3

Q6

Q9

QR

McLaren Triangle

Transect MTRI-03

Q3

Q6

Q9

QR

McLaren Triangle

Transect MTRI-04

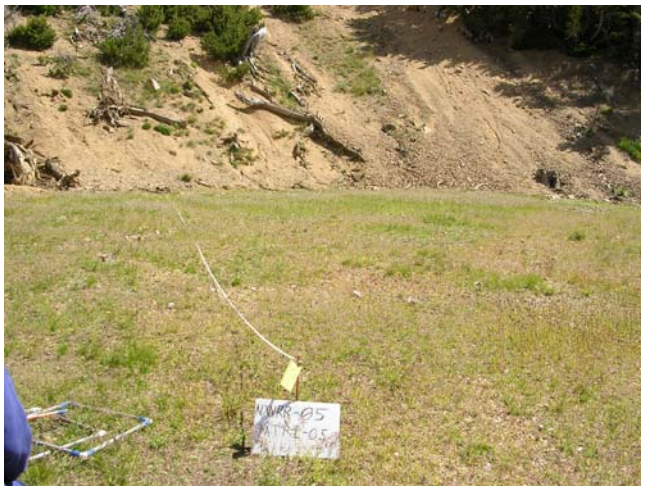
Q3

Q6

Q9

QR

McLaren Triangle

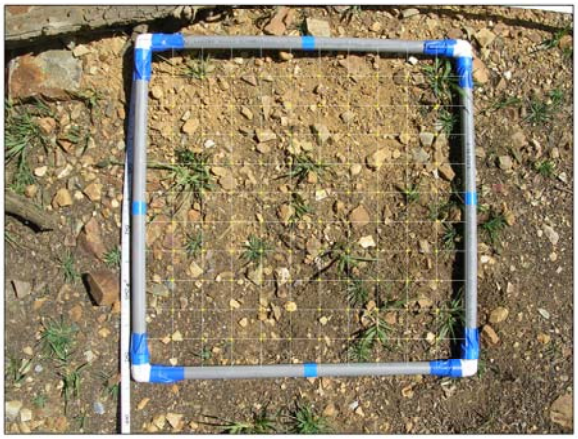


Transect MTRI-05

Q3

Q6

Q9

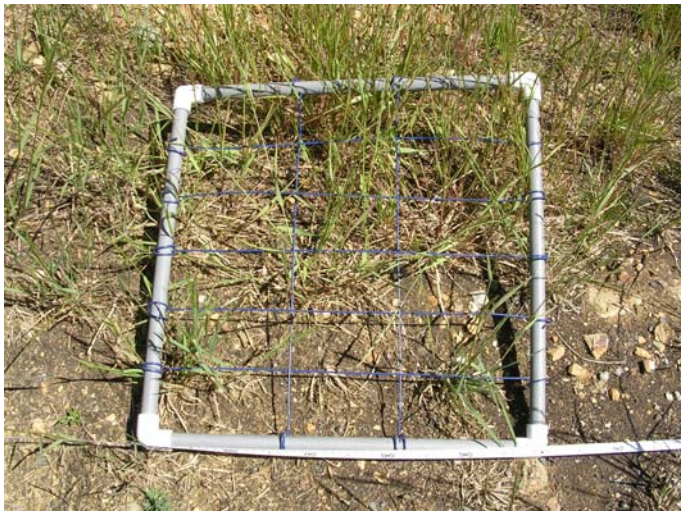


