Trout Creek
Riparian Health Assessment
Report, 2001

By

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January, 2002

EXECUTIVE SUMMARY

A problem faced by conservation organisations wishing to conduct conservation, enhancement and protection programs in a geographical area is to determine the current state of habitat in the study area. The development of a riparian protection and enhancement program in the Alberta Conservation Association's Northern East Slopes (NES) region has resulted in the need to conduct assessments on priority streams. Trout Creek is one stream in the NES that was identified as a high priority for the Alberta Conservation Association to focus its efforts on. Results from a field assessment in the summer of 2001 will help prioritise habitat that needs to be protected, and habitat where enhancement techniques could be used.

Trout Creek is a stream that is currently being affected by agricultural land use practices throughout most of the drainage, with the majority of human-induced bank instability caused by livestock impacts. Agricultural land use will likely continue to be a major factor for years to come along Trout Creek due to the areas capability to support such practices.

Overall the banks were in good condition in the areas assessed along Trout Creek, however, the riparian area was cleared of mature vegetation in many places and there was little recruitment of new trees to stabilise the banks as older trees die or are harvested. The areas of bank instability located along Trout Creek are largely associated with intensive livestock operations. It was determined that areas being impacted by horse grazing were not as severe as similar activity by cattle on Trout Creek, however, there is still a lack of recruitment of rooted vegetation such as grasses and shrubs, which are primary successors. Improvement in grazing management practices and a reduction of other land-use activities along the creek should result in greater biodiversity in affected areas and a healthier riparian area.

Results from the riparian health assessment identified some relatively intact habitat that should be protected, and also degraded habitat that could be enhanced. The first step that needs to occur in order to improve the health of the riparian area along Trout Creek are information and education initiatives aimed at promoting good stewardship practices and natural stream processes and function.

ACKNOWLEDGEMENTS

The author would like to acknowledge the following people: landowners along Trout Creek that provided access to their property to conduct the assessment was greatly appreciated. Emily Lemieux, Sheldon Kowalchuk, Rich Rudolph, the author, and Ash McKone who completed the field assessment on Trout Creek, and Cal McLeod, and D'Arcy Campbell for critical review of the draft report.

Sheldon Kowalchuk also produced maps for the fieldwork, and the author conducted G.I.S. tasks to identify disturbance areas. The format for this report was taken from "Edson River Riparian Health Assessment Report, 2000" by Sheldon Kowalchuk and D'Arcy Campbell (Kowalchuk, 2000).

Funding for this project was provided through the Alberta Conservation Association's Fisheries Habitat Development Program (FHDP).

TABLE OF CONTENTS

EXECUTIVE SUMMARY I

ACKNOWLEDGEMENTS II

TABLE OF CONTENTS III

LIST OF FIGURES IV

LIST OF TABLES V

LIST OF APPENDICES VI

1.0 INTRODUCTION 1

1.1 PROJECT PURPOSE 1

2.0 METHODS 2

2.1 STUDY SITE 2

2.2 SITE SELECTION 4

2.3 SURVEY DESIGN 4

2.4 DATA INTERPRETATION 5

3.0 RESULTS AND DISCUSSION 6

3.1 FUTURE DIRECTION 8

4.0 SUMMARY 9

5.0 LITERATURE CITED 10

APPENDICES 11

LIST OF FIGURES

FIGURE 1. LOCATION OF THE TROUT CREEK WATERSHED IN THE PROVINCE OF ALBERTA. 2

FIGURE 2. MAP OF THE TROUT CREEK WATERSHED. 3

FIGURE 3. MAP OF RANKED QUARTER SECTIONS ALONG CARROT CREEK ASSESSED IN 2001. 7

LIST OF TABLES

TABLE 1. QUARTER SECTIONS ON TROUT CREEK IN A NATURAL STATE. 8

TABLE 2. RANKED QUARTER SECTIONS WITH DISTURBANCES ON TROUT CREEK. 8

LIST OF APPENDICES

APPENDIX 1. RIPARIAN ASSESSMENT DATA FORM USED ON TROUT CREEK 13

APPENDIX 2. DETAILS OF DISTURBANCE SITES IDENTIFIED DURING THE RIPARIAN HEALTH ASSESSMENT ALONG TROUT CREEK. 14

APPENDIX 3. MAP OF THE TROUT CREEK WATERSHED WITH DISTURBANCE SITES FOUND IN 2001.19

APPENDIX 4. MAP AND DETAILS OF QUARTER SECTIONS SURVEYED DURING THE RIPARIAN HEALTH ASSESSMENT. 21

1.0 INTRODUCTION

Through the Buck for Wildlife program, anglers have been actively involved with riparian habitat protection since 1973. The Alberta Conservation Association was established in 1997 and took over the Buck for Wildlife program at that time. Historically the main method of enhancing and protecting riparian areas was to construct fence along important watercourses for the purpose of excluding grazing and cultivation in these areas. A review of the Buck For Wildlife (BFW) Streambank Fencing Program was conducted in recent years and a new program was developed and named the Buck for Wildlife East Slopes Riparian Management Program (McLeod, 2000). Under the new program, streams have been ranked according to their fisheries potential and a matrix has been developed to determine the amount of funding that would be available to conduct riparian enhancement projects on priority streams. Trout Creek has been identified as a high priority stream in the Northern East Slopes region, and in order to determine the current state of the riparian area along the river, a riparian health assessment was conducted. The assessment will help guide riparian protection and enhancement activities to areas of highest priority.

This document reports results obtained during the assessment that was conducted on the mainstem of Trout Creek and its branched headwaters during the spring and summer of 2001. The report will also be used to identify priority areas for possible enhancement projects, as well as areas that have relatively healthy riparian zones.

1.1 Project Purpose

- To assess the current health of the riparian area along Trout Creek in order to prioritise habitat protection and enhancement activities.
- Use the results from the assessment to determine high priority areas where the riparian areas are being impacted by human-induced landuse activities.
- Use the assessment as the basis for the beginning of raising awareness regarding riparian health and the importance of riparian areas in the Trout creek watershed.

Following the riparian health assessment on Trout Creek, other goals related to the implementation of projects are:

- To work with landowners to create on-the-ground projects that will be beneficial to the fish and wildlife resource.
- To pursue partnership opportunities with government agencies and agricultural organisations in the delivery of habitat enhancement projects.
- To raise the level of awareness regarding riparian areas in the watershed.

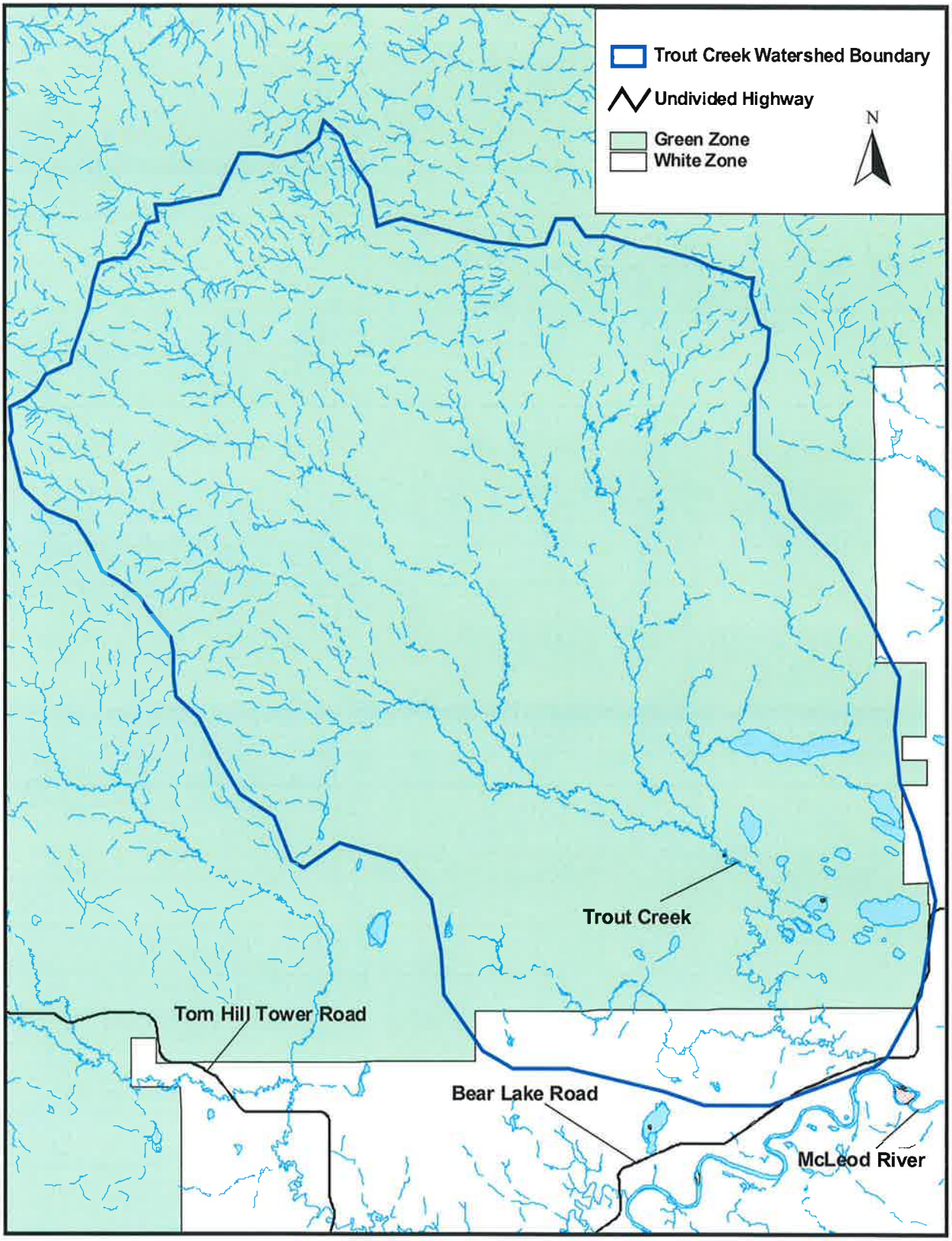


Figure 2. Map of the Trout Creek watershed.

2.2 Site Selection

An assessment of the riparian area along Trout Creek was conducted due to the large amount of land use activities that are affecting the general health of the stream and its banks. The assessment was performed on the mainstem of the creek as well as its many branches that form towards the headwaters of the creek. The assessment began at the mouth of Trout Creek, where it flows into the McLeod River, and proceeded upstream towards its headwaters. The assessment ended at townships 55 and 56 and range 16, west of the fifth meridian, which was the end of private land (and land-use disturbances) on Trout Creek.

2.3 Survey Design

Prior to the fieldwork, quarter section maps were prepared using ArcView 3.1 software (ESRI, 2000) for the areas that were ground truthed. Only one landowner could not be contacted to gain access to his land, so NE 31-54-15-W5M was not assessed. Access could not be gained to SW 25-55-16-W5M, NW 11-56-16-W5M, and SW 14-56-16-W5M due to flood conditions and so these quarter sections were also not assessed.

The survey consisted of staff conducting a visual assessment of the streambanks along Trout Creek. ACA staff conducted the assessment by walking upstream along the banks of the creek, allowing the observer to make an assessment of both banks. When a new quarter section was encountered, an upstream photo was taken of the stream using either a digital or film based camera. A representative photo was taken at the upstream end of each quarter section to display what the land looked like at consistent and unbiased locations.

As biological staff observed banks that were unstable, they were marked on quarter section maps. A geographical location was also taken using a Garmin Type II Plus or a Garmin 12 XL GPS. Individual disturbance sites were recorded on field data sheets (Appendix 1). Disturbance sites were identified as sites that were impacted by human-induced activities (i.e. unstable banks caused by grazing, logging, poor bridge crossings, lawns, etc.). A list of all disturbance sites identified along Trout Creek is located in Appendix 2 and a map of all the disturbance sites found on Trout Creek is located in Appendix 3. Photos of most disturbance sites were taken, and the reason for the disturbance was also recorded. On some quarter sections, where many disturbance sites occurred, photos were taken of a sub-sample of the disturbance sites.

At the end of each quarter section, summary notes were compiled regarding the landuse activities, an estimated distance on how close the activities occurred from the channel's edge, the stability of the banks and the estimated pool/riffle/run ratio for the section of stream assessed.

The four different categories of bank stability were stable, slightly unstable, moderately unstable, and highly unstable. These different categories were defined by the following (Hvenegaard, 1998):

Stable: banks well vegetated or such that they are not susceptible to erosion.

Slightly Unstable: >50% of banks in section are stable, limited indication of silt contribution.

Moderately Unstable: <50% of banks in section are stable, some indications of silt.

Highly Unstable: massive bank slumping, large deposits of silt.

Following the completion of the field assessments, data was organised in the office. All photos were labelled and raw data sheets were organised in a binder. Disturbance sites were re-numbered beginning at the downstream end of the creek and proceeding upstream. Geographical Information System software (ArcView 3.2a) (ESRI, 2000) was used to place disturbance sites on a map for report preparation. A digital shapefile was created to identify the geographical location of the disturbance site, as well as the corresponding site number. The disturbance sites were placed in the appropriate location, by using both the UTM's obtained from the field, and the disturbance locations recorded on the maps to derive the correct location.

Appendix 4 includes, for all sections assessed in the Trout Creek watershed, a map of the section surveyed with disturbance sites numbered, followed by summary reports for each quarter assessed within that section, followed by photos of disturbance sites found in that section.

All digital and hard copy data is stored on ACA computers in the Edson ACA office.

2.4 Data Interpretation

The assessment that occurred on Trout Creek in 2001 was designed to be a coarse filter; to determine which areas along Trout Creek were being impacted by human-induced activity. This assessment may provide fewer details than riparian health assessments conducted by other agencies, however it is less time consuming and less costly, and is useful in identifying areas of concern.

3.0 RESULTS AND DISCUSSION

Trout Creek is a watercourse that had many instances of degraded riparian habitat, due mainly to farms with livestock or cultivation impacts. A map showing all the quarter sections assessed and associated priority rankings is found in Figure 3.

Figure 3 shows all the quarter sections assessed on Trout Creek, beginning from the mouth in NW 28-54-15-W5M to the last quarters assessed in NW 31-55-16-W5M, NW 8-56-16-W5M, and NW 15-56-16-W5M. The map also displays the ranking assigned to each quarter section, from natural state to high priority, for every quarter section assessed. The range of disturbance sites used to rank the priority levels is specific to this drainage.

Overall, Trout Creek appears to be in good shape with a few problem areas. Of the 66 quarter sections assessed it was found that 45 were in a natural state (having 0 disturbances), 15 were ranked as low priority (having 1-6 disturbances), 2 were ranked as moderate priority (having 7-12 disturbances), and 4 were ranked as high priority (having 13-19 disturbances).

The quarter sections with the greatest number of disturbance sites were found mainly in the white zone on land that was being impacted by livestock grazing and watering. The quarter sections with the least amount of disturbance sites were found mainly in the green zone on land that was in a natural state, undisturbed by human-induced activities. Such activities include cutting trees down to improve grazing conditions, haying to the waters edge, grazing and watering livestock, numerous bridge crossings, and littering in the creek. The numerous farms in the watershed have impacted the width of the riparian area along Trout Creek, which has contributed to a relatively low habitat value for fish and wildlife, due to a lack of forage for wildlife and increased siltation in the water, affecting fish populations.

The number of disturbance sites found in a particular quarter section will help determine the priority level for future riparian protection and enhancement projects. All disturbance sites identified in 2001 are displayed in Appendix 3 as well as on the Indian Resource Satellite (I.R.S.) imagery section maps in appendix 4. The overall health of the riparian area on Trout Creek will most likely decrease due to the amount of agricultural activity along the stream unless action is taken to control the degradation of the affected areas.

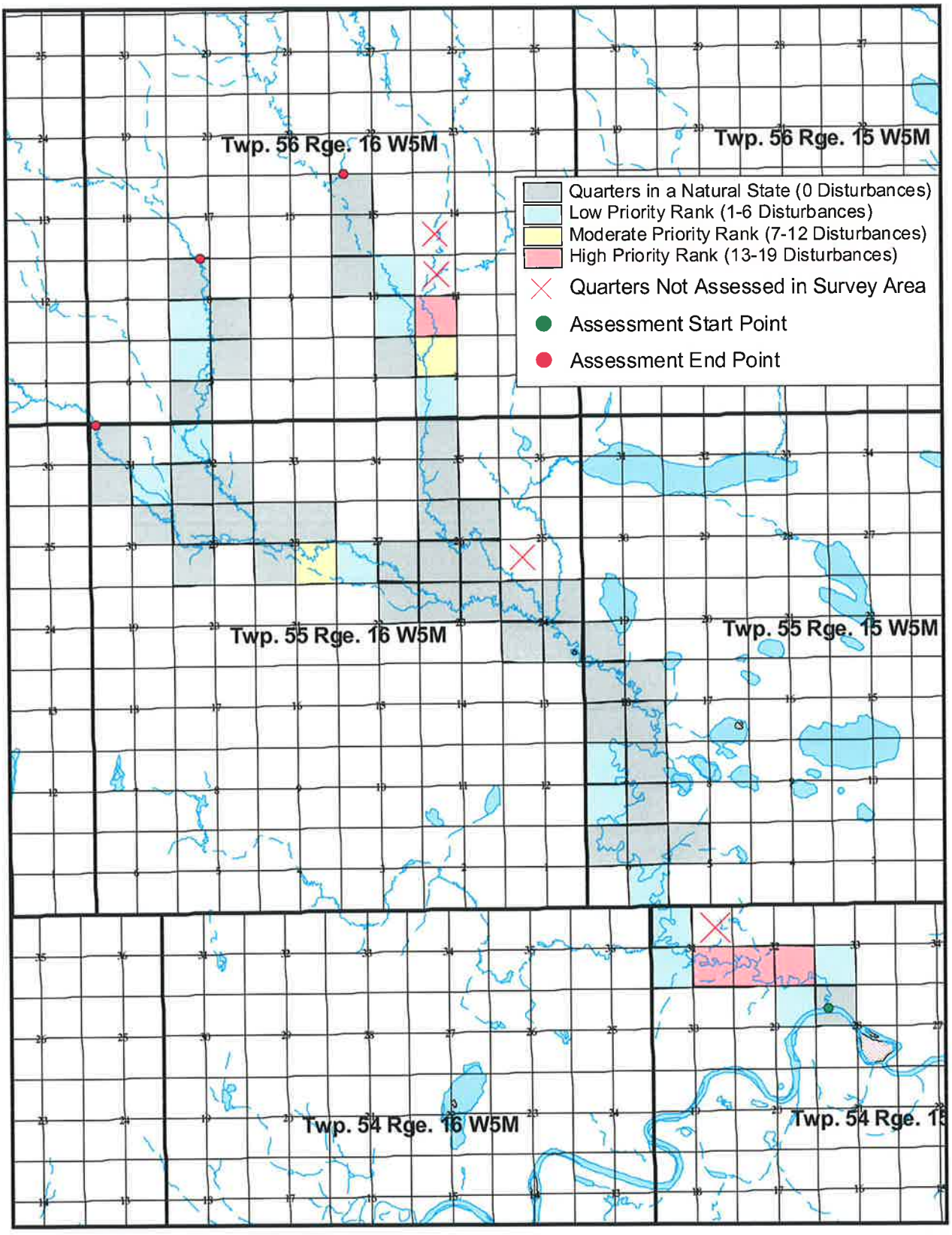


Figure 3. Map of ranked quarter sections along Carrot Creek assessed in 2001.

3.1 Future Direction

An effort will be made to work with the landowners that currently have land-use activities that are compatible with the environment and display good land stewardship. The following is a listing of all of the quarter sections that were found to be in good condition.

Table 1. Quarter sections on Trout Creek in a natural state.

Quarter Sections along Trout Creek Found to be in a Natural State			
NW 28-54-15-W5M	NW 5-55-15-W5M	NE 6-55-15-W5M	NW 6-55-15-W5M
SE 7-55-15-W5M	SW 18-55-15-W5M	NE 7-55-15-W5M	SE 18-55-15-W5M
NE 18-55-15-W5M	NW 18-55-15-W5M	SW 19-55-15-W5M	NE-13-55-16-W5M
SE 24-55-16-W5M	NE 24-55-16-W5M	SW 24-55-16-W5M	NW 24-55-16-W5M
SE 26-55-16-W5M	NE 26-55-16-W5M	SW 26-55-16-W5M	NW 26-55-16-W5M
SW 35-55-16-W5M	NW 35-55-16-W5M	NE 3-56-16-W5M	NW 10-56-16-W5M
SW 15-56-16-W5M	NW 15-56-16-W5M	NE 23-55-16-W5M	NW 23-55-16-W5M
NE 22-55-16-W5M	SE 27-55-16-W5M	NE 28-55-16-W5M	SW 28-55-16-W5M
NW 28-55-16-W5M	NE 29-55-16-W5M	SW 29-55-16-W5M	NW 29-55-16-W5M
NE 30-55-16-W5M	SW 31-55-16-W5M	NW 31-55-16-W5M	SE 32-55-16-W5M
SW 32-55-16-W5M	SW 5-56-16-W5M	NE 5-56-16-W5M	SE 8-56-16-W5M
NW 8-56-16-W5M			

Efforts will also be aimed at working with landowners that have unhealthy and degraded riparian areas. The following is a listing of all the quarter sections that contained disturbances. Quarter sections of low priority appear in blue, moderate in yellow, and high in red.

Table 2. Ranked quarter sections with disturbances on Trout Creek.

Quarter Sections along Trout Creek with Priority Ranked Disturbances			
NE 29-54-15-W5M	SW 33-54-15-W5M	SW 31-54-15-W5M	NW 31-54-15-W5M
SE 6-55-15-W5M	SW 7-55-15-W5M	NW 7-55-15-W5M	SW 2-56-16-W5M
SE 10-56-16-W5M	NE 10-56-16-W5M	SW 27-55-16-W5M	SE 31-55-16-W5M
NW 32-55-16-W5M	NW 5-56-16-W5M	SW 8-56-16-W5M	SE 28-55-16-W5M
NW 2-56-16-W5M	SE 32-54-15-W5M	SW 32-54-15-W5M	SE 31-54-15-W5M
SW 11-56-16-W5M			

Habitat securement agreements will be pursued with parties that are interested in protecting riparian areas as well as the surrounding upland habitat. Co-operator signs will be installed to promote the habitat stewardship program and recognise the contribution of the landowner towards the protection of fish and wildlife habitat.

In future years, gathering background information on water quality and fish populations in the watershed to help determine the current state of the river will be important. To continue holding information and education workshops for the public will also be an important task. Through these workshops, the landowners and general public within the Trout Creek watershed would gain a better understanding regarding the importance of riparian areas and be shown how impacts from current land-use activities may be reduced with small, inexpensive actions. Information and education activities will raise the profile regarding good land stewardship and provide the public with a better understanding regarding the importance of these areas.

4.0 SUMMARY

The riparian assessment conducted on Trout Creek identified a number of land-use activities that were having a negative impact on the health of the land along the stream. The list of impacts on the riparian area includes agricultural activities (mainly cattle grazing and watering), and road construction throughout the watershed. The results from the assessment were not all negative, as some quarter sections surveyed had riparian areas that were considered in excellent shape.

If any effort at improving the riparian health along Trout Creek is going to occur, information and education is going to be of utmost importance. Most importantly, the residents need to be aware of how streams function, the importance of riparian areas and how changes in existing activities can be made to improve the overall health of Trout Creek. Education efforts need to be targeted at landowners using riparian resources, so that they are aware of the impacts on the stream as well as ways of improving the health of the riparian area.

Recommendations following the riparian assessment on Trout Creek and this report are to continue riparian information and education efforts in the Trout Creek watershed area, and to work with landowners to protect critical habitats.

5.0 LITERATURE CITED

ESRI (Environmental Systems Research Institute, Inc.). 2000. The Geographic Information System for Everyone, Version 3.2a for Windows. Redlands, California.

Hvenegaard, P. 1998. Co-operative fisheries inventory program. Final Report 1998. Tech. Rep. Prep. for the Dept. of Fisheries and Oceans. By Ab. Conser. Assoc.

Kowalchuk, S. and Campbell, D. 2000. Edson River Riparian Health Assessment Report, 2000. By the Alberta Conservation Association, East Slopes Region. Edson, Alberta.

McLeod, C. 2000. Alberta Conservation Association East Slopes Riparian Management Program, First Draft. By the Alberta Conservation Association, East Slopes Region. Rocky Mountain House, Alberta.

APPENDICES

Appendix 1.

Riparian Assessment Data Form Used on Trout Creek

Appendix 1. Riparian assessment data form used on Trout Creek

2001 Riparian Health Assessment Data Sheet

Date:_____ Stream:_____

Surveyor:_____ Legal Description:_____

Vegetation Type:_____ Stage:_____

Landuse:_____ Buildings:_____

Siltation:_____

Site	Easting	Northing	Photo No.	Photo Description	Reason for Instability	Comments

Is there cultivation/haying: Stable:_____ Pool:_____

grazing/logging:_____ Slightly Unstable:_____ Riffle:_____

How far from streambank:_____ Moderately Unstable:_____ Run:_____

Highly Unstable:_____

Comments:_____

_____

_____

_____

_____

Appendix 2.

Details of Disturbance Sites Identified During the Riparian Health Assessment along Trout Creek

Appendix 2. Details of disturbance sites identified during the riparian health assessment along Trout Creek.

