

RESEARCH AND APPLICATION VETIVER GRASS IN REMEDIATING MINERAL OIL CONTAMINATION



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INTRODUCTION

This project was carried out in the course of a Phytoremediation program at a gold mine in Queensland, Australia in 2001- 2007



Oil contamination on the ground at mine site



Hydraulic fluid



Diesel

Diesel oil

One month after
planting



Soil collected from the
contaminated site:
-100 : saturated with Diesel
- 50 : diluted with 50%
topsoil





Six months after planting

Conclusion: Diesel oil is highly toxic to vetiver growth. Vetiver could not survive at 50% soil level. Diesel is even more deadly if sprayed on leaves

Hydraulic Oil

Soil collected from the
contaminated site:

- 100 : saturated with fluid
- 50 : diluted with 50%
topsoil



Conclusion: Vetiver is moderately tolerant to Hydraulic oil

One month after planting



Six months after planting



Degraded/oxidised Hydraulic Oil



Water contaminated with hydraulic oil from underground drilling was pumped up and retained in storage ponds





Soil collected from the contaminated site:
-100 : saturated with degraded hydraulic oil
- 50 : diluted with 50% topsoil

One month after planting



Conclusion: Vetiver is highly tolerant to degraded/oxidised Hydraulic oil



Two months after planting

11 10 2001



Six months after planting

Conclusion

Diesel
(50%)