QR

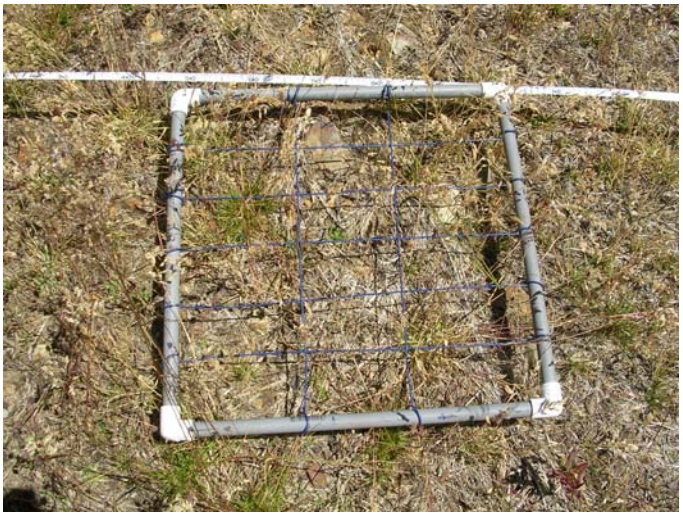
McLaren Triangle

Transect MTRI-06

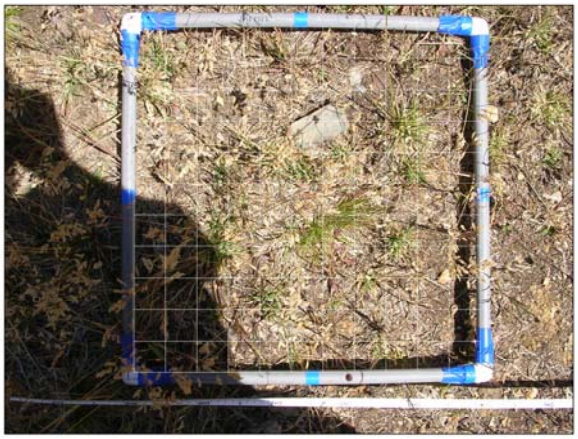
Q3



Q6



Q9

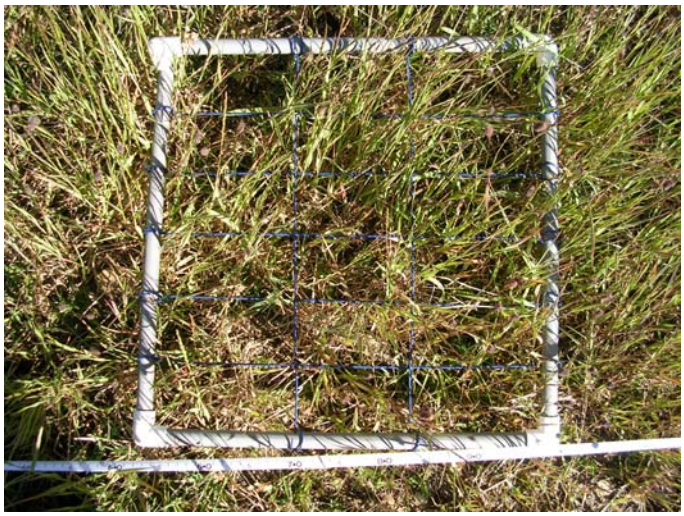


QR

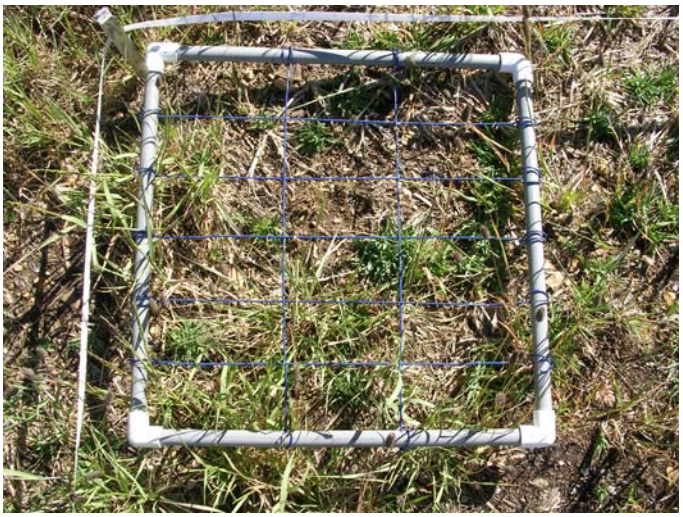
McLaren Pit Cap Area

Transect MPCA-01

Q3



Q6