Trout Creek Human Disturbance Site Location and Description

Site #	Legal Land Description	Easting	Northing	Bank	Reason For Instability	Comments
1	SW 33-54-15-W5M	555444	5950607	RUB	livestock	watering or crossing area
2	SW 33-54-15-W5M	555406	5950605	LUB	livestock	watering or crossing area
3	SW 33-54-15-W5M	555291	5950722	LUB	livestock	watering area
4	SW 33-54-15-W5M	555210	5950783	RUB	livestock	watering area
5	NE 29-54-15-W5M	554662	5950577	RUB	livestock	watering area
6	NE 29-54-15-W5M	554635	5950568	RUB	livestock	watering or crossing area
7	NE 29-54-15-W5M	554639	5950551	LUB	livestock	watering or crossing area
8	NE 29-54-15-W5M	554557	5950577	RUB	livestock	watering area
9	SE 32-54-15-W5M	555127	5950754	RUB	livestock	watering area
10	SE 32-54-15-W5M	555097	5950870	RUB	livestock	lack of woody vegetation
11	SE 32-54-15-W5M	555055	5950805	RUB	livestock	watering or crossing area
12	SE 32-54-15-W5M	555085	5950802	LUB	livestock	watering or crossing area
13	SE 32-54-15-W5M	555053	5950756	RUB	livestock	watering area
14	SE 32-54-15-W5M	555008	5950694	RUB	livestock	watering area
15	SE 32-54-15-W5M	554929	5950649	RUB	livestock	watering area
16	SE 32-54-15-W5M	554885	5950624	RUB	livestock	watering area
17	SE 32-54-15-W5M	554838	5950739	RUB	livestock	watering area and cattle path
18	SE 32-54-15-W5M	554651	5950749	RUB	livestock	watering area
19	SE 32-54-15-W5M	554678	5950726	LUB	livestock	watering or crossing area
20	SE 32-54-15-W5M	554553	5950630	RUB	livestock	watering area
21	SE 32-54-15-W5M	554551	5950707	RUB	livestock	watering area
22	SE 32-54-15-W5M	554472	5950768	RUB	livestock	watering area
23	SW 32-54-15-W5M	554370	5950709	RUB	livestock	watering area
24	SW 32-54-15-W5M	554340	5950658	RUB	livestock	watering area
25	SW 32-54-15-W5M	554264	5950651	RUB	livestock	watering area
26	SW 32-54-15-W5M	554228	5950662	RUB	livestock	watering area
27	SW 32-54-15-W5M	554077	5950692	RUB	livestock	watering area
28	SW 32-54-15-W5M	554009	5950698	RUB	livestock	watering area
29	SW 32-54-15-W5M	553979	5950717	RUB	livestock	watering area
30	SW 32-54-15-W5M	553975	5950747	RUB	livestock	watering area
31	SW 32-54-15-W5M	553964	5950783	LUB	livestock	possible watering area
32	SW 32-54-15-W5M	554041	5950800	LUB	livestock	possible watering area
33	SW 32-54-15-W5M	554075	5950834	LUB	livestock	watering or crossing area
34	SW 32-54-15-W5M	554104	5950841	RUB	livestock	watering or crossing area
35	SW 32-54-15-W5M	554002	5950947	RUB	livestock	watering area
36	SW 32-54-15-W5M	554053	5951030	RUB	livestock	small stream flowing into creek
37	SW 32-54-15-W5M	553930	5951106	RUB	livestock	watering or crossing area
38	SW 32-54-15-W5M	553926	5951079	LUB	livestock	watering or crossing area
39	SW 32-54-15-W5M	553726	5950979	RUB	livestock	watering or crossing area
40	SW 32-54-15-W5M	553747	5950953	LUB	livestock	watering or crossing area
41	SE 31-54-15-W5M	553541	5951011	LUB	livestock	grazing on area
42	SE 31-54-15-W5M	553452	5951055	RUB	livestock	watering or crossing area
43	SE 31-54-15-W5M	553441	5951034	LUB	livestock	watering or crossing area
44	SE 31-54-15-W5M	553399	5951062	RUB	livestock	watering or crossing area

Appendix 2. Cont'd.

Site #	Legal Land Description	Easting	Northing	Bank	Reason For Instability	Comments
45	SE 31-54-15-W5M	553405	5951032	LUB	livestock	watering or crossing area
46	SE 31-54-15-W5M	553275	5951034	LUB	livestock	watering area
47	SE 31-54-15-W5M	553286	5951051	LUB	livestock	watering area
48	SE 31-54-15-W5M	553237	5951123	RUB	road or clearing	lack of woody vegetation
49	SE 31-54-15-W5M	553197	5951062	RUB	livestock	watering area
50	SE 31-54-15-W5M	553105	5951030	RUB	livestock	watering area
51	SE 31-54-15-W5M	552948	5951068	RUB	livestock	watering or crossing area
52	SE 31-54-15-W5M	552946	5951038	LUB	livestock	watering or crossing area
53	SE 31-54-15-W5M	553054	5951053	LUB	livestock	watering area
54	SE 31-54-15-W5M	553063	5951079	LUB	livestock	watering area
55	SE 31-54-15-W5M	553090	5951085	RUB	livestock	steeper area
56	SE 31-54-15-W5M	553003	5951187	RUB	livestock	watering area
57	SE 31-54-15-W5M	552929	5951183	LUB	livestock	watering or crossing area
58	SE 31-54-15-W5M	552897	5951194	LUB	livestock	watering area
59	SE 31-54-15-W5M	552814	5951134	LUB	livestock	watering area
60	SW 31-54-15-W5M	552744	5951026	RUB	livestock	watering area
61	SW 31-54-15-W5M	552601	5951287	RUB	livestock	watering area
62	SW 31-54-15-W5M	552478	5951243	RUB	livestock	watering area
63	SW 31-54-15-W5M	552382	5951296	RUB	livestock	watering area
64	NW 31-54-15-W5M	552325	5951900	LUB	grazing	grazing to waters edge
65	NW 31-54-15-W5M	552359	5951923	LUB	livestock	watering area
66	SE 6-55-15-W5M	552280	5952918	LUB	grazing	grazing to waters edge
67	SW 7-55-15-W5M	551407	5954005	LUB	livestock	watering area
68	NW 7-55-15-W5M	551430	5954736	LUB	livestock	watering and grazing in area
69	SW 2-56-16-W5M	547581	5962637	RUB	cultivation	lack of woody vegetation
70	NW 2-56-16-W5M	547528	5962898	RUB	farming	recent erosion from flood
71	NW 2-56-16-W5M	547523	5962958	RUB	farming	recent erosion from flood
72	NW 2-56-16-W5M	547599	5963177	LUB	farming	lack of woody vegetation
73	NW 2-56-16-W5M	547607	5963192	LUB	farming	lack of woody vegetation
74	NW 2-56-16-W5M	547622	5963246	LUB	farming	recent bank slumping
75	NW 2-56-16-W5M	547680	5963339	LUB	farming	bank slumping
76	NW 2-56-16-W5M	547675	5963441	LUB	farming	lack of woody vegetation
77	SW 11-56-16-W5M	547804	5963617	RUB	livestock	slightly unstable bank
78	SW 11-56-16-W5M	547695	5963621	LUB	farming	bank slumping
79	SW 11-56-16-W5M	547739	5963644	RUB	farming	steeper area
80	SW 11-56-16-W5M	547751	5963655	RUB	livestock	steep and sharp bends
81	SW 11-56-16-W5M	547710	5963672	LUB	farming	steep and slumping bank
82	SW 11-56-16-W5M	547706	5963700	RUB	livestock	lack of woody vegetation
83	SW 11-56-16-W5M	547685	5963700	LUB	cultivation	bank eroding with fallen trees
84	SW 11-56-16-W5M	547745	5963761	RUB	livestock	lack of woody vegetation
85	SW 11-56-16-W5M	547718	5963762	LUB	cultivation	lack of woody vegetation
86	SW 11-56-16-W5M	547691	5963860	both*	farming	lack of woody vegetation
87	SW 11-56-16-W5M	547618	5963908	LUB	farming	lack of woody vegetation
88	SW 11-56-16-W5M	547614	5963979	RUB	farming	lack of woody vegetation
89	SW 11-56-16-W5M	547569	5964030	RUB	farming	lack of woody vegetation
90	SW 11-56-16-W5M	547484	5963989	LUB	farming	lack of woody vegetation
91	SW 11-56-16-W5M	547452	5964270	RUB	farming	scour pool

* Both right upper bank and left upper bank affected.

Appendix 2. Cont'd.

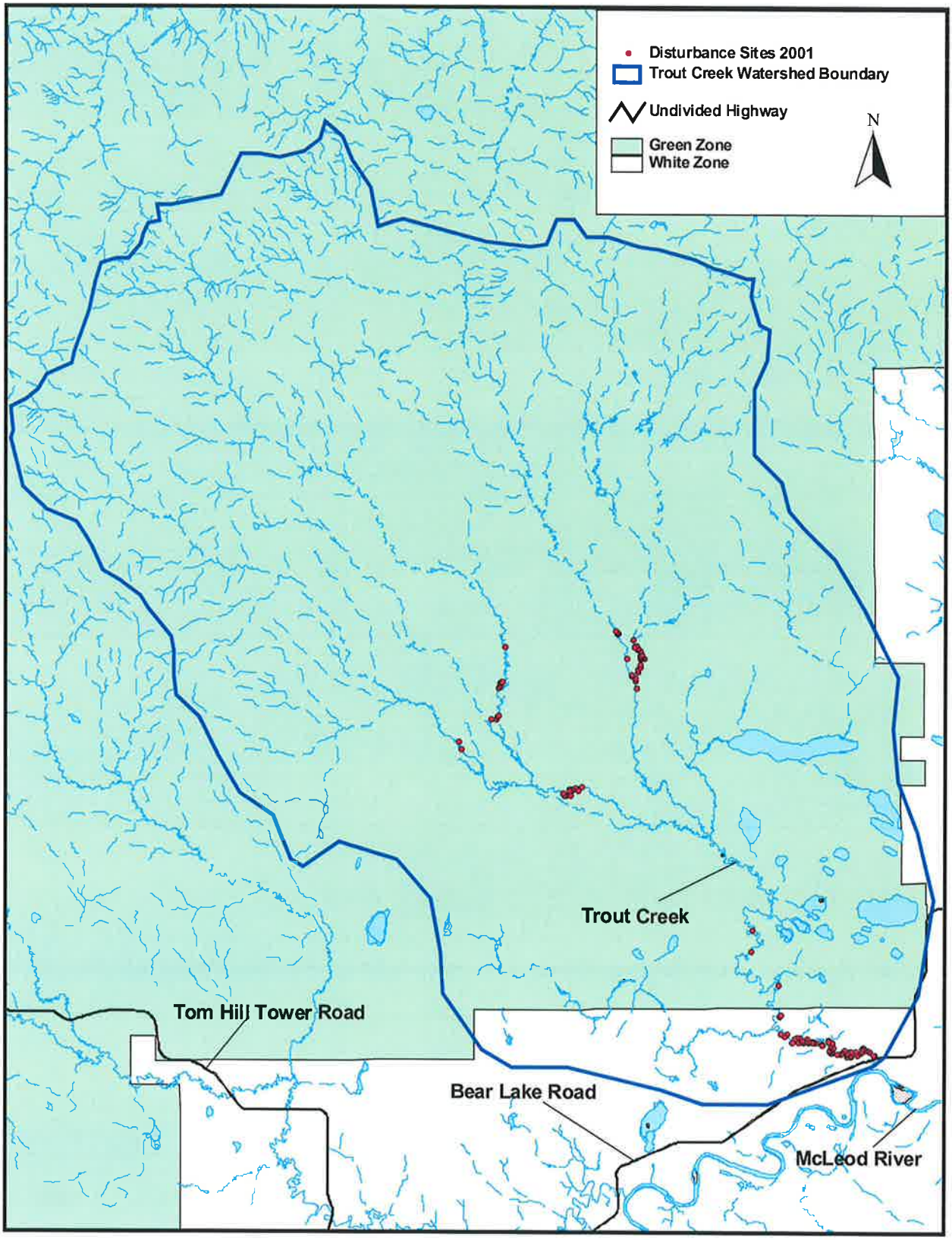
Site #	Legal Land Description	Easting	Northing	Bank	Reason For Instability	Comments
92	NW 2-56-16-W5M	547417	5963074	RUB	cultivation	haying to waters edge
93	NW 2-56-16-W5M	547390	5963113	RUB	cultivation	haying to waters edge
94	SE 10-56-16-W5M	547222	5963622	RUB	cultivation	haying to waters edge
95	NE 10-56-16-W5M	546950	5964439	LUB	livestock	grazing to waters edge
96	NE 10-56-16-W5M	546897	5964452	both*	livestock	watering area
97	NE 10-56-16-W5M	546890	5964490	RUB	livestock	grazing to waters edge
98	NE 10-56-16-W5M	546876	5964545	RUB	livestock	grazing to waters edge
99	SW 27-55-16-W5M	545767	5959385	LUB	livestock	grazing removed rooted shrubs
100	SE 28-55-16-W5M	545569	5959359	RUB	livestock	grazing removed rooted shrubs
101	SE 28-55-16-W5M	545617	5959276	LUB	livestock	grazing and watering area
102	SE 28-55-16-W5M	545449	5959257	LUB	livestock	grazing to waters edge
103	SE 28-55-16-W5M	545443	5959313	RUB	livestock	grazing removed rooted shrubs
104	SE 28-55-16-W5M	545347	5959300	RUB	livestock	grazing and watering area
105	SE 28-55-16-W5M	545349	5959259	LUB	livestock	grazing to waters edge
106	SE 28-55-16-W5M	545393	5959128	LUB	livestock	grazing and watering area
107	SE 28-55-16-W5M	545245	5959109	RUB	livestock	grazing and watering area
108	SE 28-55-16-W5M	545188	5959117	RUB	livestock	grazing to waters edge
109	SE 28-55-16-W5M	545130	5959211	RUB	livestock	grazing and watering area
110	SE 31-55-16-W5M	541688	5960886	RUB	livestock	grazing and watering area
111	SE 31-55-16-W5M	541776	5960629	RUB	livestock	grazing and watering area
112	NW 32-55-16-W5M	542776	5961609	RUB	livestock	sediment input
113	NW 32-55-16-W5M	542915	5961633	RUB	livestock	grazing to waters edge
114	NW 32-55-16-W5M	542976	5961703	RUB	livestock	grazing to waters edge
115	NW 32-55-16-W5M	543012	5961743	RUB	livestock	grazing to waters edge
116	NW 5-56-16-W5M	543016	5962638	LUB	livestock	frequent cattle activity
117	NW 5-56-16-W5M	543028	5962721	LUB	livestock	frequent cattle activity
118	NW 5-56-16-W5M	543061	5962808	LUB	livestock	sediment input
119	NW 5-56-16-W5M	543073	5962835	LUB	livestock	sediment input
120	NW 5-56-16-W5M	543113	5962851	both*	livestock	sediment input
121	SW 8-56-16-W5M	543191	5964004	LUB	farming	cattle and haying disturbance

* Both right upper bank and left upper bank affected.

Appendix 3.

Map of the Trout Creek Watershed with Disturbance Sites found in 2001

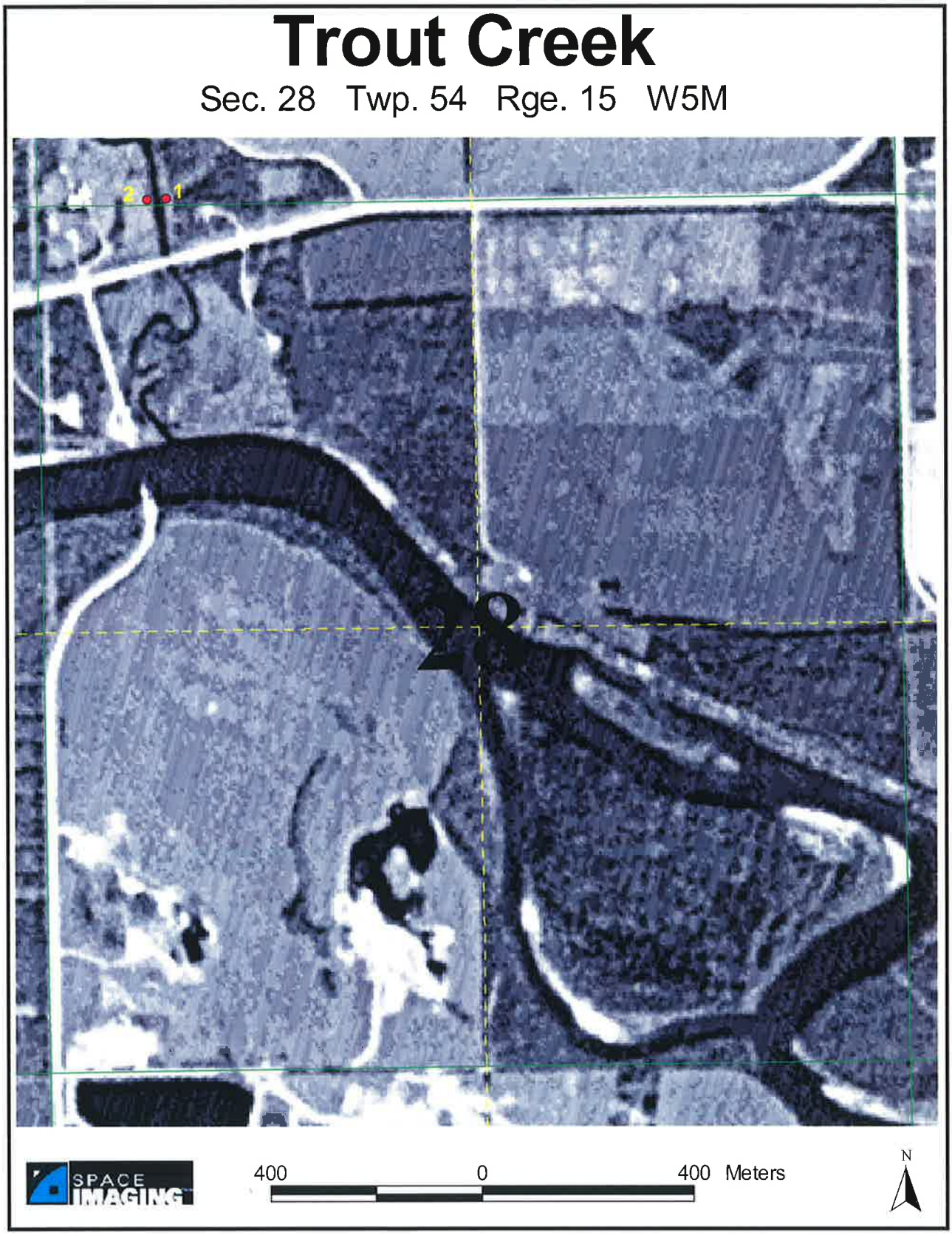
Appendix 3. Map of the Trout Creek watershed with disturbance sites found in 2001.



Appendix 4.

Map and Details of Quarter Sections Surveyed during the Riparian Health Assessment

Appendix 4. Map and details of quarter sections surveyed during the riparian health assessment.



NW Sec. 28

Township: 54 Range: 15 Meridian: W5

Survey date:	Sept. 11,2001	**Landuse present:**	No
Stream stage:	Low	**Type of landuse:**	N/A
Buildings present:	Yes	**Distance from Stream:**	N/A
Vegetation type:	Deciduous / shrubs		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	20
Slightly Unstable:	0	**Riffle:**	35
Moderately Unstable:	0	**Run:**	45
Highly Unstable:	0		

Comments: The banks are stable in this section of the creek. The bear lake highway crosses the stream in this section. No landuse activities seem to be impacting the riparian areas. There is a good buffer of trees and grass along the creek. A good diversity of aquatic habitat was noted. One beaver dam was found in this quarter section.

Upstream end of NW 28 - 54 - 15 - W5M.

Trout Creek

Sec. 33 Twp. 54 Rge. 15 W5M

SPACE IMAGING

400 0 400 Meters

N

SW Sec. 33

Township: 54 Range: 15 Meridian: W5

Survey date:	Sept. 11,2001	**Landuse present:**	Yes
Stream stage:	Low	**Type of landuse:**	Grazing
Buildings present:	Yes	**Distance from Stream:**	0 meters
Vegetation type:	Deciduous / shrubs		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	10
Slightly Unstable:	5	**Riffle:**	70
Moderately Unstable:	0	**Run:**	20
Highly Unstable:	0		

Comments: A fence crosses the creek at the downstream end of this quarter section. Livestock have free access to the creek in some places and are restricted in places by a fence on the west side of the creek. Very little grazing is occurring on the east side of the creek. The possibility of contacting the landowner in order to develop an access ramp and fence off the creek should be considered. One active beaver dam seen in this quarter section.

Upstream end of SW 33 - 54 - 15 - W5M.

FIG.-1. DISTURBANCE SITE 1. SW 33 – 54 – 15 – W5M. LOOKING ACROSS AT THE RIGHT UPSTREAM BANK, DEGRADED DUE TO LIVESTOCK CROSSING AND WATERING.

FIG.-2. DISTURBANCE SITE 2. SW 33 – 54 – 15 – W5M. LOOKING ACROSS AT THE LEFT UPSTREAM BANK WITH EXPOSED SOIL DUE TO LIVESTOCK CROSSING AND WATERING.

FIG.-3. DISTURBANCE SITE 3. SW 33 – 54 – 15 – W5M. LOOKING ACROSS AT A CATTLE WATERING AREA EXPOSING THE SOIL ON THE LEFT UPSTREAM BANK.

Trout Creek

Sec. 29 Twp. 54 Rge. 15 W5M

SPACE IMAGING

400 0 400 Meters

N

NE Sec. 29

Township: 54 Range: 15 Meridian: W5

Survey date:	Sept. 11,2001	**Landuse present:**	Yes
Stream stage:	Low	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Mixed wood / shrubs		

Bank Stability %		**Habitat %**	
Stable:	90	**Pool:**	5
Slightly Unstable:	5	**Riffle:**	50
Moderately Unstable:	5	**Run:**	45
Highly Unstable:	0		

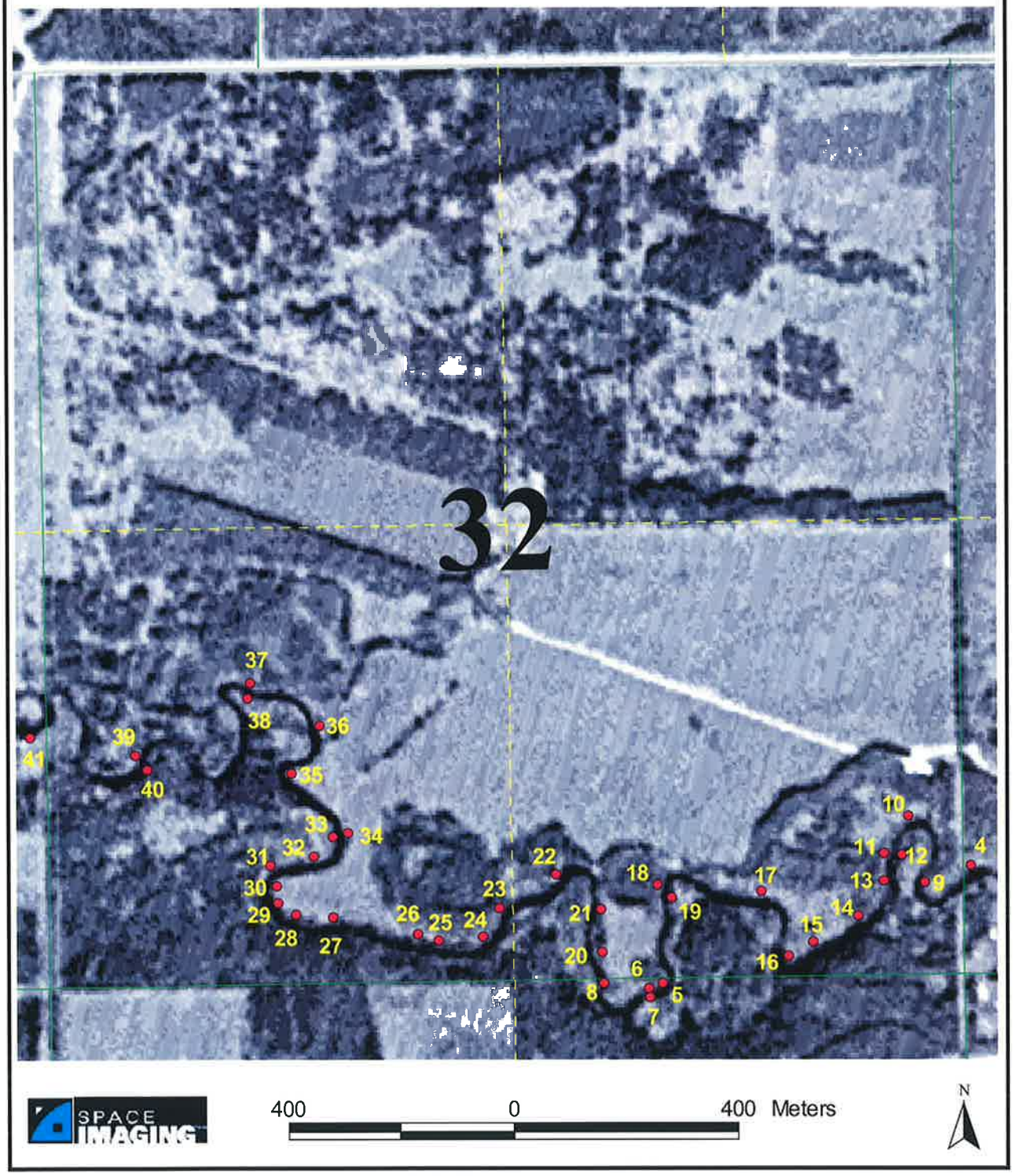
Comments: Grazing is occurring mainly on the north side of the creek. The south side of the creek is in very good condition. Livestock are watering from many areas along the stream. The landowner north of this quarter section is likely using the area. Areas along the creek are being overgrazed.

Upstream end of NE 29 - 54 - 15 - W5M.

