

2015



high value of
Biodiversity
PROTECTED BY FORESTAL MININCO

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Presentation

Forestal Mininco's environmental policy emphasizes its commitment to sound environmental management as an integral part of its forestry business. Forestal Mininco is committed to conserving biodiversity, and is interested in on-going learning about native forests and the presence of threatened flora and fauna for the purpose of; identification, management and monitoring of High Conservation Value Areas.

This document is an inventory and guide to facilitate an improved understanding of the conservation of threatened flora and fauna present in Forestal Mininco's estate. Furthermore the conservation category as defined by the Ministry of the Environment is presented for each High Conservation Value Area.



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Preface

The Earth's current biodiversity is the result of 3.7 billion years of evolution. Today's value of biodiversity results from this ancient process of adaptation. Biological diversity will continue for eternity and mankind must protect and respect the process.

Biodiversity has benefited mankind with the valuable provision of; food sources, medicines, recreation, aesthetic, ecological and cultural benefits. Biodiversity provides stability to life on this planet, and wherever possible the process must be conserved. Biodiversity conservation has become a topical challenge for society worldwide.

Forestal Mininco's biodiversity sites in Chile are primarily located in the Valdivian Forests ecological region, from the Maule Region in the north and the snow fields in the south. This zone is known

for its evergreen, multilayer forests, and is an eco-region that is classified as having special global biodiversity status by the World Wildlife Fund for Nature. This eco-region faces severe pressure from human activities and development. For this reason Forestal Mininco has assumed custodial care of these special assets on its estate and has implemented appropriate management with emphasis on biodiversity protection and conservation.

In order to undertake this responsibility, since 2003 Forestal Mininco has implemented programs to identify and monitor the threatened species. This work has also involved numerous collaborative studies with a variety of institutions.

Since 2005 Forestal Mininco has been developing the concept of High Conservation Value Areas

that are identified as containing significant biodiversity attributes. The aim is to apply management strategies that maintain or increase the conservation attributes of these high value areas. The management methodology applied is an adaptation of that used by 'Proforest' that operates as a non-profit group providing support to companies to meet their agricultural and forest products environmental compliance needs. The management methodology enables; identification of the High Conservation Value Areas, the required management strategies, and ongoing monitoring.

The document presented below is composed of two parts. The first part relates is a flora and fauna recognition document with different conservation categories designed to support the dissemination and work of operating em-

ployees in respect to recognition of these species and the second describes the High Conservation Value Areas within the Forestal Mininco estate.

The purpose of this document is to present details of 11 High Conservation Value Areas covering 9,753.3 hectares. For each area the location, plant species present, and their management is described. This documentation is also aimed at enabling a greater awareness of biodiversity and the necessity for conservation of these special areas.

Finally, the Forestal Mininco staff takes this opportunity to sincerely thank all the advisors and experts who provided passionate and enthusiastic support for this initiative. Such support enabled staff to improve their comprehension of the complex and delicate natural processes that are present within the Forest Mininco estate.



Distribution

One-of-a-type species at a worldwide level, endemic to the Maule Region. Vulnerable habitat and restricted spatial distribution, which is reduced solely to two locations in the coastal zone of the Maule Region (Huelón sector, community of Curepto and Fundo San Pedro Las Cañas, community of Constitución).

Description

Leguminous shrub, with long, erect branches and a brilliant bark, as if it were varnished, with specimens of up to 3.5 meters tall. Dense, dark green leaves. Yellow flowers composed of 4 petals. Produces from 1 to 4 seeds from 1-2 mm in diameter per pod. Resinous aromatic plant, especially in summer.

Conservation Category

Endangered.



Adesmia
Adesmia bijuga



Distribution

Species endemic to Chile and Argentina, declared a natural monument of Chile, it grows in the Andes Mountains and in the Nahuelbuta Mountains, mainly in thin volcanic soils, at altitudes ranging from 600 to 1,700 m.

Description

Evergreen long-lived tree, that can reach more than 1,000 years of age, can be up to 50m tall, reaching diameters of up to 2.5 m. Broadly pyramid-shaped top, gray bark, masculine and feminine cones, large seeds 5 – 7 cm long, which are edible and ripen between February and April (the cones take two years to ripen).

Conservation Category

Vulnerable.



Araucaria
Araucaria araucana

Distribution

Species endemic to a limited coastal area from Talca to Arauco (VII to VIII Region). It inhabits moist sites close to waterways subject to seasonal floods within evergreen native forests.

Description

Evergreen shrub that reaches a height of up to 2m. White, four-petal flower. It blooms between January and February and gives orange-colored fruit between December and February.

Conservation Category

Least Concern.



Arayán de Hoja Chica

Myrceugenia pinifolia

Distribution

Species endemic to Chile and Argentina, grows forming pure discontinuous patches in shallow stony soil. It prefers to inhabit mountainous slopes, but also the coast. It is distributed from the province of Los Andes to the province of Llanquihue.

Description

Evergreen tree that can be close to 1,000 years old, reaching a height of up to 20m and a diameter of up to 2m. Pyramid-shaped top, rough shaggy bark with compressed or flattened branches. Blooms between October and November and the seeds ripen between February and March.

Conservation Status

Near-threatened.



Mountain Cypress

Austrocedrus chilensis

Distribution

Species endemic to Chile and grows only on the foothills of the Andes mountains from the Maule Region to the Araucanía Region. At low altitudes it inhabits in moist places close to waterways, whereas at higher altitudes it occupies drier sites. Forms part of the following forest types: Oak-Hualo, Oak-Raulí-Coihue, Coihue-Raulí-Tepa, Lenga and Evergreen.

Description

Small tree that reaches a height of up to 5m. Pole of up to 25 cm in diameter, thin, smooth, lustrous, reddish-brown bark over an ashen background. White, solitary flowers, that bloom between December and February. Seeds ripen between February and April.

Conservation Status

Least Concern.



Guindo Santo
Eucryphia glutinosa

Distribution

Species endemic to Chile that grows from the Colchagua Region to the Bio-Bio Region (VI to VIII Region). It inhabits places with steep slopes and prolonged periods of drought. In certain places of the Coastal Mountain Range it is a dominant species of the forest. It forms part of the Oak-Hualo and Mountainous Cypress forest types.

Description

Deciduous, leafy tree, up to 30m tall and 2m in diameter, thick, rough bark with a paper-like structure. Blooms between November and December. Seeds ripen between February and March.

Conservation Status

Near-threatened.



Hualo
Nothofagus glauca

Distribution

Species endemic to Chile, grows from Linares to Cautín (VII to IX Region). Inhabits moderately moist soils, preferably on the foothills of the Andes, at altitudes of between 500 and 1,000m.

Description

Evergreen, dioecious tree that is up to 15m tall and 1m in diameter; with a thin, brilliant gray, slightly bluish bark. Blooms in November. Seeds ripen between January and March.

Conservation Category

Vulnerable.



Leuque
Prumnopitys andina

Distribution

The Macolla is endemic to a small coastal area from Ñuble to Cautín (VIII to IX Region). It inhabits moist sites forming part of the undergrowth close to rivers and streams or on moist slopes, from sea level to an altitude of 300m.

Description

Evergreen shrub that reaches a height of up to 3m, blooming between February and March. Reddish, purple rounded fruit with a diameter of 4-5mm; ripens between July and August.

Conservation Status

Least Concern.



Macolla
Myrceugenia leptospermoides

Distribution

Climbing species endemic to the Coastal mountains of Chile, it grows in a discontinuous manner between Cauquenes and Llanquihue at an altitude ranging from sea level to 700m. It inhabits shady and moist places, generally associated to waterways.

Description

Evergreen climber that reaches an altitude of 15-20 m. It blooms between December and April. The fruit is a dark purple berry, each with 12-24 seeds that ripen between January and March.

Conservation Status

Endangered and Rare.



Michay Rojo
Berberidopsis corallina

Distribution

Species endemic to Chile, grows in a discontinuous manner from Limarí to Osorno. It is found in the Andes and Coastal mountain ranges. It inhabits in shady slopes and moist valleys. It is frequently found in the Sclerophyllous and Oak-Hualo forest types.