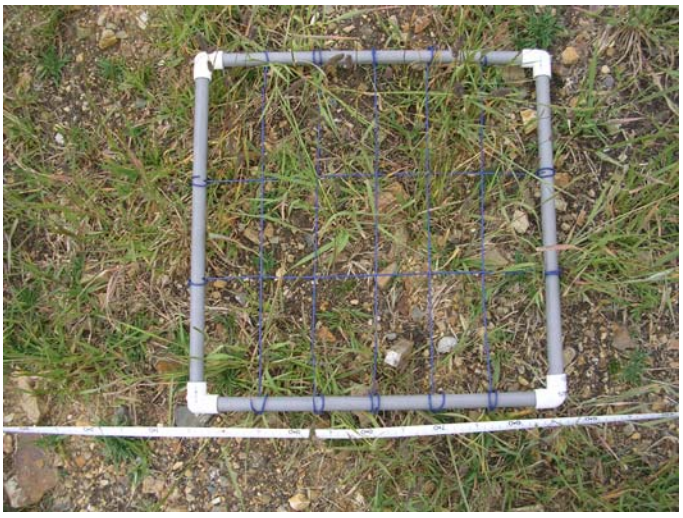


Q9

QR

McLaren Pit Cap Area

Transect MPCA-02



Q3

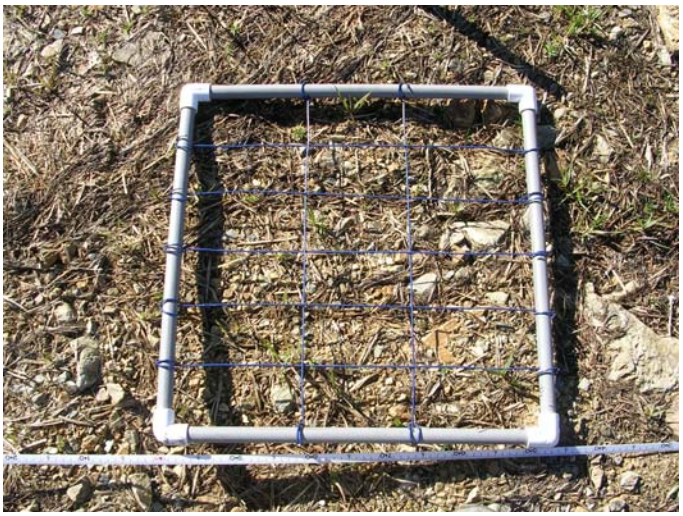
Q6

Q9

QR

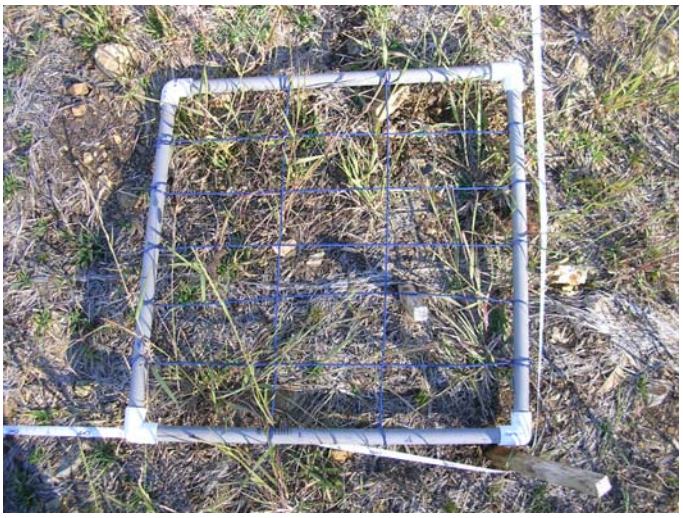
McLaren Pit Cap Area

Transect MPCA-03

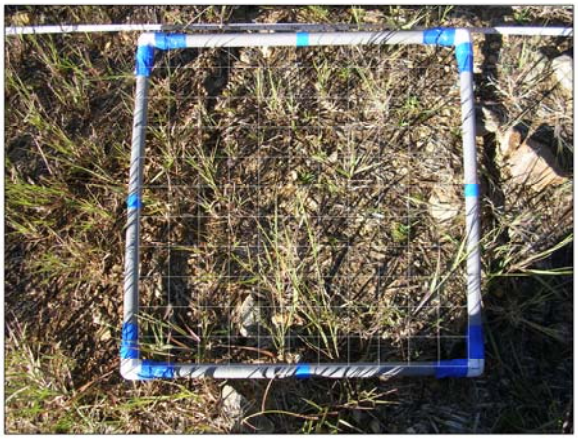


Q3

Q6



Q9



QR