FIG.-1. DISTURBANCE SITE 6. NE 29 – 54 – 15 – W5M. LOOKING AT THE RIGHT UPSTREAM BANK, WHICH IS SLUMPING DUE TO LIVESTOCK WATERING AND CROSSING IN THIS AREA.

Trout Creek

Sec. 32 Twp. 54 Rge. 15 W5M



SE Sec. 32

Township: 54 Range: 15 Meridian: W5

Survey date:	Sept. 11,2001	**Landuse present:**	Yes
Stream stage:	Low	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Mixed wood / shrubs		

Bank Stability %		**Habitat %**	
Stable:	80	**Pool:**	15
Slightly Unstable:	5	**Riffle:**	35
Moderately Unstable:	10	**Run:**	50
Highly Unstable:	5		

Comments: In some areas alder is the only woody vegetation left in the riparian areas. Cattle have a lot of watering sites in this quarter section. Some areas are being overgrazed as there are very little shrubs in this area. The area south of the creek is in very good condition. Recommend working with the landowner on a better livestock management plan.

Upstream end of SE 32 - 54 - 15 - W5M.

SW Sec. 32

Township: 54 Range: 15 Meridian: W5

Survey date:	Sept. 11,2001	**Landuse present:**	Yes
Stream stage:	Low	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Mixed wood / shrubs		

Bank Stability %		**Habitat %**	
Stable:	80	**Pool:**	10
Slightly Unstable:	5	**Riffle:**	20
Moderately Unstable:	10	**Run:**	70
Highly Unstable:	5		

Comments: A thin band of older white spruce is present along the creek on the north side. Canada thistle is prominent in the pasture and there is next to nothing for shrub growth. The south side of the creek is in good condition. Overgrazing is occurring on the north side of the creek. Riparian habitat improves at the upstream end of the quarter section as grazing is reduced. Grazing management practices and an off-site watering system need to be implemented with the landowner. One beaver dam noted in this quarter section.

Upstream end of SW 32 - 54 - 15 - W5M.

FIG.-1. DISTURBANCE SITE 9. SE 32 – 54 – 15 – W5M. LOOKING DOWNSTREAM AT THE RIGHT UPSTREAM BANK WHERE LIVESTOCK WATER.

FIG.-2. DISTURBANCE SITE 10. SE 32 – 54 – 15 – W5M. LOOKING ACROSS AT THE RIGHT UPSTREAM BANK MADE UNSTABLE DUE TO A LACK OF WOODY VEGETATION ON THE OUTSIDE BEND.

FIG.-2. DISTURBANCE SITE 11. SE 32 – 54 – 15 – W5M. LOOKING ACROSS AT THE RIGHT UPSTREAM BANK USED AS A WATERING AND CROSSING AREA BY LIVESTOCK.

FIG.-3. DISTURBANCE SITE 12. SE 32 – 54 – 15 – W5M. LOOKING ACROSS AT THE LEFT UPSTREAM BANK MADE UNSTABLE FROM LIVESTOCK CROSSING AND WATERING ACTIVITY.

FIG.-1. DISTURBANCE SITE 13. SE 32 – 54 – 15 – W5M. LOOKING ACROSS AT THE RIGHT UPSTREAM BANK WHERE A COW IS WATERING ON A DEGRADED BANK.

FIG.-2. DISTURBANCE SITE 14. SE 32 – 54 – 15 – W5M. LOOKING AT THE RIGHT UPSTREAM BANK EXPOSED DUE TO LIVESTOCK WATERING IN THIS AREA.

FIG.-3. DISTURBANCE SITE 17. SE 32 – 54 – 15 – W5M. LOOKING AT THE RIGHT UPSTREAM BANK, WHICH IS EXPOSED FROM LIVESTOCK WATERING AND A CATTLE PATH IS VISIBLE.

FIG.-4. DISTURBANCE SITE 19. SE 32 – 54 – 15 – W5M. LOOKING AT THE LEFT UPSTREAM BANK EXPOSED DUE TO LIVESTOCK WATERING AND CROSSING IN THIS AREA.

FIG.-1. DISTURBANCE SITE 20. SE 32 – 54 – 15 – W5M. LOOKING DOWNSTREAM AT DEGRADED RIPARIAN HABITAT DUE TO A LIVESTOCK WATERING AREA.

FIG.-2. DISTURBANCE SITE 23. SW 32 – 54 – 15 – W5M. LOOKING UPSTREAM AT AN EXPOSED AREA ON THE RIGHT UPSTREAM BANK CAUSED BY A LIVESTOCK WATERING AREA.

FIG.-3. DISTURBANCE SITE 27. SW 32 – 54 – 15 – W5M. LOOKING ACROSS AT RIGHT UPSTREAM BANK DEGRADED FROM LIVESTOCK WATERING IN THIS AREA.

FIG.-4. DISTURBANCE SITE 28. SW 32 – 54 – 15 – W5M. LOOKING ACROSS AT EXPOSED SOIL ON THE RIGHT UPSTREAM BANK DUE TO A LIVESTOCK WATERING AREA.

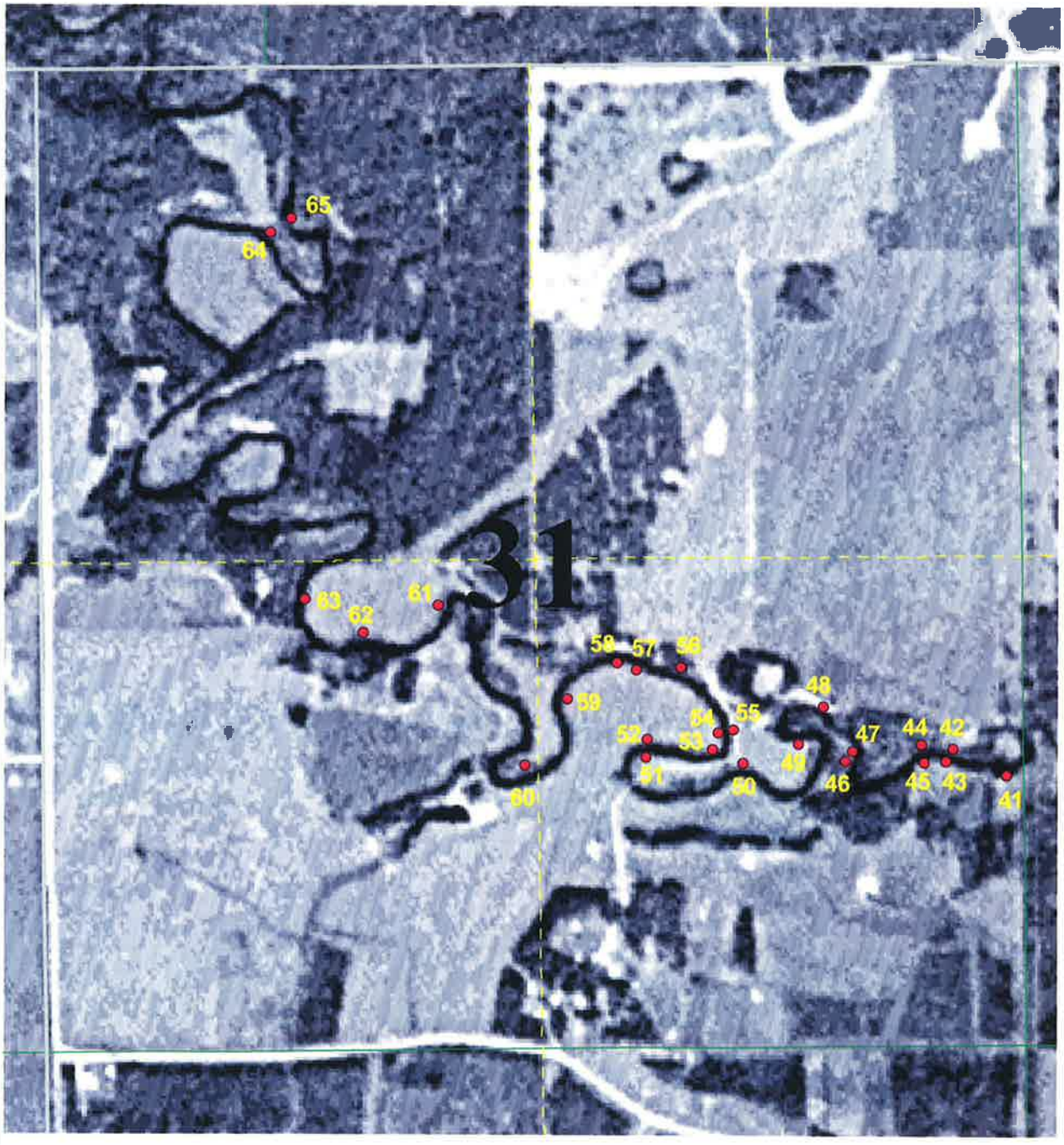
FIG.-1. DISTURBANCE SITE 34. SW 32 – 54 – 15 – W5M. LOOKING DOWNSTREAM AT AN EXPOSED SLOPE ON THE RIGHT UPSTREAM BANK CAUSED BY A LIVESTOCK WATERING AND CROSSING AREA.

FIG.-2. DISTURBANCE SITE 35. SW 32 – 54 – 15 – W5M. LOOKING ACROSS AT AN EXPOSED SLOPE DUE TO A LIVESTOCK WATERING AREA.

FIG.-3. DISTURBANCE SITE 36. SW 32 – 54 – 15 – W5M. LOOKING ACROSS AT A SMALL STREAM THAT FLOWS INTO THE MAINSTEM. BOTH HAVE DEGRADED BANKS DUE TO LIVESTOCK ACTIVITY.

Trout Creek

Sec. 31 Twp. 54 Rge. 15 W5M



SE Sec. 31

Township: 54 Range: 15 Meridian: W5

Survey date:	Sept. 11,2001	**Landuse present:**	Yes
Stream stage:	Low	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Mixed wood / shrubs		

Bank Stability %		**Habitat %**	
Stable:	75	**Pool:**	10
Slightly Unstable:	10	**Riffle:**	30
Moderately Unstable:	10	**Run:**	60
Highly Unstable:	5		

Comments: Lots of livestock watering areas are causing bank instability in this quarter section. Livestock are also crossing the creek. This quarter section is a high priority for riparian management programs. Overgrazing is common throughout. A very nice pool for fish overwintering habitat is present at the downstream end of this quarter section.

Upstream end of SE 31 - 54 - 15 - W5M.

SW Sec. 31

Township: 54 Range: 15 Meridian: W5

Survey date:	Sept. 11,2001	**Landuse present:**	Yes
Stream stage:	Low	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Mixed wood / shrubs		

Bank Stability %		**Habitat %**	
Stable:	85	**Pool:**	10
Slightly Unstable:	5	**Riffle:**	30
Moderately Unstable:	5	**Run:**	60
Highly Unstable:	5		

Comments: Cattle watering sites need to be addressed on this quarter section. Many signs of overgrazing are present along Trout creek. Grazing management practices need to be discussed with the landowner. One beaver dam was present in the quarter section.

Upstream end of SW 31 - 54 - 15 - W5M.

NW Sec. 31

Township: 54 Range: 15 Meridian: W5

Survey date:	Oct. 23,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	Yes	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous / grasses		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	10
Slightly Unstable:	5	**Riffle:**	25
Moderately Unstable:	0	**Run:**	65
Highly Unstable:	0		

Comments: Nice fisheries habitat in this section of creek in the form of a notched profile, good flow, and varying substrate. The banks are stable for the most part with some naturally unstable sections (usually steep slopes with trees) and some grazing induced unstable sections. Cattle activity is apparent throughout most of the quarter section but grazing pressure overall is light. No beaver activity was observed in this quarter section.

Upstream end of NW 31 - 54 - 15 - W5M.

FIG.-1. DISTURBANCE SITE 41. SE 31 – 54 – 15 – W5M. LOOKING DOWSTREAM AT A GRAZING AREA ON THE LEFT UPSTREAM BANK.

FIG.-2. DISTURBANCE SITE 42. SE 31 – 54 – 15 – W5M. LOOKING ACROSS AT A DEGRADED SLOPE ON THE RIGHT UPSTREAM BANK. UNSTABLE DUE TO LIVESTOCK CROSSING AND WATERING.

FIG.-3. DISTURBANCE SITE 46. SE 31 – 54 – 15 – W5M. LOOKING DOWNSTREAM AT THE LEFT UPSTREAM BANK, WHICH HAS EXPOSED SOIL DUE TO LIVESTOCK WATERING IN THIS AREA.

FIG.-4. DISTURBANCE SITE 48. SE 31 – 54 – 15 – W5M. LOOKING ACROSS AT THE RIGHT UPSTREAM BANK WHERE A ROAD OR CLEARING IS CAUSING BANK INSTABILITY.

FIG.-1. DISTURBANCE SITE 49. SE 31 – 54 – 15 – W5M. LOOKING UPSTREAM AT A LIVESTOCK WATERING AREA ON THE RIGHT UPSTREAM BANK.

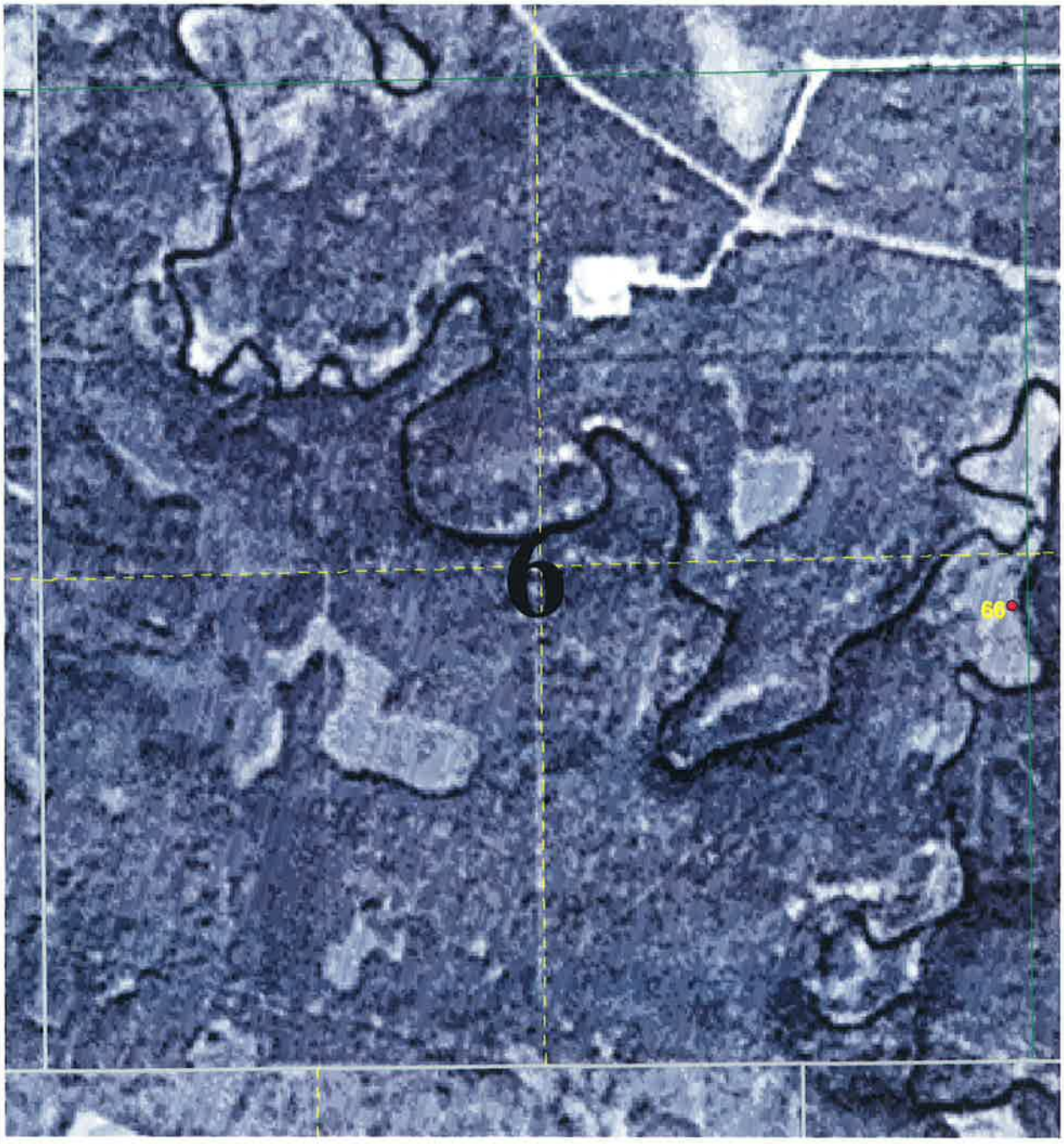
FIG.-2. DISTURBANCE SITE 51. SE 31 – 54 – 15 – W5M. BOTH BANKS ARE DEGRADED DUE TO LIVESTOCK WATERING AND CROSSING ACTIVITY.

FIG.-3. DISTURBANCE SITE 62. SW 31 – 54 – 15 – W5M. LOOKING DOWNSTREAM AT THE RIGHT UPSTREAM BANK DEGRADED DUE TO LIVESTOCK WATERING IN THE AREA.

FIG.-4. DISTURBANCE SITE 64. NW 31 – 54 – 15 – W5M. LOOKING ACROSS AT THE LEFT UPSTREAM BANK. BANK IS SLUMPING DUE TO LIVESTOCK GRAZING TO THE WATERS EDGE.

Trout Creek

Sec. 6 Twp. 55 Rge. 15 W5M



SPACE IMAGING

400 0 400 Meters

N

SE Sec. 6

Township: 55 Range: 15 Meridian: W5

Survey date:	Oct. 23,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous / grasses		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	5
Slightly Unstable:	5	**Riffle:**	20
Moderately Unstable:	0	**Run:**	75
Highly Unstable:	0		

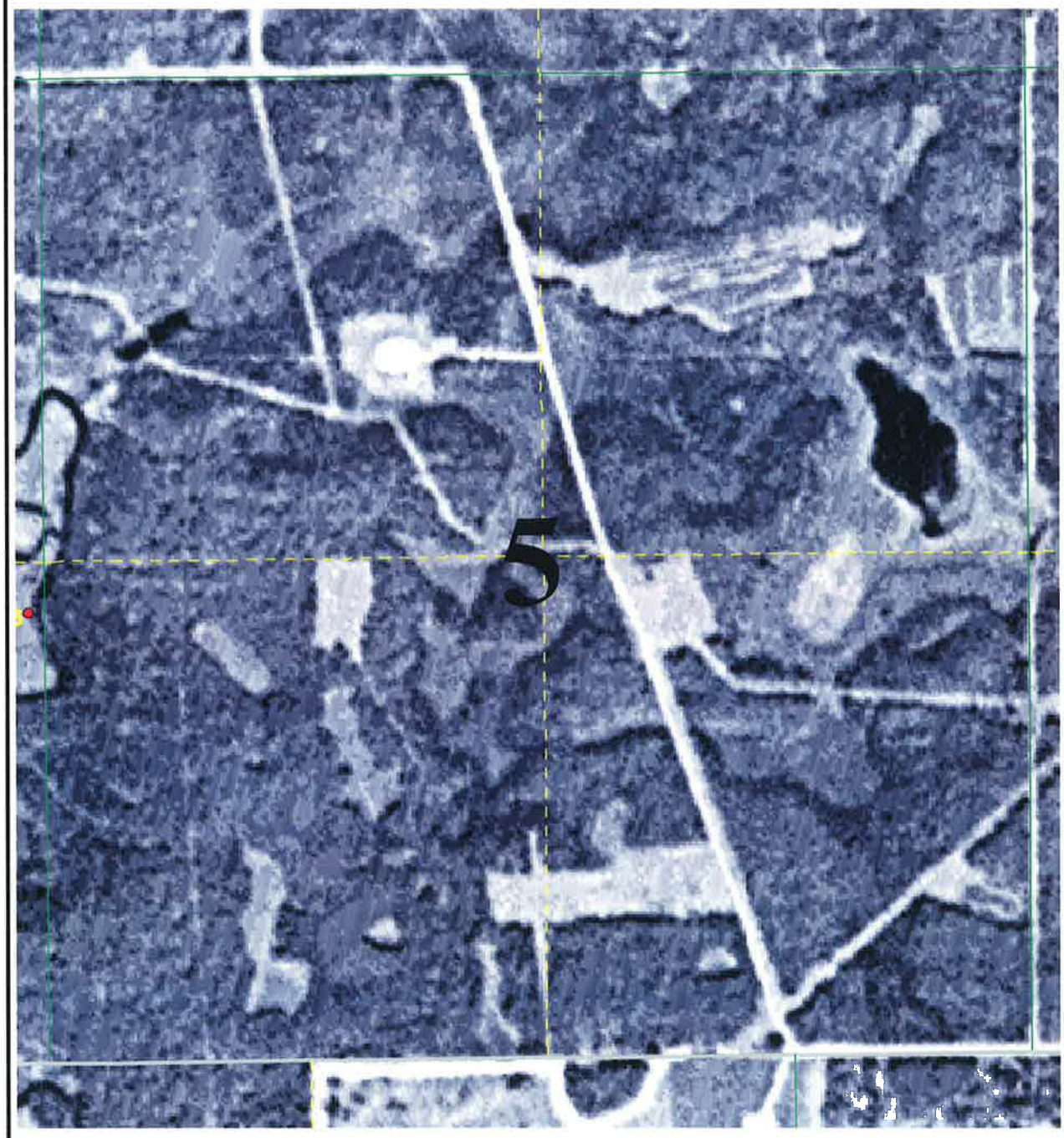
Comments: Light cattle activity was noted throughout this quarter section. One site had a slumped bank with no vegetation and one cattle watering area, but the effects on the stream are minor overall. Mature white spruce were found along both banks throughout. Few areas had no large spruce on banks and some beaver activity was observed. Overall this was a nice section of creek.

Upstream end of SE 6 - 55 - 15 - W5M.

FIG.-1. DISTURBANCE SITE 66. SE 6 – 55 – 15 – W5M. LOOKING UPSTREAM AT THE LEFT UPSTREAM BANK, SLUMPING DUE TO GRAZING TO THE WATERS EDGE.

Trout Creek

Sec. 5 Twp. 55 Rge. 15 W5M



SPACE IMAGING

400 0 400 Meters

N

NW Sec. 5

Township: 55 Range: 15 Meridian: W5

Survey date:	Oct. 23,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous / grasses		

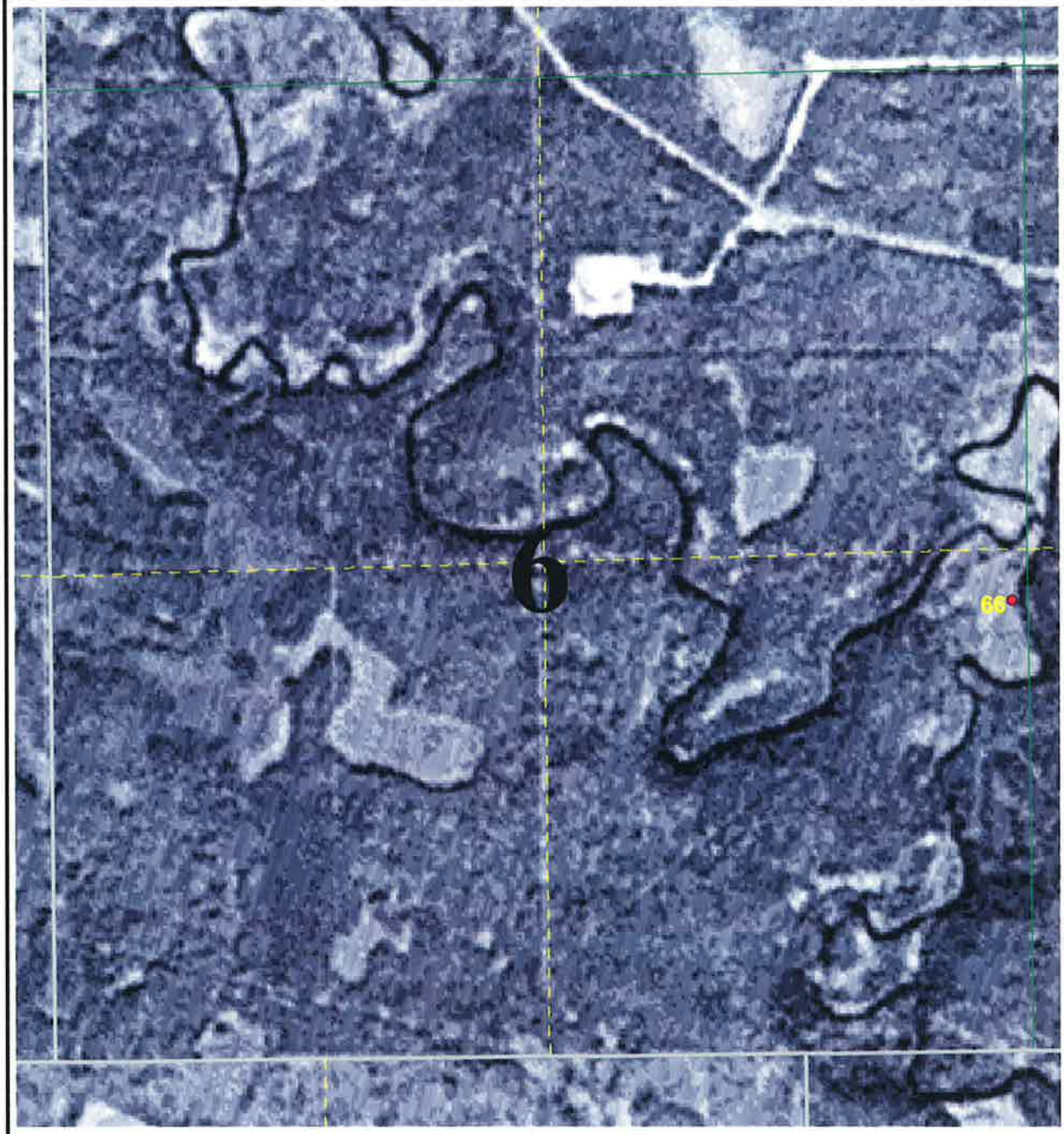
Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: A new channel has been cut out here. Unstable banks are present due to a lack of vegetation. Mature spruce have slumped into the creek and there is little grass present due to grazing. Little flow is present in the oxbow and most areas are iced over, except for the main channel, which is ice free. Grazing is present throughout, but it is having low effects on the banks which are stable overall. A large beaver dam is restricting flow from the oxbow.