Description

Evergreen tree that reaches a height of up to 10m. Its bark is rough with a dark gray color. Young leaves have a thorny, serrated edge, whereas adult leaves have a full edge with a short thorn on the apex. Drupaceous fruit that ripens between February and May.

Conservation Status

Near-threatened.



Naranjillo
Citronella mucronata

Distribution

Species endemic to Chile, present only in the Nahuelbuta mountain range at altitudes ranging from 600 to 1,400m. It is possible to see this species in the Nahuelbuta National Park in the Araucanía Region of the Bío Bío in the basins of Cayucupil in the community of Cañete and Quebrada de Caramávida in the community of Los Álamos.

Description

It is a small shrub, whose leaves have a serrated edge in the final half. Its flowers are yellow bellflowers, which gather in an inflorescence present from October to November.

Conservation Status

Vulnerable.



Parilla Falsa
Ribes integrifolium

Distribution

Monotypic genus endemic to Chile restricted to the Coastal mountains with an altitude ranging between 30 and 850m, in addition to being the only native representative of the rutaceae family (lemons oranges) in continental Chile. It grows from the Maule Province to the Malleco Province (VII to IX Region). It inhabits close to waterways or in very moist places.

Description

Small evergreen tree of up to 15m tall and 50cm in diameter, often presents itself with multiple fruit due to the extensive re-sprouting of the stump, gray, ashen bark, dense foliage and citrus-smelling leaves.

Conservation Status

Endangered.



Pitao
Pitavia punctata

Distribution

Monotypic genus and family endemic to Chile, restricted to the Coastal mountains at altitudes oscillating from 10 to 690 m. It has severely fragmented distribution in small populations from the province of Cauquenes to the province of Arauco (VII and VIII Region).

Description

Aromatic evergreen tree with a leafy pyramid-shaped top when young. It can reach a height of up to 30m with a trunk of up to 1m in diameter, sometimes with multiple poles due to resprouting of the stump, gray bark with superficial longitudinal fissures. The fruit usually contains a seed, that ripens between April and May.

Conservation Status

Endangered.



Queule
Gomortega keule

Distribution

Endemic tree with very restricted and fragmented distribution in the Coastal mountain range, between Talca and Cauquenes (VII Region), at altitudes ranging between 100 and 450m. It inhabits moist places rich in organic matter, generally forming pure thickets. Present in the Oak-Hualo forest type.

Description

Tree up to 30m tall and 1m in diameter, straight trunk, clear, gray bark with irregular cracks. Blooms between September and October. Seeds ripen between January and February.

Conservation Status

Endangered and Rare.



Ruil
Nothofagus alessandrii



Origin

Endemic to the austral temperate forests of Chile and Argentina.

Distribution

From the provinces of Curicó and Linares in the Maule Region to Navarino Island in the Magallanes Region and the Chilean Antarctic. There are records of a population in the Region of O'Higgins in Alto Huemul.

Habitat

Native forest, especially mature Nothofagus forests.

Description

Contains a black body with white wing feather tips, with a vertical strip on its back when perched. The male is differentiated from the female due to its head and neck being an intense red color.

Conservation status

Endangered (VI-VII)
Vulnerable (VIII-XII)



Black Carpenter
Campephilus magellanicus



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Protection of High Value Biodiversity by Forestal Mininco

Origin

Native to Chile.

Distribution

From the Coquimbo Region with occasional sightings in the Fray Jorge National Park forest, up to Navarino Island in the Magallanes Region and Chilean Antarctic.

Habitat

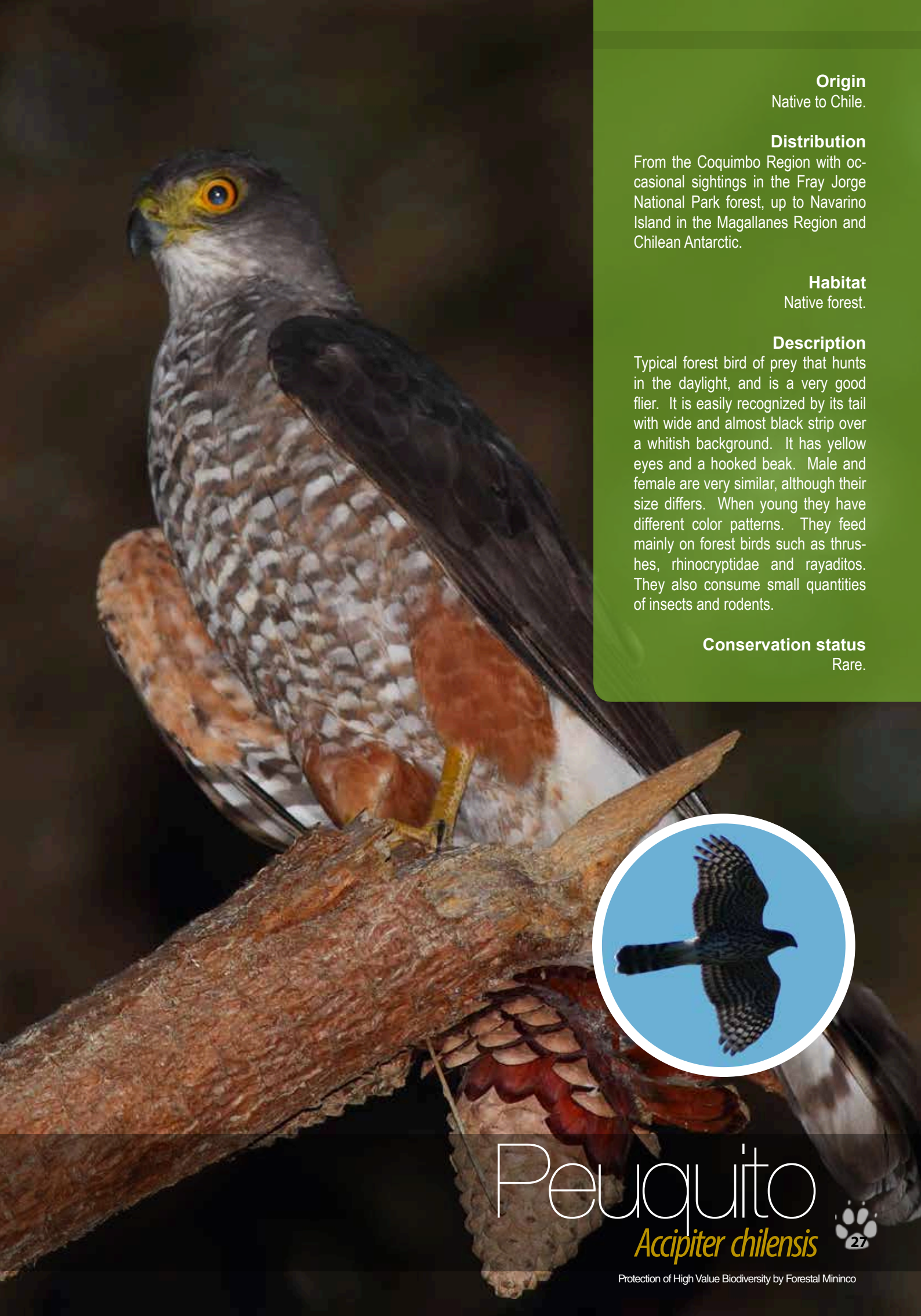
Native forest.

Description

Typical forest bird of prey that hunts in the daylight, and is a very good flier. It is easily recognized by its tail with wide and almost black strip over a whitish background. It has yellow eyes and a hooked beak. Male and female are very similar, although their size differs. When young they have different color patterns. They feed mainly on forest birds such as thrushes, rhinocryptidae and rayaditos. They also consume small quantities of insects and rodents.

Conservation status

Rare.



Peuquito
Accipiter chilensis



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Protection of High Value Biodiversity by Forestal Mininco

Origin
Native to Chile.

Distribution
From Vallenar in the Atacama Region to Caleta Tortel in the Aysén Region.

Habitat
Especially forests, but can extend its hunting areas to the open.