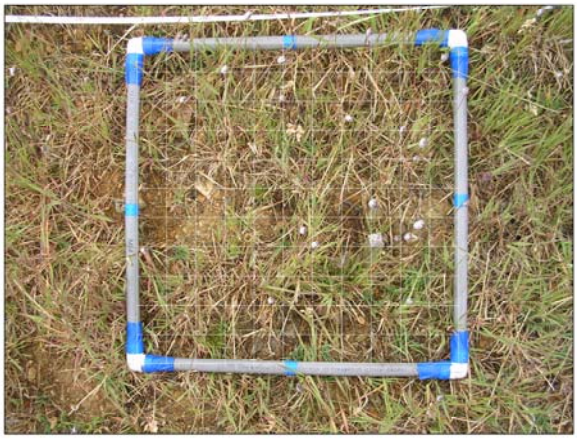
McLaren Pit Cap Area

Transect MPCA-04

Q3

Q6

Q9



QR

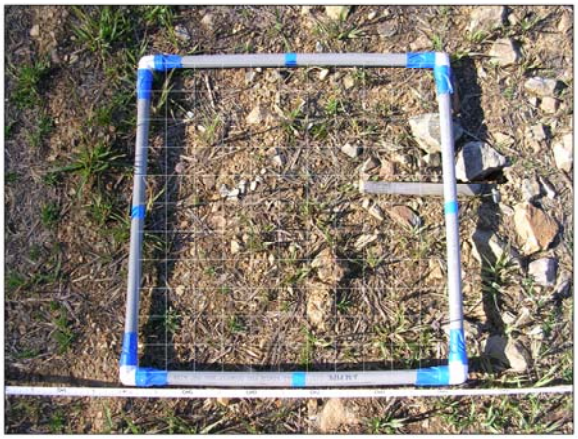
McLaren Pit Cap Area

Transect MPCA-05

Q3

Q6

Q9

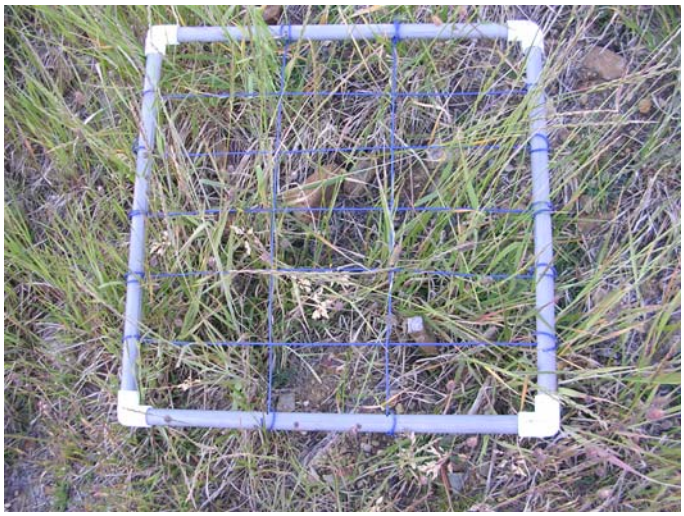


QR

McLaren Pit Cap Area

Transect MPCA-06

Q3



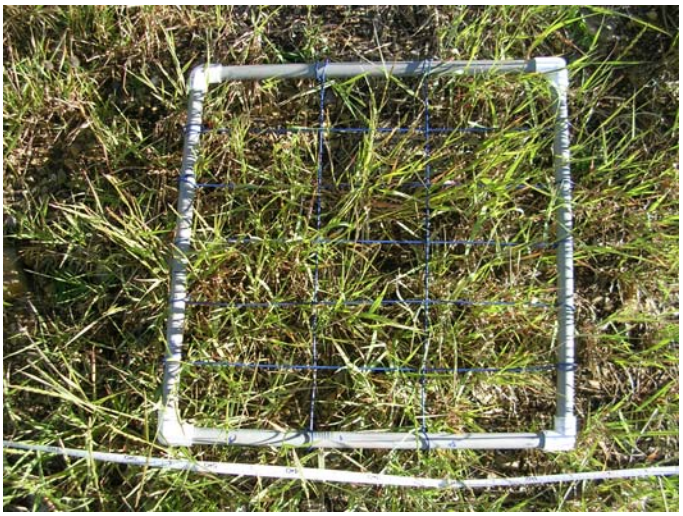
