

Appendix F – Fauna Data

Fauna Species List

Fauna Likelihood of Occurrence Assessment

Table F.1 Fauna likelihood of occurrence

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
Birds								
<i>Acanthiza iredalei iredalei</i>	Slender-billed Thornbill (western)		V			X	The western subspecies of the Slender-billed Thornbill inhabits saltbush and samphire flats, as well as chenopod shrublands that are dominated by samphires or Maireana and Atriplex associations (Morcombe 2004). Its known distribution extends from near Carnarvon in Western Australia, east through central Western Australia, and across the Nullarbor Plain to Whyalla, Port Augusta and Port Davis in South Australia. It is found throughout the Nullarbor region and other populations are confined to some of the larger ephemeral salt lakes and a band of coastal samphire on the mid-west coast. The range is fragmented, with populations on the west central coast from Lake MacLeod down to Hamelin Bay and a population on Peron Peninsula. Other populations occur on Lake Anneen and Lake Austin, Lake Barlee, Lake Ballard, Lake Way and Lake Throssell (Nevill 2008).	Unlikely There are no significant areas of suitable chenopod shrubland habitat for this species present within the Project Area. There are also no lake systems within the Project Area that would support this species.

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Amytornis striatus subsp. striatus</i>	Striated Grasswren (inland)	P4		X			The inland sub-species of the Striated Grasswren occur in spinifex, preferring big old clumps on sand dunes, and in the eastern part of the range large spinifex clumps under mallee. This sub-species has a wide range from the sandy deserts of interior WA through to mallee areas of north-western Victoria (Morcombe, 2004).	Possible There is some suitable habitat present for this species within the Project Area, consisting of spinifex sandplains. These areas appear to be mostly degraded and therefore unlikely to support a population. There are two records within 50 km of Goldfields Highway, approximately 30 km south of the highway, and 76 km south-west of Wiluna (dated 1983).
<i>Apus pacificus</i>	Fork-tailed Swift	IA	Mi		X	X	In south-west WA there are sparsely scattered records along the south coast, ranging from the Eyre Bird Observatory and west to Denmark. They are widespread in coastal and sub-coastal areas between Augusta and Carnarvon, including some on near-shore and offshore islands. This species is almost exclusively aerial, flying less than one metre to at least 300 m above ground. This species is considered rare in the south-west region (DotE 2013).	Unlikely The Fork-tailed Swift is known to be aerial in nature and rarely utilises terrestrial habitats. It is unlikely the habitat in the Project Area would be utilised by this species.

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Ardea modesta</i>	Great Egret	IA	Mi		X	X	The Eastern Great Egret is widespread in Australia. They have been reported in a wide range of wetland habitats, include swamps and marshes; margins of rivers and lakes; damp or flooded grasslands, pasture or agricultural lands; reservoirs; sewerage treatment ponds; drainage channels; salt pans; salt marshes; mangrove, and a range of coastal/marine habitats (DotE 2013)	Unlikely There is no suitable habitat for the Great Egret within the Project Area.
<i>Ardeotis australis</i>	Australian Bustard	P4		X	X		The Australian Bustard occurs across much of Australia, including across most of Western Australia, except in heavily wooded areas in the south. The species is found in tussock grassland, Triodia hummock grassland, grassy woodland, and low shrublands. They will also use denser habitat that has been opened up by recent fire. They lay usually one egg, directly on the ground, typically along a boundary between open grasslands and more protective shrubland or woodlands. This species is typically widespread and nomadic, but locally scarce (Morcombe, 2004).	Present Australian Bustard prints were recorded within the Project Area during the field assessment.

