

## The Biodiversity of the Lower Holt at Frensham

In 1998 I bought my house after inspecting 25 other properties, so that I could live next to the substantial, flourishing and abundant forest that is known as the Lower Holt. I have spent the intervening years enjoying the forest that creates a significant backdrop and is a much loved feature of the neighbourhood. This forest, that has remained untouched for decades, was fenced off from humans and dogs many years ago which further enhanced the thriving, remarkable and substantial ecosystem.

Since 2016 I have been teaching students in the Lower Holt at Frensham in support of their Duke of Edinburgh program. Frensham gave me permission to rehabilitate 10 grazing marsupials, 12 arboreal marsupials, two monotremes and a number of avian orphans including water birds and parrots. These orphans were local and their species were already living within the Lower Holt. The pupils were part of that rehabilitation process, learning about native animals and their needs. I chose to rehabilitate animals in the Lower Holt because of its rich ecosystem and biodiversity. Please refer to photos at the end of this document to see education programs in practice. Geoff Marsh was informed of every animal that was rehabilitated into the forest and also of the progress with the students each week.

At no time did Frensham's executives consult with me or any onsite conservationists about the Holt Project and the Bush Hut Accommodation, yet they continued to lead me to believe that I could trust in Frensham's "environmental responsibility" to quote their advertising. I would never have released any animals there if I had even the vaguest hint that this was Frensham's plan all along.

The ecoplanners and environmentalists are of the opinion that the area marked out as the site of the Bush Hut Accommodation is made up of mostly weed species. I must point out that the native and non-native vegetation at this site functions most effectively within the biodiverse ecosystem of the Lower Holt. Just because some of the plants originate from other countries doesn't mean they're not significant for the animals that live within that protective space. If these so called weed species needed to be removed, this could be done slowly so as not to affect the delicate balance within such a finite space.

The nucleus of the Lower Holt forest is exactly where Frensham plans to develop. There was no REAL provision to preserve this finite shale woodland, otherwise the plan to build there would have been more carefully considered. The center of the Lower Holt is the most important space in this endangered ecosystem. If this is removed, the peripheral scrub will be just as it is on the side of the road – sparse, precarious and limited. Any animal that will survive this development will live in squalor, suffering from human degradation, a sight we see all too often. The forest of the Lower Holt appears dense, but once the internal trees are removed, the rooflines of the houses along Colo Street and Evans Street will become evident, so the students certainly won't be immersing themselves in a forest.

Everyone knows how fragile the Australian topsoil is, but one must also remember that the vertical ecosystems – the trees, canopy and understory – are equally as important when it comes to old growth trees. Not only do the trees provide so much surface area to support life, they provide protection, shade and connectivity for safe travel.

Apart from all the animals documented here one must not forget the microorganisms that sustain the lifeforce in this forest – the web of life. If you remove the soil or damage it with bulldozers, you remove this lifeforce.

Following is a list of the many species I have seen and photographed in the Lower Holt. I don't pretend to know of all the animals that live there and I am aware that many more unseen species would also be living in the forest. I have included a brief comment for each species and the connection to their habitat. More photos are available on request.

## **Some of the Avian Species in the Lower Holt**

### ***Superb fairywren***

These birds need long grass and groundcover in which to forage and construct their nests. (Video documentation available)

### ***Pacific Baza hawk***

These raptors spend much of their life in the canopy, breeding and nesting. They prey on small mammals, reptiles, and birds. I had to stop rearing baby orphaned chicks at my home because the Baza Hawks would come to torment them.



*Pair of Baza Hawks in the radiata pine trees of the Lower Holt*

***Brown goshawk***

A shy raptor that is seen regularly roosting in the tall old-growth radiata pine trees.

***Treecreeper***

A small bird that spends their day foraging up and down tree trunks and branches.

***Butcher bird and Grey butcher bird***

I have seen them regularly in the Lower Holt. They normally forage in the dense forest looking for small mammals and insects. I have also witnessed one with a native mouse hung in the fork of a branch waiting to be devoured.