Q6

Q9

QR

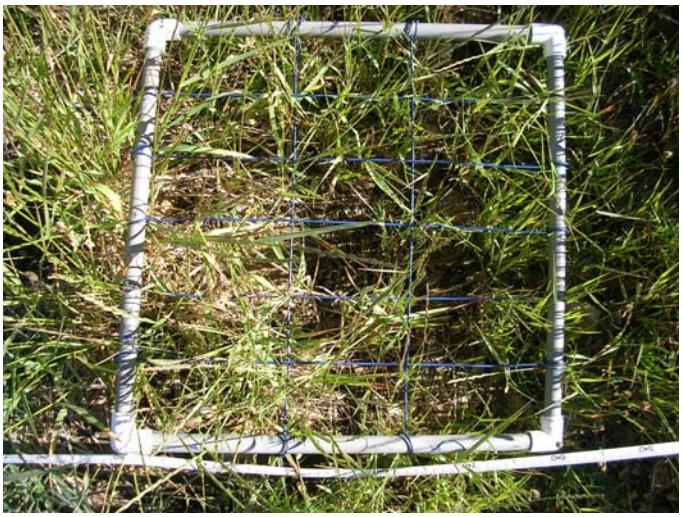
McLaren Pit Cap Area

Transect MPCA-07



Q3

Q6



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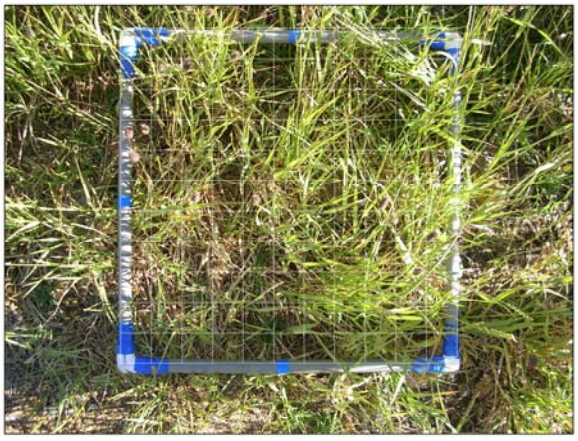
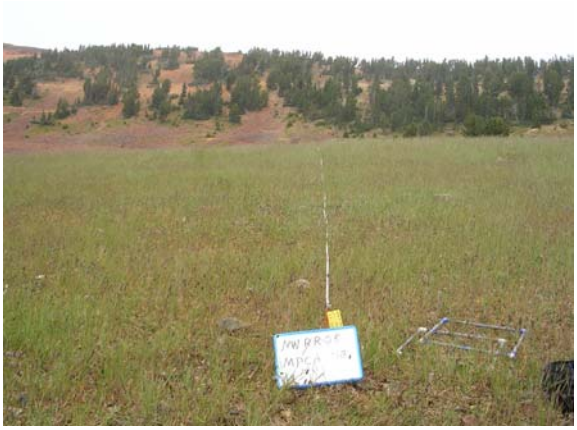
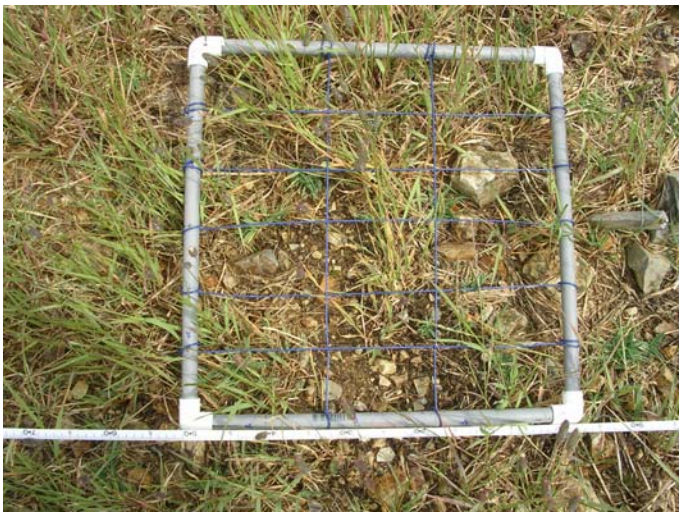