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Burhinus grallarius</i>	Bush Stone-curlew	P4			X		<p>The Bush-stone Curlew inhabits dry open woodlands, lightly timbered country, mallee and mulga; anywhere with groundcover of small sparse shrubs, grass or litter of twigs. It avoids dense forest and closed canopy habitats (Morcombe 2004). In southern Australia, they persist most often where there is often a well-structured litter layer and fallen timber debris. In general, habitat occurs in open woodlands with few, if any, shrubs, and short, sparse grasses of less than 15 cm in height, with scattered fallen timber, leaf litter and bare ground present. Overall the important structural elements of Bush Stone-curlew habitat appear to be low sparse ground cover, some fallen timber and leaf litter, a general lack of a shrubby understory and open woodlands.</p>	<p>Present</p> <p>One Bush Stone-curlew individual was recorded on camera trap 4, located at the dam on the north side of the highway, during the field survey.</p>
<i>Cacatua leadbeateri</i>	Major Mitchell's Cockatoo	S		Not recorded in desktop searches but known to occur in the region.			<p>Major Mitchell's Cockatoo occurs in open sparsely timbered grasslands, drier farmlands with well-treed paddocks, mulga and similar open scrublands, open mallee country, callitris and casuarina country, watercourse trees and is never far from water (Morcombe 2004). The main requirements of the species are trees with suitable nesting hollows and fresh surface water.</p>	<p>Possible</p> <p>While the Major Mitchell's Cockatoo was not recorded during the desktop searches or the field survey, the Project Area does occur within the species known range and there are some small areas of suitable habitat, particularly around the Bubble Creek area.</p>

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Charadrius veredus</i>	Oriental Plover	IA	Mi		X	X	The Oriental Plover is a non-breeding visitor to Australia, where the species occurs in both coastal and inland areas, mostly in northern Australia. Most records are along the north-western coast, between Exmouth Gulf and Derby in Western Australia, and there are records at a few scattered sites elsewhere, mainly along the northern coast, such as in the Top End, the Gulf of Carpentaria and on Cape York Peninsula. The species also often occurs further inland on the 'blacksoil' plains of northern Western Australia, the Northern Territory and north-western Queensland. It is seldom recorded in southern Australia. The species does not breed in Australia (Morcombe 2004).	Unlikely The Oriental Plover has been recorded within 20 km of the Project Area, however there is no suitable habitat for the species present.
<i>Falco hypoleucos</i>	Grey Falcon	T		Not recorded in desktop searches, but found to be present during field survey.			The Grey Falcon inhabits lightly timbered country, especially stony plains and lightly timbered acacia scrub. This species is considered scarce to rare and is usually found singularly or sometimes in pairs (Morcombe, 2004).	Present One Grey Falcon individual was observed within Acacia shrubland in the Project Area during the field survey.
<i>Falco peregrinus macropus</i>	Peregrine Falcon	S		X	X		The Peregrine Falcon is seen occasionally anywhere in the south-west of Western Australia. It is found everywhere from woodlands to open grasslands and coastal cliffs - though less frequently in desert regions. The species nests primarily on ledges of cliffs, shallow tree hollows, and ledges of building in cities. (Morcombe, 2004).	Likely The Peregrine Falcon is known to occur in the region and is likely to use the Project Area opportunistically. There are no nesting areas for this species present within the Project Area.

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Leipoa ocellata</i>	Malleefowl	T	V, Mi	X	X		<p>The Malleefowl generally occurs in semi-arid areas of Western Australia, from Carnarvon to south east of the Eyre Bird Observatory (south-east Western Australia). It occupies shrublands and low woodlands that are dominated by mallee vegetation, as well as native pine Callitris woodlands, Acacia shrublands, Broombush (<i>Melaleuca uncinata</i>) vegetation or coastal heathlands. The nest is a large mound of sand or soil and organic matter (Jones and Goth 2008; Morcombe, 2004). They prefer vegetation with a dense understorey of shrubs and their breeding habitat is characterized by light soil and abundant leaf litter, which is used in the construction of nesting mounds. Density of the canopy cover is an important feature associated with high breeding densities, while grazed areas generally have much lower densities. In the WA Wheatbelt, Malleefowl distribution is associated with landscapes with lower rainfall, greater amounts of mallee and shrubland that occur as large remnants, and lighter soil surface textures.</p>	<p>Likely</p> <p>There is suitable habitat for the Malleefowl within the Project Area and the species has previously been recorded approximately halfway between Meekatharra and Wiluna in 2010. It is likely that the region is sparsely populated with the species as the Project Area is located at the northern extent of its range. In addition there have also been multiple records (sightings, tracks and mounds) in 2006-7 of Malleefowl, approximately 20 km south of Goldfields Highway, just north of the Sandstone Wiluna Road. No evidence of Malleefowl was recorded within the Project Area during the field survey, however two historic mounds were recorded approximately 14 km south.</p>

