



ULAN COAL MINES LIMITED
A.B.N. 80 000 189 248



UCML Biodiversity Monitoring 2009 Results



ULAN COAL MINES LIMITED
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SECTION A

Obtained from:

***Ulan Underground Mine Extensions – Terrestrial and Aquatic Fauna
Monitoring Survey Programme To Satisfy Conditions of Consent for ML
1341 and ML 1468
(NON-BAT)***

by Biodiversity Monitoring Surveys

November 2009



Fauna Species Observed During the Present Survey – by Area

Table 1 – Birds

BIRDS	A	B	E	K	L	Cicada Rd	Trig Rd	Ulan Ck	Incidental
Emu		X		X	X	X	X	X	
Grey Teal									X
Australasian Shoveler									X
Pacific Black Duck									X
Hardhead									X
Australian Wood Duck				X					
Black Swan									X
Hoary-headed Grebe									X
Australasian Grebe									X
Little Pied Cormorant									X
Little Black Cormorant									X
Pied Cormorant									X
White-faced Heron									X
Wedge-tailed Eagle					X				
Black-shouldered Kite									X
Brown Falcon									X
Nankeen Kestrel				X					
Eurasian Coot									X
Purple Swamphen									X
Black-fronted Dotterel									X
Masked Lapwing									X
Peaceful Dove									X
Crested Pigeon									X
Common Bronzewing									
Sulphur-crested Cockatoo	X		X	X		X	X	X	
Yellow-tailed Black-Cockatoo			X						
Glossy Black-Cockatoo					X	X			
Galah	X		X	X		X		X	
Australian King-Parrot				X					
Eastern Rosella		X	X	X	X		X	X	
Red-rumped Parrot									X
Fan-tailed Cuckoo									X
Southern Boobook			X		X		X		
Barn Owl									X
Tawny Frogmouth									X
Laughing Kookaburra	X	X	X	X	X	X		X	
Superb Lyrebird	X		X		X	X	X	X	
Brown Treecreeper	X								
White-throated Treecreeper	X	X	X	X	X	X	X	X	
Variegated Fairy-wren							X	X	



BIRDS	A	B	E	K	L	Cicada Rd	Trig Rd	Ulan Ck	Incidental
Superb Fairy-wren									X
Spotted Pardalote									X
Yellow-rumped Thornbill			X				X	X	
Striated Thornbill							X	X	
Yellow Thornbill		X	X		X			X	
Brown Thornbill	X	X	X	X		X	X	X	
Western Gerygone			X						
Rockwarbler					X				
Speckled Warbler			X			X	X	X	
White-browed Scrubwren							X	X	
Spiny-cheeked Honeyeater									X
Eastern Spinebill		X				X	X	X	
Red Wattlebird					X			X	
White-eared Honeyeater	X	X	X	X	X		X	X	
Yellow-tufted Honeyeater						X			
White-plumed Honeyeater									X
Singing Honeyeater						X			
Noisy Miner		X		X	X		X	X	
Noisy Friarbird								X	
Striped Honeyeater				X	X				
Eastern Yellow Robin	X		X		X		X	X	
Jacky Winter					X				
Scarlet Robin							X	X	
Red-capped Robin									X
Spotted Quail-thrush				X					
Varied Sittella									X
Grey Shrike-thrush	X		X			X			
Golden Whistler	X		X					X	
Rufous Whistler					X				
Magpie-lark				X					
Satin Flycatcher					X				
Grey Fantail			X		X				
Willie Wagtail	X			X					
Pied Butcherbird				X					
Grey Butcherbird				X					
Australian Magpie		X	X	X	X	X	X	X	
Pied Currawong	X	X	X	X		X		X	
Australian Raven	X	X	X	X	X	X	X	X	
White-winged Chough	X	X	X	X			X	X	
Common Starling									X
Welcome Swallow								X	
Tree Martin									X
Australasian Pipit									X
Red-browed Finch									X