Description
It is a medium size bird of prey, maroon colored with a white chest and vertical maroon strips. It is very difficult to sight and has been scarcely studied. It is normally a silent bird, with daylight habits. It feeds on vertebrates and invertebrates. The former include small birds such as rayaditos, troglodytes aedon ("chercanes") and goldfinches. It also consumes rodents and lizards. It also sporadically consumes larger prey such as hare and Enicognathus Ferrugineus ("cachañas"). Although its distribution range is ample, the only reproductive events that have been recorded are in the forests of Chile and Argentina, between September and April.

Conservation status
Rare.



Origin
Native to Chile.

Distribution
From the Coquimbo Region up to the Aysén Region, including Mocha Island.

Habitat
Native forest, especially with the presence of Araucaria and Nothofagus. It also frequents sclerophyllous shrublands and cultivated areas.

Description
Very large dove with colors that make it easily distinguishable. It has orange eyes, a white strip on its head, under which is a metallic green mark. Its general color varies from reddish-brown to grayish depending on the part of the body. In the forests one often hears their cooing or the strong thumping of their wings, indicating they have just taken off in flight. Often found in large flocks, sometimes also sighted looking for food on the ground. It is mainly frugivorous, consuming fruit from the peumo and lingue trees, but also consumes grain and seeds.

Conservation status
Endangered (IV-X)
Vulnerable (XI-XII)



Small Aguilucho
Buteo albigula



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Protection of High Value Biodiversity by Forestal Mininco

Torcaza
Patagioenas araucana



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Protection of High Value Biodiversity by Forestal Mininco

Origin

Native to Chile.

Distribution

From the Coquimbo Region to the Aysén Region.

Habitat

Native forest.

Description

It is one of the three felines that inhabit temperate rainforests. It is medium size, weighing between 1.7 Kg and 2.4 Kg for females and males respectively. It is characterized by a light gray to dark brown coat on its back, with circular black markings and black bands on the neck and head. Its habits are nocturnal and it is a natural controller of the population of rodents that transmit the Hanta virus.

Conservation status

Vulnerable (XIV to the north)

Near-threatened (X to the south)



Guña
Leopardus guigna

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Protection of High Value Biodiversity by Forestal Minc

Origin

Native to Chile.

Distribution

From the Bio Bio to the Aysén Regions.

Habitat

Native forests, shrublands and Andean valleys.

Description

It is the largest of the three species of native deer that live in Chile, and together with the pudú cohabitates in the temperate rainforests of Chile and Argentina. It is a very large species, with a mean length of 1.5m with a 15 cm tail. The males are bigger than the females, with forked antlers, which appear after the first year and are renewed annually. They reproduce in spring, with one offspring per litter.

Conservation status

Endangered.



Huemul
Hippocamelus bisulcus

31

Protection of High Value Biodiversity by Forestal Minc

Origin

Native to Chile.

Distribution

From the Arica Region up to the Magallanes Region and Chilean Antarctic, except for Chiloé Island and Tierra del Fuego Island.

Habitat

Native forests and bush lands, high Andean steppes and vegetation, as well as in rural zones, including agricultural land and forestry plantations.

Description

Feline, and the largest carnivore in Chile (90 kg). Females are smaller than males. It has a regular reddish-brown or gray coat, with the underbelly and inner legs of a lighter color. It has a small head and ears in comparison to its size, and is characterized for its white muzzle and a black spot where the vibrissae are born. It is active 24 hours a day, although it prefers dawn and dusk.

Conservation status

Near-threatened.



 **Puma**
Puma concolor

Protection of High Value Biodiversity by Forestal Mininco

Origin

Endemic to Chile.

Distribution

Segregated distribution in two populations, one in the forests of Chiloé's large island in the Los Lagos Region and the other in the coastal mountainous zone of the Nahuelbuta National Park in the Araucanía Region.

Habitat

Native forest, especially on the coastal border between the pangué (*Gunnera Chilensis*) and fern formations.

Description

Darwin's Fox or the Chilote Fox is the smallest of the three species of fox that live in Chile, being one of the smallest foxes in the world and the largest carnivore in the Chiloé Island (weighing from 1.8 to 4 kg). It is characterized for its black or bluish coat, with the exception of its whitish paws and its reddish ears.

Conservation status

Endangered.



Darwin's Fox
Lycalopex fulvipes 

Protection of High Value Biodiversity by Forestal Mininco

Origin

Native to Chile.

Distribution

From the Arica Region to the Aysén Region.

Habitat

Native forests and bush lands, and in rural zones and exotic plantations.

Description

It is a medium sized carnivore (weighing 2.5 kg), with a long body and short tail. Its coat is coarse and a yellowish-gray color, with black underside of the body with a whitish band on the dorsal region from head to tail.

Conservation status

Vulnerable.



 **Quique**
Galictis cuja

Protection of High Value Biodiversity by Forestal Mininco

Origin

Endemic to the austral temperate forests of Chile and Argentina.

Distribution

From the Maule Region up to the Aysén Region, including Chiloé Island.

Habitat

Native forest.

Description

This is one of the smallest deer in the world, weighing from 9 to 12 kg. It is reddish-brown in color, with darker tones in the mid-back zone, with a rather thick head and rounded ears. Its extremities are short, with the back being longer than the front, which makes moving in the undergrowth easier.

Conservation status

Vulnerable.



Pudu
Pudu pudu 

Protection of High Value Biodiversity by Forestal Mininco

Origin
Native to Chile.

Distribution
From the Coquimbo Region to the Los Lagos Region.

Habitat
Native forests and bushland with dense vegetation.

Description
A small carnivore with a long body, with an average length of 60 cm including its tail, which is characterized for its long and bristly white and black coat, with gives it a distinctive character. It has a long black coat on its back, with white strips on both sides from head to tail. The chingue has anal glands that secrete a strong and fetid smell when it feels threatened, which is where the name "skunk" originates, which is the name by which the species of this family are known.

Conservation status
Rare.



Chingue
Conepatus chinga

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Protection of High Value Biodiversity by Forestal Mininco

Origin
Native to Chile.

Distribution
Fragmented distribution from Cautín to the Strait of Magellan and Tierra del Fuego in the Magallanes Region and in the Chilean Antarctic.

Habitat
Native forest. Basins and ravines with slow running rivers or streams with shores covered with native vegetation.

Description
The huillín or river otter is one of the two species of otters (Mustelids) that live in Chile. It has a medium size body up to 70 cm in length, with a tail that is approximately 40 cm long. Its coat is blackish-brown on top and beige on the underbelly. Its diet includes fish, crustaceans, mollusks and birds. It does not like open areas, and prefers places with dense vegetation on the river shore. Although the female and its offspring live in family groups, males are usually solitary creatures.

Conservation status
Endangered.



Huillín
Lontra provocax

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Protection of High Value Biodiversity by Forestal Mininco

Distribution

From the Maule Region up to the Los Lagos Region, including Chiloé Island.

Habitat

Native forests with abundant presence of undergrowth and quila.

Description

Also called chimaihuén, it is a marsupial from the south of Chile and Argentina. A small omnivore, it feeds basically on pupas and insect larvae it obtains both from trees and from the ground, complementing its diet with various vegetal products such as fruit pulp and seeds.

Conservation status

Near-threatened.



 Monito del Monte
Dromiciops gliroides

Protection of High Value Biodiversity by Forestal Mininco

Distribution

From the Province of Colchagua in the O'Higgins Region to the Province of Valdivia in the Los Ríos Region.

Habitat

Native forest, especially deciduous Nothofagus forests in both mountain ranges. It has greatly decreased or is extinct in the central valley.

Description

Lizard-type reptile, robust with a thick and voluminous head, can reach up to 22 cm in length. It has a developed neck fold and small rounded and juxtaposed scales on its back. The tail is a little longer than its length from its snout to the cloaca.

Conservation status

Endangered.



Gruñidor del Sur
Pristidactylus torquatus 

Protection of High Value Biodiversity by Forestal Mininco

Distribution

From the Province of Copiapó in the Atacama Region up to the Province of Valdivia in the Los Rios Region.

Habitat

native forests and bushland, especially in clearings and areas with semi dense vegetation. It is also present in exotic plantations and agricultural zones.

Description

Large, snake-type reptile, normally more than a meter long. Its distinctive characteristic is the size of its tail which begins where the ventral gut becomes double, which corresponds to almost a third of its total length. Design characterized by a thick dark brown dorsal band surrounded by black and limited on both sides by yellowish white bands that get lost in the yellowish color of the sides of the body.