***Brown treecreeper***

Very discreet but can be seen acting like a woodpecker finding all the bugs in the crevices of the tree trunks and branches.

***Darter***

A shy water bird that forages in the brush and water of the Nattai River.

***Purple swamphen***

These chicks were used by Frensham to advertise their environmental responsibility. The students were taught about the needs of these water birds.



*Purple Swamphen chicks*

***Buff-banded rail***

This is a native scrub hen that loves the forest floor and lives among dense reeds and vegetation along the rivers edge. They spend their day lifting the leaves to find bugs among the leaf litter. Well camouflaged but easy to spot because they make so much noise foraging.

***Great egret***

This bird is more often seen in the Upper Holt but does frequent the Lower Holt.

***White-faced heron***

One female was rehabilitated into the Lower Holt. They forage on the banks of the Nattai River. See below the bandage on the left leg. The students were part of this bird's husbandry and rehabilitation plan.

### ***Sulphur-crested cockatoo***

They use the nesting hollows in large trees. Their diet consists of pine nuts and needles of the Casuarina and other native shrubs.



*Sulphur-crested cockatoo*

### ***Yellow-tailed black cockatoo***

These majestic birds come to the Lower Holt for the pine nuts in the Casuarina trees. The radiata pine is also very much a part of their foraging needs. They eat the pine nuts and nest in the tree hollows.

### ***Australian king parrot***

These cheeky parrots love to eat the privet berries. It was common to see over 50 king parrots in the privet 20 years ago, but now we are lucky to see a mere handful of these birds each year.



*Australian King Parrot in the Privet trees*

### ***Eastern rosella or White-cheeked rosella***

This colourful bird spends much of the time in the grass. They roost and nest in bushland but forage on the ground and prefer long grasses for their seeds.

***Crimson rosella***

Privet and wattle seeds are favourite fodder in the Holt.



*Crimson Rosellas feasting on privet berries*

***Rose breasted robbin***

This small bird is very rarely seen these days and their population is on the decline.

***Silvereye***

We have photos of these finches eating privet berries, such an abundant food source in the Lower Holt. Even though privet is native to India, it is very well naturalised and utilised by the forest animals. To remove privet bushes indiscriminately would be fatal for many animals in the forest – a comment many native plant lovers hate to hear, but it’s the truth. Before the “Maltings” denuded their property we would see hundreds of these finches fly over Colo Street and into the Lower Holt every day.



*A Silvereye feasting on privet berries*

***Eastern spinebill***

These tiny honeyeaters takes advantage of the thick understory of the vines and introduced weed species, like pittosporum. They are preyed upon by butcher birds and meat eating birds especially in times of drought. The spinebill darts very quickly in the thick groundcover and understory and avoids open space and possible predation.

### ***White corella***

Many people dislike their presence but they have been forced to move into areas they wouldn't usually inhabit because of the reduction of our forests. These large flocks of birds thrive on native gum nuts and flowers and like the flying fox, perform an important role as pollinators of the forests.

### ***Pink face corella***

Not as common as the white Corella and they suffer the same fate with reduction of forest food and habitat.

### ***Long-billed corella***

Less prevalent than other Corellas but still suffers from the beak and feather disease the is spread by sharing fewer hollows due to timber felling.

### ***Red-browed finch***

These busy finches all roost together and rely on the thick scrub and brambles for protection. To remove this scrubby understory means the destruction of their home. We used to see them in flocks of at least 60. Now their flocks are much smaller.



*A flock of Red-browed finches feeding*

### ***Welcome swallow***

These birds often nest under the eaves and in the ceiling of sheds but they also nest in old growth trees. The Welcome swallow lives close to water so they can source the mud to make their nest. These birds need the protection of the understory to make their way to the river and back.

### ***Australian wood duck or Maned duck***

These are one of the few ducks that nest in trees. The Lower Holt provides a safe haven for them.

### ***Pacific black duck***

These water birds reside near the weir on the Nattai River and travel up and down in the safety of the river.

