

ALIEN AND INVASIVE PLANTS MAGALIES RIVER LODGE

FINAL REPORT

COMPILED BY: ECO ASSESSMENTS Ecological and Environmental Consultants

Email: mark@ecoassessments.co.za

Date October 2020 Ref: 1555/20

1. INTRODUCTION

Eco Assessments was requested to undertake the an assessment of alien and invasive species for the Magalies River Lodge site in Magaliesburg, Gauteng, to ensure compliance with the provisions contained under the National Environmental Management Biodiversity Act (Alien and Invasive Species Regulations, 2014) regarding alien invasive species on the subject site, to:

- Eradicate all Listed Invasive Species (Category 1a), if present;
- Control all listed invasive species (Category 1b), if present;
- Apply for a permit for all listed Invasive Species (Category 2), if present;
- Apply for exemption for all Listed Invasive Species (Category 3) if present.

2. BIOPHYSICAL ENVIRONMENT

The site is located on the outskirts of the town of Magaliesberg, in the western parts of Gauteng.

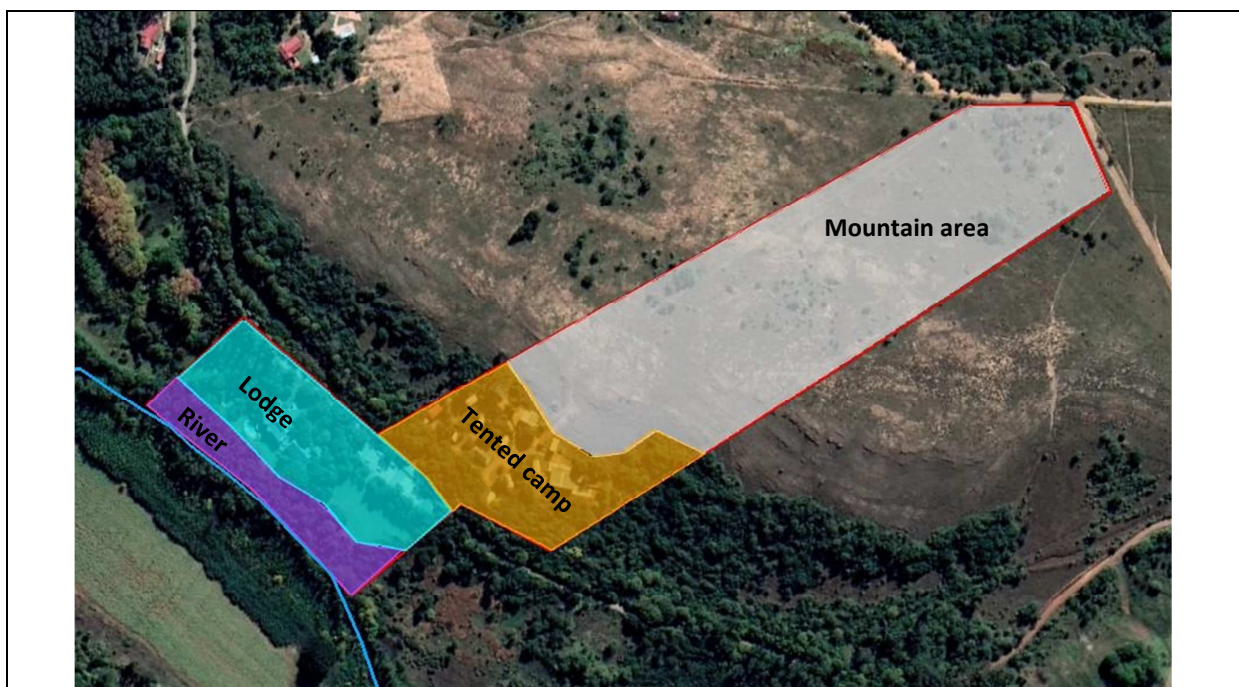


Figure 1 Zone map – see table below

3. RESULTS AND OBSERVATIONS

The site was divided into four areas, namely the riverine area (purple), the Lodge area (blue), the mountain area (white) and the Tented camp area (orange) (Figure 1). The areas were assessed and the exotic and invasive species listed for these areas:

