

Fauna & Flora Study
of
The Proposed Tempus Development Site, Swansea



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NB With the exception of the Bat Roost on p5, all photographs taken by the author in the vicinity of the site

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REMNANT FAUNA - TEMPUS

(a) Native

<i>Macropus rufogriseus</i> ¹	Bennetts wallaby
<i>Trichosurus vulpecula</i> ²	Common brushtail possum
<i>Aquila audax fleayi</i>	Wedge-tailed eagle
<i>Corvus tasmanicus</i>	Forest raven
<i>Acritoscincus duperreyi</i>	Three-lined skink (Oviparous)
<i>Myrmecia pilosa</i>	Jack jumper ants
Short-beaked echidna	<i>Tachyglossus aculeatus</i> (Pictured below)

(b) Introduced

<i>Sturnus vulgaris</i>	Common starling
<i>Ommatoiulus moreletii</i>	Portuguese millipede

Short-beaked Echidna



¹ Close to the border fence beyond which is dense scrub. Scat only and then very little indeed

² Underneath a Eucalyptus tree well inside the property.

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FAUNAL RE-ESTABLISHMENT - TEMPUS

MAMMALS

(a) Monotremes

Short-beaked echidna: Tachyglossus aculeatus (Pictured on previous page)

This species is the most widespread mammal in Australia and occurs in all habitats. It is an egg-laying mammal and thus is a monotreme. T. aculeatus feeds on ants and termites. Typically they shelter in or under logs and within clusters of thick bushes.

(b) Marsupials

Common ringtail possum: Pseudocheirus peregrinus

This charming marsupial is primarily a folivore, but it also feeds upon the blossoms of Eucalyptus trees and other native plants as well as upon some of their fruit. Ringtail possums construct their nests, known as dreys, from grasses, bark and twigs. Interestingly this species of possum is coprophagous – an organism that feeds upon faeces. In the present instance, while still in its drey, upon awaking early in the evening, it feeds upon its own soft faeces. In so doing it can re-digest and gain the maximum nutrients possible from what it ate the previous night! While it is foraging for food shortly thereafter it defecates hard faecal pellets that have been digested twice. The latter faecal pellets are then distributed at random onto the ground below. In a suitable ecosystem this species is almost completely arboreal and that is precisely the canopy habitat Tempus proposes to recreate. Note: when available this species feeds upon rose buds!

Tasmanian pademelon: Thylogale billardierii

A very common species in and around Swansea. Our plans for re-establishing meaningful areas of native plants will suit it very well indeed both with respect to diurnal resting sites and sources of diet plants – grasses, herbs and woody plants to browse upon.

Southern brown bandicoot: Isoodon obesulus. (Pictured below)

Feeds primarily upon invertebrates, but primarily on insects, both larval and adult as well as upon earthworms, fungi and roots. This species builds nests from plants but primarily from grass. Burning small portions of the local environment is highly beneficial.

Southern Brown Bandicoot



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Eastern native quoll: Dasyurus viverrinus

This quoll species is an opportunistic carnivore with its main diet being that of insects, but in addition they feed upon birds and their eggs as well as on small mammals. Finally, they also consume carrion. Eastern native quolls inhabit dry sclerophyll forests and native scrub which are interspersed with grasslands in close proximity to Eucalypt trees.

Dusky antechinus: Antechinus swainsonii

This is a delightful marsupial mouse that inhabits tall open forests underneath which (i) they are to be found near native grasses which the females use along with leaves to line their nests and, in addition, (ii) in dense native scrub - even in association with ferns. This species feeds upon insects and other

invertebrates as well as upon some fruiting bodies. The dusky antechinus is active both diurnally and nocturnally; that is to say it is cathemeral. Thus local residents are likely to observe these charming, pouched native mice from time to time.

(c) Placentals

There are eight species of bats in Tasmania and all of them are insectivorous. None of our species of bats eat fruit or consume blood. Tempus plans to deploy man-made bat roosts well above ground level in trees in an attempt to establish local populations. In addition, a small number of rock 'caves' are envisaged and they may eventually also serve as roosting sites and possibly even breeding sites for bats while concurrently catering for some environmental needs of other native fauna.