Upstream end of NW 5 - 55 - 15 - W5M.

Trout Creek

Sec. 6 Twp. 55 Rge. 15 W5M



NE Sec. 6

Township: 55 Range: 15 Meridian: W5

Survey date:	Oct. 23,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous		

Bank Stability %

Stable:	95
Slightly Unstable:	5
Moderately Unstable:	0
Highly Unstable:	0

Habitat %

Pool:	0
Riffle:	10
Run:	90

Comments: Some natural instability is present but overall the banks are stable. One large beaver dam is found where the new channel has been cut and is restricting flow from the oxbow causing most of the flow to go through the new channel. Natural instability is found on steep banks with mature spruce eroding into the creek. Light grazing and cattle trails are noted throughout but are causing little damage to the banks.

Upstream end of NE 6 - 55 - 15 - W5M.

NW Sec. 6

Township: 55 Range: 15 Meridian: W5

Survey date:	Oct. 23,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous / grasses		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

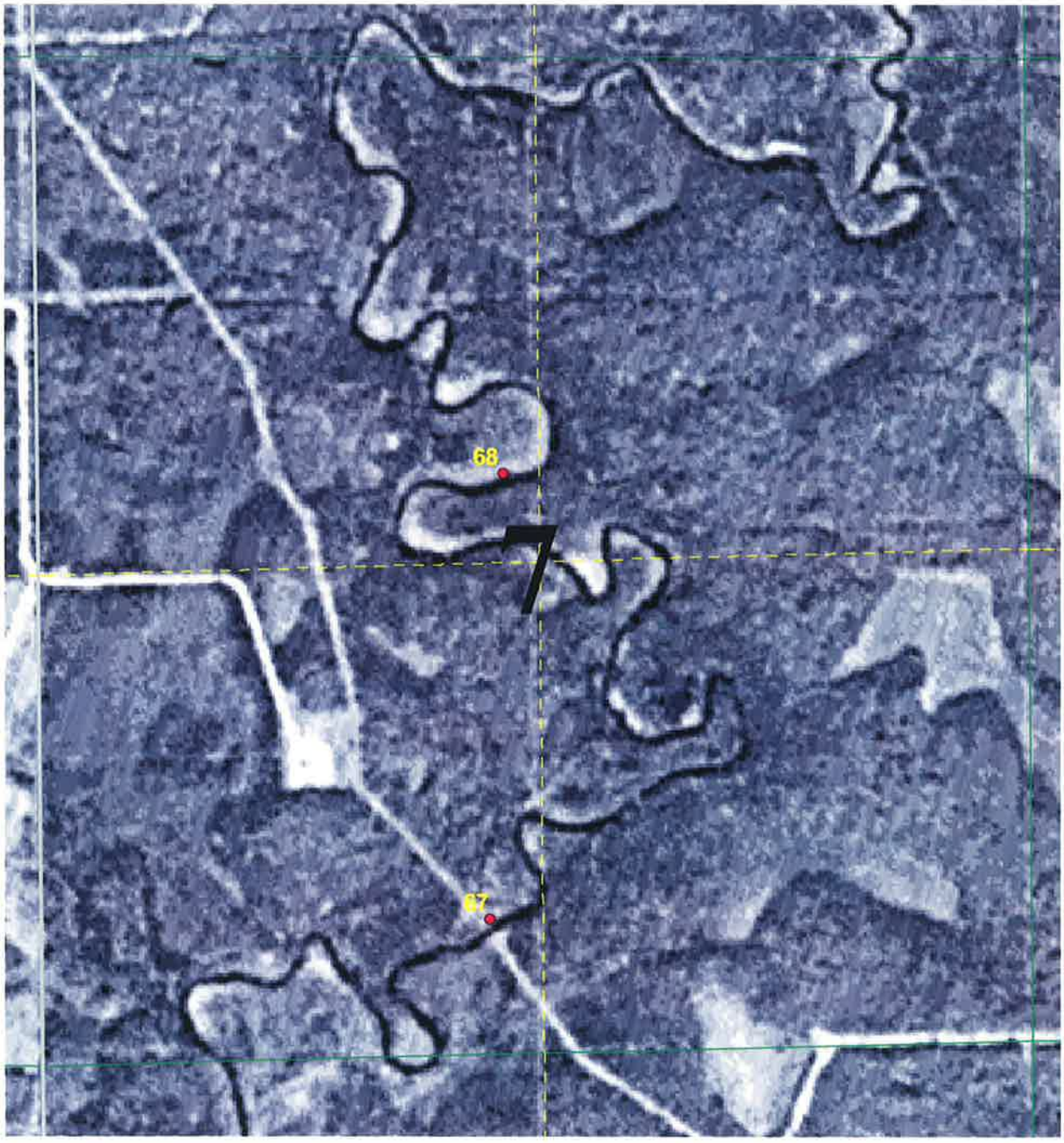
Comments: Overall the banks in this quarter section are stable. Cattle activity is present throughout and cattle were found near the upstream end of the quarter section. One cattle watering area and some light grazing were found but do not appear to be damaging the banks. A bridge is present at the third beaver dam encountered but banks appear to be unaffected. Some beaver activity was observed.

Upstream end of NW 6 - 55 - 15 - W5M.

FIG.-1. DISTURBANCE SITE 66. SE 6 – 55 – 15 – W5M. LOOKING UPSTREAM AT THE LEFT UPSTREAM BANK, SLUMPING DUE TO GRAZING TO THE WATERS EDGE.

Trout Creek

Sec. 7 Twp. 55 Rge. 15 W5M



SPACE IMAGING

400 0 400 Meters

N

SW Sec. 7

Township: 55 Range: 15 Meridian: W5

Survey date:	Oct. 23,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: Cattle activity was noted from the pipeline crossing and proceeding upstream. At the upstream end of the quarter section many mature spruce are present and so cattle activity decreases. Some natural bank instability is found in this upstream end. One cattle watering area was seen but damage to the banks was minor. Banks are stable overall with mature white spruce along both banks. Beaver activity noted throughout.

Upstream end of SW 7 - 55 - 15 - W5M.

SE Sec. 7

Township: 55 Range: 15 Meridian: W5

Survey date:	Oct. 16,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous / shrubs		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: Overall, the banks are stable and vegetated. Some areas of natural bank instability are present. Cattle activity, in the form of grazing, was noted along the banks in the upstream end of the quarter section. Although the banks have been grazed to the waters edge many willows and mature spruce are present and no severe damage has been caused. Beaver activity was found throughout causing the stream to be a deep, slow moving run.

Upstream end of SE 7 - 55 - 15 - W5M.

NW Sec. 7

Township: 55 Range: 15 Meridian: W5

Survey date:	Oct. 16,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous / shrubs		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: Cattle activity was found throughout, in the form of grazing to the waters edge. Many willows are present indicating that grazing has caused minor damage. Banks remain stable and vegetated except for one small section where cattle watering and grazing has exposed the banks. This disturbance would normally be considered minor, but numerous fish (likely Arctic grayling) were observed rising at this location and are classified as a species of special concern. This makes the area important and its quality should be maintained. Beaver activity was also found throughout.

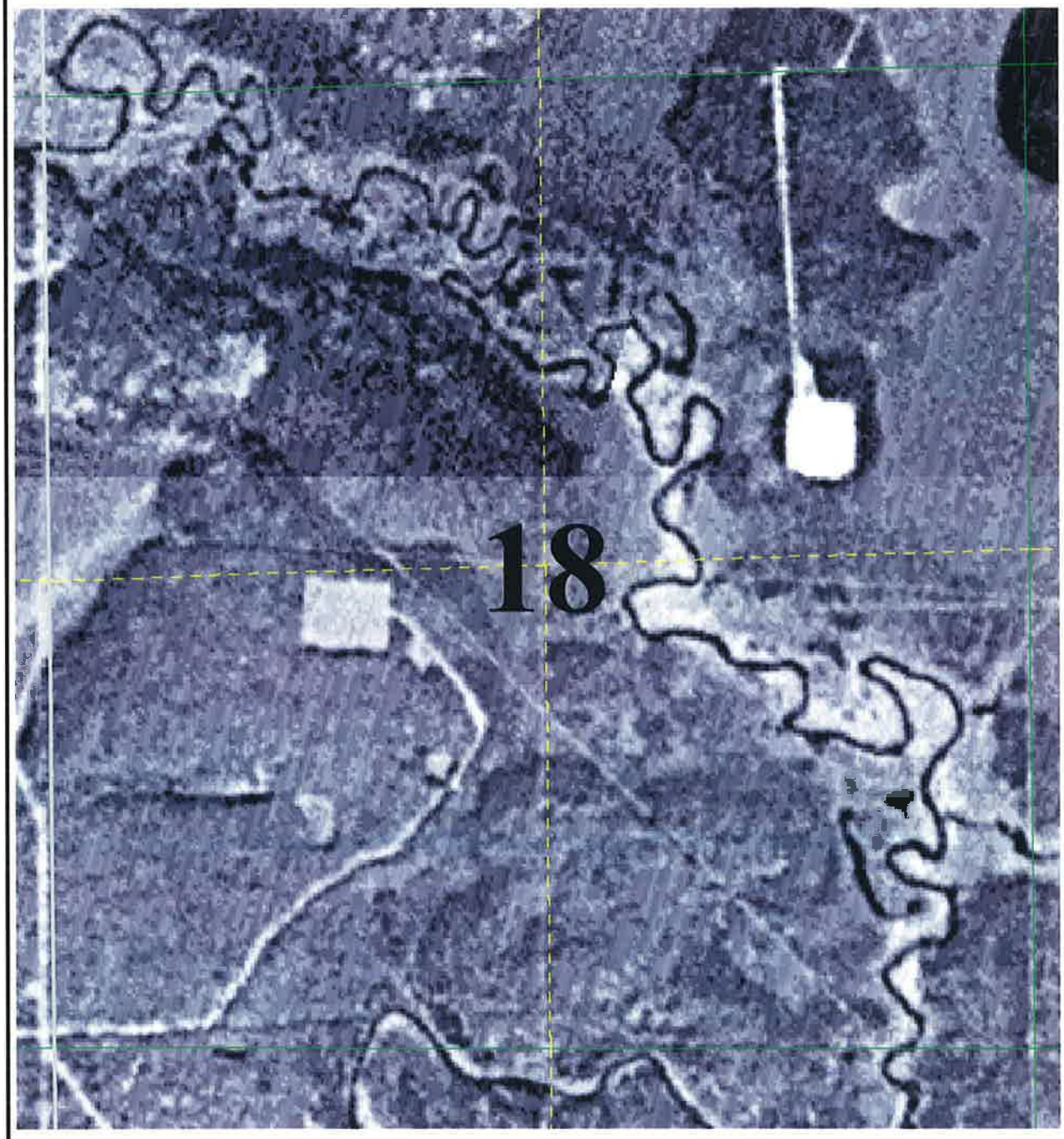
Upstream end of NW 7 - 55 - 15 - W5M.

FIG.-1. DISTURBANCE SITE 67. SW 7 – 55 – 15 – W5M. LOOKING AT A CATTLE WATERING AREA ON A PIPELINE ON THE LEFT UPSTREAM BANK.

FIG.-2. DISTURBANCE SITE 68. NW 7 – 55 – 15 – W5M. SPRUCE ARE PRESENT ON THE RIGHT UPSTREAM BANK BUT THE LEFT UPSTREAM BANK HAS BEEN GRAZED TO THE WATERS EDGE AND USED AS A WATERING AREA.

Trout Creek

Sec. 18 Twp. 55 Rge. 15 W5M



SPACE IMAGING

400 0 400 Meters

N

SW Sec. 18

Township: 55 Range: 15 Meridian: W5

Survey date:	Oct. 16,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous / shrubs		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: The banks are stable and vegetated at present, but that may change if cattle and beaver activity increases. The channel is slow moving, deep throughout, and has lots of aquatic vegetation and woody debris giving this section of creek very nice fish habitat. Cattle activity was found throughout in the form of grazing to the waters edge but no watering areas were found. Many of the willows on the banks have been cut down by beaver.

Upstream end of SW 18 - 55 - 15 - W5M.

SE Sec. 18

Township: 55 Range: 15 Meridian: W5

Survey date:	Oct. 16,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous, shrubs, grasses		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: Some natural instability exists, but overall the banks are stable, and vegetated with willow and grasses. Few mature trees were found on the banks as most were further back from the waters edge. Cattle activity was noted throughout, although grazing activity is light due to a lack of palatable vegetation. Many willows on banks have been cut down by beavers. Observed one muskrat.

Upstream end of SE 18 - 55 - 15 - W5M.

NE Sec. 18

Township: 55 Range: 15 Meridian: W5

Survey date:	Oct. 16,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous, shrubs, grasses		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: Some natural bank instability is present. Some cattle activity is apparent but there is little impact due to a great deal of willow, mature trees, and little palatable vegetation. The banks were found to be stable for the most part. Beaver activity was noted throughout in the form of cut willows on banks but no dams were found in this quarter section.

Upstream end of NE 18 - 55 - 15 - W5M.

NW Sec. 18

Township: 55 Range: 15 Meridian: W5

Survey date:	Oct. 16,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous, shrubs, grasses		

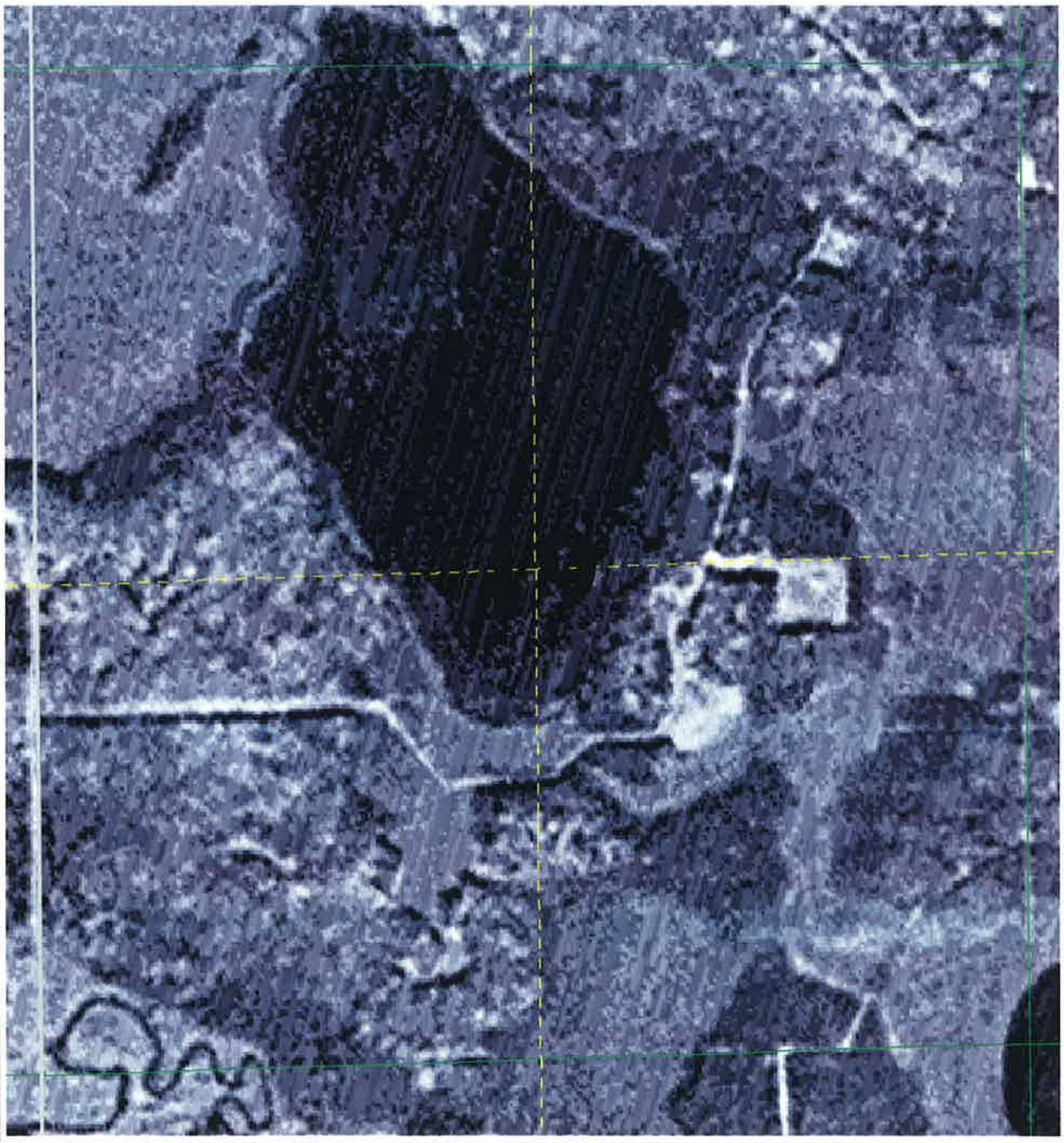
Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: The banks are stable and well vegetated throughout with the exception of a few areas of natural instability. Cattle grazing was noted throughout but is light and not affecting the health of the riparian area. Beaver activity was noticed throughout with many large willows cut down. The creek has cut a new channel at the north end of quarter section and flow is going in both directions due to the oxbow and new channel.

Upstream end of NW 18 - 55 - 15 - W5M.

Trout Creek

Sec. 19 Twp. 55 Rge. 15 W5M



SPACE IMAGING

400 0 400 Meters

N

SW Sec. 19

Township: 55 Range: 15 Meridian: W5

Survey date:	Oct. 16,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Coniferous, shrubs, grasses		

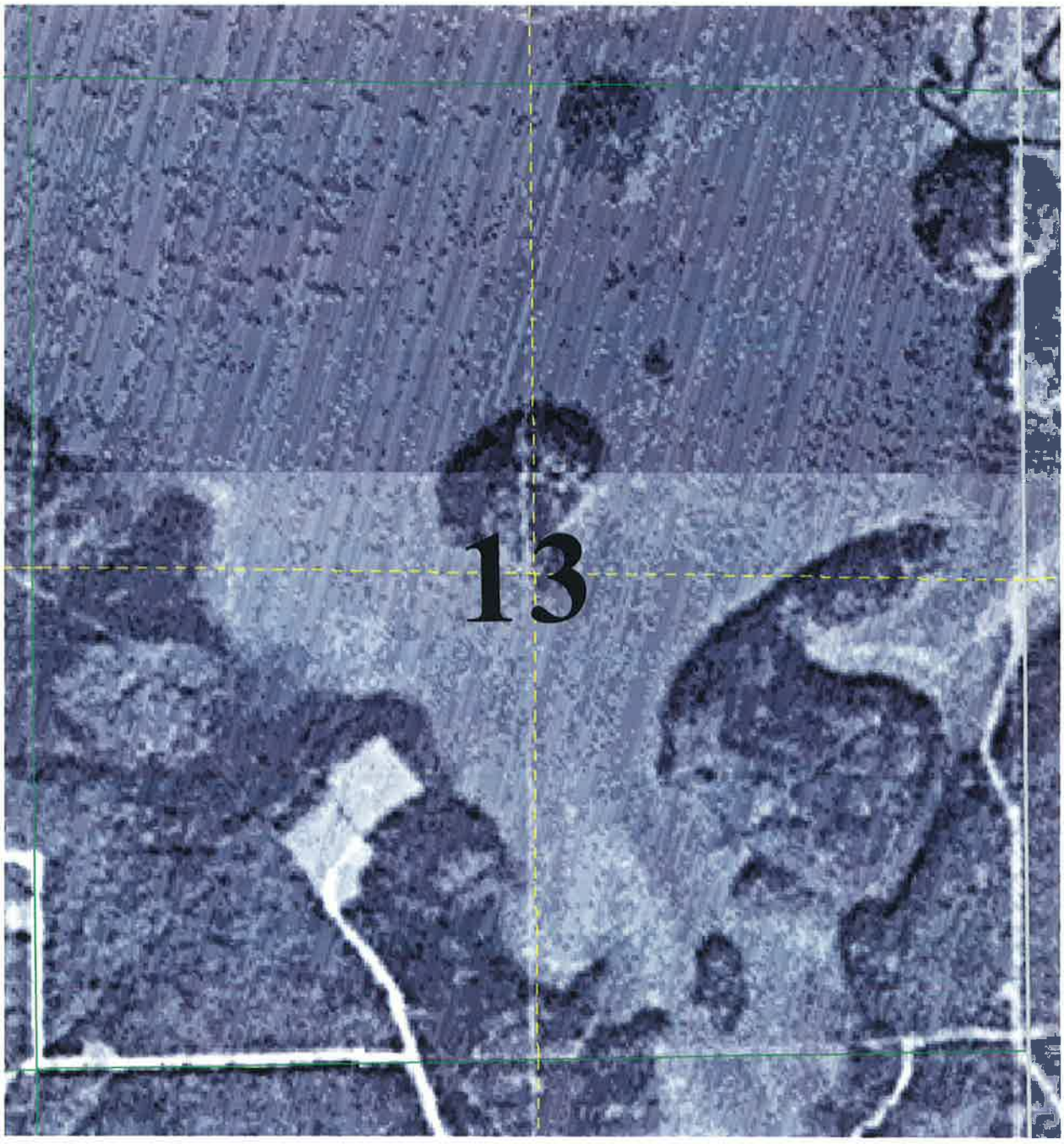
Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: The banks are stable and well vegetated with grasses and willows throughout with the exception of a few areas of natural instability. Cattle grazing was noted throughout but is light and not affecting the health of the riparian area. Beaver activity was noticed throughout with many large willows cut down but no dams were found. Mature trees were found approximately 10-20m from the stream.

Upstream end of SW 19 - 55 - 15 - W5M.

Trout Creek

Sec. 13 Twp. 55 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

NE Sec. 13

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 22,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Shrubs / grasses		

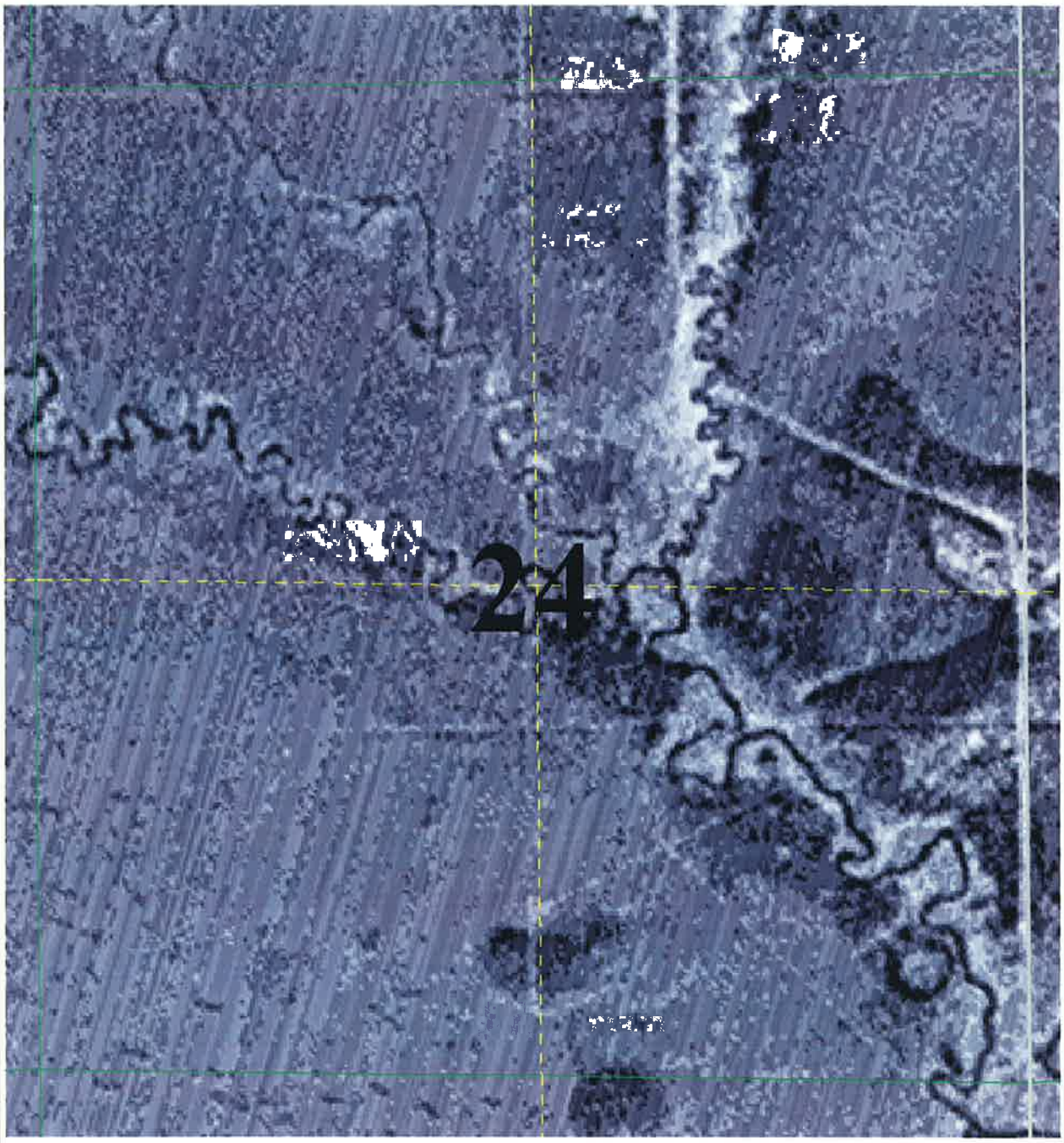
Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: One section was noted of natural instability (approximately 20m long), but overall the banks were stable and vegetated with grasses and willows throughout. The channel in this quarter section is deep, slow moving, and has a u-shaped profile. No apparent landuse was noted; however, cattle presence in the downstream quarter section may extend to this quarter as well. Beaver activity was observed but no dams were found.