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Merops ornatus</i>	Rainbow Bee-eater	IA	Mi	X	x	X	Open forests and woodlands, shrublands, and in various cleared or semi-cleared habitats, including farmland and areas of human habitation. It also inhabits sand dune systems in coastal areas and at inland sites that are in close proximity to water (Morcombe, 2004).	Present Rainbow Bee-eaters were sighted within the Project Area during the field assessment.
<i>Polytelis alexandrae</i>	Princess Parrot	P4	V			X	The Princess Parrot is confined to arid regions of Western Australia, the Northern Territory, and South Australia. The Princess Parrot inhabits sand dunes and sand flats in the arid zone of western and central Australia. It occurs in open savanna woodlands and shrublands that usually consist of scattered stands of Eucalyptus (including <i>E. gongylocarpa</i> , <i>E. chippendalei</i> and mallee species), Casuarina or Allocasuarina trees; an understorey of shrubs such as Acacia (especially <i>A. aneura</i>), Cassia, Eremophila, Grevillea, Hakea and Senna; and a ground cover dominated by <i>Triodia</i> species. It also frequents Eucalyptus or Allocasuarina trees in riverine or littoral areas.	Unlikely The Princess Parrot is typically found in the central desert region around Giles, Warburton and in the Great Sandy Desert. There are no records of the species within 50 km of the Project Area, and the closest historical record is from the Kumarina area in 1919. Therefore it is considered unlikely to occur.

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Tyto novaehollandiae subsp. novaehollandiae</i>	Masked Owl (southern subsp)	P3		X	X		The Masked Owl is found across a range of habitats from wet sclerophyll forest, dry sclerophyll forest, non-eucalypt dominated forest, scrub and cleared land with remnant old growth trees. There are however several aspects of habitat preference which appear to be common: the Masked Owl requires large hollows in old growth eucalypts for nesting; it often favours areas with dense understorey or ecotones comprising dense and sparse ground cover, they are often recorded foraging within 100-300 m of the boundary of two vegetation types (Bell & Mooney, 2002).	Unlikely The NatureMap record of this species is likely to be an error as the southern subspecies of the Masked Owl is restricted to south-west corner of WA.
Mammals								
<i>Dasyercus blythi</i>	Brush-tailed Mulgara	P4			X		The Brush-tailed Mulgara is primarily nocturnal, shelters in burrows and feeds on insects, other arthropods and small vertebrates. This species inhabits spinifex grasslands and, in central Australia, lives in burrows that it digs on the flats between low sand dunes (Van Dyck and Strahan 2008). The Mulgara is a solitary species exhibiting high site fidelity and a low propensity for dispersal once a home range has been established (Masters and Crowther 2003). Males and females maintain home ranges of 1.4 to 14 hectares (Masters and Crowther 2003) which on average, overlap by less than 20% (Masters and Crowther 2003).	Likely to be present Mulgara active burrows, old burrows, scats and tracks were recording throughout the spinifex dominated areas of the Project Area during the field survey. Based on the findings of Woolley et al. (2013) and the information presented during the DPaW Mulgara workshop (11/12/13), it is likely that this evidence is of Brush-tailed Mulgara. There also is a record of the species 40 km north-east of Wiluna (record by Pat Woolley).