Table 2 – Mammals

MAMMALS	A	B	E	K	L	Cicada Rd	Trig Rd	Ulan Ck
Short-beaked Echidna				X				
Yellow-footed Antechinus	X	X	X	X	X	X	X	X
Sugar Glider	X							
Squirrel Glider					X			
Common Brushtail Possum		X	X	X	X	X	X	X
Common Ringtail Possum				X	X		X	X
Common Wombat	X	X	X	X	X	X	X	X
Eastern Grey Kangaroo		X		X	X	X		
Common Wallaroo								X
Red-necked Wallaby		X		X	X	X		
Swamp Wallaby					X			
House Mouse		X			X			
Black Rat					X			X
Southern Bush Rat	X		X			X		
Red Fox			X					
Cat		X	X					
Feral Pig		X	X	X	X	X		X
Brown Hare		X			X		X	
Rabbit								X

Table 3 - REPTILES

REPTILES	A	B	E	K	L	Cicada	Trig Rd	Ulan Ck	Incidental
Eastern Snake-necked Turtle									X
Eastern Bearded Dragon									X
Tree Dtella							X	X	
Lesueur's Velvet Gecko					X			X	
Lace Monitor		X	X				X	X	
Two-clawed Worm-skink								X	
Litter Skink								X	
Copper-tailed Ctenotus								X	
Garden Skink	X								
Red-bellied Black Snake									X



Table 4 - AMPHIBIANS

AMPHIBIANS	Incidental
Broad-palmed Frog	X
Tyler's Tree Frog	X
Bibron's Toadlet	X
Common Eastern Froglet	X

Table 5 – Habitat Characteristics (each trap site)

HABITAT CHARACTERISTICS	MEAN RESULTS FROM 1995-2008 SURVEYS	RESULTS FROM PRESENT SURVEY
Woodland Habitat		
Tree Cover	38.6%	47.5%
Shrub Cover	45.5%	68.5%
Sapling Cover	11.6%	29.5%
Bracken Cover	0.2%	0
Cycad Cover	3.7%	4.5%
Cutting Grass Cover	6%	16.5%
Forb Cover	63.7%	59.7%
Grass Cover	57.8%	66.5%
Fern Cover	3%	2.5%
Litter Cover	90.5%	91.5%
Log Cover	32.5%	35%
Rock Cover	22.3%	37%
Outcrop Habitat		
Cliff Base	12.5%	13%
Overhang	6.9%	7.5%
Ledge	12%	5.5%
Rock-fall	14.6%	3%



Results from Aquatic Surveys

a. Families Identified and Numbers Counted in 2009

Phylum	Class/Sub-class	Order	Family	Group Name	GR1	GR2	GR3	GR4	GR5	GR6
Annelida	Hirudinea	-	Glossiphoniidae	Leech	1					
Arthropoda	Crustacea	Decapoda	Atyidae	Freshwater Shrimp	4		5	39	4	3
Arthropoda	Crustacea/Ostracoda	-	Notodromadidae	Seed Shrimp	9	43		5	1	1
Arthropoda	Collembola	-	Hypogastruridae	Springtail		5	2	1		
Arthropoda	Insecta	Coleoptera	Dystiscidae	Diving Beetle larvae	5	1	11	4	1	1
Arthropoda	Insecta	Coleoptera	Dystiscidae	Diving Beetle adult sp.1	2	1	1		1	4
Arthropoda	Insecta	Coleoptera	Dystiscidae	Diving Beetle adult sp.2			2			1
Arthropoda	Insecta	Coleoptera	Dystiscidae	Diving Beetle adult sp.3			1			
Arthropoda	Insecta	Coleoptera	Gyrinidae	Whirlygig Beetle				1		
Arthropoda	Insecta	Coleoptera	Scirtidae	Marsh Beetle larvae	1					
Arthropoda	Insecta	Coleoptera	Scirtidae	Marsh Beetle adult			2		1	
Arthropoda	Insecta	Diptera	Chironomidae	Non-biting Midge	2	19	4	4	20	50
Arthropoda	Insecta	Diptera	Simuliidae	Black Fly larvae sp 1		1	1		20	
Arthropoda	Insecta	Diptera	Simuliidae	Black Fly larvae sp 2		1				
Arthropoda	Insecta	Diptera	Ceratopogonidae	Biting Midge	2		2	1		50
Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Mayfly		1	2	2	1	4
Arthropoda	Insecta	Ephemeroptera	Baetidae	Mayfly					3	
Arthropoda	Insecta	Hemiptera	Notonectidae	Backswimmer			1			
Arthropoda	Insecta	Hemiptera	Corixidae	Waterboatmen	3		2	2	6	1
Arthropoda	Insecta	Hemiptera	Veliidae	Small Water Strider				1		
Arthropoda	Insecta	Megaloptera	Corydalidae	Dobsonfly						1
Arthropoda	Insecta	Odonata (Eiproctophora)	Aeshnidae	Dragonfly	2		1			
Arthropoda	Insecta	Odonata (Zygopora)	Synleptidae	Damselfly	3					