Conservation status

Vulnerable (IV-XIV)
Rare (III)



Long-Tailed Snake

Philodryas chamissonis



Distribution

Restricted to certain native forest ravines in Trehualem in the Maule Region and the Nahuelbuta mountain range in the Bio Bio and Araucanía Regions.

Habitat

Native forest.

Description

Amphibian native to the toad family, medium to large size, with a robust body, toes ending in rounded points and the skin on the back, flanks and extremities covered in small granulation. The back is of a golden yellow color with diffuse brown spots. The head is large with an inverted brown triangle mark that ends joining the rest of the back's coloration pattern.

Conservation status

Endangered and Rare.



Vanzolini's Toad

Alsodes vanzolinii



Distribution

From the north of the Coquimbo Region to Coyhaique in the Aysén Region, where it was introduced for commercial purposes.

Habitat

Always close to bodies of water, it can be found in basins and ravines, slow-moving rivers, lakes and reservoirs in the central south zone of Chile.

Description

Large, robust frog, it is the largest amphibian in Chile. Loss of habitat due to removal of shoreline vegetation, sedimentation of bodies of water and introduction of other species of frogs such as the African frog.

Conservation status

Vulnerable.



Chilean Frog
Calyptocephalella gayi



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Protection of High Value Biodiversity by Forestal Mininco

Distribution

Nahuelbuta mountain range in the Bio Bio and Araucanía Regions.

Habitat

Native Nothofagus and araucaria forests in the Nahuelbuta mountains.

Description

It is a medium size toad, with highly variable colors. In general the back is dark, with dark brown or reddish spots that cover the body, with a lighter underbelly. Irregular dark green spots cover the ventral zone and extremities.

Conservation status

Endangered and Rare.



Nahuelbuta Toad
Eupsophus nahuelbutensis



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Protection of High Value Biodiversity by Forestal Mininco

Distribution

From Concepción in the Bio Bio Region up to the Aysén Region, including the Taitao peninsula and Chiloé Island.

Habitat

Native forest, especially ancient forests with abundant moss and quila and *Hymenophyllum Umbratile* undergrowth, and in Araucaria forests.

Description

Small toad, with highly variable colors from brilliant green or brown to red ochre. Triangular head ending in a characteristic Pinochio-type nose appendix. It likes daylight, is found on the ground in forests in moist zones covered with moss and ferns. This species is very territorial.

Conservation status

Endangered.



Distribution

Nahuelbuta mountain range in the Bio Bio and La Araucanía Regions.

Habitat

Native forest, especially araucarias.

Description

Large toad, with a thick flattened body. The back is covered with protuberating glands, the parotid glands are also large and protuberant. The back legs have a marked inter digital membrane. The back is dark brown or cream. It is an amphibian with nocturnal habits, strictly found in dense and old forests.

Conservation status

Vulnerable and Rare.



 Darwin's Frog
Rhinoderma darwinii

Protection of High Value Biodiversity by Forestal Mininco

Bullock's Toad
Telmatobufo bullocki 

Protection of High Value Biodiversity by Forestal Mininco

The High Conservation Value Areas are characterized as having unique, significant or critical attributes. High Conservation Value Areas are also characterized as being; biological, socio-cultural or providing ecosystem services. The aim is to manage each of the High Conservation Value Areas to maintain and/or increase their attributes. Currently Forestal Mininco has 11 High Conservation Value Areas as listed and described in detail below:

Ruiles de Empedrado	138,8 ha
Hualos de Loanco	702,1 ha
Adesmia	13,8 ha
Escuadrón	196,3 ha
Rucamanqui	4.909,6 ha
Pitaos	31,3 ha
Trongol	2.458,7 ha
Los Alpes	872,0 ha
Piedra Santa	225,0 ha
Villa Las Araucarias	124,9 ha
Huillín	80,8 ha
Total	9.753,3 ha

Los RUILes de Empedrado

GENERAL INFORMATION REGARDING THE HCVA

Owner
Forestal Mininco S.A.

Administrative Unit
El Despreco (2031)¹

Total HCVA Area
138,8 ha

Geographical Location
VII Region of Maule
Province of Talca
Community of Empedrado



DESCRIPTION

Area declared as a HCVA since it constitutes old growth mixed forest in good condition consisting of *Nothofagus Alessandrii* (Ruil) and *Nothofagus Glauca* (Hualo), categorized as an endangered, rare and near-threatened species. In addition it forms part of the Priority Site for the Conservation of "Cardonal and Linda Vista Forests", Ministry of the Environment (MMA) VII Region.

PROACTIVE MANAGEMENT

Regular security patrol.
Identification at the site and in operating maps.
Control of exotic species.
Established as a conservation and research zone.
Enclosed access and signage on site.
Fire combat priority.
The use of fire inside the site and in the neighboring areas is prohibited.
No fishing, hunting, forest harvesting or any illegal activity allowed within the HCVA.
Coordination with scientists and experts for monitoring critical conservation attributes.
Clearing the surroundings of endemic species for their growth and biological reproductive cycle.
Reintroduction of Ruil specimens from seeds collected from the site.
Communication and dissemination of information in local communities.
Forestal Mininco staff and contractor internal personnel training.
Dissemination of information through pamphlets and posters.

138,8

HCVA

hectares

CONSERVATION VALUE

Fragment of Ruil
(*Nothofagus alessandrii*)
and **Hualo**
(*Nothofagus glauca*)

Ruil, species that is endemic to Chile is in Critical Danger (UICN), it was declared a natural monument in 1995 and an Endangered and Rare species (DS 151 MINSE-GPRES 2007).

Hualo, species that is endemic to Chile and classified as Vulnerable (UICN) and Near-threatened (DS 42 MIN_AMBIENTE 2011).

MONITORING

Conservation Status of the Forest

During the monitoring of the conservation status of the HCVA, carried out in 2014, no evidence of damages due to livestock grazing, alterations by visitors, effects of fire, illegal felling of specimens or phytosanitary problems were identified. Fences, gates and signage are still in good condition without damages from visitors, preventing unauthorized entry. The effects of the actions taken such as control of exotic species, whose presence has decreased, are also monitored. Adult species girdling activities performed since 2008 have been essential to achieving effective control. In 2014, 700 adult specimens of *Radiata* Pine were girdled and regeneration of the same species was extracted from permanent parcels and in bordering areas.

HCV Fragment of Ruil and Hualo*

The indicators of specific monitoring of the HCV to be evaluated are: Genetic Heat Index (ICG) o Índice de Calor Genético¹; Sclerophyllous Species Index (IEE) o Índice de Especies Esclerófilas²; Invading Species Index (IEI) o Índice de Especies Invasoras³. Based on the evaluation performed in 2013, the area is in a good conservation condition, although the need to manage exotic species in bordering areas and incorporation of new monitoring parcels in the native forest was identified.

The ICG, IEE and IEI indexes assessed in 2013 and 2014, referring to the Ruil relict, shows they are in good conservation condition. However, experts recommend continuing with the process of girdling both adult and juvenile *Pinus radiata* specimens, and incorporating the extraction of re-growth in the bordering zones and in inside areas.

*Advisor:
Darwin Maule Group,
Maule Region.

¹The ICG, developed by Hawthorne (1996), allocates a weighted value over the basis of the composition of its flora, related to the degree of endemism and rarity of the species present in a site.

²It is calculated on the basis of the ecological type and degree of coverage for each species. The ecological type is obtained mainly from San Martín y Sánchez (1998) and from other flora studies. The degree of coverage was determined on the basis of the values of Braun-Blanquet and their subsequent transformation to continuous values according to Tüxen-Ellenberg (Van der Maarel 1979).

³Determined on the basis of the presence of invading species (Quiroz et al., 2009) and the degree of coverage for each species.



VII Region of Maule
Province of Talca
Community of Empedrado



Hualos de Loanco

GENERAL INFORMATION REGARDING THE HCVA

Owner

Fórestal Mininco S.A.