### ***Galah***

Although more common in Frensham's open areas these birds still need water like all animals. The big old trees in the Lower Holt are habitat trees that contain the nesting hollows used by Galahs. Timber felling and the resultant reduction of nesting hollows forces these parrots to share the same breeding chambers. This is why they are contracting and suffering from new diseases that are being spread among their community today.



*Injured Galah in care*

### ***Masked lapwing or Spur-winged plover***

This ground dweller is often seen at Frensham. The students rescued one with their chicks to protect them.

### ***Spotted turtle-dove***

Although introduced into Australia, this bird lives in the forest and is a source of food for birds of prey.

### ***Crested pigeon***

The Crested pigeon feeds on grasses and nests in the secure lower branches of trees. Although more common than other bird species, they still serve their purpose in the forest.



*Crested Pigeon chick*



*Adult Crested Pigeon*

***Mopoke or Boobook owl***

These raptors reside in the centre of the forest, the location of the proposed Bush Hut accommodation. There aren't as many in the forest these days but the students still hear them from the dorm at night.

***Tawny frogmouth***

The Frensham students have seen the healthy population of Tawny frogmouths in the forest. They are territorial and consider a variety of trees, including the radiata pine, as their home.



*Tawny Frogmouth in the Radiata pine*



*Orphaned chick*

***Painted buttonquail***

Another species in decline. This little bird resides among the leaf litter and nests on the ground. It is very vulnerable to human influences.

***Pallid cuckoo***

Not the most popular semi-indigenous bird, but nonetheless it is migratory and a part of our ecosystem. Their call is obvious during the nesting season.

***Black-faced cuckooshrike***

Also semi-indigenous and migratory.

***White-browed scrubwren***

This funny little bird comes to my car each day to attack the image of itself in the mirrors.

***Red wattlebird***

So named for the red wattle on the side of the neck. This bird is a honeyeater and also catches bugs.

### ***Laughing kookaburras***

A dwindling flock of these popular birds live in the Lower Holt. One flock in particular resides in the tree hollows directly at the site of the intended Bush Cabins. Everyone who has walked the circuit in the forest has seen these kookaburras.



*Laughing Kookaburras*

### ***Sacred kingfisher***

These colourful birds live around the banks of the Nattai River eating insects such as dragonflies, moths, beetles and aquatic animals.

### ***Satin bowerbird***

These birds have a number of bowers constructed by the males who are very shy and allow the young males to practice making their own bowers. The only reason why these animals exist in the forests is because it's private and densely wooded. They venture onto protected grasslands but rarely would anyone see the males. We have lots of photos of these birds and their bowers.



*Satin Bowerbird in care*



*Bowerbirds bower*

### ***Spotted pardalote***

They nest in my backyard in the ground. They prefer a mound of soft dirt and are now very rarely seen in the Southern Highlands.

### ***Eastern whipbird***

The call of this elusive bird can be heard through the Lower Holt. We have lost a lot of birds since the drought but the Lower Holt forest is dense enough to sustain life through the hardest times. The whipbird is fascinating because it sounds like one call but it's actually the meeting call of two birds.

### ***Blackbird***

Although introduced, they live and thrive amongst damp leaf litter. They have a beautiful call.

### ***Willie wagtail***

Sweet little bird that needs protective ground cover as it darts about in search of food. Like most of these birds they will not thrive on the cleared denuded land.

### ***Eastern spinebill***

A family of Eastern spinbills visits from the forest to feed on fuchsia and wattle every day. Small birds just cannot survive in open spaces. If the land is cleared, they are forced out into the open where they are predated upon. Without the understory, they have no food, nesting material or protection.

### ***Black & white birds – Ravens, Crows, Currawongs, Magpies, Pee Wees and Bushlarks***

We are all familiar with these birds.