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Dasycercus cristicauda</i>	Crest-tailed Mulgara	T	V	X	X		<p>In recent times the Crest-tailed Mulgara has been found in the southern Simpson Desert where the borders of the NT, Qld and SA converge and in the Tirari and Strzelecki Deserts of SA. Historic records indicate that it once occurred on the Canning Stock Route and Nullarbor Plain in WA. The Crest-tailed Mulgara inhabits the inland sandy deserts of central Australia, primarily amongst Spinifex grasslands. The species is found on sand dunes with a sparse cover of Sandhill Canegrass (<i>Zygochloa paradoxa</i>) or areas around salt lakes with Nitre Bush (<i>Nitraria billardieri</i>) (Woolley 2005). This contrasts with the habitat of the Brush-tailed Mulgara, which is generally spinifex grasslands with medium to dense cover (Van Dyck and Strahan 2008). Burrows occur predominantly on the dunes, mostly at the base of large Canegrass clumps or Nitre Bush hummocks.</p>	<p>Unlikely</p> <p>There are three records of the Crest-tailed Mulgara from one location approximately 10 km south of the Goldfields Highway in 2007. Based on the findings of Woolley et al. (2013) and the information presented during the DPaW Mulgara workshop (11/12/13), it is likely that these are misidentified records and they actually represent the Brush-tailed Mulgara. In addition, Crest-tailed Mulgara records are typically from sand dune habitats, of which there is only one limited area in the Project Area.</p>

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Macrotis lagotis</i>	Greater Bilby	T	V	X	X		<p>The Greater Bilby occupies three major vegetation types; open tussock grassland on uplands and hills, mulga woodland/shrubland growing on ridges and rises, and hummock grassland in plains and alluvial areas. In the south of its range, the Greater Bilby lives on rises and ridges among sparse grasses, especially mitchell grass <i>Astrelba</i> and short shrubs. In Western Australia there are disjunct populations in the Gibson Desert, south-western Kimberley, inland areas of the Pilbara and northern Great Sandy Desert.</p>	<p>Unlikely</p> <p>Historical Greater Bilby records are known from the Wiluna area (1927-8, 1984), however as the region has pastoral use and has been heavily degraded, it unlikely that the Bilby still occurs in the region. During the field survey 28 Bilby Search Areas were undertaken, and some old potential burrows were recorded. However no active burrows were recorded and the species was not recorded on any of the camera traps.</p>

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Notoryctes caurinus</i>	Northern Marsupial Mole	T	En			X	<p>The Northern Marsupial Mole lives underground, primarily in sand dunes and sandy soils along river flats. It occasionally comes to the surface, apparently more frequently after rain. Underground signs of marsupial moles are usually found on well-vegetated dunes (where prey may be more abundant) and generally not in swales (flats between dunes). It is thought that this may be due to the sand between dunes being too compact for the animal to effectively move through. The vegetation in Northern Marsupial Mole habitat is generally Acacia spp., small shrubs and Desert Oak (<i>Allocasuarina decaisneana</i>) and often (but not always) associated with spinifex (<i>Triodia</i> spp.). Sandy river flats are also thought to be potential Northern Marsupial Mole habitat, as they are rich in food resources and may act as dispersal corridors. The Northern Marsupial Mole cannot safely travel far over hard ground, so connectivity of dune habitat is likely to be important for maintaining the species' range and successful dispersal. Underground signs are generally found between 20 to 100 cm below the dune surface (DotE 2013).</p>	<p>Unlikely</p> <p>There is only one small sand dune system within the Project Area (north side of the highway at SLK 732) that would provide suitable habitat for the Northern Marsupial Mole. Given the isolated nature of this system, it is unlikely that the species occurs there. However, given the difficulty in detecting the species it remains unknown. Records of this species are predominantly known from the Little Sandy Desert, Great Sandy Desert and Gibson Desert regions of WA.</p>

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Rhinonictoris aurantia (Pilbara form)</i>	Pilbara Leaf-nosed Bat	T	V			X	<p>The Pilbara Leaf-nosed Bat, is restricted to the Pilbara region and field surveys suggest that it is divided into three discrete subpopulations (eastern Pilbara mines and granite, Hamersley Range, Upper Gascoyne). The Pilbara Leaf-nosed Bat is restricted to caves and mine adits (horizontal shafts) with stable, warm and humid microclimates because of its poor ability to thermoregulate and retain water. The roost is usually over pools of water in deeper mines, or deep within the mine or cave structure in an area that maintains elevated temperature and humidity. Thus, the roosting site is often at depth in mines; in small crevices within caves, usually those ascending between sedimentary rock layers; and with associated groundwater seeps. In the Pilbara few actual roost clusters have been observed, perhaps the only one being that in the Comet mine prior to 1992. Simple vertical shafts are not used and shallow caves beneath mesa bluffs are also unlikely roost sites.</p>	<p>Unlikely</p> <p>The Pilbara Leaf-nosed Bat has not been recorded in the Mid-West region, and the closest record of the species is located 250 km north of the Project Area (1999).</p>