Exemplar of Man-made Bat Roost



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BIRDS

A very large number of native avian species occur in Tasmania. Already the wedge-tailed eagle is present overhead at the site in question. However, once a broad cross-section of native flora have grown sufficiently on the site proposed by Tempus coupled with the retention of existing tree hollows, a broad cross-section of species on the list that follows are likely to become re-established. Some of these will be permanent residents while others will be present seasonally. The list does not pretend to be all inclusive, but rather provides the reader with but a sample of species that, given time, are likely to live locally.

Yellow-tailed black-cockatoo	<i>Calyptorhynchus funereus</i>
Swift parrot	<i>Lathamus discolour</i>
Green rosella	<i>Platycercus caledonicus</i> (endemic)
Eastern rosella	<i>P. eximius</i>
Blue-winged parrot	<i>Neophema chrysostoma</i>
Southern boobook	<i>Ninox novaeseelandiae</i>
Masked owl	<i>Tyto novaehollandiae</i>
Tawny frogmouth	<i>Podargus strigoides</i>
Superb fairy-wren	<i>Malurus cyaneus</i>
Spotted pardalote	<i>Pardalotus punctatus</i> (Pictured next page)
Striated pardalote	<i>P. striatus</i> (Pictured below)
Yellow-throated honeyeater	<i>Lichenostomus flavicollis</i>
Eastern spinebill	<i>Acanthorhynchus tenuirostris</i>
Scarlet robin	<i>Petroica multicolour</i>
Grey fantail	<i>Rhipidura fuliginosa</i>
Australian white-backed magpie	<i>Gymnorhina tibicen</i>

Striated Pardalote



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Spotted Pardalote



White-faced Heron



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Yellow tailed black cockatoos



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LIZARDS

Blotched blue-tongue: *Tiliqua nigrolutea*

Blue tongues do well on rural properties where they burrow under rocks or logs in micro-habitats surrounded by tussocks of grass or under leaf litter. It is an omnivore that feeds on insects, snails, slugs and skinks as well as on flowers and fruit, carrion and even on young mice etc. Interestingly it is viviparous: that is to say it does not lay eggs, but rather it gives birth to live young.

Tasmanian tree skink: *Carinascincus pretiosus* (endemic)

A skink that possess long legs for climbing in trees. It lives under bark and in tree hollows. In addition it may shelter under rocks and in crevices. It feeds primarily upon invertebrates.

Three-lined skink: *Acritoscincus duperreyi* This skink does well in coastal heaths. It is an egg-laying species and thus differs from most other Tasmanian lizards. They are found in tussocks of grass or in leaf litter. They lay up to 10 eggs under rocks. They appreciate warmth and thus the rocky outcrop in the proposed development site by Tempus would be likely to provide an excellent micro-habitat for them. This lizard feeds upon insects and other small invertebrates.

She-oak skink: *Cyclodomorphus casuarinae*

This is a widely distributed species that is endemic to Tasmania. It, like the blotched blue tongue lizard, is viviparous. Unfortunately though they are preyed upon by cats. Nevertheless, Tempus is foreshadowing the planting of a meaningful number of she-oaks and thus this skink may well become established.

AMPHIBIANS

There exist eleven species of frogs in Tasmania. Tempus is to establish a small series of 'tarns' within the 17.9 ha site. These tarns will provide permanent bodies of water in which three-dimensional habitat is to be established – including shelving rock. Those rocks will help to create shelter from predation for the frogs and their tadpoles. In addition, unglazed clay planting pots laid on their sides and buried into the soil adjacent to the tarns will create excellent habitat/shelter for adult frogs. Here in Tasmania there exist three endemic species of frogs along with another two species that are classified as being threatened. Species likely to colonize this area include: the endemic Tasmanian froglet, *Crinia tasmaniensis*. However, owing to the possible introduction of the chytrid fungus, *Batrachochytrium dendrobatidis*, absolutely no amphibian species will be introduced to the site artificially.