Upstream end of NE 13 - 55 - 16 - W5M.

Trout Creek

Sec. 24 Twp. 55 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

SE Sec. 24

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 22,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Conifers, shrubs, grasses		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: No landuse was observed except for an A.T.V. trail which followed the creek for a third of the quarter section and a trail (possibly made by cattle) which extended throughout the quarter section along the creek. This quarter section may be used for grazing at some point in the season but has not been grazed recently. The banks are stable and vegetated throughout with a few exceptions of natural instability. Beaver activity was noted throughout. Channel is deep, slow moving, and has a u-shaped profile.

Upstream end of SE 24 - 55 - 16 - W5M.

NE Sec. 24

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 22,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Shrubs / grasses		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	0
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: The creek only runs through a small portion of this quarter section. The riparian area in this quarter section is in a natural state and the banks are stable throughout. A very large beaver dam upstream has not created a pond but is causing the creek to overflow its banks for 50m on either side. No flow is found in this area and some grasses and willows are growing throughout. The creek in this quarter section is a deep, slow run.

Upstream end of NE 24 - 55 - 16 - W5M.

SW Sec. 24

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 22,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Coniferous, shrubs, grasses		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	0
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: The banks appear to be stable and vegetated throughout with grass and willows in this quarter section. The area surrounding the creek is flooded approximately 50-75m on either side due to beaver activity. Standing dead trees were present. No dam was present but other signs of beaver activity were abundant.

Upstream end of SW 24 - 55 - 16 - W5M.

NW Sec. 24

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 22,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Shrubs / grasses		

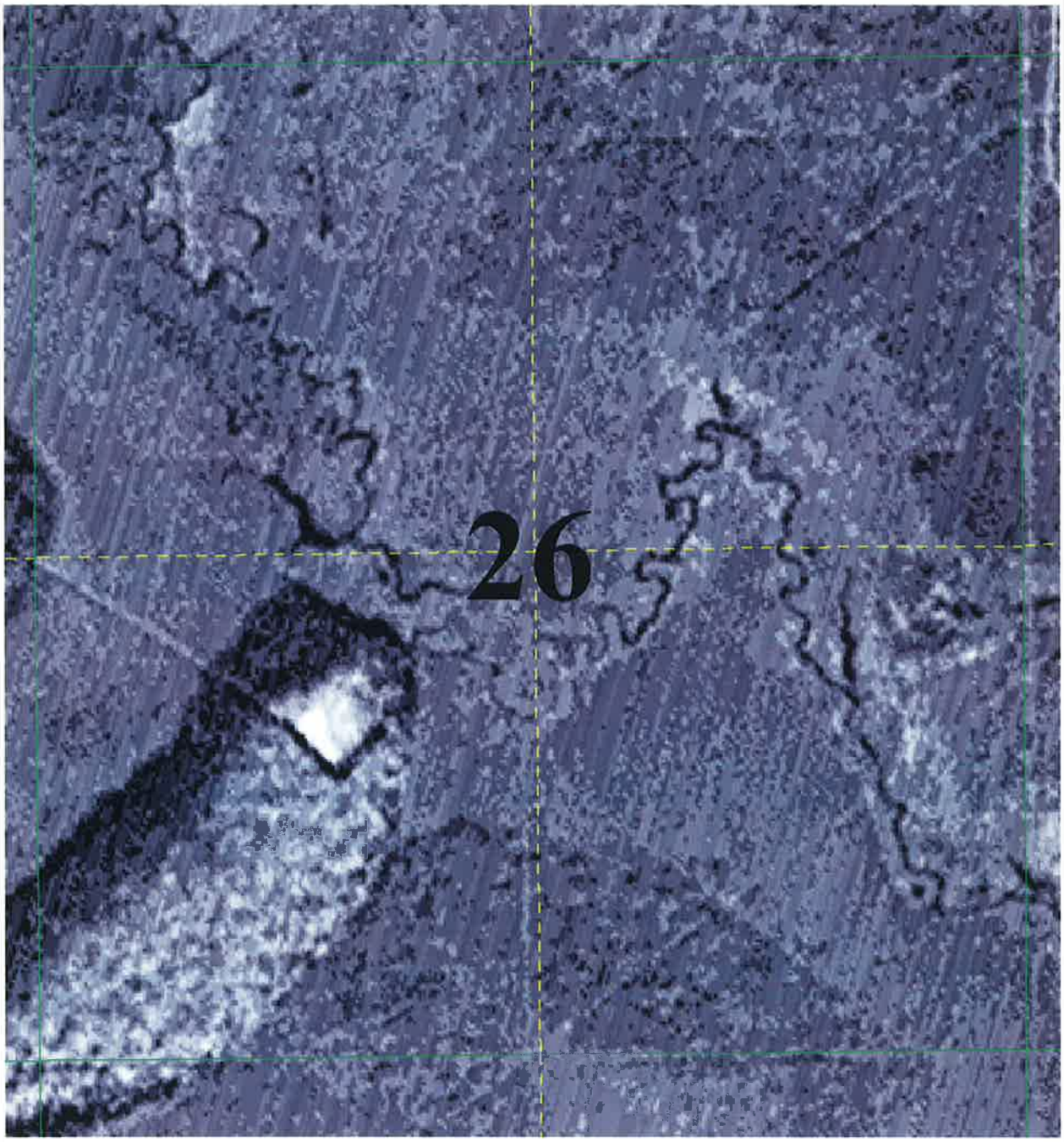
Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	0
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: All banks in this quarter section are stable and vegetated throughout. The entire quarter section is flooded, no pond is present, but a large, wetted, grassy area is present. At the fourth beaver dam encountered the extent of the flooding increases from that found downstream of the dam. Water flows through grass in some areas and the flooded area is too deep to cross in many places.

Upstream end of NW 24 - 55 - 16 - W5M.

Trout Creek

Sec. 26 Twp. 55 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

SE Sec. 26

Township: 55 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	No
Stream stage:	High	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Mixed wood		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	20
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	80
Highly Unstable:	0		

Comments: As the creek begins to flow north a very large beaver dam is present. The resulting backed up water made further surveying of this quarter section impossible. Flooded area is over 1m in depth. No landuse is apparent and the banks are all vegetated and stable. The beaver dams are not causing any bank slumping.

Upstream end of SE 26 - 55 - 16 - W5M.

NE Sec. 26

Township: 55 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	No
Stream stage:	High	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Mixed wood		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	20
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	80
Highly Unstable:	0		

Comments: As the creek begins to flow north a very large beaver dam is present. The resulting backed up water made surveying this quarter section impossible. The riparian health was assessed from the border of the flooded area. The flooded area is over 1m in depth. No landuse is apparent and the banks are all vegetated with grass and willow and appear to be stable. The beaver dams are not causing any bank slumping.

SW Sec. 26

Township: 55 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	No
Stream stage:	High	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Mixed wood		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	10
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	90
Highly Unstable:	0		

Comments: The banks are stable throughout. The stream runs through a heavily wooded area with no apparent landuse. A large beaver dam complex is beginning but is having no apparent damage to the banks. Both banks are heavily treed with willow and occasional black spruce. Beavers are currently present in this section of the creek.

Upstream end of SW 26 - 55 - 16 - W5M.

NW Sec. 26

Township: 55 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	No
Stream stage:	High	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Mixed wood		

Bank Stability %

Stable:	95
Slightly Unstable:	5
Moderately Unstable:	0
Highly Unstable:	0

Habitat %

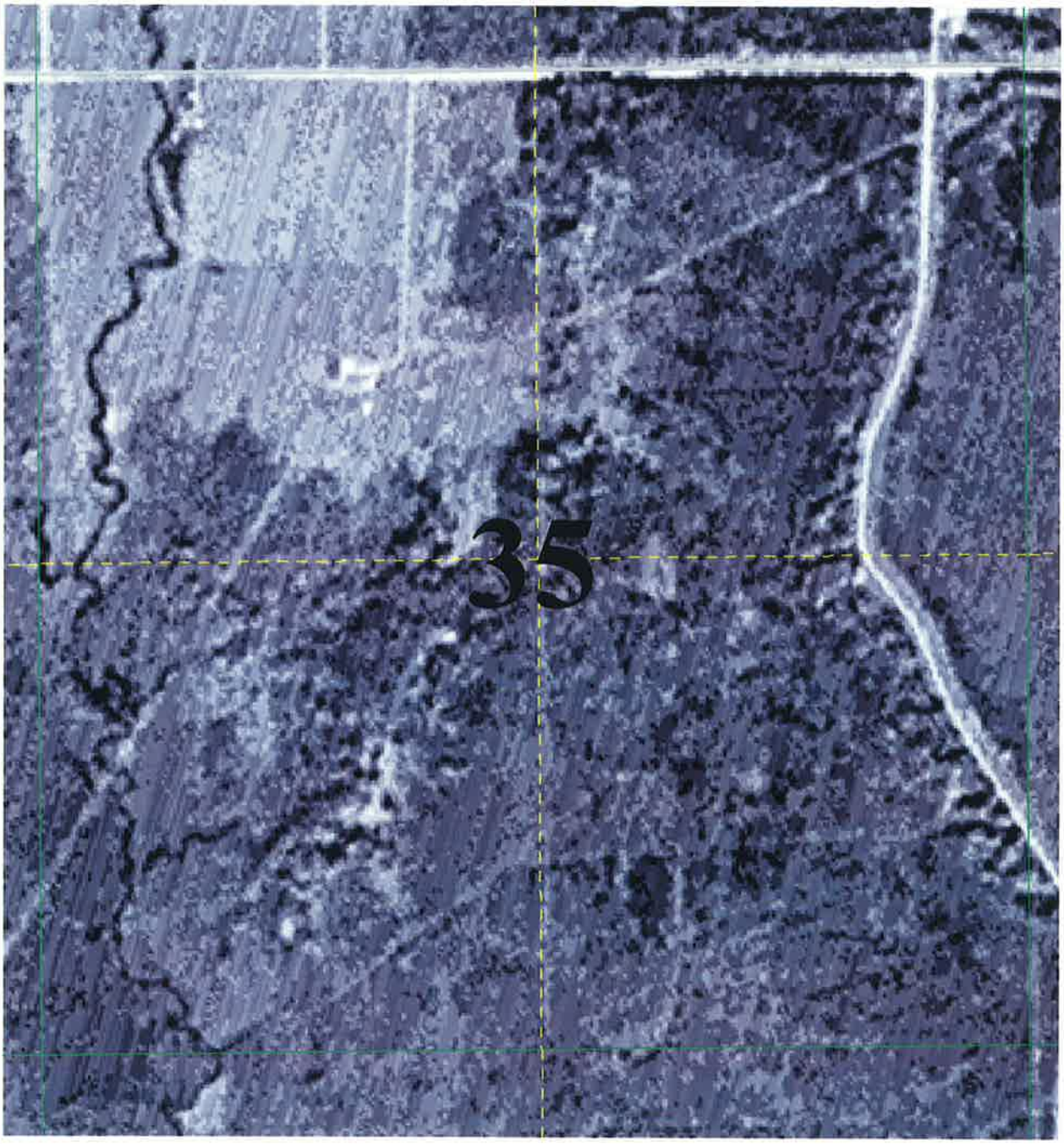
Pool:	15
Riffle:	0
Run:	85

Comments: The stream runs through a densely wooded area with no apparent landuse. Many small beaver dams were found throughout that were causing some slumping along both banks. Many small channels have formed to help divert water along the flat forest floor due to the beaver dams. The banks are stable throughout even after recent heavy rainfall and flooding.

Upstream end of NW 26 - 55 - 16 - W5M.

Trout Creek

Sec. 35 Twp. 55 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

SW Sec. 35

Township: 55 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	No
Stream stage:	High	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Conifers, shrubs, grasses		

Bank Stability %

Stable:	100
Slightly Unstable:	0
Moderately Unstable:	0
Highly Unstable:	0

Habitat %

Pool:	40
Riffle:	0
Run:	60

Comments: Two very large beaver dams are creating massive ponds with many small channels throughout the flat areas of the surrounding field. The downstream section cuts through a black spruce forest that has been turned into a muskeg area due to overflow caused by beaver activity. The areas between the beaver dams show stable banks and undisturbed surroundings.

Upstream end of SW 35 - 55 - 16 - W5M.

NW Sec. 35

Township: 55 Range: 16 Meridian: W5

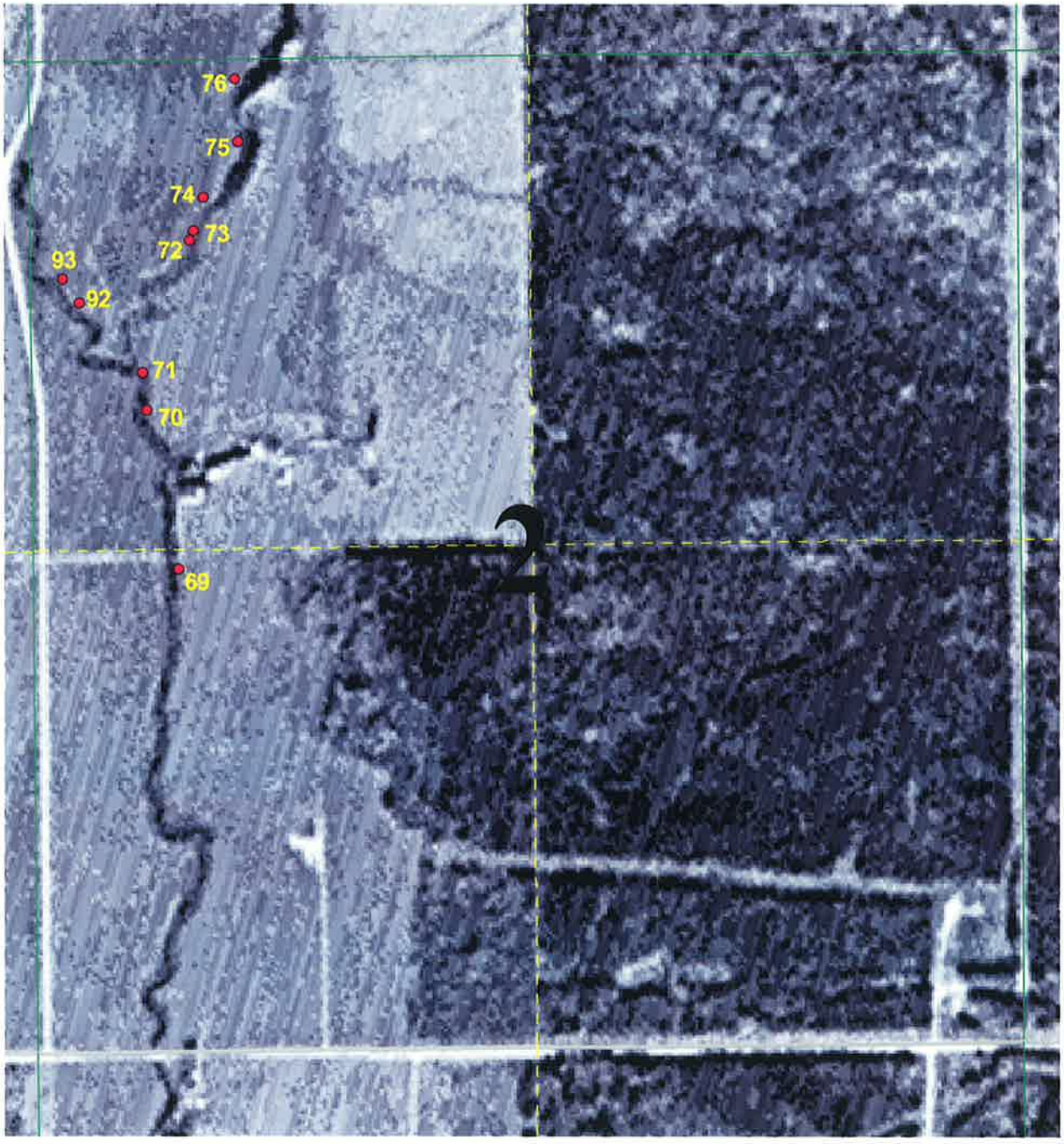
Survey date:	Aug. 2,2001	**Landuse present:**	Yes
Stream stage:	High	**Type of landuse:**	Farming
Buildings present:	Yes	**Distance from Stream:**	5-10 meters
Vegetation type:	Grasses / shrubs		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	30
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	70
Highly Unstable:	0		

Comments: The banks are stable throughout this quarter section. A residence, barn, and cow pasture is found on the east side of the creek and a cultivated field is found on the west side. Both sides of the creek have a 5-10 meter buffer of grasses and willow and the east side has a fence throughout the length of the quarter. The channel is deep and slow moving and the water is turbid. The turbidity of the water may be due to recent heavy rainfall.

Trout Creek

Sec. 2 Twp. 56 Rge. 16 W5M



SW Sec. 2

Township: 56 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	Yes
Stream stage:	High	**Type of landuse:**	Haying
Buildings present:	No	**Distance from Stream:**	2 meters
Vegetation type:	Grasses / shrubs		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	10
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	90
Highly Unstable:	0		

Comments: The creek is deeply entrenched throughout. Many willows are growing right on the waters edge in the trench. Hay fields are present on both banks but a 1-2m buffer has been left before trench descends. Banks are stable overall with only 1 disturbance site found in this quarter section. Lots of grass is growing right to the waters edge.

Upstream end of SW 2 - 56 - 16 - W5M.

NW Sec. 2

Township: 56 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	Yes
Stream stage:	High	**Type of landuse:**	Haying
Buildings present:	Yes	**Distance from Stream:**	0 meters
Vegetation type:	Grasses		

Bank Stability %

Stable:	90
Slightly Unstable:	5
Moderately Unstable:	5
Highly Unstable:	0

Habitat %

Pool:	10
Riffle:	5
Run:	85

Comments: Water is dark tea-stained with very low visibility. No rock was found in the channel or in the bank composition. Banks are grassy and some areas of the creek contain grasses in form of bars or clumps which have slumped into the water during recent flood conditions. The downstream section contains willows and grass on the banks while the upstream section consists mainly of willows and mature trees. Two fish were observed in the upstream section.

Upstream end of NW 2 - 56 - 16 - W5M.

FIG.-1. DISTURBANCE SITE 69. SW 2 – 56 – 16 – W5M. CULTIVATION ON THE RIGHT UPSTREAM BANK HAS CAUSED SLUMPING DUE TO A LACK OF WOODY VEGETATION.

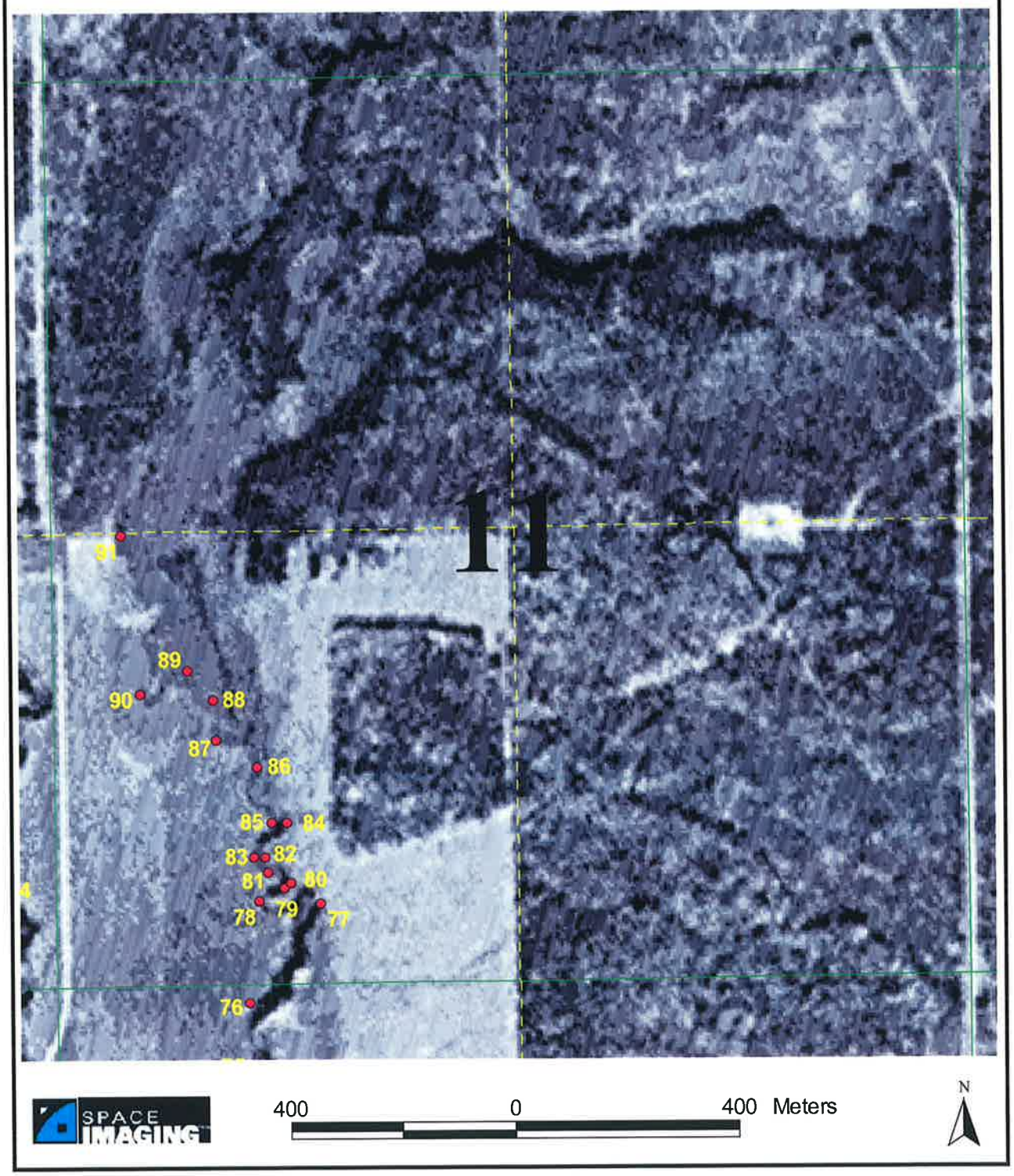
FIG.-2. DISTURBANCE SITE 70. NW 2 – 56 – 16 – W5M. FARMING PRACTICES HAVE CAUSED THE RIGHT UPSTREAM BANK TO SLUMP DUE TO A LACK OF WOODY VEGETATION.

FIG.-3. DISTURBANCE SITE 71. NW 2 – 56 – 16 – W5M. FARMING ON THE RIGHT UPSTREAM BANK HAS REMOVED THE WOODY VEGETATION AND CAUSED THE BANK TO SLUMP.

FIG.-4. DISTURBANCE SITE 75. NW 2 – 56 – 16 – W5M. FARMING ON THE LEFT UPSTREAM BANK HAS CAUSED RECENT SLUMPING OF THE SOD INTO THE CREEK.

Trout Creek

Sec. 11 Twp. 56 Rge. 16 W5M



SW Sec. 11

Township: 56 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	Yes
Stream stage:	High	**Type of landuse:**	Agriculture
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Mixed wood, grasses shrubs		

Bank Stability %

Stable:	20
Slightly Unstable:	60
Moderately Unstable:	0
Highly Unstable:	20

Habitat %

Pool:	10
Riffle:	10
Run:	80

Comments: Light grazing and cultivation are present on the right upstream bank extending to the waters edge. Hay land was found along the entire left upstream bank section. In the middle portion of this quarter section there was little to no woody vegetation. The upstream portion was heavily treed, including willows in stream bottom. The lower section contained larger mature spruce and willow and had a wider buffer zone on both banks.

Upstream end of SW 11 - 56 - 16 - W5M.

FIG.-1. DISTURBANCE SITE 83. SW 11 – 56 – 16 – W5M. CULTIVATION OF THE LEFT UPSTREAM BANK IS CAUSING BOTH THE BANK AND THE TREES TO SLUMP.

FIG.-2. DISTURBANCE SITE 84. SW 11 – 56 – 16 – W5M. LIGHT GRAZING AND THE REMOVAL OF WOODY VEGETATION ON THE RIGHT UPSTREAM BANK HAS CAUSED MAJOR DEGREDATION ON THIS STEEP SLOPE.

FIG.-3. DISTURBANCE SITE 85. SW 11 – 56 – 16 – W5M. FARMING ON THE LEFT UPSTREAM BANK HAS CAUSED IT TO DEGRADE AND SLUMP INTO THE CREEK.

FIG.-4. DISTURBANCE SITE 86. SW 11 – 56 – 16 – W5M. THIS OLD ROAD CROSSING HAS CAUSED EROSION AND DEGRADATION OF BOTH BANKS.

FIG.-1. DISTURBANCE SITE 88. SW 11 – 56 – 16 – W5M. CULTIVATION ON THE RIGHT UPSTREAM BANK HAS CAUSED INSTABILITY DUE TO A LACK OF WOODY VEGETATION.