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Sminthopsis longicaudata</i>	Long-tailed Dunnart	P4		X	X		Sparse records exist for this species which are rare and scattered, however it may be locally common at times. In winter the Long-tailed Dunnart feeds on arthropods: mainly beetles and ants, but also spiders, cockroaches, centipedes, grasshoppers, flies and various larvae. This species appears to be a spring-summer breeder. The records of the Long-tailed Dunnart come from widely scattered localities in the arid zone where it inhabits rugged, rocky areas. These areas include scree slopes, boulder and stony plateaus, and adjacent stony plains with shrubs over spinifex grasslands (Van Dyck et al. 2013)	Likely There are some small areas of suitable rocky habitat for the Long-tailed Dunnart within the Project Area. There are also two records of the species approximately 30 km south-west of Wiluna from 2011.
Reptiles								
<i>Lerista eupoda</i>	Good-legged Lerista skink	P1		X			Occurs in open Mulga areas on loamy soils in the arid southern interior of Western Australia, between Meekatharra and Cue (Wilson and Swan 2013).	Likely There is suitable Mulga habitat is present within the Project Area, particularly towards the Meekatharra end of the highway. The closest record of the species is located approximately 32 km south-west of Meekatharra at Nannine in 1994.

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Liopholis kintorei</i>	Great Desert Skink	T	V			X	<p>The Great Desert Skink generally occurs on red sandplains and sand ridges. Populations in the Gibson Desert occur on sandplains with a surface cover of fine gravel. Vegetation usually consists of hummock grassland (<i>Triodia basedowii</i>, <i>Triodia pungens</i> and <i>Triodia schinzii</i>), with some scattered shrubs and occasional trees (e.g. <i>Acacia</i> spp., <i>Eucalyptus</i> spp., <i>Hakea</i> spp., <i>Grevillea</i> spp. and <i>Allocasuarina decaisneana</i>). Sites in WA are dominated by <i>Triodia basedowii</i> and <i>Triodia schinzii</i> with some <i>Eremophila leucophylla</i> shrubs. The population at Patjarr WA occurs on a gravelly undulating plain with scattered Black Gidgee (<i>Acacia pruinocarpa</i>) or Mulga over <i>Triodia basedowii</i> and low shrubs. Regenerating vegetation appears to be a critical habitat requirement. Skinks appear to prefer a mosaic landscape of different aged vegetation and inhabit sites that have been burnt in the previous three to fifteen years.</p>	<p>Unlikely</p> <p>There is no suitable habitat for the Great Desert Skink within the Project Area and the nearest record of the species is 100 km south-east of Wiluna. This is a historical record from 1964.</p>

Species Name	Common name	Status		Search			Description and habitat requirements	Likelihood of occurrence
		WC Act/ DPaW	EPBC Act	Nature Map	DPaW	EPBC PMST		
<i>Egernia stokesii badia</i>	Western Spiny-tailed Skink	T	En	Not recorded in desktop searches but known to occur in the region.			The Western Spiny-tailed Skink occurs in open eucalypt woodlands and Acacia-dominated shrublands in semi-arid to arid areas of south-western Western Australia. The 'black form' populations of this species occur in granite outcrops and lateritic breakaways in the Cue-Yalgoo-Mt Magnet region. Individuals of the 'black form' live on granite outcrops and ironstone breakaways and shelters in horizontal crevices and under boulders (DotE 2013).	Unlikely The 'black form' populations of the Western Spiny-tailed Skink are restricted to an area approximately bounded by Yalgoo, Mt. Magnet, Cue and Murchison Settlements. There is suitable scattered granite outcrop habitat for this species within the Project Area and the closest record is approximately 133 km south-west of Meekatharra. It is therefore unlikely that the 'black form' occurs within the Project Area.