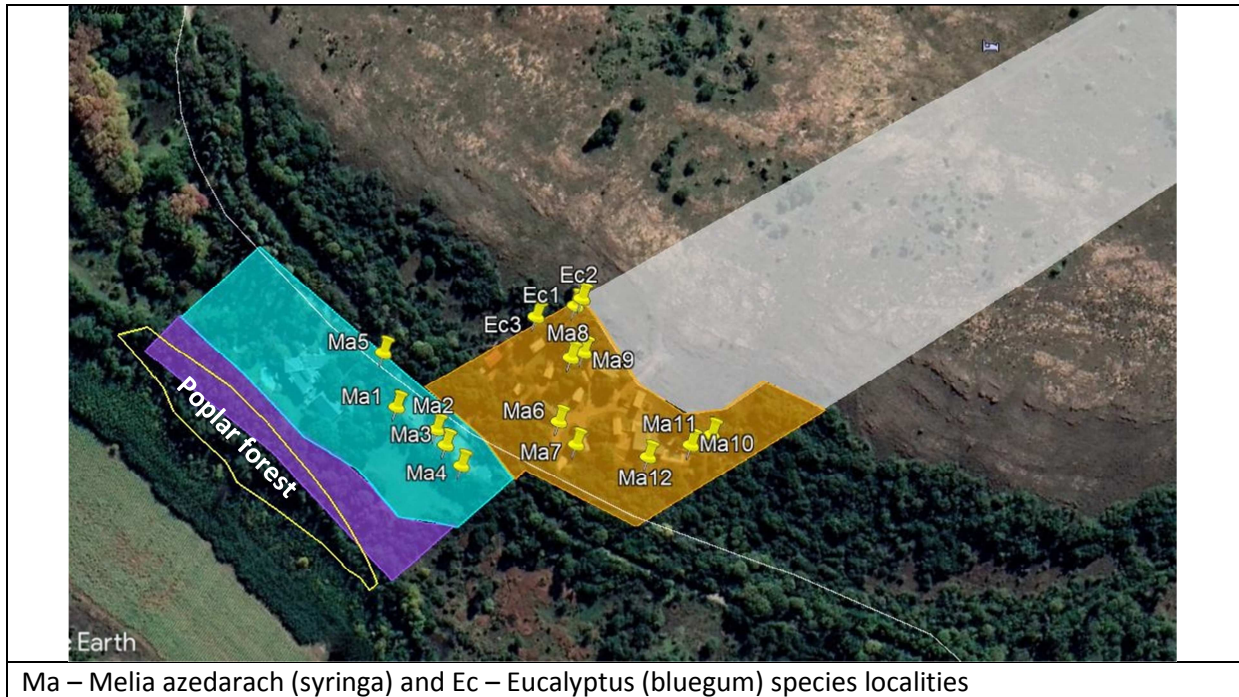
Scientific name	Common name	Riverine (purple)	Hotel area (light blue)	Tented camp area (Orange)	Mountain area (White)
<i>Morus alba</i>	Mulberry	Yes	Yes	Yes	
<i>Cotoneaster</i> sp.	Cotoneaster (Pyracantha)	Yes	Yes	Yes	
<i>Ligustrum</i> sp.	Privet	Yes	Yes	Yes	
<i>Salix babylonica</i>	Willow tree	Yes		Yes	
<i>Populus x canescens</i>	Poplar	Yes			
<i>Melia azedarach</i>	Syringa		Yes	Yes	
<i>Eucalyptus</i> sp.	Bluegum			Yes	Yes
<i>Eriobotrya japonica</i> (not listed)	Loquat		Yes		
<i>Ficus carica</i> (Not listed)	Common fig		Yes		
<i>Acacia mearnsii</i>					Yes

4. SUMMARY

Category 1b plants: Need to be controlled on the site

Cotoneaster sp (Pyracantha)- trees can be marked and removed in the appropriate manner
Melia azedarach (Syringa) – trees can be marked and removed in the appropriate manner
Eucalyptus sp. (bluegum) – Several tall Eucalyptus trees occur in the north-western corner and along the north-western boundary of the tented camp area. Around this area small Eucalyptus saplings are sprouting. Eucalyptus plants also occur in the mountain area. These plants should be controlled and removed where possible as they are affecting the natural grassland area north of the tented camp. Eucalyptus trees are invasive, they reduce biodiversity and they have a significant negative impact on water resources.

NOTES: Cotoneaster plants were observed in several places on the site, and was therefore not marked individually. An ecologist can mark these plants before actions are taken to remove them. Many of the larger syringe trees were marked as well as the bluegum trees. However, all specimen can be marked by an ecologist, before they are removed. This will then systematically be done throughout the site and plants can be marked with danger tape or spray painted.