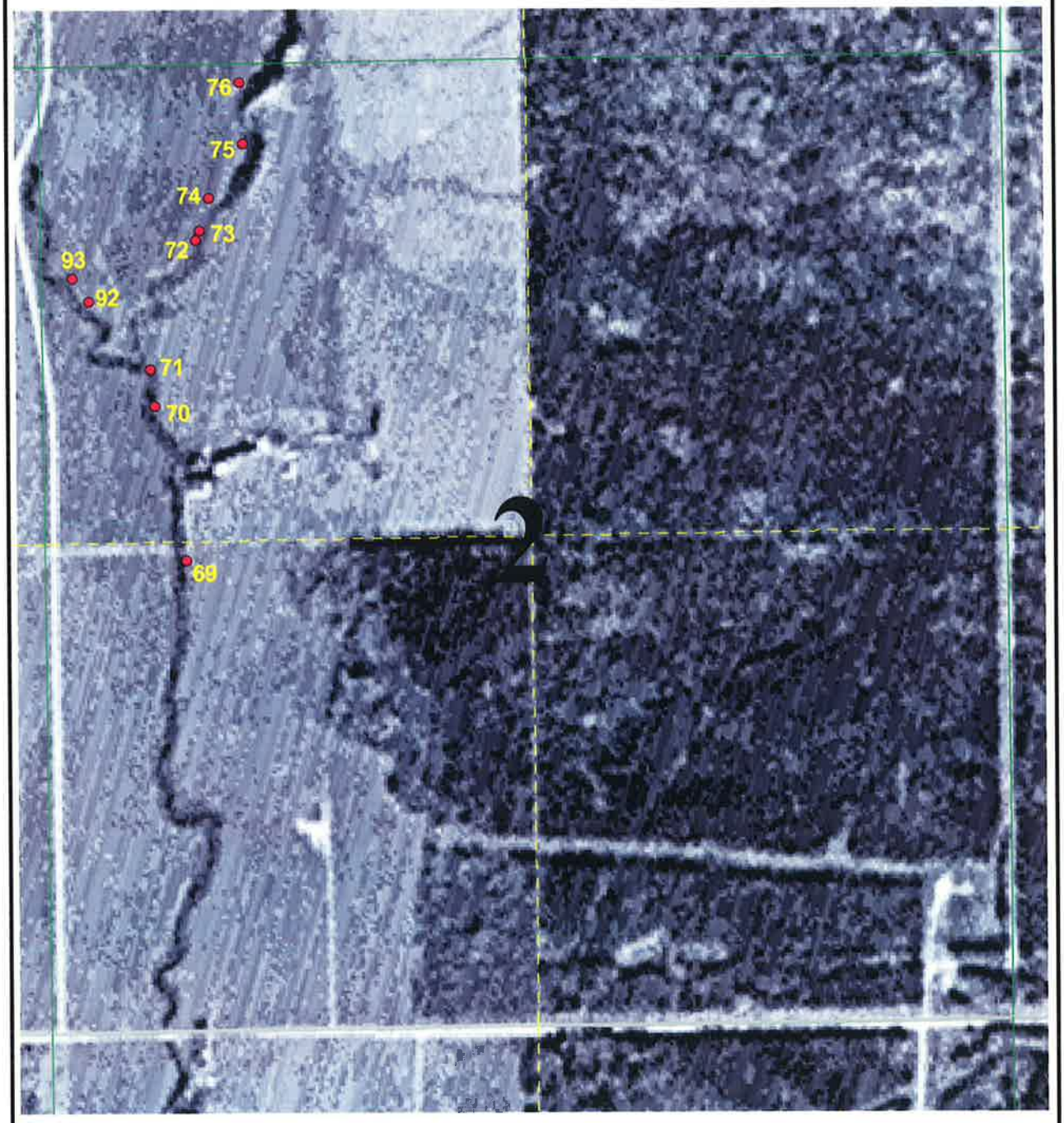
FIG.-2. DISTURBANCE SITE 89. SW 11 – 56 – 16 – W5M. FARMING PRACTICES HAVE REMOVED THE WOODY VEGETATION FROM THE RIGHT UPSTREAM BANK AND CAUSED IT TO SLUMP.

FIG.-3. DISTURBANCE SITE 90. SW 11 – 56 – 16 – W5M. REMOVAL OF THE WOODY VEGETATION ALONG THE LEFT UPSTREAM BANK HAS CAUSED IT TO SLUMP AND EXPOSE SOIL.

FIG.-4. DISTURBANCE SITE 91. SW 11 – 56 – 16 – W5M. FARMING ALONG THE RIGHT UPSTREAM BANK HAS CAUSED IT TO ERODE AND FORM A SCOUR POOL.

Trout Creek

Sec. 2 Twp. 56 Rge. 16 W5M



NW Sec. 2

Township: 56 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	Yes
Stream stage:	High	**Type of landuse:**	Haying
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Grasses / shrubs		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: The banks are completely covered in grass but are unstable in some areas due to a lack of shrubs and trees on the banks. Hay fields are cultivated to the edge of the bank on both sides of the creek. Both banks are high and steep so cultivation could not reach the waters edge. Willows are present on the bottom of the banks along the stream but are not present on the banks themselves. Recent flood conditions do not appear to have affected the banks.

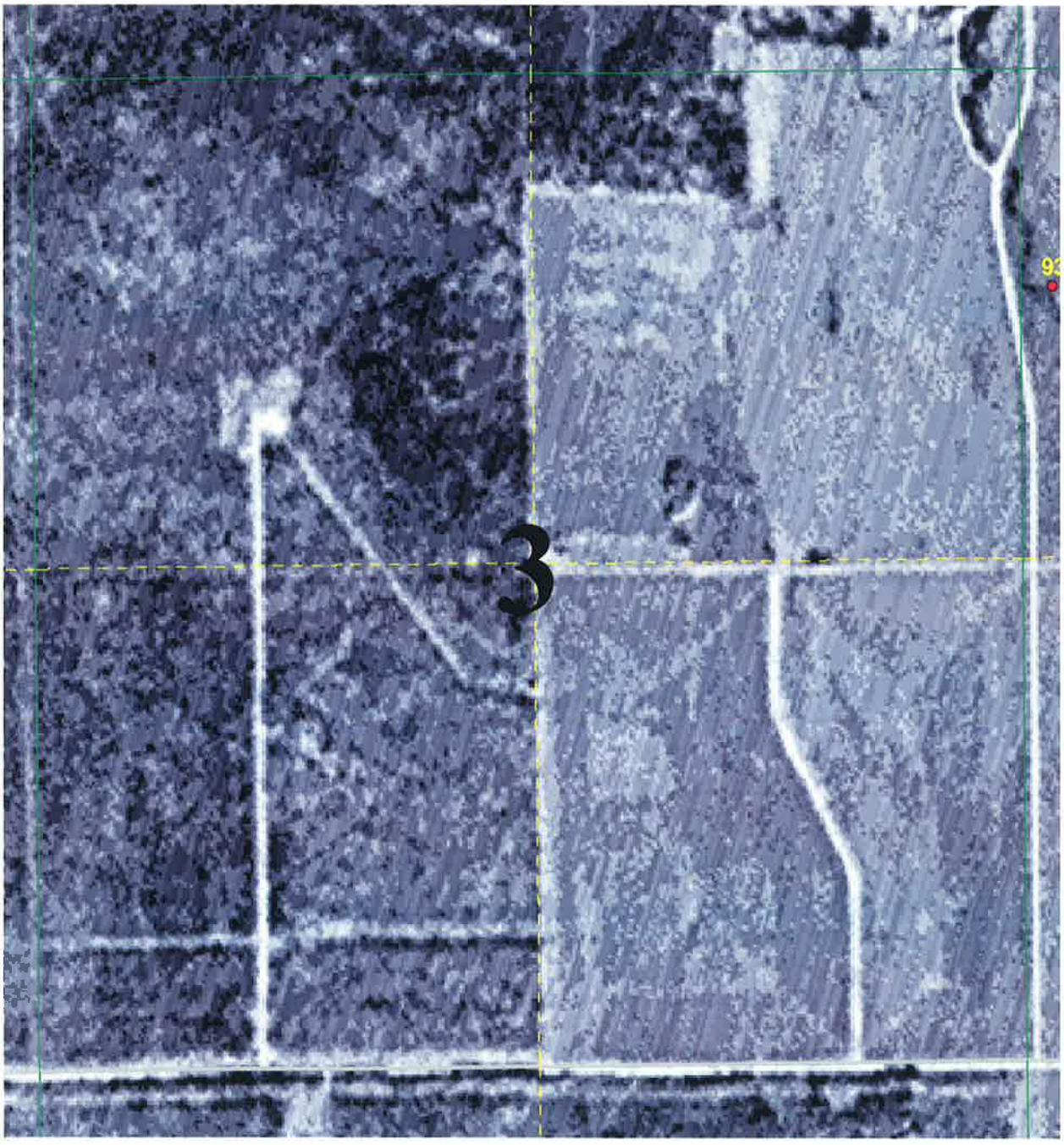
Upstream end of NW 2 - 56 - 16 - W5M.

FIG.-1. DISTURBANCE SITE 92. NW 2 – 56 – 16 – W5M. LOOKING ACROSS AT SLUMPING, GRASSY BANK DUE TO HAYING TO THE RIGHT UPSTREAM BANK EDGE.

FIG.-2. DISTURBANCE SITE 93. NW 2 – 56 – 16 – W5M. LOOKING ACROSS AT A STEEP AND SLUMPING BANK ON THE RIGHT UPSTREAM SIDE DUE TO HAYING TOO CLOSE TO THE BANK EDGE.

Trout Creek

Sec. 3 Twp. 56 Rge. 16 W5M



NE Sec. 3

Township: 56 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	Yes
Stream stage:	High	**Type of landuse:**	Haying
Buildings present:	Yes	**Distance from Stream:**	2 meters
Vegetation type:	Conifers / shrubs		

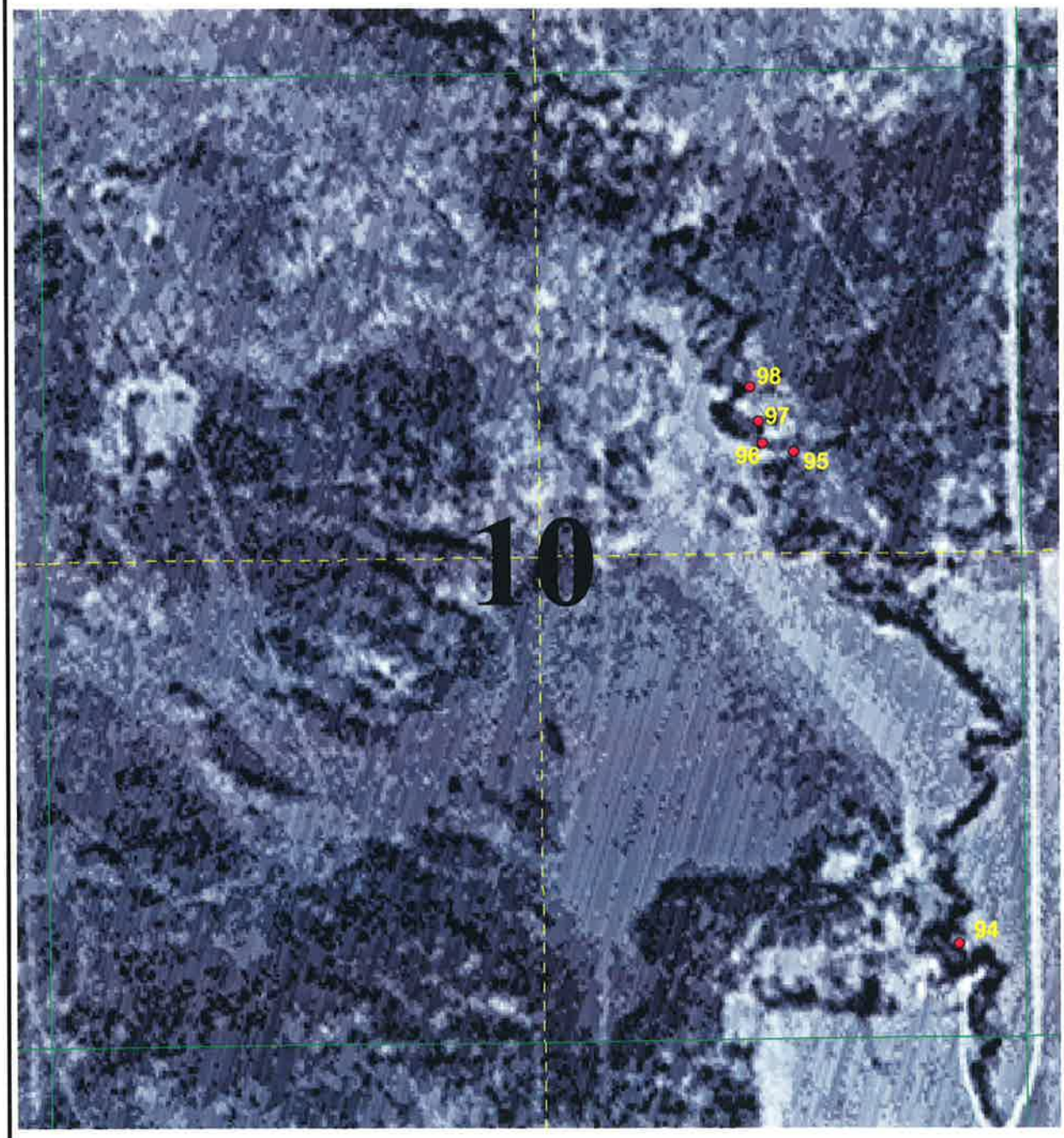
Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	0
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: A road crossing is present but is not affecting the banks. A hay field at the downstream end of the quarter section has a 2 meter buffer from the top of the high bank. The only landuse present is the one hay field. Upstream of the hay field, the riparian area is in a natural state with large conifers and willows along the stream. The banks are high and steep but are stable and covered with vegetation.

Upstream end of NE 3 - 56 - 16 - W5M.

Trout Creek

Sec. 10 Twp. 56 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

SE Sec. 10

Township: 56 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	Yes
Stream stage:	High	**Type of landuse:**	Haying
Buildings present:	Yes	**Distance from Stream:**	5 meters
Vegetation type:	Mixed wood / shrubs		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: The upstream end of this quarter section is in a natural state. The downstream portion has a hay field with a 5 meter buffer from the top of the bank. The banks are stable for the most part with some unstable areas. The banks are steep and high and susceptible to instability, but are tree and shrub covered. Sites of instability on this quarter section lack woody vegetation but it is present on either side of the disturbance.

Upstream end of SE 10 - 56 - 16 - W5M.

NE Sec. 10

Township: 56 Range: 16 Meridian: W5

Survey date: Aug. 2,2001
Stream stage: High
Buildings present: No
Vegetation type: Mixed wood

Landuse present: Yes
Type of landuse: Grazing
Distance from Stream: 0 meters

Bank Stability %

Stable: 80
Slightly Unstable: 10
Moderately Unstable: 10
Highly Unstable: 0

Habitat %

Pool: 10
Riffle: 15
Run: 75

Comments: The downstream portion of this quarter section is moderately grazed to the waters edge and the upstream portion is in a natural state. Many naturally unstable banks were found on the outside bends of the creek, all of which were high and steep and some had trees eroding into the water. Site 98 was the most severe of these disturbances due to the grazing pressure combined with the natural instability.

Upstream end of NE 10 - 56 - 16 - W5M.

NW Sec. 10

Township: 56 Range: 16 Meridian: W5

Survey date: Aug. 2,2001
Stream stage: High
Buildings present: No
Vegetation type: Mixed wood

Landuse present: No
Type of landuse: N/A
Distance from Stream: N/A

Bank Stability %

Stable: 100
Slightly Unstable: 0
Moderately Unstable: 0
Highly Unstable: 0

Habitat %

Pool: 10
Riffle: 40
Run: 50

Comments: The area is in a natural state. No landuse is apparent and the banks are 100% stable. Recent high water has had no apparent affect. The banks are well-vegetated with mature trees, shrubs and grasses.

Upstream end of NW 10 - 56 - 16 - W5M.

FIG.-1. DISTURBANCE SITE 94. SE 10 – 56 – 16 – W5M. LOOKING DOWNSTREAM AT THE RIGHT UPSTREAM BANK, WHICH IS STEEP AND EXPOSED WITH A GRASSY TOP DUE TO PREVIOUS HAYING PRACTICES.

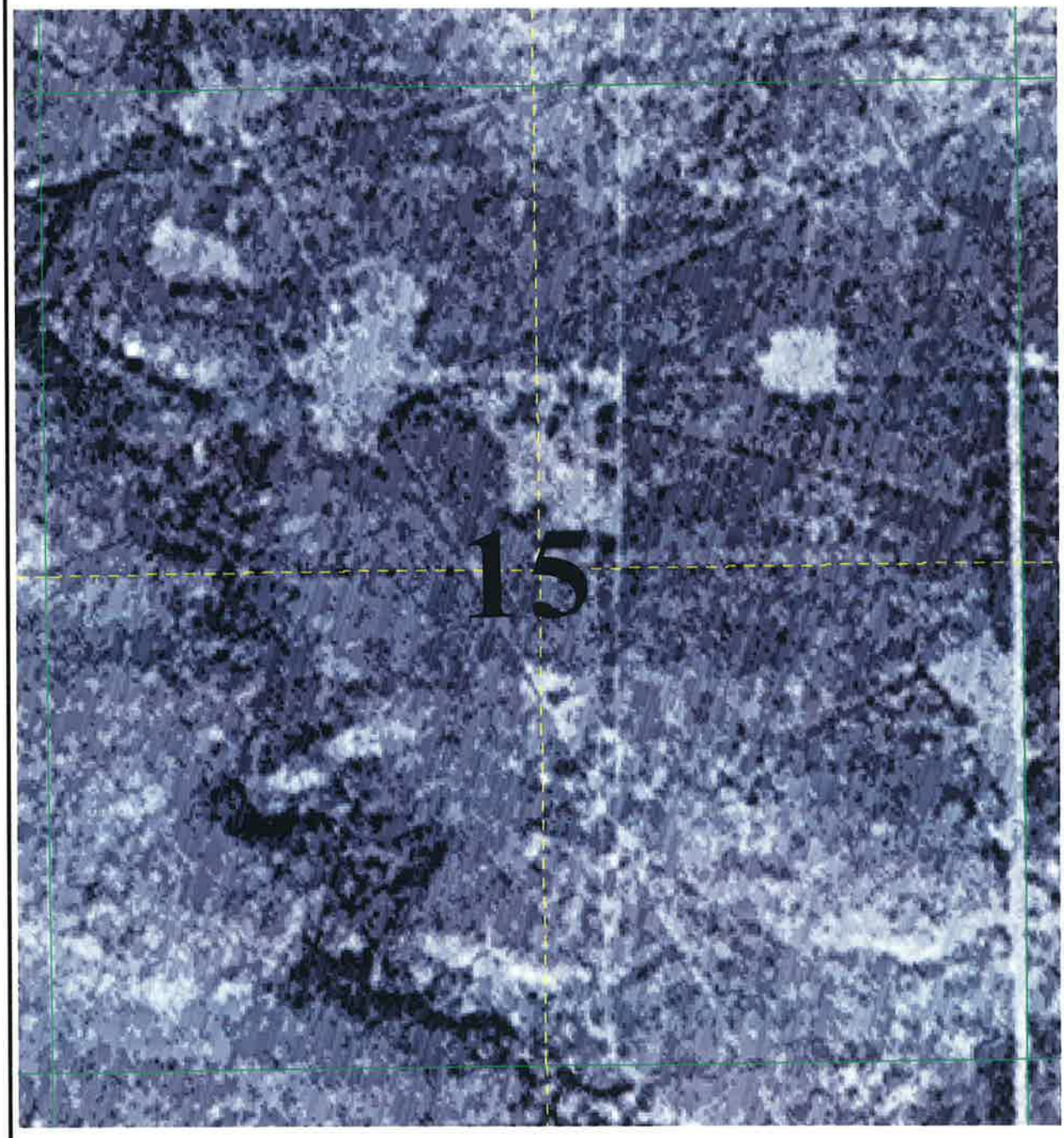
FIG.-2. DISTURBANCE SITE 95. NE 10 – 56 – 16 – W5M. LOOKING ACROSS AT THE LEFT UPSTREAM BANK, WHICH IS SCOURED AND LACKING VEGETATION DUE TO GRAZING PRESSURE FROM LIVESTOCK.

FIG.-3. DISTURBANCE SITE 96. NE 10 – 56 – 16 – W5M. LOOKING ACROSS AT THE LEFT UPSTREAM BANK, WHICH HAS BEEN TRAMPLED BY LIVESTOCK USING THE AREA FOR WATERING AND CROSSING.

FIG.-4. DISTURBANCE SITE 97. NE 10 – 56 – 16 – W5M. LOOKING AT THE RIGHT UPSTREAM BANK, WHICH IS SLUMPED, EXPOSED AND ERODING DUE TO LIVESTOCK GRAZING PRESSURE.

Trout Creek

Sec. 15 Twp. 56 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

SW Sec. 15

Township: 56 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	No
Stream stage:	High	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Mixed wood		

Bank Stability %

Stable:	100
Slightly Unstable:	0
Moderately Unstable:	0
Highly Unstable:	0

Habitat %

Pool:	15
Riffle:	25
Run:	60

Comments: The banks are completely stable along this nice section of creek. The area is in a natural state and the banks are vegetated throughout. Many large trees are present as well as grasses and shrubs along the creek. One large beaver dam was noted and found to be undisturbed by the recent flood conditions.

Upstream end of SW 15 - 56 - 16 - W5M.

NW Sec. 15

Township: 56 Range: 16 Meridian: W5

Survey date:	Aug. 2,2001	**Landuse present:**	No
Stream stage:	High	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Mixed wood		

Bank Stability %

Stable:	100
Slightly Unstable:	0
Moderately Unstable:	0
Highly Unstable:	0

Habitat %

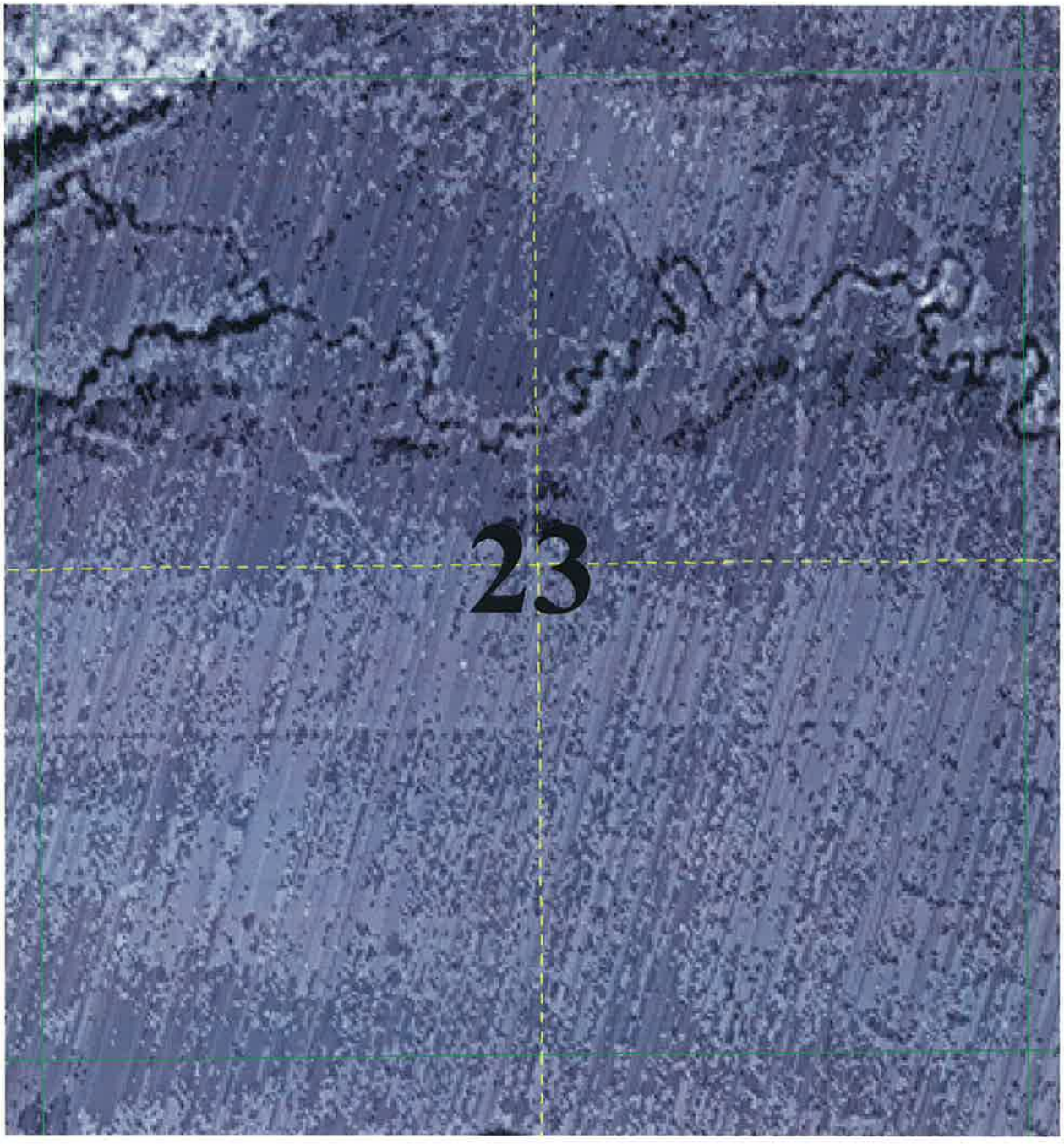
Pool:	10
Riffle:	15
Run:	75

Comments: This quarter section contains a nice section of creek. The banks are all well vegetated and stable with lots of large, mature trees, shrubs, and grasses. Recent flooding has not affected bank stability. Some minor scouring has occurred at an old beaver pond area, but it is minor and naturally occurring.

Upstream end of NW 15 - 56 - 16 - W5M.