Three additional species of frog that may possibly become established on the proposed site in question are:

- (i) the brown tree frog, *Litoria ewingi*
- (ii) the common froglet, *Ranidella signifera*.
- (iii) the spotted marsh frog, *Limnodynastes tasmaniensis*

A species that may self- colonise the site being proposed by Tempus is as it is widely distributed along the eastern coast of Tasmania including near Swansea. Along the coast in question it is found under rocks in open woods and in farm dams.

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INSECTS

Lacewings: Order Neuroptera

Lacewings are one of the most archaic insects that display complete metamorphosis (i.e.: they exhibit egg, larval, pupal and adult phases in their life cycles). They are highly beneficial, predatory insects that require exacting micro-habitats in which to develop as 'ant-lions'. Details thereof will be provided (by myself - AWO) should those be deemed to be relevant at this point in time. However, such sites will be positioned so that they are positioned immediately beside a walking path(s). **Stonework will be an essential component of this recommendation.** Some species lay stalked eggs in a semi-circle. The eggs are stalked so that the first (and so on) to hatch does/do not eat its siblings!!

Glow worms: Order Diptera, Family Mycetophilidae, probably - Arachnocampa tasmaiensis. Openly this suggestion is ambitious, but it does have a reasonable chance of success. Glow worm larvae produce snares that are bioluminescent and thereby attract very small insects which get entrapped in the sticky mucilaginous series of hanging droplets. These insects are usually associated with caves and **one display will be found inside an artificial stone cave while a second display, also in stonework,** will take the format of a stone wall down which will flow a thin film of water. Growing on that wall will be a thin layer of climbing and/or cascading plants.

Native bees: Order Hymenoptera in several Genera - in Tasmania the masked bees.

They nest in pre-existing holes which we can mimic by drilling small diameter holes into pieces of hardwood strategically located.

Praying mantids: Order Mantodea (See Picture on p8)

Exopterygote insects (immature forms look like adults, but have truncated wing buds and/or are wingless). Highly beneficial predatory insects with raptorial (grasping) forelegs. These insects lay their eggs in multi-chambered oothecae (egg cases).

Lady beetles: Order Coleoptera, Family Coccinellidae

Praying Mantis



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Another highly beneficial, albeit endopterygote insect. In this instance both the larvae and the adults feed on the identical prey – nymphal and adult aphids i.e. exopterygote pest species. This endopterygote represents a case of ‘this goes with that at Suzannes’. That is to say the larvae in no way resemble the adults!

Flower wasps: Order Hymenoptera, Family Tiphidae

Diamma bicolor

A very attractive and beneficial wasp in which the male is winged and the female wingless (apterous). The female has the appearance of a large blue ant with bright orange legs. These insects search out and oviposit (lay an egg into) a pest species in which a new wasp will emerge. They are brightly coloured to warn potential predators not to attack them as they possess a painful sting. Order Lepidoptera, Family Bucculatricidae

Scribble gum moths belong to the Genus Ogmograptis which have been traced back to the supercontinent Gondwana. Thus they are truly relictial!!! While feeding, these larvae of these insects leave very distinct trails on the bark of a number of Eucalyptus species including upon Eucalyptus pauciflora. Order Lepidoptera, Family Saturniidae

Emperor gum moth: *Opodiphthera eucalypti* – possibly Australia’s most spectacular and best known moth, both as a caterpillar and an adult. Some of the pupae of this moth undergo diapause: some pupae emerge as adults the following summer, but others remain dormant for up to five years thereafter! The process of emergence itself is fascinating: as the moth prepares to leave the cocoon it exudes a liquid which causes one end of the cocoon to become soft. Then the moth uses a protuberance at the base of its wings to cut a hole in the now softened base of the cocoon through which the now adult moth emerges. Adult Emperor gum moths have degenerate mouth parts and thus adults never feed, but rely exclusively upon nutrients left behind accumulated during their caterpillar developmental stage! Residents living at the proposed development site will greatly appreciate observing this spectacular moth. Order Coleoptera, Family Buprestidae

These most attractive insects are commonly called the jewel beetles. Adults are attracted to blossoms of Eucalyptus spp., and other native Australian flora where they feed upon nectar. Given that in a number of cultures overseas these insects were actually used as jewellery their presence at Tempus’ site will enhance the pleasure of one’s stroll.