Administrative Unit

San Pedro and Las Cañas II (2016)
San Pedro and Las Cañas IV (2018)
Provoste (2040)

Total HCVA Area

702,1 ha

Geographical Location

VII Region of Maule
Province of Talca
Community of Empedrado and
Community of Constitución



DESCRIPTION

Area declared as a HCVA since it is one of the scarce fragments of native forest present in the region with an area greater than 500 hectares and also hosts important endemic, umbrella and distribution limiting species. Finally it is a priority site for biodiversity conservation established by the MMA.

PROACTIVE MANAGEMENT

Regular security patrol.
Identification at the site and in operating maps.
Control of exotic species.
Established as a conservation and research zone.
Enclosed access and signage on site.
Fire combat priority.
The use of fire inside the site and in the neighboring sectors is prohibited.
No fishing, hunting, harvesting or any illegal activity allowed within the farm.
Coordination with scientists and experts for monitoring critical conservation attributes.
Communication and dissemination in local communities.
Internal personnel training.
Dissemination of information through pamphlets and posters.

702,1

HCVA

hectares

CONSERVATION VALUE

Coastal Maule Forests

Relict

Hosts a number of important endemic flora species (Pitao), umbrella species (Black Carpenter and Concón) and distribution limiting species (Tepa).

Campephilus

magellanicus

Umbrella species are classified as Endangered in the VI and VII Regions and Vulnerable in the VIII and IX Regions, according to the MMA. Its decreasing habitat is the main problem.

MONITORING

Conservation Status of the Forest

During the monitoring of the conservation status of the HCVA, carried out in 2014, there was no evidence of damage due to fires at the San Pedro and Las Cañas sites, in the HCVA, or in the neighboring areas. No damage due to livestock grazing or phytosanitary problems, or problems due to any forestry work were identified. No recent illegal forest harvesting has been detected, and the points where there was evidence of illegal harvesting during the 2013 monitoring are in a recovery process, with dense regrowth of Nothofagus Glauca (Hualo). Girdling of Pinus radiata carried out in previous years, as a measure to control exotic species, has proven to be an effective control procedure, since most of the girdled trees are dead and others have evidence of partial desiccation. New areas in need of exotic weed species control were identified. The regeneration of Pinus radiata around the path has decreased, which shows the effectiveness of the actions taken.

HCV of the Maulino and Campephilus Magellanicus Forest Relict*

The indicators assessed for monitoring the Maulino forest are: ICG1; IEE2; and IEI3. In general terms, one can infer, based on the evaluations of 2011-2012-2013 and 2014 that there is evidence of good conservation status, and with no major alteration or invasion of sclerophyllous and invading species. Habitat Suitability Index (HSI)¹, related to the reproduction or nesting activity of the species in the new prospected areas, found habitat conditions that are at the edge of what is favorable and the limitation is demonstrated by the healthy condition of the trees. The HSI in respect to the feeding model indicates optimal forest conditions for the species.

*Advisor:

Darwin Maule Group,
Maule Region.

¹ Characterizes the habitat of a species, through determining and measuring the variables that describe their most important ecological requirements. This determines the suitability of an environment to maintain a determined species.



VII Region of Maule

Province of Talca
Community of Empedrado and
Community of Constitución



Adesmia

GENERAL INFORMATION REGARDING THE HCVA

Owner

Forestal Mininco S.A.

Administrative Unit

San Pedro and Las Cañas I (2015)

San Pedro and Las Cañas II (2016)

Total HCVA Area

13,8 ha

Geographical Location

VII Region of Maule

Province of Talca

Community of Empedrado and

Community of Constitución



DESCRIPTION

Area declared HCVA due to the presence of *Adesmia Bijuga* Phil., Chilean vascular flora species, with shrub-like growth. From a scientific point of view it has flora, biogeographic and conservation importance, due to its endemic nature, restricted space distribution and vulnerable habitat which places the species at risk of extinction.

PROACTIVE MANAGEMENT

Permanent patrol.

Identification at the site and in operating maps.

Control of exotic species.

Established as a conservation and research zone.

Enclosed access and signage on site.

Fire combat priority.

The use of fire inside the site and in the neighboring sectors is prohibited.

No fishing, hunting, harvesting or any illegal activity allowed within the farm.

Coordination with scientists and experts for monitoring critical conservation attributes.

Communication and dissemination in local communities.

Internal personnel training.

Dissemination of information through pamphlets and posters.

HCVA

13,8

hectares

CONSERVATION VALUE

Adesmia bijuga

shrub-like species with vascular woody flora, which from a scientific point of view has biogeographic and conservation importance, due to its endemic nature, restricted space distribution and vulnerable habitat which places the species at risk of extinction. The species has been described for the coastal zone of Constitución (Philippi, 1984) and to date is recorded only in two coastal locations: one in the sector of Huelón in Curepto and another at the San Pedro de Las Cañas Farm in Constitución (Gómez et al. 2012). Due to its lack of abundance and low physiognomic impact, the species is not adverted in the landscape, which has threatened its onsite conservation.

VII Region of Maule

Province of Talca

Community of Empedrado and
Community of Constitución

MONITORING

Conservation Status of the Forest

According to the results of the monitoring of the conservation status of the HCVA, no recent damages or interventions were observed in the area, nor were any reported by its employees.

HCV of the *Adesmia Bijuga**

Together with the team of Darwin Maule researchers, the decision was made to implement a monitoring plan focused on the *Adesmia Bijuga* Phil. and its populations within the coastal native forest ecosystem in the Maule Region.

The ultimate objective of the monitoring was to evaluate the phenology, sanitary condition, physical integrity, growth and coverage in populations of *A. bijuga* and in permanent parcels of land. In addition to the propagation of *A. Bijuga* through rooting cuttings. A medium term (5 year), quarterly monitoring program was established in 2014 for the two populations, and 5 permanent parcels were defined in each. The first records were taken in respect to their phenology and regeneration parcels were established. The management of *Pino radiata* structural variables began decreasing coverage at San Pedro I by 20 -25%.

*Advisor:
Darwin Maule Group,
Maule Region.



Alto Escuadrón

GENERAL INFORMATION REGARDING THE HCVA

Owner
Forestal Mininco S.A.

Administrative Unit
Escuadrón (101)

Total HCVA Area
196,3 ha

Geographical Location
VIII Region of Bio Bio
Province of Concepción
Community of Coronel



DESCRIPTION

This High Environmental Value Area is a relic of the Valdivian Forest, which in this sector presents the northern limit of its distribution. The area corresponds to a ravine with abrupt topography, at the beginning of the Nahuelbuta mountain range, where the forest is mostly adult, with young specimens in the highest parts. In it, species of the laurifolius forest like *Aextoxicom Punctatum* (Olivillo), *Laurelia Sempervirens* (Laurel) and *Eucryphia Cordifolia* (Ulmo) are mixed with elements of the sclerophyllous woodlands such as *Lithrea Caustica* (Litre), *Cryptocarya Alba* (Peumo), *Quillaja Saponaria* (Quillay), *Persea Lingue* (Lingue), etc.

PROACTIVE MANAGEMENT

Permanent patrol.
Identification at the site and in operating maps.
Control of exotic species.
Established as a conservation and research zone.
Enclosed access and signage on site.
Fire combat priority.
The use of fire inside the site and in the neighboring sectors is prohibited.
No fishing, hunting, harvesting or any illegal activity allowed within the HCVA.
Coordination with scientists and experts to monitor critical conservation attributes.
Communication and dissemination in local communities.
Internal personnel training.
Dissemination of information through pamphlets and posters.

196,3

hectares

CONSERVATION VALUE

Valdivian Forest Relict

Although most of the species of this Valdivian evergreen forest are not classified in the categories with conservation problems, altogether they generate a vegetation formation that no longer exists in the zone. Among the species with conservation problems *Citronella Mucronata* and *Libertia Tricocca* are both classified as Rare.

MONITORING

HCV of the Valdivian Forest*

During the monitoring of the conservation status of the HCVA, carried out in 2014, the high value area does not show evidence of damage due to forest fires, use of fire, grazing or entry of livestock, illegal harvesting of native vegetation, phytosanitary damage or operating activities. Regarding damages from visitors, the path is in very good condition, with no visible impact or residues. Regarding the invasion of exotic plants, although the girdling work and extraction of regeneration has had good results, this measure will continue during 2015.