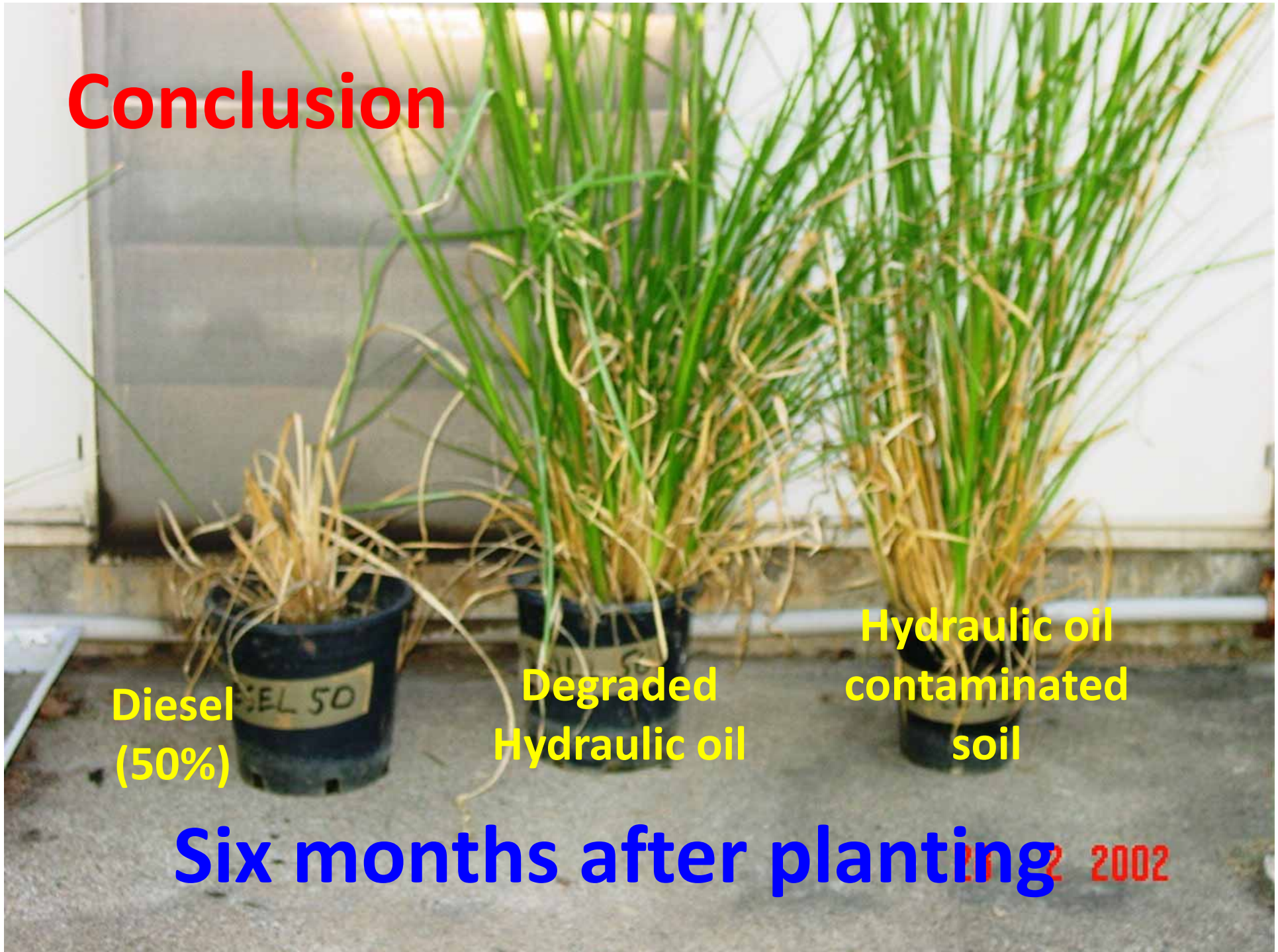
DIESEL 50

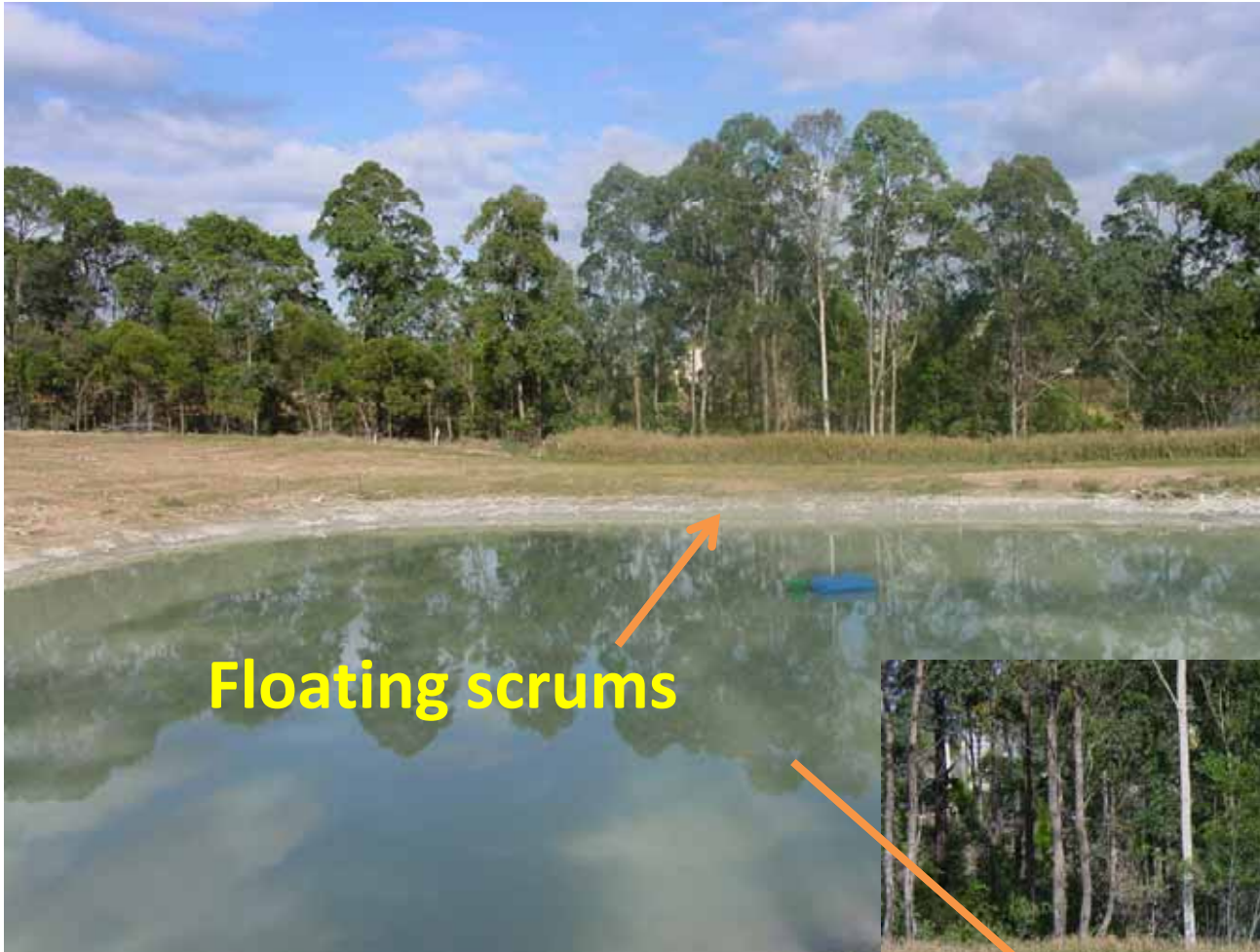
Degraded
Hydraulic oil

Hydraulic oil
contaminated
soil

Six months after planting

11/2 2002





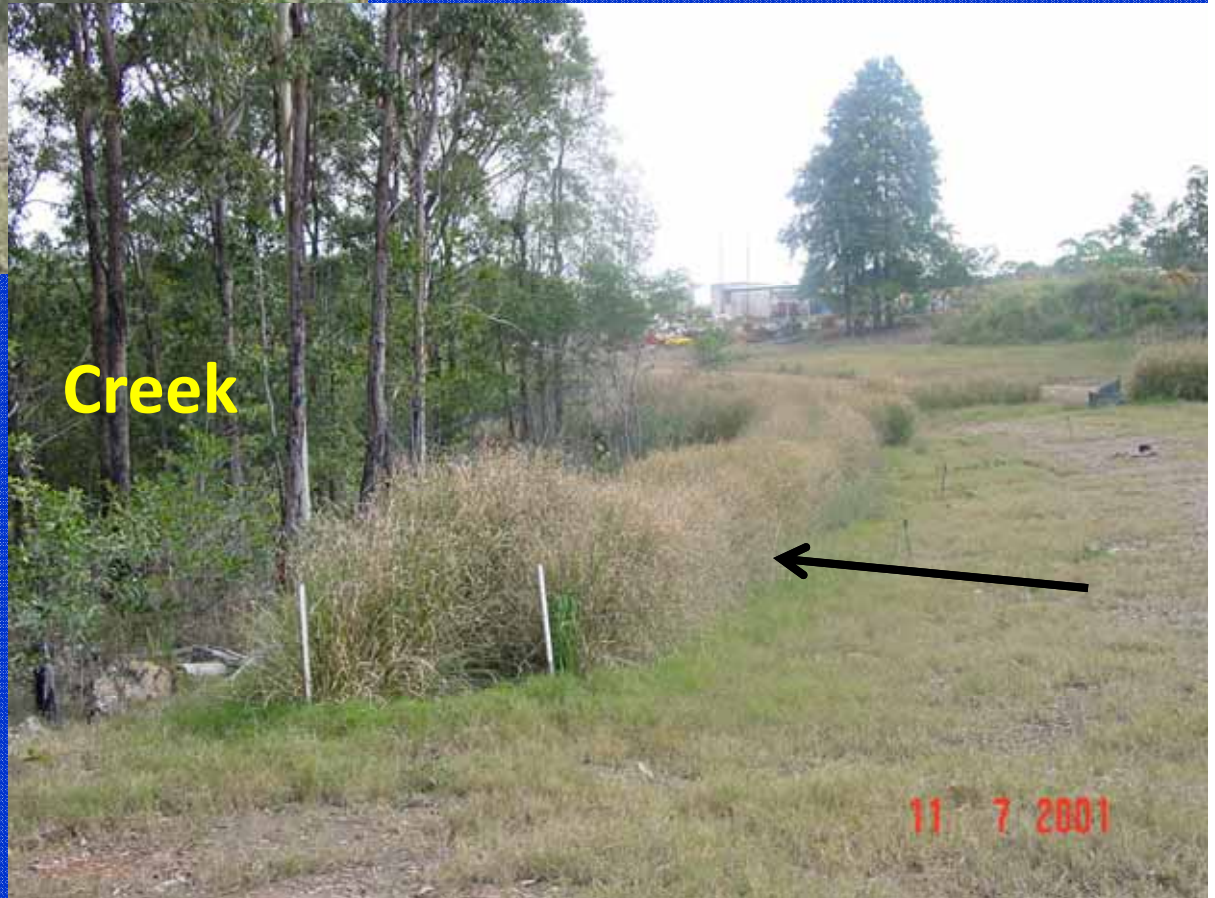
Floating scrums



Water contaminated with hydraulic oil from underground drilling was pumped up and retained in storage ponds

11 7 2001

Vetiver was planted to trap the floating scrums washing out of the ponds into the creek during wet periods



Creek

11 7 2001

Six years after planting and forming a very effective filter strip



THANK YOU