SPIDERS

So very many birds incorporate silk from spider webs into their nests, thus it is that a healthy population density of spiders is a very important component of the local ecosystem. Given Tempus’ stated goals to re-establish bio-diversity on the site there is absolutely no question that insect populations will return in the short-term thereby providing a suitable food supply and thus in association with native plantings will create first-rate spider habitat.

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REMNANT FLORA - TEMPUS

(a) Native

<i>Lomandra longifolia</i>	Sagg ³
<i>Bursaria spinosa</i>	Prickly box
<i>Dodonaea viscosa</i>	Broadleaf hopbush
<i>Allocasuarina littoralis</i>	Black she-oak
<i>Allocasuarina verticillata</i>	Drooping she-oak
<i>Eucalyptus viminalis</i>	White gum
<i>Juncus pallidus</i>	Pale rush
<i>Acacia mearnsii</i>	Black wattle
<i>Acacia verticillata</i>	Prickly moses
<i>Diplarrena moraea</i>	White flag iris
<i>Lepidosperma laterale</i>	Variable sword-edge

(b) Introduced

<i>Ulex europaeus</i>	Gorse
<i>Onopordum acanthium</i>	Scotch thistle

FLORA - NORTH OF TEMPUS

(a) Native

<i>Lomandra longifolia</i>	Sagg
<i>Bursaria spinosa</i>	Prickly box
<i>Dodonaea viscosa</i>	Broadleaf hopbush
<i>Allocasuarina littoralis</i> ⁴	Black she-oak NOTE:
<i>Allocasuarina verticillata</i>	Drooping she-oak
<i>Eucalyptus viminalis</i>	White gum
<i>Diplarrena moraea</i>	White flag iris
Sedge	<i>Callistemon pallidus</i> ⁵
<i>Astroloma humifusum</i>	Native cranberry
<i>Exocarpos cupressiformis</i> ⁶	Native cherry.
<i>Ozothamnus scutellifolius</i> ⁵	Button-leaf everlastingbush
<i>Poa</i> sp. ⁵	Common tussock grass
<i>Themeda triandra</i>	Kangaroo grass
<i>Pomaderris elliptica</i>	Native dogwood
<i>Lepidosperma laterale</i>	Variable sword-sedge
<i>Dianella revoluta</i>	Pale flaxlily
<i>Epacaris impressa</i>	Common heath

(b) Introduced

<i>Ulex europaeus</i>	Gorse
<i>Agapanthus</i> sp. ⁵	African lily (even though it is not a lily)
<i>Lagurus ovatus</i> ⁷	Hare's tail grass

³ Extremely heavily grazed

⁴ Both monoecious and dioecious trees of this species are present

⁵ Species yet to be confirmed as no flowers are present at this time of the year.

⁶ a root parasite often on eucalypts. In this instance on *Eucalyptus viminalis*

⁷ Mediterranean in origin, but naturalised in Australia

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RECOMMENDATIONS

It is extremely important to note that at present, owing to the extreme grazing pressure being exerted upon the 17.9 ha block of land in question, many weed species are not currently evident. However, soon after livestock are removed, it is highly likely that these species will become evident and will require management. **Interestingly and most importantly: modern restorative theory encourages on-going, but light grazing pressure during the initial transition phase to native vegetation.** That practice will however necessitate some existing copses to be fenced and careful thought will be required to manage in one way or another new plantings of native flora. **In particular it is extremely important to appreciate that,** although seedling Eucalyptus plants typically cope with light grazing pressures, those of Allocasuarina species do not!

Tempus will be utilising 'Turf Roofs' on areas of the homes and has sought advice as to the best types of endemic plants that could be used for this purpose. The following are proposed:

Hovea Tasmanica
Kunzea Ambigua
Velleia Paradoxa
Westringia Hybrid

Purple Pea
White Kunzea
Spur Velleia
Blue Gem

Westringia



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White Kunzea



Purple Pea



Spur Velleia



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Tempus has also asked for a recommendation for new large endemic trees and the following is proposed:

Eucalyptus Leucoxylon

Yellow Gum