HCV of the Valdivian Forest*

The transect methodology was implemented in order to monitor the HCV of the Valdivian Forest. Five transects were undertaken, which were established in the most representative places of the forest, clearly leaving them marked and geo-referenced. Sample results allow confirmation that in all the areas reviewed the vegetation association corresponding to the "Valdivian type" forest is present, confirming the existence of the conservation attribute and also allowing identification of the points where it is necessary to direct efforts to improve the area's management.

*Advisor:
Dámaso Saavedra B.
Independent Consultant.



VIII Region of Bio Bio
Province of Concepción
Community of Coronel



Rucamanqui

GENERAL INFORMATION REGARDING THE HCVA

Owner

Forestal Mininco S.A.

Administrative Unit

Rucamanqui section 3 (3025)

Rucamanqui section 5 (3027)

Rucamanqui section 6 (3028)

Total HCVA Area

4.909,6 ha

Geographical Location

VIII Region of Bio Bio

Province of Bio Bio

Community of Tucapel



DESCRIPTION

Sector declared as HCVA since it is located within the Nevados de Chillán - Laguna del Laja Biological Corridor Biosphere Reserve. In addition it constitutes the habitat of the Huemul (*Hippocamelus Bisulcus*) considered to be In Danger de Extinction according to the national and international lists and the presence of other species such as the puma (*Puma Concolor*) and naranjillo (*Citronella mucronata*).

PROACTIVE MANAGEMENT

Permanent patrol.

Identification at the site and in operating maps.

Control of exotic species.

Established as a conservation and research zone.

Enclosed access and signage on site.

Fire combat priority.

The use of fire inside the site and in the neighboring sectors is prohibited.

No fishing, hunting, harvesting or any illegal activity allowed within the farm.

Coordination with scientists and experts for monitoring critical conservation attributes.

Communication and dissemination in local communities.

Internal personnel training.

Dissemination of information through pamphlets and posters.

HCVA

4.909,6

hectares

CONSERVATION VALUE
Huemul
(*Hippocamelus bisulcus*)
and Puma
(*Puma concolor*)

Catalogada en peligro de extinción (MMA, 2010; Glade, 1988; IUCN, 2010) y Puma (*Puma concolor*) considerado como el carnívoro terrestre más grande del país y considerado Casi amenazado (MMA) y Vulnerable (Conaf y Sag).

Formaciones boscosas

Bosque Primario de Altura
Tipo Forestal Roble-Raulí-Coigüe y Tipo Forestal Ciprés de la Cordillera.

MONITORING Conservation Status of the Forest

The HCVA is undamaged with no human or phytosanitary impact or alterations due to fire. There are no signs of cattle, therefore the successional processes for renewal of the *Nothofagus* can be restored. Regarding the invasion of exotic species, *Rubus Ulmifolius* (blackberry) in the accesses and on the sides of the road was identified but not within the young native forest. Also present is the *Rosa Moschata* (Mosqueta) that is intermixed with young *Nothofagus Obliqua* (Oake) especially with those that are not so tall. When the canopy is closed the presence of rosa mosqueta seems to disappear or decrease

HCV of the Huemul (*Hippocamelus Bisulcus*) and Puma (*Puma Concolor*)*

Durante 2014 presence of two huemules that occupy the El Elefante sector, inside the Rucamanqui HCVA during a great part of the year were identified. In the summer-fall period they sporadically occupy neighboring sites. The adoption of protection measures for this herd of huemules, included the definition of a huemul protection area and the prohibition of entry for livestock activity, by installing signs, locking gates and video surveillance camera located in the entry sector. A monitoring plan has been established to monitor the high conservation value of the "Puma", which will determine the status of the species in the Rucamanqui HCVA, based on specific indicators. The above is essential in order to establish specific recommendations for managing the area.

*Advisor:
Rodrigo López R.
Independent Consultant.



VIII Region of Bio Bio

Province of Bio Bio

Community of Tucapel



GENERAL INFORMATION REGARDING THE HCVA

Owner
Forestal Mininco S.A.

Administrative Unit
Los Barros (5124)
Pitrufquen (5140)

Total HCVA Area
31,3 ha

Geographical Location
Fundo Pitrufquen
VIII Region of Bio Bio
Province of Bio Bio
Community of Nacimiento

Fundo Los Barros
IX Region of Araucanía
Province of Bio Bio
Community of Angol

PROACTIVE MANAGEMENT

Permanent patrol.
Identification at the site and in operating maps.
Control of exotic species.
Established as a conservation and research zone.
Enclosed access and signage on site.
Fire combat priority.
The use of fire inside the site and in the neighboring sectors is prohibited.
No fishing, hunting, harvesting or any illegal activity allowed within the farm.
Coordination of monitoring of critical conservation attributes with scientists and experts.
Communication and dissemination in local communities.
Internal personnel training.
Dissemination of information through pamphlets and posters.



DESCRIPTION

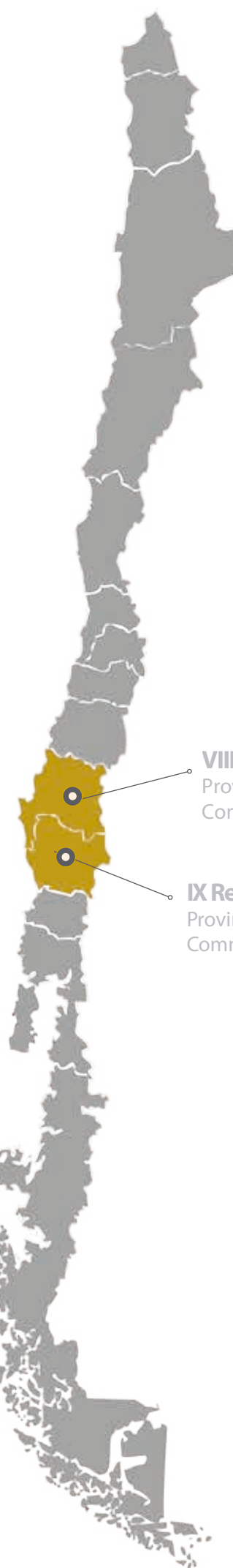
This area was declared to have High Conservation Value due to the existence of Pitao (*Pitavia Punctata*) populations, species that has been declared Endangered, composed of small, isolated formations, located in zones close to waterways.

31,3

hectares

CONSERVATION VALUE

Pitao (*Pitavia punctata*)
Species belonging to the Rutaceae family (tropical origin), threatened to be in danger of extinction and declared a National Monument in 1995. In addition it is an endemic and monotypic taxon of the central south zone of Chile and is characterized for being a species with great ornamental value. It is currently found in the Nahuelbuta mountains as an element of small wooded surfaces that are similar to small islands, which prefer ravines, in moist substrates close to or associated waterways.



VIII Region of Bio Bio
Province of Bio Bio
Community of Nacimiento

IX Region of Araucanía
Province of Bio Bio
Community of Angol



MONITORING

Conservation Status of the Forest
The results of the Monitoring of the Conservation Status of the HCVA indicate that the sectors with populations of Pitaos are in better condition than they were in previous years. We verified that measures to safeguard the HCVA have been taken in the Pitrufquen sector, by fencing the area. In the case of the Los Barros sector, damaged fences have been repaired. The sound development status of the Pitao in both areas was confirmed.

HCV of the Pitao (*Pitavia Punctata*)*

The model that has been proposed to develop the Conservation Plan uses an adaptive focus and is applicable to both sectors of the Pitao HCVA. It considers a baseline study of the initial evaluation of both sectors of the HCVA, at different levels of biodiversity organization and their respective attributes. Results have identified the main threats and limiting factors that can compromise the persistence of *Pitavia punctata*. The indicators established are at a landscape level, at a community level (richness, diametrical distribution and density of species) and at a population and species level (mortality, richness, abundance, height and diameter).

*Advisor:
Laboratorio de Ecología de Paisaje
Universidad de Concepción.