*Magpie in care*



## Grazing and Arboreal Marsupials, Monotremes Small Mammals and Reptiles

### *Wombat*

Wombats are grazing marsupials breeding one offspring every two to three years. The resident wombats enjoy a private life with ancestral burrows in the Lower Holt. There are many photographs of the students with orphaned wombats. The students have been a part of their rehabilitation. Currently the wombats live in perfect harmony and we have such a great opportunity to study and develop disease resistance. Unfortunately many parasites and multi resistant bacteria were brought in by European settlement, spread by foxes and cattle and sheep, etc. Development and degradation of the land builds up the silt level in the wombat burrows and can often bury them alive. Frensham now plans to bulldoze these ancient burrows and their resident wombats. People have trusted Frensham with their claim to environmental responsibility and they have been betrayed.





*Nearly in Mama Bear's pouch*



*Orphaned wombats in care*

### ***Rakali***

The native water-rat is part of the water community. Seen on the weir, they are very active which indicates a substantial ecosystem within the river system because these animals require lots of freshwater zooplankton. It is important to include the entire ecosystem of organisms and decomposing matter within the Nattai River and the untouched banks.

### ***Native Rodents such as the Antechinus and bush mouse***

These animals play a vital role in sustaining biodiversity and the food chain. So often we see raptors and hawks that have been brought into care that are starving because there is not enough food for them. Despite this common occurrence, the raptors in the Lower Holt are thriving and healthy.

### ***Platypus***

This photograph was taken by a Frensham student. Platypus are often seen at Frensham in the Nattai river. The presence of these large monotremes imply a rich biodiversity of aquatic life. Platypus eat zooplankton and burrow into the muddy banks. Burrows can often be 20 metres long. Frensham's proposed Bush Hut Accommodation will affect the platypus' private and healthy habitat because the development is right on the river. These animals, like many of our indigenous species, shy away from people.



*Platypus in the Nattai River*

### ***Microbat***

There are 13 varieties of Microbats found around the Mt Gibraltar Reserve. These tiny creatures make their home in the crevices of the bark on the radiata pine trees. They go into torpor during the cold winter months and emerge when the weather starts to warm up. They play a big role in the environment because they can consume 50% of their body weight in insects every night.

### ***Flying foxes***

The flying foxes have enjoyed the Lower Holt on their seasonal travels. Unfortunately the Maltings removed all their vegetation, so when the flying foxes return this year they will need this forest. The number of flying foxes in the local area has dwindled mostly because of all the timber felling across the state. Flying fox follows the flowering gum and play a vital role in the pollination of the forests up and down the east coast of Australia. Humans have destroyed much of their home range. The Frensham students would visit the forest to observe the Flying Fox and their behaviours.

***Black Swamp wallaby***

These animals need thick scrub for their protection. Their numbers have dwindled significantly for many reasons including the irresponsibility of people and their pet dogs. The Black Swamp wallabies will not survive in the Lower Holt if this development proceeds.



*Black swamp wallaby juveniles*

***Eastern grey kangaroo***

A very small mob of Eastern grey kangaroos lives in the centre of the Lower Holt – the site of the proposed Bush Hut Accommodation. The student are delighted when they see the resident kangaroos as they jog around the running track. It is important to have grazing marsupials in the Lower Holt because they keep the grass in check, which could otherwise be a fire hazard.



*Eastern grey kangaroos in care*

### ***Sugar glider***

The students are part of the process of building little huts for these exquisite little mammals. They positioned them in trees for their rehabilitation into the forest. Sugar gliders eat insects, gum tips, blossoms and the sugar-sap of the Black wattle tree. They thrive on the massive surface area of the pine trees and glide through the connected canopy in search of food. The drought of 2018–2019 saw the deterioration of their habitat on the north western slopes of Mt Gibraltar and we hope the Sugar gliders made their way to the cooler riparian zone and the ample food source provided by the Lower Holt during that time.



*Sugar glider*

### ***Ringtail possum***

Ringtail possums live in a drey that they build in the upper branches of shrubs or small trees and can be easily seen. A drey is spherical in shape and is molded by the ringtails using small branches, vines and leaf litter. They have several dreys scattered throughout the forest and inhabit each drey at intervals so as not to attract prey in the form of foxes and cats. These arboreal marsupials need the connected canopy in order to travel through the forest. They are territorial and suffer from injuries inflicted by other ringtails if pushed into another's territory due to timber felling.