Category 2 plants: Apply for permit

Populus x canescens (poplar)

This tree is very prominent in the drainage line. It will not be a simple exercise or even possible to remove it from the drainage line, because the drainage line has been severely invaded by poplars downstream and upstream of the site.

Acacia mearnsii (bluegum)

Category 3 plants: Exemption must be applied for, for having these plants on site

Ligustrum sp (Privet)

Morus alba (Mulberry)

5. SUGGESTED PLANT REMOVAL PLAN

PRECAUTIONARY NOTES




When controlling weeds and invaders, damage to the environment has to be limited to the minimum. CARA (Conservation of National Resources Act, 1983) does not specify the types of environmental damage that might be caused by control actions, but a few examples would be:




- the removal of or herbicidal damage to non-target plants
- the chemical pollution of soil or water or any other threat to non-target organisms
- the irresponsible use of fire
- the creation of a fire hazard by allowing flammable material to accumulate in fire-sensitive areas
- unnecessary or irresponsible disturbance of the soil, especially on riverbanks or slopes
- failure to rehabilitate denuded areas so as to prevent soil erosion and invasion by other


- undesirable species
- any other action that might upset the ecological balance of the environment.

PLANT SPECIFIC GUIDELINES

The following plant specific eradication guidelines were obtained for various sources. The quantities and suggestions must be verified with the company that provides the pesticides.

<p>Melia azedarach (Syringa)</p> 	<p>The most effective means of control are cut-stump and basal bark applications of triclopyr-based herbicides. Dilute foliar treatments with triclopyr-based herbicides provide less effective control and require large volumes of herbicide solution.</p> <p>clopyralid / triclopyr (-amine salt) 90 / 270 g/L SL <i>Confront 360 SL (L7314)</i> or</p> <p>fluroxypyr / picloram 80 / 80 g/L ME <i>Plenum 160 ME (L7702)</i> or</p> <p>imazapyr 100 g/L SL <i>Chopper 100 SL (L3444), Hatchet 100 SL (L7409)</i></p>
<p>Populus x canescens sp (poplar)</p> 	<p>It is a highly invasive plant and inhibits the growth of natural vegetation. It is thus also classified as a transformer invader weed. Countrywide, it grows along waterways, river banks, dongas and wetlands. Found mostly in the eastern and southern regions of South Africa. Poplars can be controlled by foliar treatment.</p> <p>Seedlings should not be pulled (because they are part of the root system). Seedlings and young plants from 0,5 to 1m in height can be sprayed with a registered herbicide. Large trees need to be cut at ground level and the cut stump chemically treated. Any re-growth must be treated with a suitably registered herbicide. No biocontrol agents are available in South Africa.</p> <p><u>Imazapyr</u> 100 g/L SL <i>Chopper 100 SL (L3444), Hatchet 100 SL (L7409)</i> or <u>picloram</u> (potassium salt) 240 g/L SL <i>Access 240 SL (L4920), Browser 240 SL (L7357)</i></p>
<p>Morus alba (mulberry)</p> 	<p><i>Morus alba</i> can be pulled by hand. Other options include cutting the tree and grinding the stump, or the plant can be girdled. The cut tree stump may also be painted with a systemic herbicide such as triclopyr to prevent resprouting.</p> <p>Imazapyr 100 g/L SL <i>Chopper 100 SL (L3444), Hatchet 100 SL (L7409)</i></p>