Trout Creek

Sec. 23 Twp. 55 Rge. 16 W5M



NE Sec. 23

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 2,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Grasses / shrubs		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	0
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: Shortly after walking upstream into this quarter section, the area surrounding the creek is no longer flooded. The banks are full in most areas, but water levels have gone down in some sections. The banks look stable with no landuse apparent. The creek consists of a deep, slow moving run. Observed a beaver, three beaver lodges, and one large beaver dam in this quarter section.

Upstream end of NE 23 - 55 - 16 - W5M.

NW Sec. 23

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 22,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Grasses, shrubs, conifers		

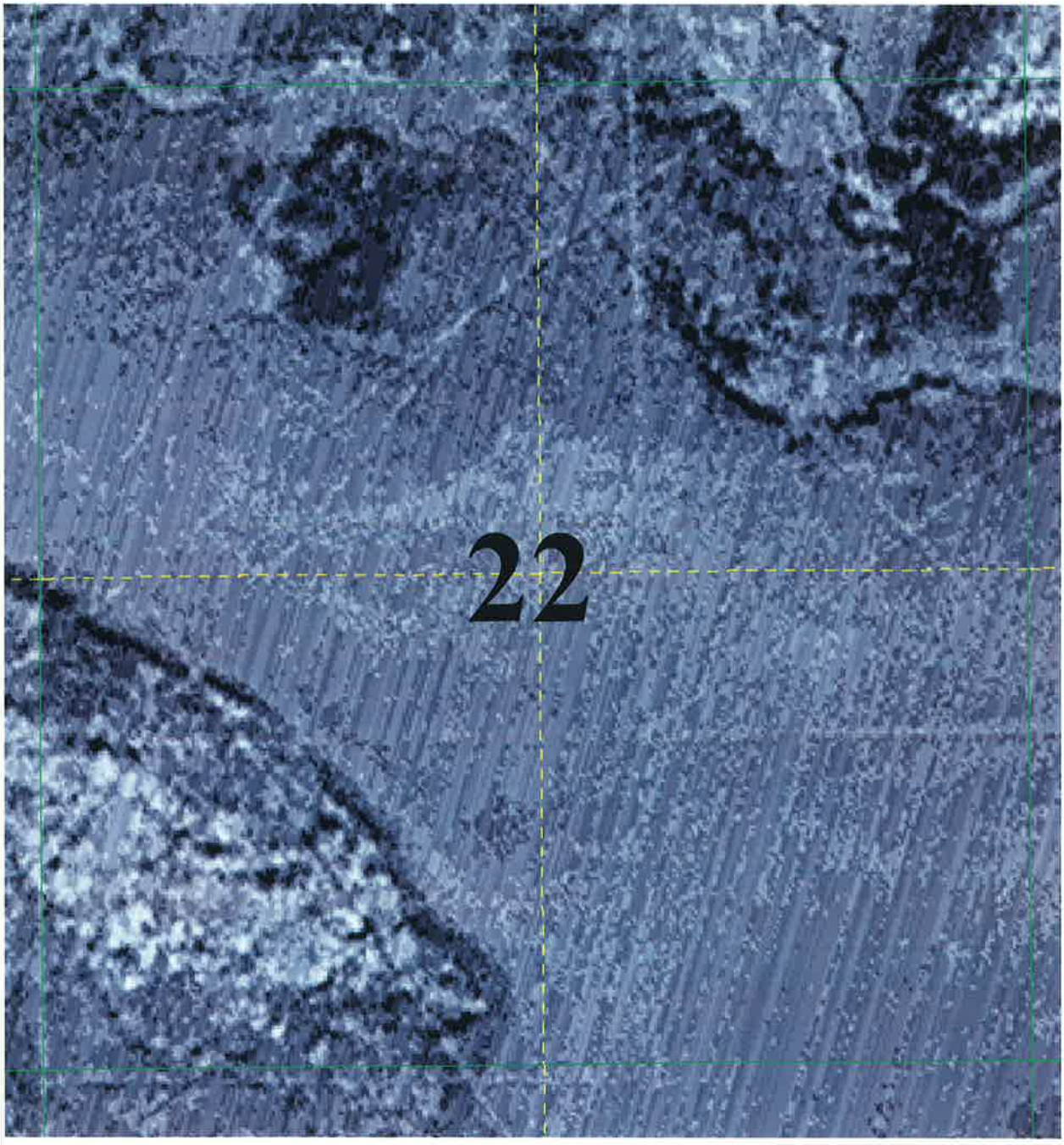
Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	0
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: The banks are stable and vegetated with grasses and willows throughout. Mature white spruce is present along the creek in the far upstream reaches of the quarter section. This quarter may be grazed by cattle (as indicated by the presence of a livestock trail) but there is little palatable vegetation present. Damage from livestock to the riparian area is therefore minor to non-existent. Beaver activity was noted throughout.

Upstream end of NW 23 - 55 - 16 - W5M.

Trout Creek

Sec. 22 Twp. 55 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

NE Sec. 22

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 22,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Grasses, shrubs, conifers		

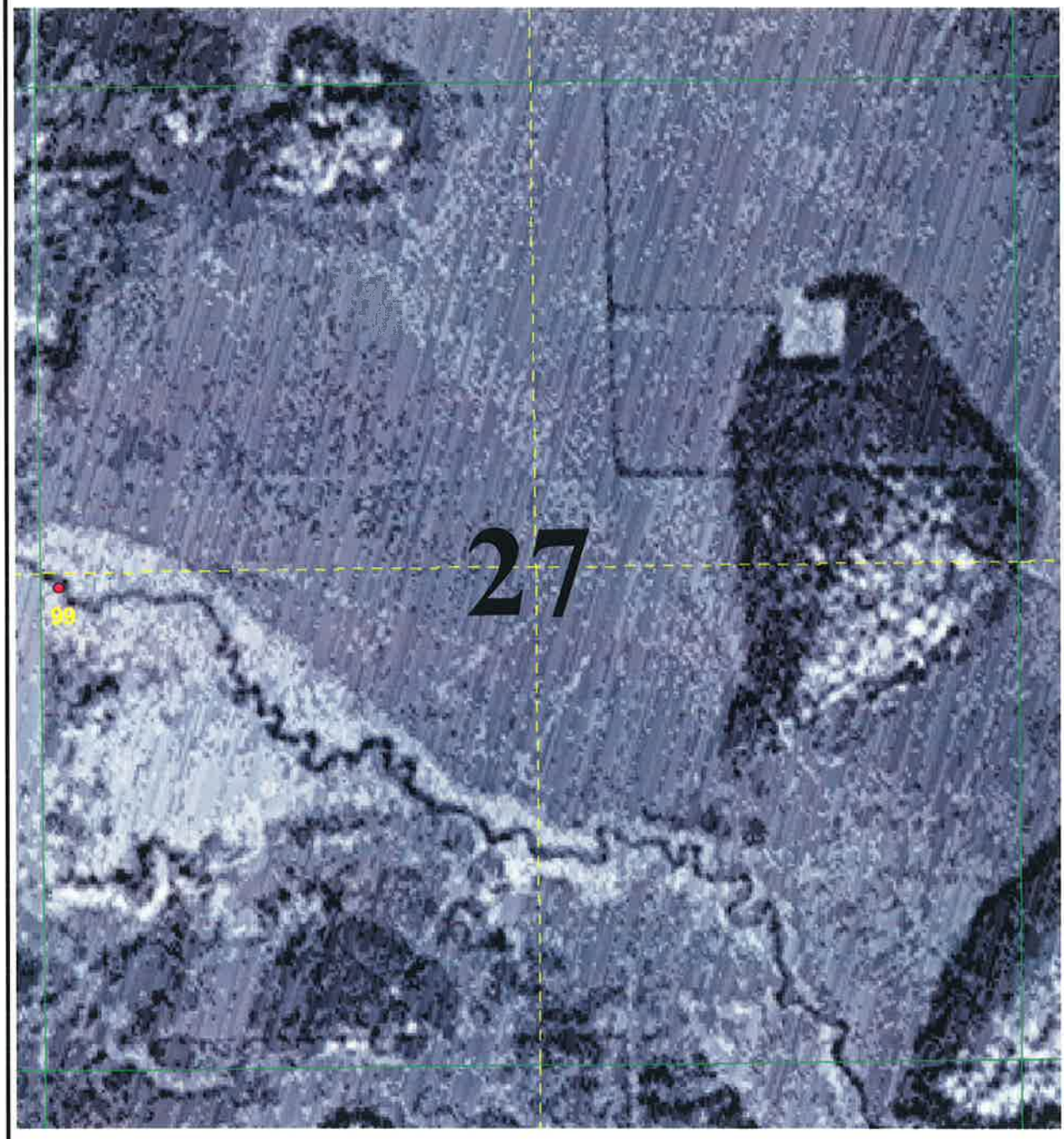
Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	0
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: The banks are stable and vegetated with grasses and willows throughout. Mature white spruce surround the stream until the upstream end of the quarter section. The creek consists of a deep slow run and beaver activity was noted throughout. No landuse is apparent except for one small and old hunting camp.

Upstream end of NE 22 - 55 - 16 - W5M.

Trout Creek

Sec. 27 Twp. 55 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

SE Sec. 27

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 22,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Grasses / shrubs		

Bank Stability %

Stable:	100
Slightly Unstable:	0
Moderately Unstable:	0
Highly Unstable:	0

Habitat %

Pool:	0
Riffle:	0
Run:	100

Comments: The banks are stable throughout. The creek consists of a deep, slow moving, u-shaped run. No landuse was apparent on this quarter section. No mature trees were found on the banks, only grasses and willows. Beaver activity was observed throughout and one active beaver lodge was observed.

Upstream end of SE 27 - 55 - 16 - W5M.

SW Sec. 27

Township: 55 Range: 16 Meridian: W5

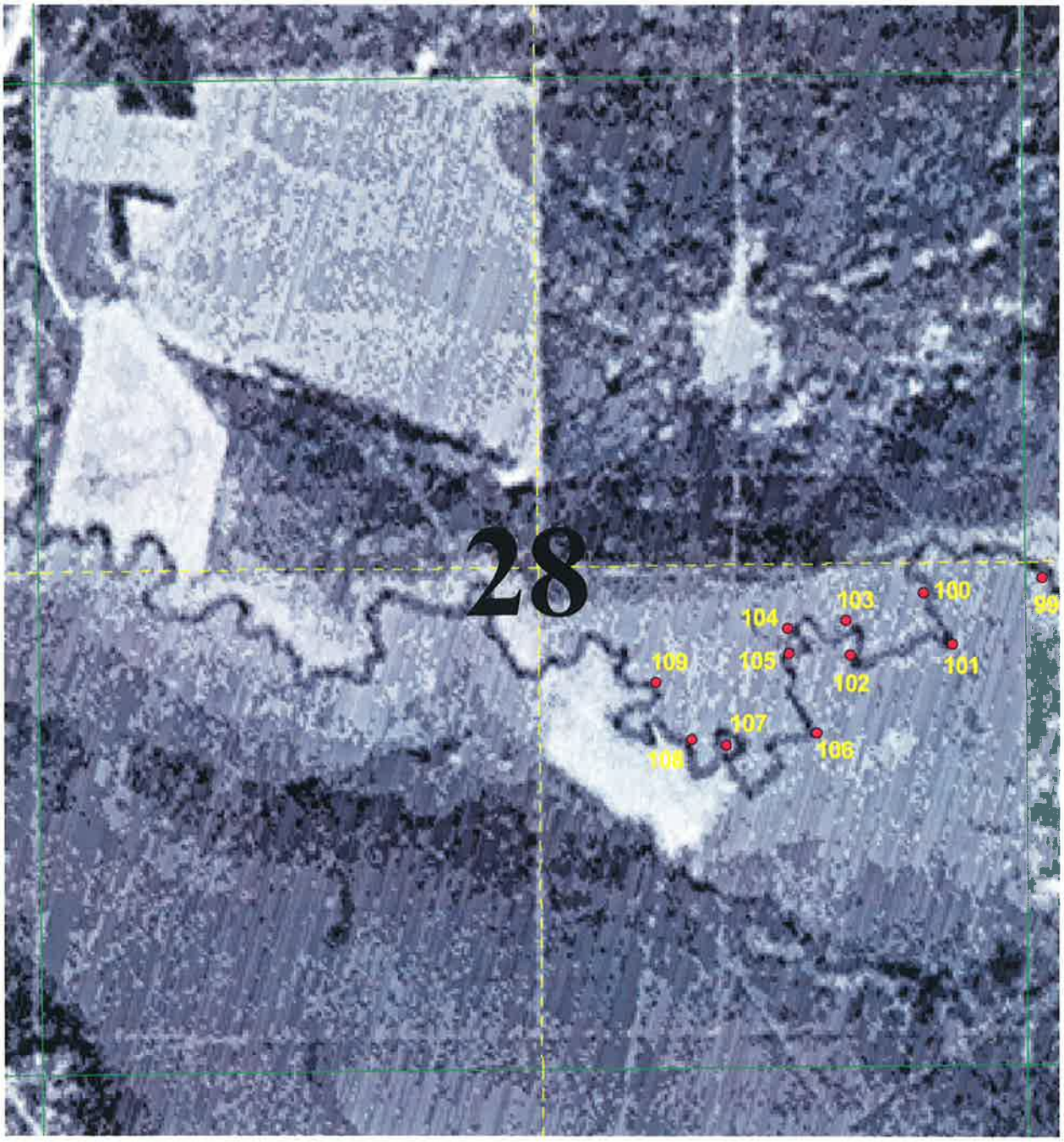
Survey date:	Oct. 22,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Grasses / shrubs		

Bank Stability %		**Habitat %**	
Stable:	90	**Pool:**	15
Slightly Unstable:	10	**Riffle:**	35
Moderately Unstable:	0	**Run:**	50
Highly Unstable:	0		

Comments: The creek runs through a fen-like area and is surrounded by a black spruce bog and tamarack. There is little to no human activity present in the beginning of this quarter section, which is in a natural state until the very end of the quarter. Beaver activity is apparent as many dams were noted in the downstream portion of the quarter. Livestock use is apparent in the very upstream portion of the quarter, where one disturbance site was located.

Trout Creek

Sec. 28 Twp. 55 Rge. 16 W5M



NE Sec. 28

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 22,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0-5 meters
Vegetation type:	Grasses / shrubs		

Bank Stability %		**Habitat %**	
Stable:	90	**Pool:**	10
Slightly Unstable:	10	**Riffle:**	0
Moderately Unstable:	0	**Run:**	90
Highly Unstable:	0		

Comments: The creek runs through a wide fen-like area and is surrounded by a black spruce bog and tamarack. Water movement is very slow and signs of beaver activity were observed throughout. The creek runs through a small portion of this quarter section. Signs of past grazing exist but no disturbances were observed.

SE Sec. 28

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 22,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Farming
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Grasses / shrubs		

Bank Stability %		**Habitat %**	
Stable:	10	**Pool:**	30
Slightly Unstable:	20	**Riffle:**	30
Moderately Unstable:	60	**Run:**	40
Highly Unstable:	10		

Comments: The creek runs through a pasture in this quarter section. A beaver dam is present, which presents a fish barrier at moderate and low flow. The beaver dam is 0.8 meters in height. A bridge for cattle crossing was noted. Lots of disturbances were found in this quarter section and were due to livestock activity. An ox-bow bend has been diverted on this quarter section.

SW Sec. 28

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 22,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Grasses / shrubs		

Bank Stability %		**Habitat %**	
Stable:	70	**Pool:**	20
Slightly Unstable:	20	**Riffle:**	30
Moderately Unstable:	10	**Run:**	50
Highly Unstable:	0		

Comments: This quarter section is in a relatively natural state. Beaver activity was observed throughout the length of the quarter section in the form of both dams and a lodge. The beaver activity is causing a very small amount of natural slumping of the banks.

NW Sec. 28

Township: 55 Range: 16 Meridian: W5

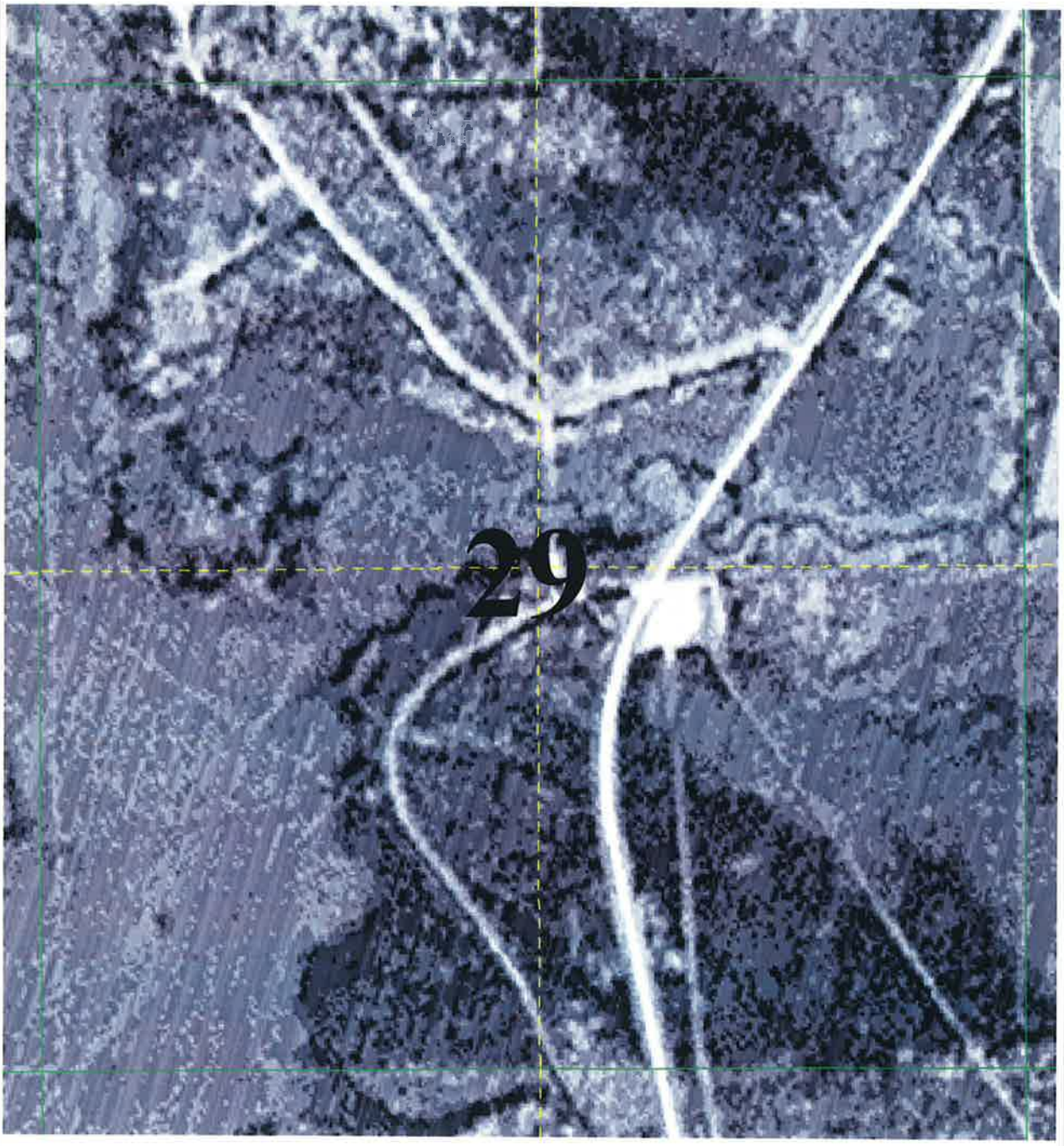
Survey date:	Oct. 22,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0-5 meters
Vegetation type:	Grasses / shrubs		

Bank Stability %		**Habitat %**	
Stable:	90	**Pool:**	10
Slightly Unstable:	10	**Riffle:**	0
Moderately Unstable:	0	**Run:**	90
Highly Unstable:	0		

Comments: The creek runs through a hummocky topography with grasses. Occasional clumps of willow are present but the rest is grass covered. The fen area is approximately 100-150 meters wide and is then surrounded by a black spruce bog with tamarack. The creek is very slow moving and beaver activity was observed throughout. Signs of past grazing were also present but no disturbances were found.

Trout Creek

Sec. 29 Twp. 55 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

NE Sec. 29

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 15,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Conifers, shrubs grasses		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	0
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: No landuse was apparent on this quarter section. The banks were vegetated and stable throughout with lots of grasses and willows and mature spruce in the upstream portion of the quarter section. Lots of large woody debris and fallen trees are present on the banks. The banks are low and the channel is u-shaped with deep, slow moving water. Beaver activity was observed throughout although no dams could be found.

Upstream end of NE 29 - 55 - 16 - W5M.

SW Sec. 29

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 15,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Conifers, shrubs grasses		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	0
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: No landuse was apparent on this quarter section. Some flow is present but the water is mostly slow moving. The banks are grassy and covered with willows throughout. The water appears to be low, with some bank bottoms exposed, but the banks are all stable due to the vegetation. Beaver activity was noted throughout.

Upstream end of SW 29 - 55 - 16 - W5M.

NW Sec. 29

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 15,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Conifers, shrubs grasses		

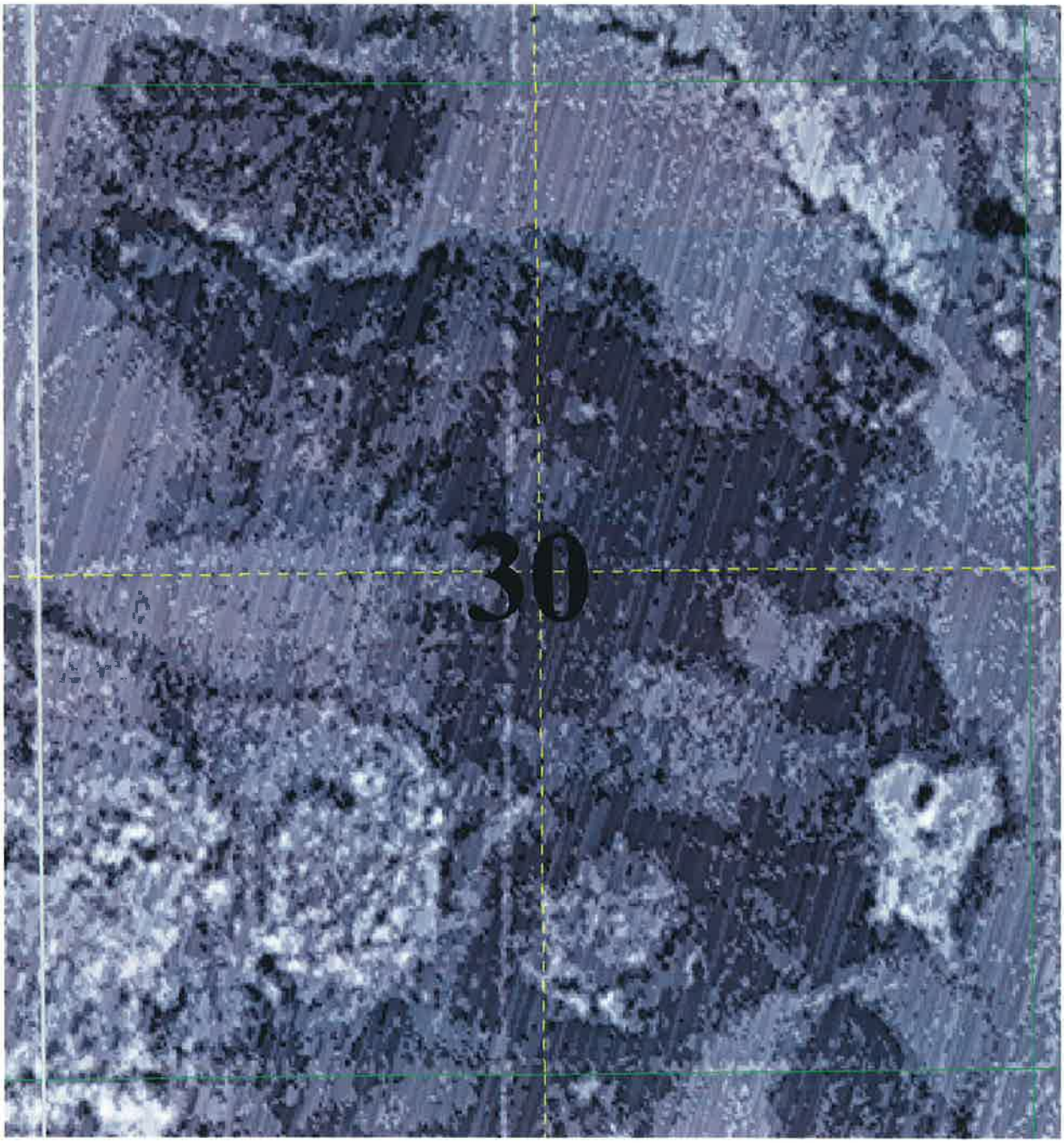
Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	0
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: No landuse was apparent on this quarter section. The banks are stable throughout. Even though some bank bottoms are exposed, due to recent high water conditions, they are still stable due to vegetation. Beaver activity was observed throughout, although only one dam and one blown out dam were found.

Upstream end of NW 29 - 55 - 16 - W5M.

