

Biodiversity Management

This report provides further information regarding biodiversity at Lonmin and supplements the information provided in the 2017 Sustainable Development Report, which is available at <http://sd-report.lonmin.com/2017/>.

Biodiversity composition

Lonmin's Marikana operations are located within the Marikana Thornveld ecosystem, and our Limpopo operations are located within the Sekhukhune Plains Bushveld ecosystems. Both of these ecosystems are classified as vulnerable but not identified as high biodiversity-sensitive areas. However, a number of protected or threatened species are likely to be found or have been identified at these operations.

Lonmin has re-location strategies in place to ensure that protected/threatened flora or faunal species that are found at operations can be appropriately transplanted and re-located. These include, but are not limited to, Marula trees, Shepard's trees, Gladioli, Crinum, and snakes.

We provided training and skills development to unemployed community members to assist with the removal and re-location of protected plants for various projects, such as the construction of tailings storage facility (TSF) 8 and the upgrade of a schools and sport fields in the area of Segwaelane and

Marikana. 449 *Crinum macowanii* and 55 *Gladiolus ellioti* plants were re-located from the proposed TSF8 area, and 51 *Gladiolus ellioti* plants were re-located from the proposed area for the Segwaelane sports field. Because of the difficulty in re-planting large established Marula trees, we commissioned the propagation of over 20 Marula tree saplings for planting within the school area. The construction of our infill apartments at the Marikana operations included for the design of indigenous gardens for planting trees and shrubs. Lonmin maintains annual fire breaks around its operations to ensure that land is managed adequately so as not to impact on biodiversity.

The table below lists the threatened species of the International Union for Conservation of Nature (IUCN) Red Data list that have been sighted at our operations over the last decade, or have a possibility of being present on-site. It includes additional fauna and flora species that have been documented from a number of local and regional sources, and whose occurrence around our operations is possible or highly probably.

Scientific name	Common name	Red Data status	Presence
Fauna			
<i>Marikana</i>			
<i>Agama atra</i>	Southern Rock Agama	Endangered	Present
<i>Atelerix frontalis</i>	South African Hedgehog	Near threatened	Present
<i>Chondrodactylus turneri</i>	Turner's Gecko	Data deficient	Present
<i>Crocodylus niloticus</i>	Nile Crocodile	Protected	Present
<i>Hadogenes gunningi</i>	Rock Scorpion	Endangered	Present
<i>Lutra maculicollis</i>	Spotted-necked Otter	Near threatened	Possible
<i>Manis temminckii</i>	Pangolin	Vulnerable	Possible
<i>Metisella Meninx</i>	Marsh Sylph	Vulnerable	Highly likely
<i>Miniopterus schreibersii</i>	Schreiber's Long-fingered Bat	Near threatened	Highly likely
<i>Mystromys albicaudatus</i>	White-tailed Mouse	Endangered	Possible
<i>Panthera pardus</i>	Leopard	Protected	Possible
<i>Psammophylax tritaeniatus</i>	Striped Skaapsteker	Data deficient	Highly likely
<i>Pachydactylus affinis</i>	Transvaal Thicktoed Gecko	Endangered	Highly likely
<i>Python natalensis</i>	Southern African Python	Vulnerable	Highly likely
<i>Tatera leucogaster</i>	Bushveld Gerbil	Data deficient	Highly likely

Biodiversity Management (continued)