Legend:

- EPBC Act Federal *Environment Protection and Biodiversity Conservation Act 1999*
- WC Act State *Wildlife Conservation Act 1850*
- PMST EPBC Act Protected Matters Search Tool
- DPaW Department of Parks and Wildlife
- T Threatened (Schedule 1 under the WC Act)
- IA Birds protected under international agreement (Schedule 3 under the WC Act)
- S Other Specially Protected Fauna (Schedule 4 under the WC Act)
- En Endangered (EPBC Act)

V	Vulnerable (EPBC Act)
Mi	Migratory (EPBC Act)
P	Priority (listed by DPaW)

References:

Bell, P.J. and Mooney, N. (2002). Distribution, Habitat and Abundance of Masked Owls (*Tyto novaehollandiae*) in Tasmania, In; *Ecology and Conservation of Owls*, Eds. Newton I., Kavanagh R., Olsen J., and Taylor I., CSIRO Publishing, Australia.

Department of the Environment (DotE) 2013, '*Species Profile and Threats Database (SPRAT)*', retrieved November 2013, from <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>.

Jones, D and Goth, A 2008, *Mound-builders*, CSIRO Publishing, Victoria Australia

Masters. P., Dickman. C.R and Crowther. M. (2003). Effects of cover reduction on mulgara *Dasyercus cristicauda* (Marsupialia: Dasyuridae), rodent and invertebrate populations in central Australia: Implications for land management. *Austral Ecology* Volume 28, Issue 6, pages 658–665.

Morcombe, M 2004, *Field Guide to Australian Birds*, Steve Parish Publishing Archer Field Queensland Australia.

Nevill S. (2008) *Birds of the Greater South West Western Australia*. Simon Nevill Publications. Perth Australia

van Dyke, S and Strahan, R 2008, *The Mammals of Australia*, Third Edition, New Holland Publishing, Sydney Australia.

van Dyck, S, Gynther, I and Baker, A 2013, *Field Companion to the Mammals of Australia*, First edition, New Holland Publishing, Sydney Australia

Wilson S and Swan G 2013, *A Complete Guide to Reptiles of Australia*. 4th Edition New Holland Press Sydney Australia

Woolley, P. A. (2005). The species of *Dasyercus* Peters, 1875 (Marsupialia: Dasyuridae). *Memoirs of Museum Victoria* 62, 213 – 221.