Trout Creek

Sec. 30 Twp. 55 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

NE Sec. 30

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 15,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Grasses		

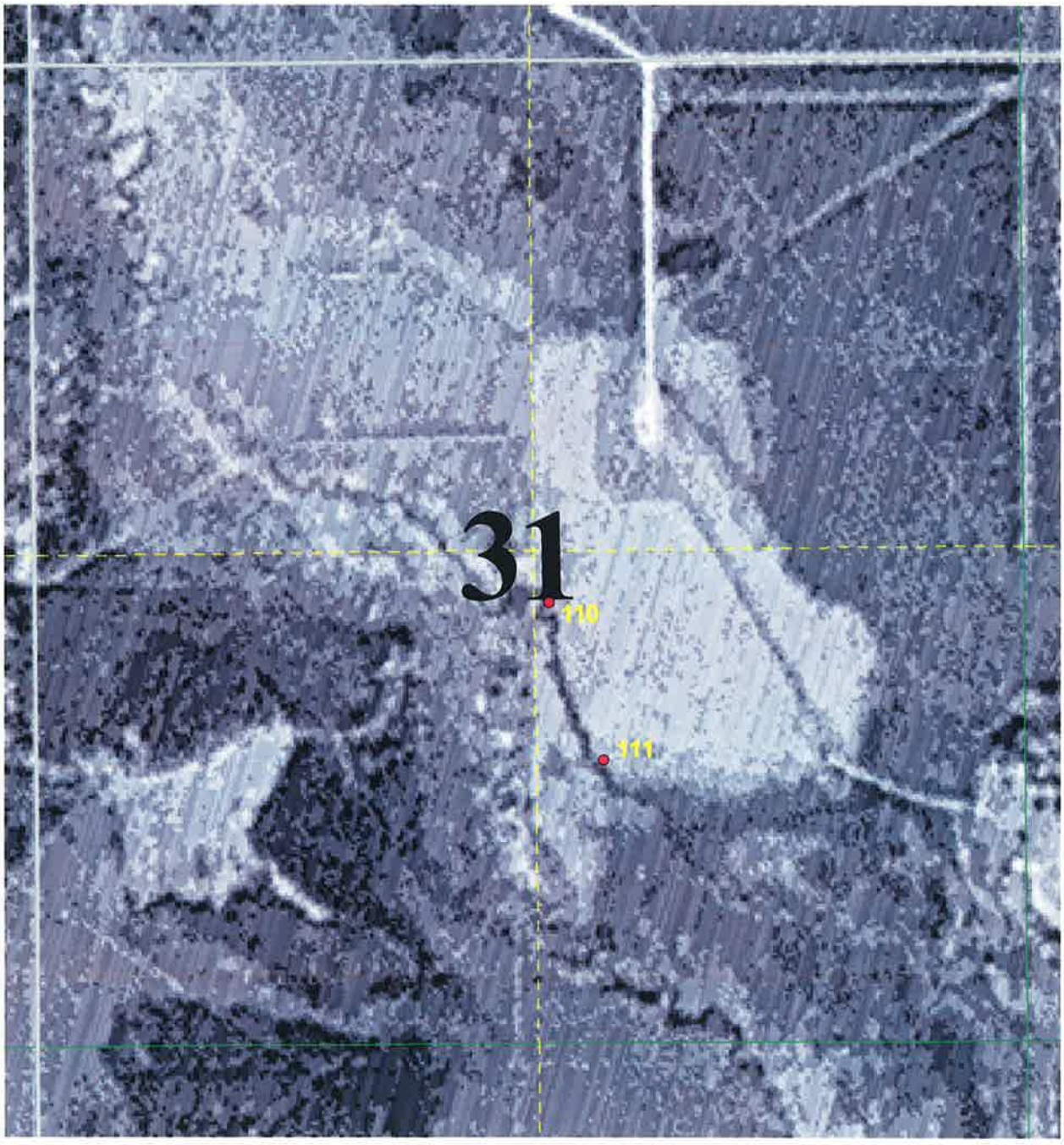
Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	0
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: No landuse was apparent on this quarter section, although the area has been cleared and the only vegetation present is grasses. The creek runs through a bog-like area but the banks are stable throughout. Many side channels are present in the upstream portion of this quarter section but then they converge into one large, u-shaped channel just downstream of the property line. All the banks are low and grassy.

Upstream end of NE 30 - 55 - 16 - W5M.

Trout Creek

Sec. 31 Twp. 55 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

SE Sec. 31

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 15,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	Yes	**Distance from Stream:**	0 meters
Vegetation type:	Grasses / shrubs		

Bank Stability %		**Habitat %**	
Stable:	5	**Pool:**	0
Slightly Unstable:	95	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: The upstream quarter of this quarter section was grazed and used for a cattle watering area. The creek becomes flooded downstream of the grazing area and is heavily overgrown with willows. A large area is flooded and bog-like with many channels present. Water is flowing over grassy areas in many sections, sometimes away from and around the dammed portion of the channel. The channel is u-shaped in the flooded section and has low banks.

Upstream end of SE 31 - 55 - 16 - W5M.

SW Sec. 31

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 15,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Grasses / shrubs		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: The creek in this quarter section consists of a wide channel with deep, slow moving water. The banks are stable and vegetated. One short section is exposed due to a recent slump but this appears to be of natural cause and is found on an outside bend just downstream of a beaver dam. No landuse activities are apparent at this time, although the area is cleared with only grasses and willows present.

Upstream end of SW 31 - 55 - 16 - W5M.

NW Sec. 31

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 15,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Haying
Buildings present:	No	**Distance from Stream:**	10 meters
Vegetation type:	Grasses / shrubs		

Bank Stability %		**Habitat %**	
Stable:	95	**Pool:**	0
Slightly Unstable:	5	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

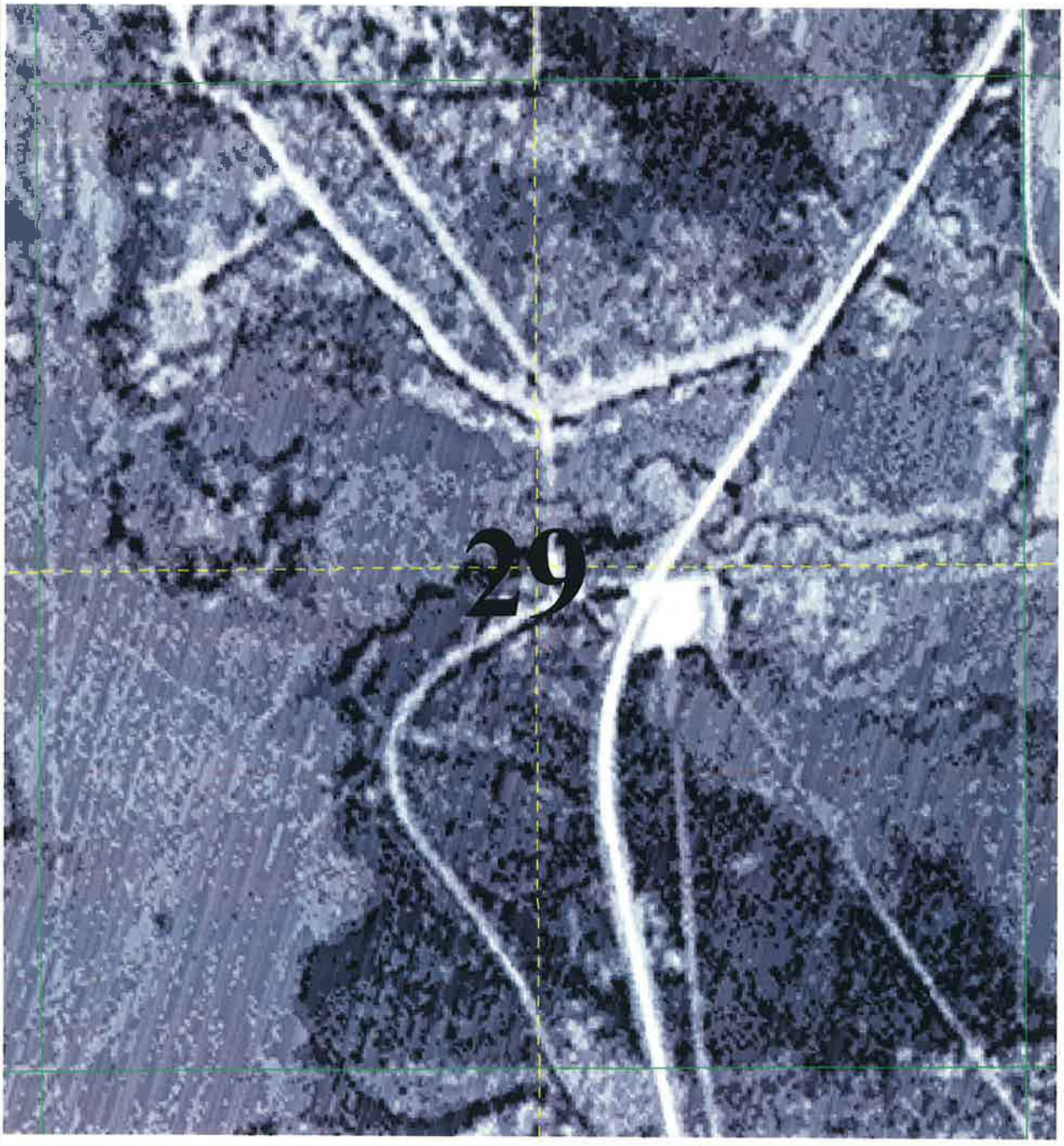
Comments: Only one 5 meter section of bank was found to be exposed and this was due to natural causes. The banks are vegetated throughout with grasses and willows. This quarter section has been hayed but a buffer has been left along the stream, with its narrowest point being 5 meters. The channel is deep and wide with slow moving water throughout. Beaver activity was noted in the form of many runs and dams and one lodge.

Upstream end of NW 31 - 55 - 16 - W5M.

FIG.-1. DISTURBANCE SITE 111. SE 31 – 55 – 16 – W5M. LOOKING AT THE RIGHT UPSTREAM BANK, WHICH IS GRASSY AND DEGRADED DUE TO LIVESTOCK WATERING IN THIS AREA.

Trout Creek

Sec. 29 Twp. 55 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

NE Sec. 29

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 7,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Shrubs		

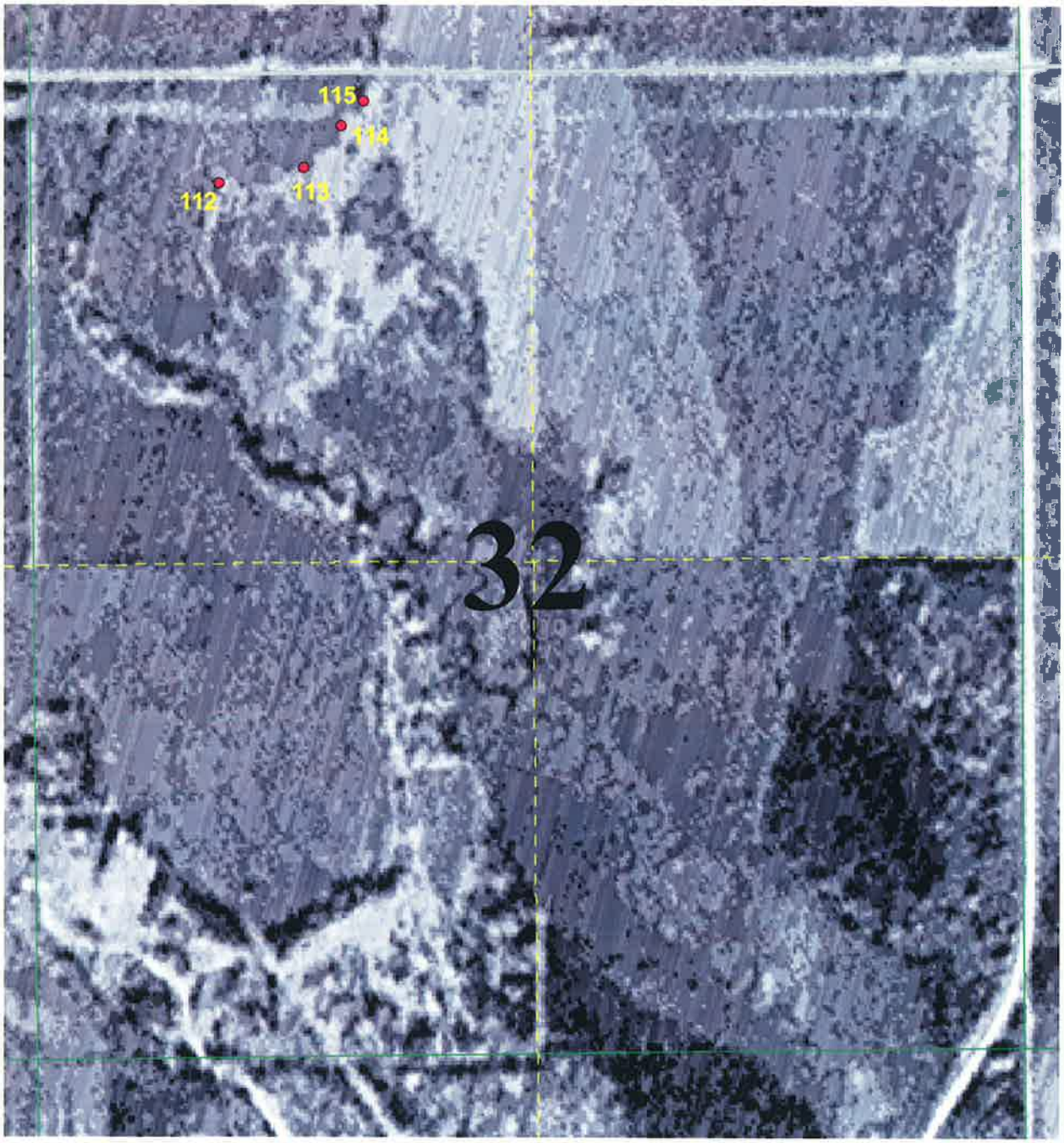
Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	10
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	90
Highly Unstable:	0		

Comments: The banks are stable throughout. The channel has slow moving water and a wide floodplain. Beaver activity is high with several small dams observed.

Upstream end of NE 29 - 55 - 16 - W5M.

Trout Creek

Sec. 32 Twp. 55 Rge. 16 W5M



SPACE IMAGING

400 0 400 Meters

N

SE Sec. 32

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 7,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Shrubs		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	5
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	95
Highly Unstable:	0		

Comments: The banks are all 100% stable. Beaver activity is high. This quarter section consists entirely of grasses and alder for riparian vegetation.

Upstream end of SE 32 - 55 - 16 - W5M.

SW Sec. 32

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 7,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Shrubs		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	0
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	100
Highly Unstable:	0		

Comments: The banks are stable. The creek flows through a floodplain of shrubs and grasses.

Upstream end of SW 32 - 55 - 16 - W5M.

NW Sec. 32

Township: 55 Range: 16 Meridian: W5

Survey date:	Oct. 7,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	10 meters
Vegetation type:	Shrubs		

Bank Stability %

Stable:	90
Slightly Unstable:	0
Moderately Unstable:	5
Highly Unstable:	5

Habitat %

Pool:	0
Riffle:	0
Run:	100

Comments: Slumping banks were noticed occasionally but they were having very little impact on the creek. Shrubs make up most of the riparian vegetation in this quarter section. Beaver activity was observed.

Upstream end of NW 32 - 55 - 16 - W5M.

FIG.-1. DISTURBANCE SITE 112. NW 32 – 55 – 16 – W5M. CATTLE WATERING ON THE RIGHT UPSTREAM BANK HAS CAUSED IT TO SLUMP AND INCREASE SEDIMENTATION IN THE CREEK.

FIG.-2. DISTURBANCE SITE 113. NW 32 – 55 – 16 – W5M. THE RIGHT UPSTREAM BANK IS SLUMPING AND WEAKENED DUE TO CATTLE GRAZING.

FIG.-3. DISTURBANCE SITE 114. NW 32 – 55 – 16 – W5M. CATTLE GRAZING ON THE RIGHT UPSTREAM BANK HAS WEAKENED IT AND CAUSED IT TO SLUMP INTO THE CREEK.

FIG.-4. DISTURBANCE SITE 115. NW 32 – 55 – 16 – W5M. CATTLE GRAZING ALONG THE RIGHT UPSTREAM BANK HAVE MADE IT UNSTABLE AND EXPOSED.

Trout Creek

Sec. 5 Twp. 56 Rge. 16 W5M

SW Sec. 5

Township: 56 Range: 16 Meridian: W5

Survey date:	Oct. 6,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Cultivation
Buildings present:	No	**Distance from Stream:**	10 meters
Vegetation type:	Shrubs		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	10
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	90
Highly Unstable:	0		

Comments: This quarter section ends at a bridge crossing, which is in good condition. This quarter shows no apparent disturbances due to cultivation. A good, 10 meter, buffer has been left throughout. A few beaver dams were observed. Very few mature trees were found along the banks, mostly shrubs were present.

NW Sec. 5

Township: 56 Range: 16 Meridian: W5

Survey date:	Oct. 6,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Shrubs		

Bank Stability %

Stable:	90
Slightly Unstable:	5
Moderately Unstable:	0
Highly Unstable:	5

Habitat %

Pool:	5
Riffle:	0
Run:	95

Comments: The entire left bank in this quarter section shows livestock activity. A cattle trail follows the left bank with occasional sedimentation and erosion but is having a very minimal impact. Beaver activity is present but is less extensive than the downstream section.

Upstream end of NW 5 - 56 - 16 - W5M.

NE Sec. 5

Township: 56 Range: 16 Meridian: W5

Survey date:	Oct. 6,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Grazing
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Shrubs / conifers		

Bank Stability %

Stable:	100
Slightly Unstable:	0
Moderately Unstable:	0
Highly Unstable:	0

Habitat %

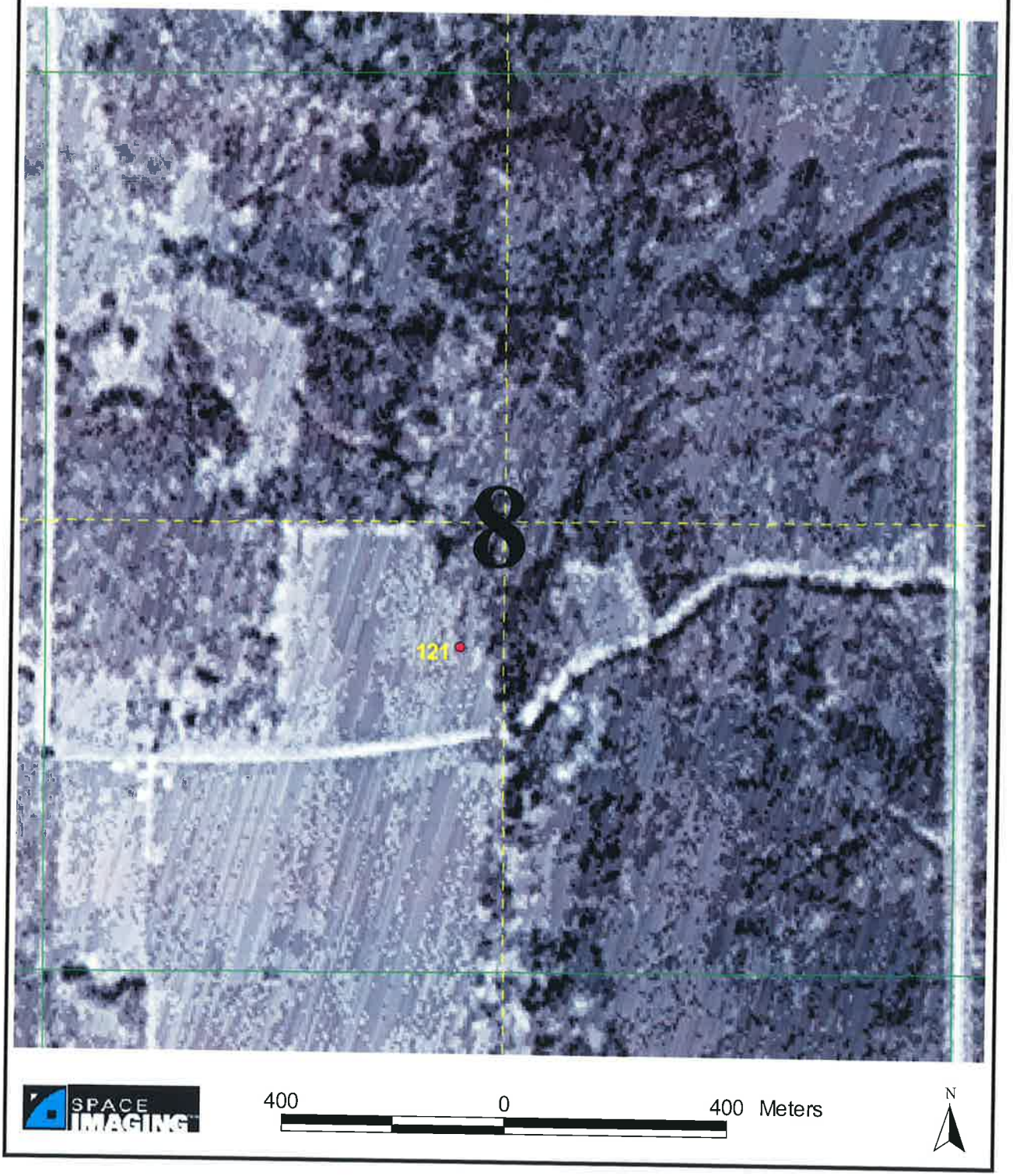
Pool:	10
Riffle:	0
Run:	90

Comments: This quarter section shows no bank erosion.

Upstream end of NE 5 - 56 - 16 - W5M.

Trout Creek

Sec. 8 Twp. 56 Rge. 16 W5M



SE Sec. 8

Township: 56 Range: 16 Meridian: W5

Survey date:	Oct. 6,2001	**Landuse present:**	No
Stream stage:	Moderate	**Type of landuse:**	N/A
Buildings present:	No	**Distance from Stream:**	N/A
Vegetation type:	Shrubs / conifers		

Bank Stability %		**Habitat %**	
Stable:	100	**Pool:**	10
Slightly Unstable:	0	**Riffle:**	0
Moderately Unstable:	0	**Run:**	90
Highly Unstable:	0		

Comments: The creek in this quarter section has almost 100% run morphology and no slumping of its banks.

SW Sec. 8

Township: 56 Range: 16 Meridian: W5

Survey date:	Oct. 6,2001	**Landuse present:**	Yes
Stream stage:	Moderate	**Type of landuse:**	Haying
Buildings present:	No	**Distance from Stream:**	0 meters
Vegetation type:	Shrubs / conifers		

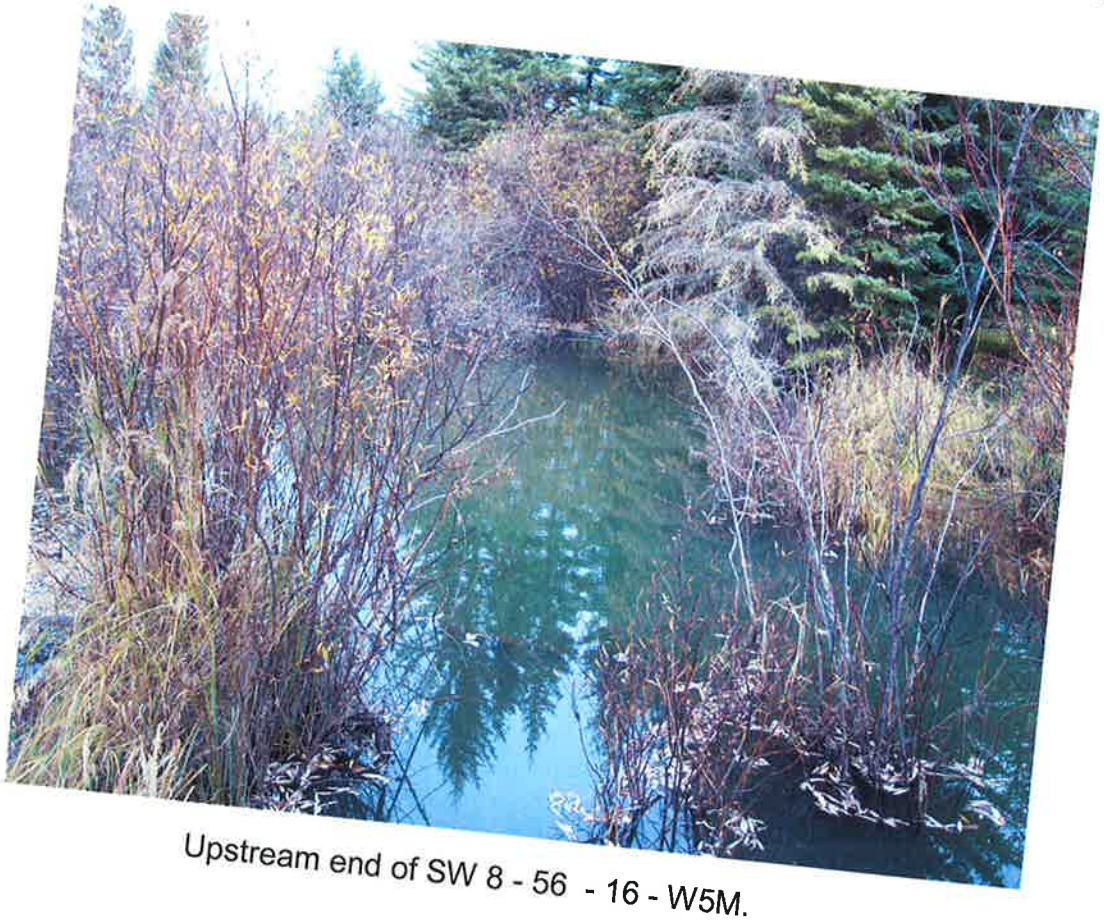
Bank Stability %

Stable:	95
Slightly Unstable:	0
Moderately Unstable:	5
Highly Unstable:	0

Habitat %

Pool:	10
Riffle:	0
Run:	90

Comments: The creek in this quarter section runs mostly through a shrubby wooded area. Only one site was found to be slumping and eroding. Overall the banks are in good condition. Beaver activity is high as several beaver dams were observed as well as four beavers.



Upstream end of SW 8 - 56 - 16 - W5M.