QR

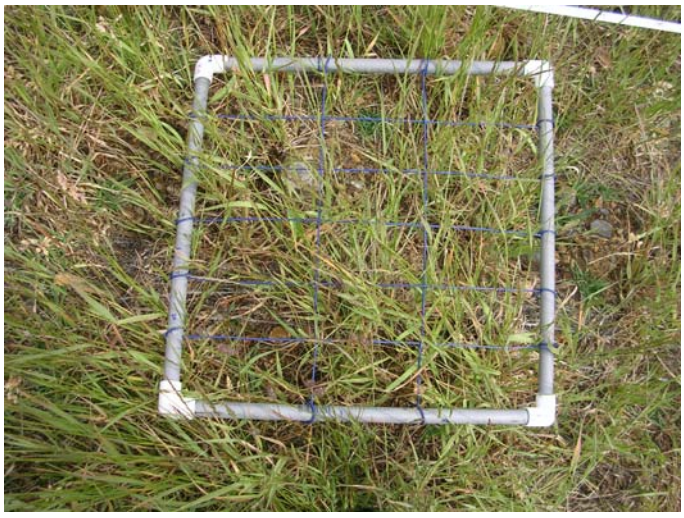
McLaren Pit Cap Area



Transect MPCA-08



Q3



Q6

Q9

QR

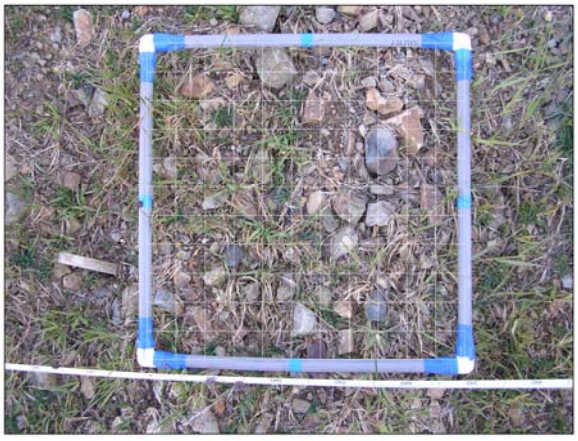
McLaren Pit Cap Area

Transect MPCA-09

Q3

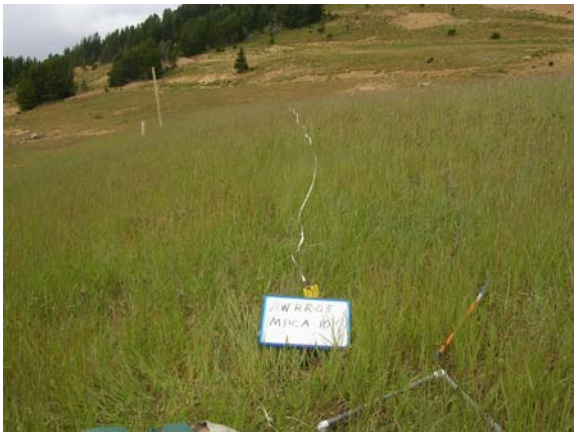
Q6

Q9



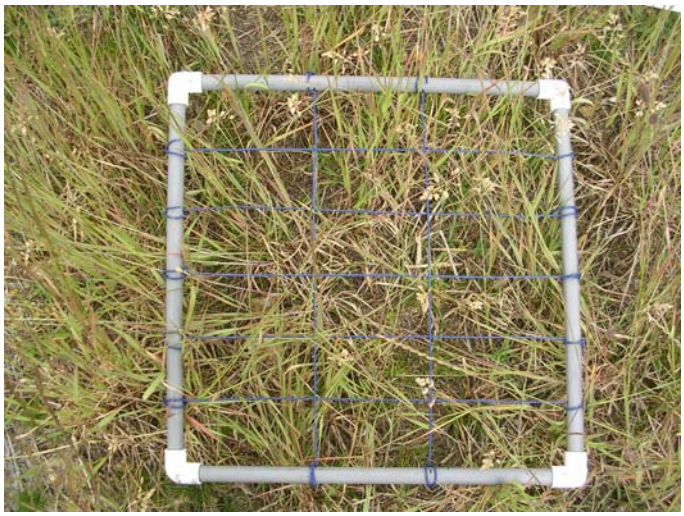
QR

McLaren Pit Cap Area



Transect MPCA-10

Q3