Appendix G – Noise terminology

Description of Noise Terms

Chart of Noise Level Descriptors

Typical Noise Levels

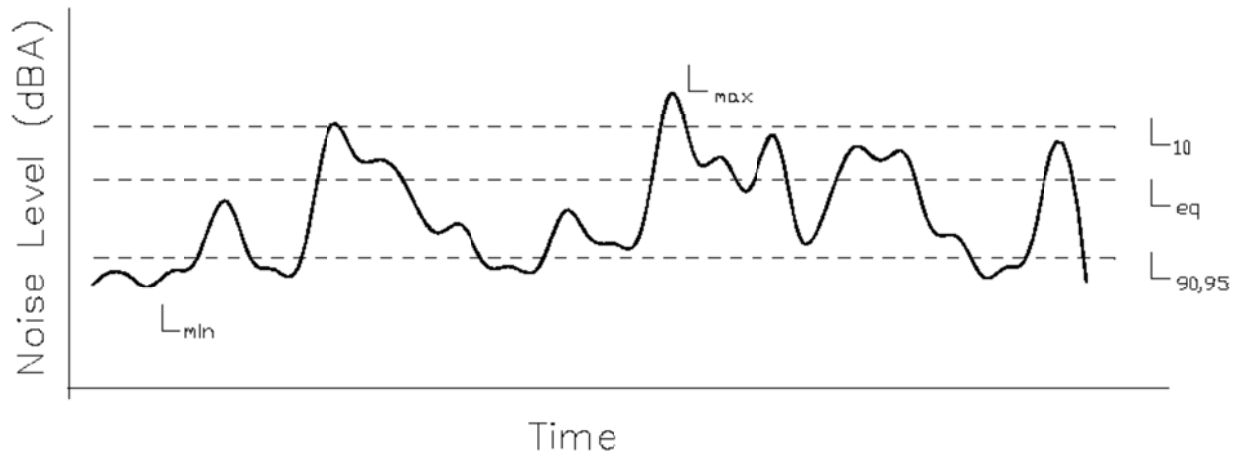
Table G.1 Description of noise terms

Term	Definition
Ambient noise	Level of noise from all sources, including background noise from near and far and the source of interest.
A-weighted	A-weighted noise level has been filtered in such a way as to represent the way in which the human ear perceives sound. This weighting reflects the fact that the human ear is not as sensitive to lower frequencies as it is to higher frequencies. A-weighted sound level is described as LA dB.
Background noise	Noise level from sources other than the source of concern.
dB	Decibel is the unit that describes the sound pressure and sound power levels of a noise source. It is a logarithmic scale referenced to the threshold of hearing.
dBA	Unit used to measure 'A-weighted' sound pressure levels.
Hz	Units for frequency are known as Hertz.
Impulsive noise	An impulsive noise source has a short-term banging, clunking or explosive sound. The quantitative definition of impulsiveness is: A variation in the emission of a noise where the difference between LA Peak and LA Max Slow is more than 15 dB when determined for a single representative event.
LA Slow	This is the noise level in decibels, obtained using A-weighting and S time weighting as specified in AS1259.1-1990. Unless assessing modulation, all measurements use the slow time weighting characteristic.
LA Fast	This is the noise level in decibels, obtained using A-weighting and F time weighting as specified in AS1259.1-1990. This is used when assessing the presence of modulation only.
LA Peak	This is the maximum reading in decibels using A-weighting and P time weighting as specified in S1259.1-1990.
LA Max	LA Max level is the maximum A-weighted noise level during a particular measurement.
LA 1	LA 1 level is the A-weighted noise level which is exceeded for 1% of the measurement period and is considered to represent the average of the maximum noise levels measured.
LA 10	LA 10 level is the A-weighted noise level which is exceeded for 10% of the measurement period and is considered to represent the intrusive noise level.
LA 90	LA 90 level is the A-weighted noise level which is exceeded for 90% of the measurement period and is considered to represent the background noise level.
LA Eq	The equivalent steady state A-weighted sound level ('equal energy') in decibels which, in a specified time period, contains the same acoustic energy as the time-varying level during the same period. It is considered to represent the average noise level.
LA Max assigned level	Means an assigned level which, measured as a LA Slow value, is not to be exceeded at any time.
LA 1 assigned level	Means an assigned level which, measured as a LA Slow value, is not to be exceeded for more than one percent of the representative assessment period.
LA 10 assigned level	Means an assigned level which, measured as a LA Slow value, is not to be exceeded for more than 10% of the representative assessment period.