<p>Eucalyptus sp</p> 	<p>Handpull seedlings. Mature plants: Glyphosate (Ammonium) 680g/kg WG or Roundup Max 680WG (L6790).</p> <p>Trees can be ring-barked, and for the sake of safety the dead trees should preferably be felled before they fall over. Instead of killing the trees in this way, land users might make use of a contractor linked to a Government initiative to make school desks for marginalized communities from invasive trees; contact info@invasives.org.za</p> <p>Dosage: 265gr/10liters water and 0.1% Dye</p> <p>Est product litres per /ha or kg = 5.30</p> <p>If Mix volume Litres/ha = 200</p>
<p>Ligustrum (Privet)</p> 	<p>Remove seedlings and small saplings by hand pulling them, but this is only an option if the privet is taller than 40 cm and thinner than your wrist. If you're dealing with privet saplings thinner than 5cm in diameter, you might be able to use a weed wrench to remove it. Once privet becomes wider than the average adult wrist, hammering the bark is the most effective way to remove it without the use of chemicals. If you do cut the privet, trim it as close to the ground as possible early in the growing season. Stumps re-sprout at a rapid pace, so you may need to cut the privet multiple times throughout the season. Alternatively, you can cut the privet and apply an herbicide to the exposed plant. Doing so should kill the privet. Foliar treatments are most effective in late summer through early winter.</p> <p>Chemicals: Look for foliar herbicides with glyphosate as an active ingredients. Use a concentrated type with 41 percent glyphosate, if not more. Formulas containing a surfactant may also prove more effective than those without one. Mix the herbicide with water. Combine 125 to 185 ml of herbicide for every 4 L of water. If the product must be mixed with an additional surfactant, add 18 ml per 4 L of water. Spray the herbicide onto the privet. Work carefully to avoid spraying other plants since the herbicide will kill non-selectively. Repeat if needed. If only one or two stems grow back, you can consider using an herbicide treatment that targets individual plants.</p> <p>Cut and paint: Mix an appropriate herbicide solution. Herbicides made with glyphosate or triclopyr amine are best. Mix either herbicide with water to form an appropriate solution. When using glyphosate, choose a concentrate with 41 percent or higher. When using triclopyr amine, choose a concentrate with 44 percent or higher. For either glyphosate or triclopyr amine, combine 945 ml with enough water to make 4 L of prepared solution.</p> <p>Imazapyr 100g/l SL <i>Chopper 100 SL (L3444) or Hatchet 100SL (L7409)</i></p>
<p>Cotoneaster</p> 	<p>Physical removal entails the excavation of the plants and surrounding soils to make sure all plant matter and seeds are removed. This infested soil is then sent to a licensed landfill as controlled waste. We advise that a monitoring programme is put in place on the subject site to check if berries have been dispersed creating new infestations which can then be treated.</p> <p>Herbicide treatment is less invasive than physical removal and is suitable when time is not a constraint. Herbicide treatment is made up of two treatments taking place in the Summer (June-August), the chemical is mixed with an</p>

	adjuvant to increase its effectiveness controlling the visible plants within the year. Follow up monitoring visits will need to take place in subsequent years to treat any seeds which germinate post the initial treatments.
<p><i>Acacia mearnsii</i></p> 	<p>Seedlings should be handpulled. Seedlings up to 1 m tall should be treated with foliar spray.</p> <p>fluroxypyr 200 g/L EC <i>Starane 200 EC (L4918)</i>, <i>Tomahawk 200 EC (L6652)</i>, <i>Voloxypr 200 EC (7776)</i></p> <p>glyphosate (ammonium) 680 g/kg WG <i>Roundup Max 680 WG (L6790)</i></p> <p>glyphosate (isopropylamine) 240 g/L SL <i>Tumbleweed 240 SL (L4781)</i></p> <p>glyphosate (isopropylamine) 360 g/L SL <i>Glyph 360 SL (L4767)</i>, <i>Mamba 360 SL (L4817)</i>, <i>Roundup 360 SL (L407)</i>, <i>Springbok 360 SL (L6719)</i></p>
Up to 2m tall & Coppice – Spot spray	<p>clopyralid / triclopyr (-amine salt) 90 / 270 g/L SL <i>Confront 360 SL (L7314)</i></p> <p>fluroxypyr / picloram 80 / 80 g/L ME <i>Plenum 160 ME (L7702)</i></p> <p>glyphosate (isopropylamine) 240 g/L SL <i>Tumbleweed 240 SL (L4781)</i></p> <p>glyphosate (potassium) 500 g/L SL <i>Touchdown Forte Hitech 500 SL adjuvant incl.(L7305)</i></p> <p>triclopyr (butoxy ethyl ester) 240 g/L EC <i>Ranger 240 EC adjuvant incl. (L6179)</i></p> <p>triclopyr (butoxy ethyl ester) 480 g/L EC <i>Garlon 4 EC (L3249) & 480 EC (L4916)</i>, <i>Triclon EC (L6661)</i>, <i>Viroaxe EC (L6663)</i></p>
Mature – cut stump	<p>fluroxypyr / picloram 80 / 80 g/L ME <i>Plenum 160 ME (L7702)</i></p> <p>imazapyr 100 g/L SL <i>Chopper 100 SL (L3444)</i>, <i>Hatchet 100 SL (L7409)</i></p> <p>picloram (potassium salt) 240 g/L SL <i>Access 240 SL (L4920)</i>, <i>Browser 240 SL (L7357)</i></p> <p>triclopyr (-amine salt) 360 g/L SL <i>Lumberjack 360 SL (L7295)</i>, <i>Timbrel 360 SL (L4917)</i></p>