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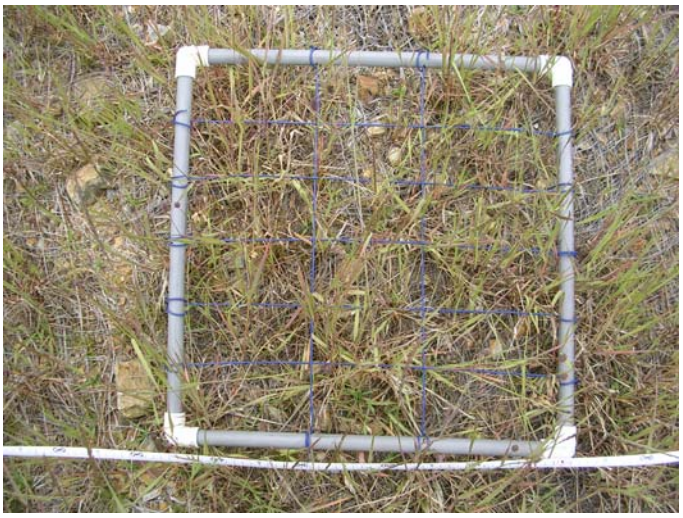


Q9

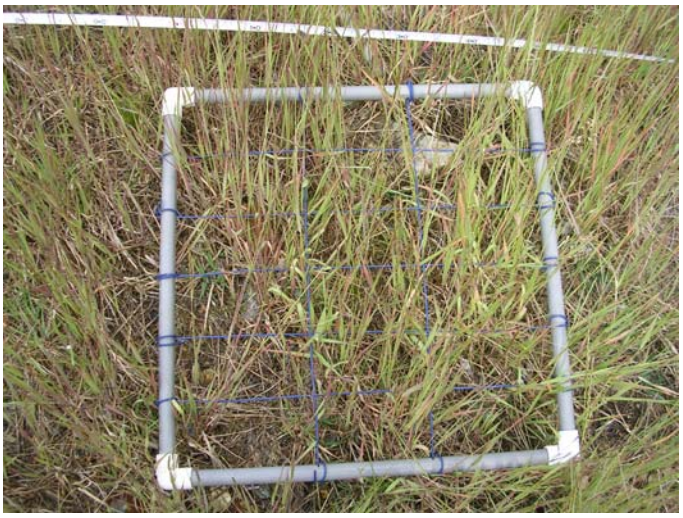
QR

McLaren Pit Cap Area

Transect MPCA-11

Q3

Q6



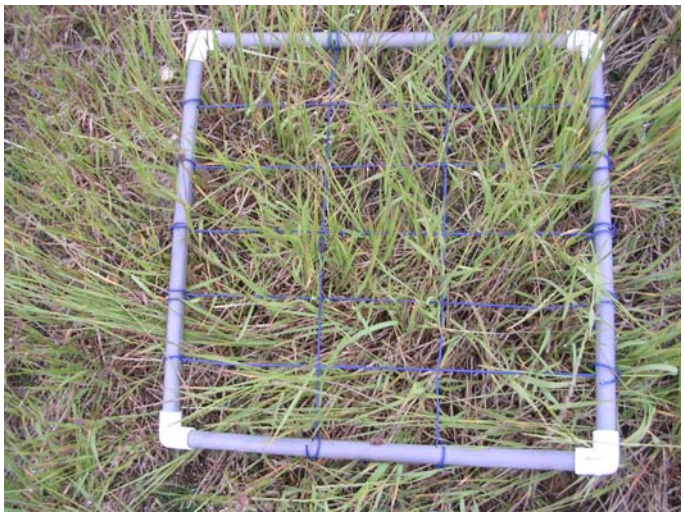
Q9

QR

McLaren Pit Cap Area

Transect MPCA-12

Q3



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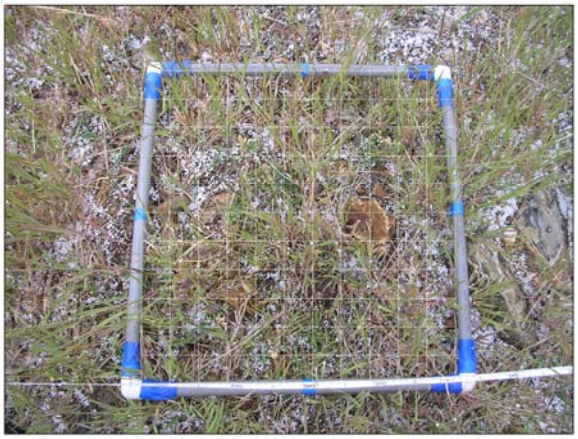
Q9