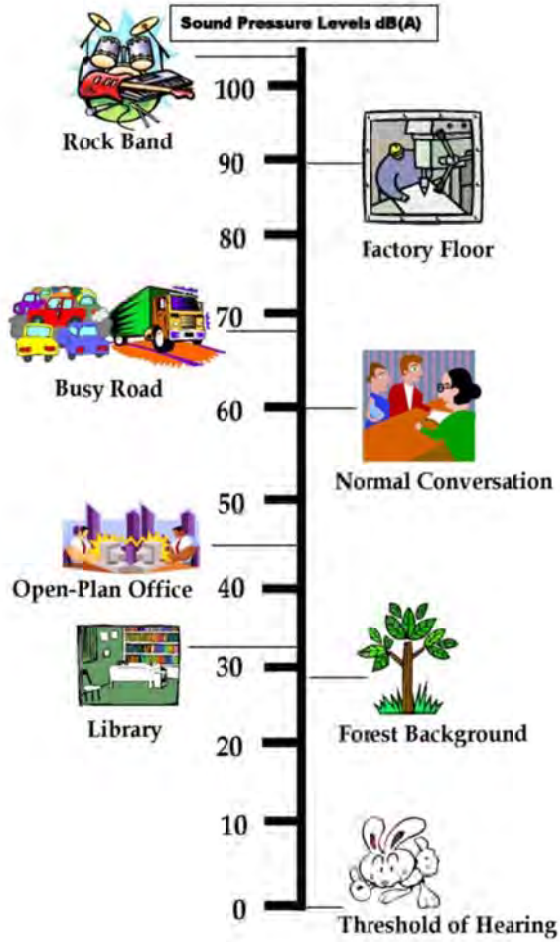
Term	Definition
Linear	Sound levels measured without any weightings are referred to as 'linear' and the units are expressed as dB(lin).
L linear, peak	Maximum reading in decibels obtained using P-time-weighting characteristic as specified in AS 1259.1-1990.
Maximum design sound level	The level of noise above which most people occupying the space start to become dissatisfied with the level of noise.
Modulating noise	A modulating source is regular, cyclic and audible and is present for at least 10% of the measurement period. The quantitative definition of modulation is: A variation in the emission of noise that - <ul style="list-style-type: none"> • Is more than three dB LA Fast or is more than three dB LA Fast in any one-third octave band • Is present for at least 10% of the representative assessment period • Is regular, cyclic and audible
One-third octave band	Means a band of frequencies spanning one-third of an octave and having a centre frequency between 25 Hz and 20,000 Hz inclusive.
Rating background level (RBL)	The overall single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period (as opposed to over each 24-hour period used for the assessment background level). This is the level used for assessment purposes. It is defined as the median value of: All the day assessment background levels over the monitoring period for the day (7:00 am to 6:00 pm) All the evening assessment background levels over the monitoring period for the evening (6:00 pm to 10:00 pm) All the night assessment background levels over the monitoring period for the night (10:00 pm to 7:00 am)
Representative assessment period	Means a period of time not less than 15 minutes and not exceeding four hours, determined by an inspector or authorised person to be appropriate for the assessment of a noise emission, having regard to the type and nature of the noise emission.
Reverberation time	Of an enclosure, for a sound of a given frequency or frequency band, the time that would be required for the reverberantly decaying sound pressure level in the enclosure to decrease by 60 decibels.
RMS	Root mean square level; used to represent the average level of a wave form such as vibration.
Satisfactory design sound level	The level of noise that has been found to be acceptable by most people for the environment in question and also to be not intrusive.
Sound pressure level (LP)	The sound pressure level of a noise source is dependent upon its surroundings (influenced by distance, ground absorption, topography, meteorological conditions etc) and is what the human ear actually hears. Noise modelling predicts the sound pressure level from the sound power levels taking into account ground absorption, barrier effects, distance etc.
Sound power level (LW)	Under normal conditions, a given sound source will radiate the same amount of energy, irrespective of its surroundings, being the sound power level. The sound power level of a noise source cannot be directly measured using a sound level meter but is calculated based on measured sound pressure levels at known distances. Noise modelling incorporates source sound power levels as part of the input data.

Term	Definition
Specific noise	Relates to the component of the ambient noise that is of interest. This can be referred to as the noise of concern or the noise of interest
Tonal noise	<p>A tonal noise source can be described as a source that has a distinctive noise emission in one or more frequencies. An example would be whining or droning. The quantitative definition of tonality is:</p> <p>The presence in the noise emission of tonal characteristics where the difference between -</p> <p>The A-weighted sound pressure level in any one-third octave band</p> <p>The arithmetic average of the A-weighted sound pressure levels in the two adjacent one-third octave bands</p> <p>is greater than three dB when the sound pressure levels are determined as LA eq,T levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as LA Slow levels.</p> <p>This is relatively common in most noise sources.</p>
Vibration velocity level	The RMS velocity of a vibration source over a specified time period, measured in mm/s.

Chart of noise level descriptors



Typical noise levels



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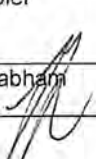
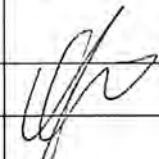
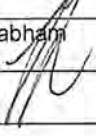
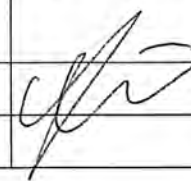
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