CONCLUSION

Different processes need to be followed for different tree species as suggested in the latest guidelines for alien and invasive species. This report indicates that the Syringas, Cotoneaster and Eucalyptus trees be removed in an appropriate way. This can be done by systematically working through the property, marking the trees, and treating or removing them in the specified way.

Permits are required for the poplar and the black wattle trees, and an exemption application must be done for the privet and mulberry trees.

BIBLIOGRAPHY

Bredenkamp, G and Van Rooyen, N. 1996. In: Low, A.B and Rebelo, A.G (1996) Vegetation of South Africa, Lesotho and Swaziland. Department of Environmental Affairs and Tourism, Pretoria.

Bromilow, C. 1995. Problem Plants of South Africa. Briza Publications, Pretoria.

Grobler (Custers), C. H., Bredenkamp, G. J. and Brown, L. R. 2002. Natural woodland vegetation and plant species richness of the urban open spaces in Gauteng, South Africa. Koedoe 45 (1): 19-34.

Grobler (Custers), C. H., Bredenkamp, G. J. and Brown, L. R. 2006. Primary grassland communities of urban open spaces in Gauteng, South Africa. South African Journal of Botany. 72: 367-377.

Henderson, L. 2001. Alien weeds and invasive plants. A complete guide to declared weeds and invaders in South Africa. Agricultural Research Council.

National Environmental Management : Biodiversity Act 2004 (Act No.10 of 2004) (Alien and Invasive Species Regulations, 2014) 25 September 2020

Rutherford, M.C and Westfall, R.H.1994. Biomes of southern Africa: an objective categorization. National Botanical Institute, Pretoria.

Van Oudtshoorn, F. 1999. Guide to Grasses of southern Africa. Briza Publications, Pretoria.

Van Wyk, B and Malan, S. 1988. Field Guide to the Wild Flowers of the Witwatersrand and Pretoria Region. Struik Publishers, Cape Town.

Appendix 1 Curriculum vitae Christa Custers

I am a trained ecologist and have been working in the field of ecology and development for most of my career, finding win-win solutions between conserving natural elements and habitats and allowing development within these limitations. I have further been involved in several larger projects where ecologists need to be coordinated, or where I was part of a team of ecologists.

Dept of Education | 1990-1992 | Teacher

My work as teacher at the Department of National Education involved teaching Natural Science to Standard 6 and 7 classes and Biology to Standard 6-10 classes. It further involved ecological excursions and recreational activities management.

Transvaal Provincial Govt | 1992-1998 | Principle Nature Conservation Scientist

During my employment at the provincial Conservation department, my main task was to evaluate development applications from an environmental and ecological point of view and provide comments to the Local authorities in the absence of environmental legislation. The work further entailed presenting the provincial conservation and environmental point of view on all projects and planning forums in the Western Transvaal (North West) and Gauteng region.

Gauteng Province | 1998-2000 | Assistant Director Environment

My work here entailed evaluation of EIA 's which included the administrative processing of all reports submitted in terms of sections of the Environmental Conservation Act 1989. The work further entailed management of staff members, drawing up agreements between the province and industry, building capacity in the Directorate Environment, compilation of departmental policies to streamline administrative processes and managing projects geared to improve the sustainable use of natural resources in the Gauteng province.

Eco Assessments Consultants | 2000 - present | Member/Ecologist

As ecologist at Eco Assessments, I am responsible for all Ecological Assessments, Red Data Species assessments, Biodiversity studies and Rehabilitation plans. A summarized project list is attached of projects completed since 2000.

EDUCATION

University of Pretoria | Tshwane, South Africa

- BSc Botany Zoology 1987
- HED (Education Dip) 1988
- BSc Hons Ecology 1989
- MSc Ecology 2000
- Pri Sci Nat

SKILLS

- Ecological Assessments
- Red Data Flora Assessments
- Habitat Risk for development
- Strategic Ecological Assessments
- Biodiversity Assessments