Trongol

GENERAL INFORMATION REGARDING THE HCVA

- Owner**
Forestal Mininco S.A.
- Administrative Unit**
Trongol (563)
- Total HCVA Area**
2.458,7 ha
- Geographical Location**
VIII Region of Bio Bio
Province of Arauco
Community of Curanilahue



DESCRIPTION

Area declared a «Trongol» HCVA, located in the Nahuelbuta mountain range, which forms part of the Central Chile biodiversity hotspot (Myers et al. 2000). Some of the HCVA sites are adjacent to or have part of their surface inside the Quebrada de Caramávida Priority Site.

PROACTIVE MANAGEMENT

- Permanent patrol.
- Identification at the site and in operating maps.
- Control of exotic species.
- Established as a conservation and research zone.
- Enclosed access and signage on site.
- Fire combat priority.
- The use of fire inside the site and in the neighboring sectors is prohibited.
- No fishing, hunting, harvesting or any illegal activity allowed within the farm.
- Coordination with scientists and experts for monitoring critical conservation attributes.
- Communication and dissemination in local communities.
- Internal personnel training.
- Dissemination of information through pamphlets and posters.

HCVA

2.458,7

hectares

CONSERVATION VALUE

Secondary Forest

Composed of Nothofagus, Parilla de Nahuelbuta (Ribes Integrifolium) an Endangered species, Araucaria (Araucaria Araucana) species that is in the Vulnerable category, Mountain Cypress (Austocedrus Chilensis) species that is in the Vulnerable category. In addition they are part of a continuous forest that stretches from the Quebrada de Caramávida to the Nahuelbuta National Park.

Chilote Fox

Species that is in the category of In Danger of extinction. The only recognized continental population of the Chilote fox or Darwin's fox (Pseudalopex Fulvipes) is located in the Caramávida – Nahuelbuta NP zone.

MONITORING

Conservation Status of the Forest

As a result of the monitoring of the conservation status of the Trongol HCVA, there was no evidence of significant damage to the condition of the forest. Extraction of smaller exotic species was found to be necessary to prevent damage to the vegetation upon reaching adult status with greater height and diameter, making their elimination or control difficult. This activity has already been implemented in part of the HCVA in 2014, by employees of the Forestry Assets area.

HCV of Darwin's Fox (Lycalopex fulvipes)*

On site monitoring activities carried out in 2013-2014 show the presence of Pseudalopex Fulvipes (Darwin's Fox). Conservation measures suggested exclusion of grazing and working with neighbors to manage domestic animal populations. Monitoring will continue during 2015.

*Advisor:
Dario Moreira A.
Environmental Sciences Consultants.



Los Alpes

GENERAL INFORMATION REGARDING THE HCVA

- Owner**
Forestal Mininco S.A.
- Administrative Unit**
Los Alpes Hijuela I (729)
Los Alpes Hijuela III (730)
- Total HCVA Area**
872 ha
- Geographical Location**
IX Region of Araucanía
Province of Malleco
Community of Angol



DESCRIPTION

Area declared as «Los Alpes» HCVA since it is adjacent to the Nahuelbuta National Park and is characterized for its flora and fauna due to the presence of endemic species in very restricted ranges, some of them only exist in Nahuelbuta. It is a zone of convergence between forests characteristic of the Mediterranean Zone and those with Valdivian evergreen vegetation.

PROACTIVE MANAGEMENT

- Permanent patrol.
- Identification at the site and in operating maps.
- Control of exotic species.
- Established as a conservation and research zone.
- Enclosed access and signage on site.
- Fire combat priority.
- The use of fire inside the site and in the neighboring sectors is prohibited.
- No fishing, hunting, harvesting or any illegal activity allowed within the farm.
- Coordination with scientists and experts for monitoring critical conservation attributes.
- Communication and dissemination in local communities.
- Internal personnel training.
- Dissemination of information through pamphlets and posters.

HCVA

872

hectares

CONSERVATION VALUE

- Nothofagus Forest**
Adjacent to the Nahuelbuta National Park, which represents a buffer area and an extension of the Park.
- Chilote Fox**
A species that is in the Endangered category. The only recognized continental population of the Chilote Fox or Darwin's Fox (*Pseudalopex Fulvipes*) is located in the Caramávida –Nahuelbuta NP zone.

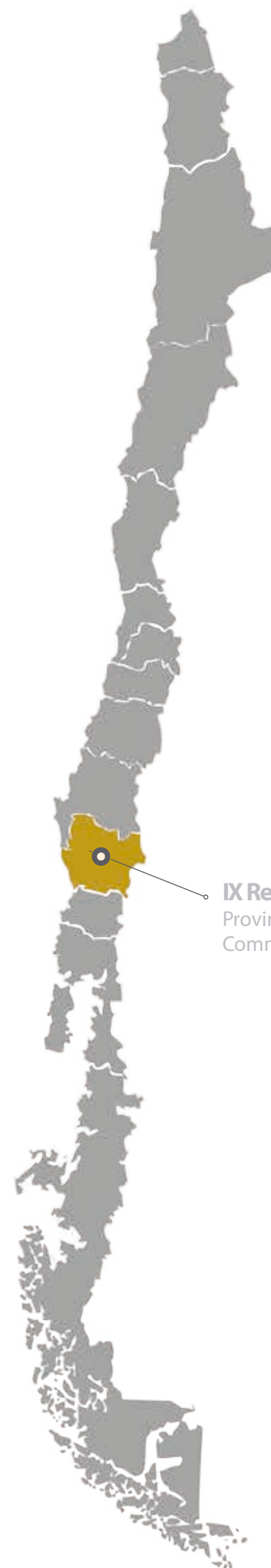
MONITORING

Conservation Status of the Forest
The results of the Monitoring of the Status of Conservation of the HCVA in 2013 and 2014 verified that work was necessary to prevent the entry of livestock and third parties. The main work performed together with surveillance of the area consists of the installation of fences and gates, construction of trenches and blocking interior roads within the native forest in order to prevent third party access. These measures have resulted in no recent interventions being observed and have decreased the pressure of illegal grazing in the HCVA.

HCV of Darwin's Fox (*Lycalopex fulvipes*)*

To date the monitoring has not recorded evidence of the presence of *Pseudalopex Fulvipes* (Darwin's Fox) at the sites, however monitoring will continue during 2015. As a conservation measure it is suggested that grazing be excluded and working with neighbors to manage domestic animal populations.

*Advisor:
Dario Moreira A.
Environmental Sciences Consultants.



IX Region of Araucanía
Province of Malleco
Community of Angol



Piedra Santa

GENERAL INFORMATION REGARDING THE HCVA

Owner
Forestal Mininco S.A.

Administrative Unit
Piedra Santa (8718)

Total HCVA Area
225 ha

Geographical Location
IX Region of Araucanía
Province of Malleco
Community of Purén



DESCRIPTION

Area declared as a HCVA because it is adjacent to the Contulmo Natural Monument and is part of the Purén Priority Site, (Contulmo Natural Monument Buffer Areas). The Contulmo Natural Monument has a surface of 82 hectares, located beside the Purén – Contulmo route, where there is a singular South of Chile rainforest environment.

PROACTIVE MANAGEMENT

Permanent patrol.
Identification at the site and in operating maps.
Control of exotic species.
Established as a conservation and research zone.
Enclosed access and signage on site.
Fire combat priority.
The use of fire inside the site and in the neighboring sectors is prohibited.
No fishing, hunting, harvesting or any illegal activity allowed within the farm.
Coordination with scientists and experts for monitoring critical conservation attributes.
Communication and dissemination in local communities.
Internal personnel training.
Dissemination of information through pamphlets and posters.

225

hectares

CONSERVATION VALUE

Evergreen Forest

That is adjacent to the Contulmo Natural Monument, which represents a buffer area and extension of the SNASPE site.

It is an area that is highly relevant for ferns, with more than 26 species present including an entire range of typical Valdivian rainforest flora, also known as evergreen forests. The native forest includes the presence of the *Myrceugenia Leptospermoides* (Macolla) threatened species.

MONITORING

Conservation Status of the Forest

The monitoring indicators for the conservation status of the HCVA assessed during 2014 indicates evidence that measures such as fencing and the placing of signs have been taken to safeguard the area. In addition, there is no evidence of significant damage to the condition of the forest in the prospected areas. There is evidence of the existence of exotic species such as the *Pinus radiata*, *Rubus ulmifolius* (blackberry), *Rosa moschata* (Rosa Mosqueta) and *Cytisus scoparius* (Retamo escobas), which must be controlled. The area has been fenced with the intention of controlling entry of livestock to the HCVA. Control of exotic species is to be applied in 2015.