Scientific name	Common name	Red Data status	Presence
<i>Limpopo</i>			
<i>Leptailurus serval</i>	Serval	Near threatened	Likely
<i>Miniopterus schreibersii</i>	Schreibers' Long-fingered Bat	Near threatened	Possible
<i>Myotis tricolor</i>	Temminck's Hairy Bat	Near threatened	Possible
<i>Mystromys albicaudatus</i>	White-tailed Rat	Endangered	Possible
<i>Parahyaena brunnea</i>	Brown Hyaena	Near threatened	Likely
<i>Pipistrellus rusticus</i>	Rusty Bat	Near threatened	Possible
<i>Rhinolophus blasii</i>	Peak-saddle Horseshoe Bat	Vulnerable	Possible
<i>Rhinolophus darlingi</i>	Darling's Horseshoe Bat	Near threatened	Possible
Avifauna			
<i>Marikana</i>			
<i>Cuculus clamosus</i>	Black Cuckoo	Near threatened	Possible
<i>Falco naumanni</i>	Lesser Kestrel	Vulnerable	Highly likely
<i>Pelecanus rufescens</i>	Pink-backed Pelican	Near threatened	Possible
<i>Phoenicopterus minor</i>	Lesser Flamingo	Near threatened	Present
<i>Pterocles gutturalis</i>	Yellow-throated Sandgrouse	Near threatened	Present
<i>Sagittarius serpentarius</i>	Secretary Bird	Near threatened	Present
<i>Sterna caspia</i>	Caspian Tern	Vulnerable	Possible
<i>Limpopo</i>			
<i>Aquila rapax</i>	Tawny Eagle	Vulnerable	Possible
<i>Buphagus erythrorhynchus</i>	Red-billed Oxpecker	Near threatened	Possible
<i>Falco biarmicus</i>	Lanner Falcon	Threatened	Possible
<i>Falco naumanni</i>	Lesser Kestrel	Vulnerable	Possible
<i>Gyps africanus</i>	White-backed Vulture	Vulnerable	Possible
<i>Gyps coprotheres</i>	Cape Vulture	Vulnerable	Possible
<i>Polemaetus bellicosus</i>	Martial Eagle	Vulnerable	Possible
Flora			
<i>Marikana</i>			
<i>Blechnum austral subsp. australe</i>	Southern Deerfern	Protected	Possible
<i>Bonatea saundersioides</i>	Bonatea Wild	Protected	Possible
<i>Brachystelma barberae</i>	Platvoetassblom	Protected	Possible
<i>Brachystelma gracile</i>	No common name	Protected	Possible
<i>Cheilanthes involuta var. obscura</i>	Autumn Fern	Protected	Possible
<i>Cheilanthes viridis var. glauca</i>	Lightning Bush	Protected	Possible
<i>Cheilanthes hirta</i>	Parsley Fern	Protected	Present
<i>Cheilanthes viridis var. viridis</i>	Lip Fern	Protected	Possible

Biodiversity Management (continued)

<i>Scientific name</i>	<i>Common name</i>	<i>Red Data status</i>	<i>Presence</i>
<i>Combretum imberbe</i>	Leadwood	Protected	Present
<i>Crinum graminicola</i>	River Lily	Protected	Possible
<i>Crinum macowanii</i>	Cape Coast Lily	Red Data declining	Present
<i>Cussonia spicata</i>	Common Cabbage Tree	Protected	Present
<i>Cyrtanthus breviflorus</i>	Fire Lily	Protected	Possible
<i>Eucomis autumnalis</i>	Pineapple Lily	Red Data declining	Present
<i>Freesia grandiflora</i>	Freesia	Protected	Possible
<i>Gladiolus dalenii</i> subsp.	Natal Lily	Protected	Possible
<i>Gladiolus permeabilis</i> subsp. <i>edulis</i>	Gladiolus	Protected	Possible
<i>Gladiolus sericeovillosus</i>	Gladiolus	Protected	Present
<i>Gladiolus vinosomaculatus</i> (SA Endemic)	Gladiolus	Protected	Possible
<i>Haemanthus humilis</i> subsp <i>humilis</i>	Paintbrush/Powderpuff	Protected	Possible
<i>Kniphofia ensifolia</i>	Torch Lily	Protected	Present
<i>Mohria vestita</i>	Scented Fern	Protected	Possible
<i>Osmunda regalis</i>	Royal Fern	Protected	Possible
<i>Pellaea calomelanos</i> var <i>calomelanos</i>	Hard Fern	Protected	Possible
<i>Pellaea dura</i> var <i>dura</i>	Hard Fern	Protected	Possible
<i>Pellaea pectiniformis</i>	Hard Fern	Protected	Possible
<i>Pellae calomelanos</i>	Hard Fern	Protected	Present
<i>Protea welwitschii</i>	Clusterhead Sugarbush	Protected	Possible
<i>Pteris catoptera</i> var. <i>catoptera</i>	Long tipped Brake	Protected	Possible
<i>Satyrium hallackii</i> subsp. <i>ocellatum</i>	Pink Satyre	Protected	Possible
<i>Scadoxus puniceus</i>	Paintbrush Lily	Protected	Present
<i>Sclerocarya birrea</i>	Marula	Protected	Present
<i>Stenostelma (Schizoglossum)</i> <i>umbelluliferum</i>	No common name	Red Data	Likely to occur
<i>Limpopo</i>			
<i>Acacia erioloba</i>	Camel Thorn Tree	Protected	Present
<i>Boscia albitrunca</i>	Shepherd's Tree	Protected	Present
<i>Elaeodendron transvaalensis</i>	Transvaal Saffron	Protected	Present