QR

Borrow Area

Transect BA-01

Q3

Q6

Q9

QR

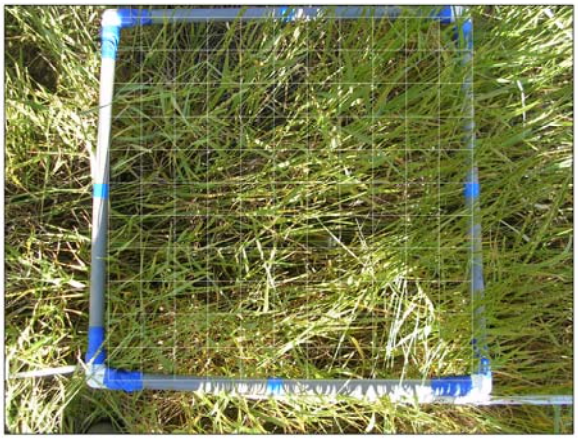
Borrow Area

Transect BA-02

Q3

Q6

Q9



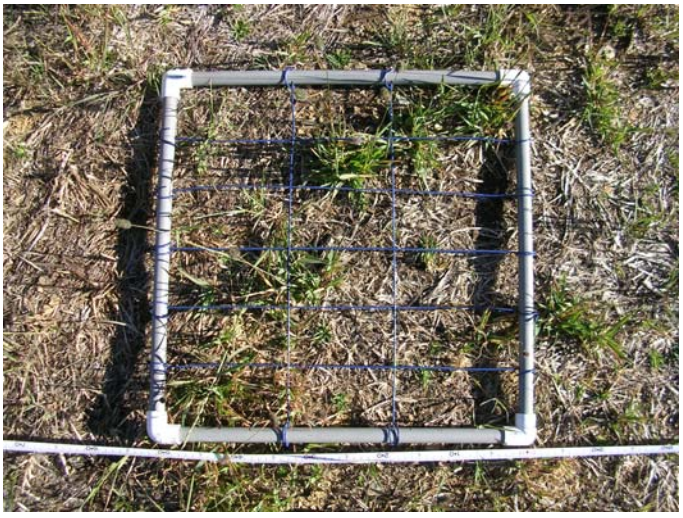
QR

Borrow Area

Transect BA-03

Q3

Q6



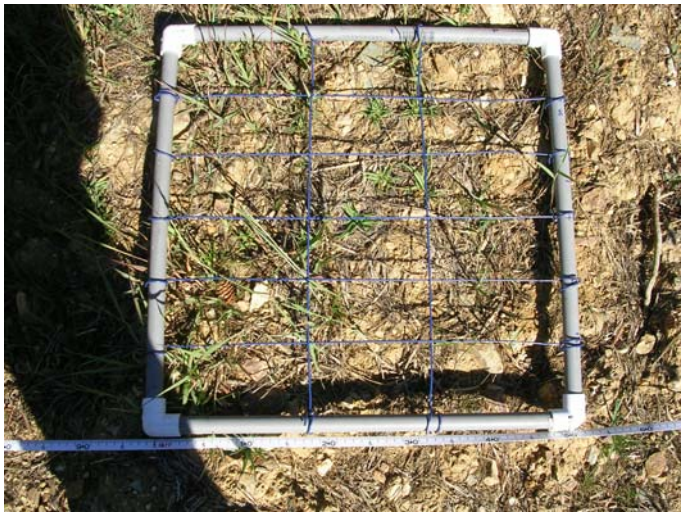
Q9

QR

Borrow Area

Transect BA-04

Q3



Q6

Q9

QR

Borrow Area

Transect BA-05

Q3

Q6

Q9

QR

Borrow Area

Transect BA-06

Q3

Q6

Q9

QR

Borrow Area

Transect BA-07

Q3

Q6

Q9

QR

Borrow Area

Transect BA-08

Q3

Q6

Q9

QR

Borrow Area

Transect BA-09

Q3

Q6

Q9

QR

Borrow Area

Transect BA-10

Q3

Q6

Q9

QR