*Ringtail possums*

### ***Brushtail possum***

The Frensham students played a role with the rehabilitation of three orphaned Brushtail possums. They made possum boxes and released the brushies in an area of connected canopy. The students also planted food trees for these and many other animals.



*Brushtail possum*

### ***Echidna***

There are a number of echidnas on the property, some of which were relocated here because they were found in dangerous circumstances such as walking down the main street of Bowral – mostly due to development. Lucky these survived, because mostly echidnas just get bulldozed into the ground. This proposed Bush Hut Accommodation would bury these echidnas, as they like to burrow just below the topsoil.



*Echidna foraging for food*

## Insects

### ***The Monarch butterfly, other butterflies and caterpillars.***

The forest used to be filled with the Monarch butterfly but they disappeared in the drought and luckily they have now returned. It is well documented that this species is threatened. They have a beautiful bright orange wings with black dots on the upper side of the wings.



*Monarch butterfly*

### ***Walking Sticks***

The biggest stick insects I have ever seen live in the Lower Holt. Their population dwindled through the drought and we are now seeing a resurgence.

### ***Bogong moths***

Bogong moths often visit my kitchen window at night. There are a very important food source for many animals such as the Nightjar or Mopoke.

### ***Grasshoppers***

Rarely do people see the grasshoppers these day because of overuse of insecticides, mowing and overgrazing of the land. They are an important food sources for many birds.

### ***Beetles***

There are many species of beetle that can be found in the Lower Holt. One of which is the Christmas beetle that was very prevalent many years ago, but are now under threat due to land development.

### ***Native bees***

The flowers of the privet and wattle trees provide a great food source for the native bee, another casualty of the overuse of pesticides.

### ***Cicadas***

Deafening in summer, they form an important part of the food chain as well.



*Cicada molt*

## **Aquatic Life**

The biodiverse fresh water community along the banks and within the Nattai River in the Lower Holt must be very substantial to support the growing platypus and native water rat populations.

### ***Water dragon***

The Water dragon is semi-aquatic. They eat insects and are often seen along the bank of the Nattai River.

### ***Banjo frog***

The Banjo frog tadpoles eat decomposing matter and under natural conditions prevent water from becoming rancid. The adult frog digs a metre into the ground to hibernate during winter months.



*Banjo frog tadpoles*

### ***Snake neck tortoise***

The Snake neck tortoise lives in the Nattai River and migrates up and down the waterway. Cars, roads and human traffic annihilate these shy animals.



*Snake neck tortoise*

### ***Aquatic plants and animals***

Pond weed, reeds and plankton need algae and microorganisms to grow. Other aquatic species include small protozoa, crustaceans, nymphs, larva, mayfly, water snails, fish and water beetles. The very presence of this abundant aquatic life indicates a substantial level of biodiversity and a thriving ecosystem.

## **Reptiles**

People in their ignorance mow and clear the land to try to get rid of snakes, but the grass and ground cover is so important to the snake's habitat. If you provide habitat corridors in the form of long grass for the snakes then they will naturally stay away from humans.

### ***Copperhead snake***

Although not very popular, the small Copperhead snake is a very shy creature and they rarely attack people. Snakes can feel you walking and hide long before you are even aware of their presence.

### ***Blue-tongued lizard***

Blue-tongued lizards with their smooth scales are the largest of the skinks. They are harmless and have a distinctive blue tongue. They live among the leaf litter and tall grasses and at night seek the shelter of a large rock or fallen tree. They eat a variety of plants and animals including beetles and snails.



*Blue tongues rehabilitated in Frensham*

*“If you provide habitat corridors in the form of long grasses, dense understories and connected tree canopies then the birds and animals thrive and live as they are meant to, free from the human incursion.”*

### **Tania Clancy**

Resident of Colo Street, Mittagong

Conservationist, Citizen Scientist, Educator and registered Wildlife Carer

*September 2021*