HCV of Evergreen Forests *

Implementing transects in the HCVA of "Piedra Santa" is a tool that quantifies the condition of flora and its diversity and also allows identification of required environmental management. It is an area that is adjacent to the Contulmo Natural Monument and in spite of the high degree of historical site intervention it still maintains a biological richness similar to the State protected area. The conservation attribute of the HCVA, which corresponds to the *laurifolius*-type forest, which is represented in the different protected sectors, is recovering the characteristics of an intervened young forest to an adult native forest.

*Advisor:
Dámaso Saavedra B.
Independent Consultant.



IX Region of Araucanía

Province of Malleco
Community of Purén



Villa las Araucarias

GENERAL INFORMATION REGARDING THE HCVA

Owner

Forestal Mininco S.A.

Administrative Unit

Las Vacas (7316)
Magallanes (7318)
La Cabaña (8385)

Total HCVA Area

124,9 ha

Geographical Location

IX Region of Araucanía
Province of Cautín
Community of Lumaco and
Community of Carahue



DESCRIPTION

Area declared HCVA due to the presence of a relict population of *Araucaria Araucana*, which shows genetic and ecological differences in comparison with the populations of *Araucaria Araucana* present in other sectors of the Nahuelbuta and Andes mountain ranges.

PROACTIVE MANAGEMENT

Permanent patrol.
Identification at the site and in operating maps.
Control of exotic species.
Restoration activities.
Established as a conservation and research zone.
Enclosed access and signage on site.
Fire combat priority.
The use of fire inside the site and in the neighboring sectors is prohibited.
No fishing, hunting, harvesting or any illegal activity allowed within the farm.
Coordination with scientists and experts for monitoring critical conservation attributes.
Communication and dissemination in local communities.
Internal personnel training.
Dissemination of information through pamphlets and posters.

124,9

hectares

CONSERVATION VALUE

Araucaria araucana

A coniferous tree species, endemic to the south of Chile and Argentina. It is classified as Vulnerable in the category of threatened species and was declared a Natural Monument in 1976. The population at Villa Las Araucarias shows genetic differences in comparison to the northern populations of the Nahuelbuta mountain range and the populations of the Andes mountain range in Chile and Argentina. This population is also ecologically different than the rest of the populations, since it is located between 480 and 690 meters above sea level (m.a.s.l.) in granite / metamorphic soils. Its normal distribution is above 1,000 m.a.s.l. and in volcanic soils.

IX Region of Araucanía

Province of Cautín
Community of Lumaco and
Community of Carahue



MONITORING

Conservation Status of the Forest

No recent damage from fires, forestry operations or livestock grazing has been observed. One *Araucaria* specimen showed phytosanitary damage in the plantation area and was checked by company employees responsible for phytosanitary issues, and is not a hazard for specimens that might be affected. It is necessary to develop a specific communication and education plan that allows the prevention of activities that negatively affect the conservation of this HCVA.

HCV of the Araucaria

(*Araucaria Araucana*)*

Regarding the regeneration monitoring indicator, based on the analysis of origin, determined for the *A. araucana* seedlings, asexual reproduction predominates has been verified. Should this situation continue the probability of survival and conservation of the species is very risky and uncertain. It is therefore suggested that restoration of the area declared in 2013 be implemented. In a preliminary manner there are three exotic species that must be extracted and/or controlled being *P. menziessi* and *P. radiata* tree species, and the *Teline monspessulana* bush species. The extraction procedure that began in 2013 must continue.

*Advisor:
Marco Cortes B.
Independent Consultant.

GENERAL INFORMATION REGARDING THE HCVA

Owner

Forestal Mininco S.A.

Administrative Unit

Lincuncuyin V (8271)
San Francisco and Others (8218)
Hijuela Boldo (8276)
Palo Santo (8015)
El Regalo and Others (8310)
Parcelas Lincuncuyin (8505)
El Aromo (8885)
Other...

Total HCVA Area

80,8 ha

Geographical Location

IX Region of Araucanía
Province of Cautín
Community of Toltén



DESCRIPTION

Area declared a HCVA due to the existence of a population of Huillín (Lontra provocax), a threatened species classified as Endangered. In addition this population constitutes the northern limit of the current distribution, which used to inhabit from the VI Region to the Magallanes Region. It also forms part of the "Mahuidanche-Lastarria" MMA Priority Site, IX Region and "Queule" WWF Priority Site.

PROACTIVE MANAGEMENT

Permanent patrol.
Identification at the site and in operating maps.
Control of exotic species.
Riverbank restoration activities.
Established as a conservation and research zone.
Enclosed access and signage on site.
Fire combat priority.
The use of fire inside the site and in the neighboring sectors is prohibited.
No fishing, hunting, harvesting or any illegal activity allowed within the farm.
Coordination with scientists and experts for monitoring critical conservation attributes.
Communication and dissemination in local communities.
Training of Forest Mininco and contractor personnel.
Dissemination of information through pamphlets and posters.

80,8

hectares

CONSERVATION VALUE

Huillín (Lontra provocax)

Species classified by UICN and MMA as in danger of extinction. It is a species considered to be charismatic and is therefore attractive to humans, which helps in the efforts made in respect to its conservation.

Riverbank Forest

Which was defined since it is a key element in the recovery of the Huillín's habitat. The recovery measures for the riverbank forest helps to mitigate the embankment of the river, maintain its flow, maintain water quality, sediment contention buffer zone, positive effects that altogether help to protect the Huillín and also provide refuge against its natural or exotic enemies and generates spaces for the creation of burrows. According to experts this habitat is threatened and it is necessary to focus conservation efforts on recovery of this vegetation formation.

MONITORING

Conservation Status of the Forest

The results of the monitoring of the Conservation Status of the HCVA indicate that its condition is adequately maintained. In addition they reflect that the precautionary measures taken such as training operations personnel have provided good results, since there is no evidence that the work performed in the HCVA has caused any damage to the riverbank nor has it contaminated the water. However, it is essential that the necessary prevention measures be maintained to avoid any impact that could affect the Huillín's conservation value. Therefore the recommendation is to continue reinforcing and identifying threats and managing them together with the community neighboring the HCVA and issues referring to activities inside the management units, specifically the entry of livestock in the fenced areas. Regarding the invasion of exotic species, there is grass and blackberry present, which protect the riverbanks, together with native species (trees and shrubs).

HCV of the Huillín (Lontra Provocax)*

Due to the condition of the rivers observed and the condition of the riverbank vegetation, it is concluded that there are conditions to support the life of the Huillín in the monitored zone, both within and outside Forestal Mininco's land. The Lincuncuyin V (Lot 24 B, 36 and 35) and San Francisco sites stand out as the most important zone, due to the amount of evidence found (feces and tracks) and the presence of burrows. Here one can confirm the effectiveness of a practice encouraged by Forestal Mininco some 15 years ago in this sector, where the first and most important restoration actions were implemented. Through monitoring activities, which contemplated walking within and outside Forestal Mininco's land it was possible to verify the presence of Huillín in the area from Villa Boldo to Lincuncuyin.

*Advisor:

Patricio Méndez M.
Independent Consultant.

IX Region of Araucanía

Province of Cautín
Community of Toltén



Photograph

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The Earth's current biodiversity is the result of 3.7 billion years of evolution. Today's value of biodiversity results from this ancient process of adaptation. Biological diversity will continue for eternity and mankind must protect and respect the process. Forestal Mininco's operating policy emphasizes its commitment to sound environmental management as an integral part of its sustainable forestry business. Since 2005 Forestal Mininco has been developing the concept of **High Conservation Value Areas (HCVA)**, that are identified as containing significant biodiversity attributes. The aim is to apply management strategies that maintain and/or increase the conservation attributes of these high value areas. The purpose of this document is to present details of 11 High Conservation Value Areas covering 9,753.3 hectares. For each High Conservation Value Area, the location, plant species, and required management is described. This documentation is aimed at enabling a greater awareness of biodiversity and the necessity for conservation of these special areas.