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A.B.N. 80 000 189 248



Phylum	Class/Sub-class	Order	Family	Group Name	GR1	GR2	GR3	GR4	GR5	GR6
Arthropoda	Insecta	Odonata (Zygopora)	Coenagrionidae	Damselfly			1			
Arthropoda	Insecta	Odonata (Zygopora)	Lestidae	Damselfly					1	
Arthropoda	Insecta	Plecoptera	Notenemouridae	Stonefly					1	
Arthropoda	Insecta	Trichoptera	Calocidae	Caddisfly			1	17	2	5
Arthropoda	Insecta	Trichoptera	Hydroptilidae	Microcaddis	3			1		
Arthropoda	Insecta	Trichoptera	Calamoceratidae	Sleeping Bag Caddis				5	3	5
Arthropoda	Insecta	Trichoptera	Hydropsychidae	Free-living Caddisfly		1				
Chelicerata	Arachnida	-	Tetragnathidae	Long-jawed Spider	2			1		1
Chelicerata	Arachnida	Acarina	-	Water Mite					1	
Cnidaria		Hydrozoa	Hydridae	Hydra					1	
Mollusca	Gastropoda	-	Physidae	Freshwater Snail	4	6	1		1	2
Mollusca	Gastropoda	-	Lymnaeidae	Freshwater Snail			1			
Mollusca	Bivalvia		Sphaeriidae	Pea Shell	1			39		2
Platyhelminthes	Turbellaria	Tricladida	Dugesiidae	Flatworms		3	1			
Chordata				Mosquito Fish	28	1	3	5	19	4



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SECTION B

Obtained from:

***Review of the Temporary Release of Mine Water from Bobadeen Dam into
Ulan Creek and Goulburn River in 2009***

by Biodiversity Monitoring Surveys

July 2009



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Table 1: Aquatic Fauna Located Within Ulan Creek and Goulburn River in 2009

Phylum	Class/Sub-class	Order	Family	Group Name	UC1	UC2	UC3	UC4	UC5	UC6	UC7	UC8	UC9	UC10	UC11
Annelida	Hirudinea	-	Glossiphoniidae	Leech							1				
Annelida	Oligochaeta		Oligochaetes	Sludge Worm		2									
Arthropoda	Crustacea	Cladocera	Daphniidae	Water Fleas							50				
Arthropoda	Crustacea	Decapoda	Atyidae	Freshwater Shrimp								3	4	39	5
Arthropoda	Copepoda	Calanoida	-	Copepods				2							
Arthropoda	Ostracoda	-	Notodromadidae	Seed Shrimp			5	29	7	22	3	1	1	5	
Arthropoda	Collembola	-	Hypogastruridae	Springtail	50	15	17	26	7	6				1	2
Arthropoda	Insecta	Coleoptera	Elmidae	Riffle Beetle				1							
Arthropoda	Insecta	Coleoptera	Dystiscidae	Diving Beetle larvae			10	1		2	2	1	1	4	11
Arthropoda	Insecta	Coleoptera	Dystiscidae	Diving Beetle adult sp.1					1	4	1	4	1		1
Arthropoda	Insecta	Coleoptera	Dystiscidae	Diving Beetle adult sp.2					1			1			2
Arthropoda	Insecta	Coleoptera	Dystiscidae	Diving Beetle adult sp.3											1
Arthropoda	Insecta	Coleoptera	Gyrinidae	Whirlygig Beetle										1	
Arthropoda	Insecta	Coleoptera	Scirtidae	Marsh Beetle larvae											
Arthropoda	Insecta	Coleoptera	Scirtidae	Marsh Beetle adult sp.1				1					1		2
Arthropoda	Insecta	Coleoptera	Scirtidae	Marsh Beetle adult sp.2				1							



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A.B.N. 80 000 189 248



Phylum	Class/Sub-class	Order	Family	Group Name	UC1	UC2	UC3	UC4	UC5	UC6	UC7	UC8	UC9	UC10	UC11
Arthropoda	Insecta	Coleoptera	Hydrophilidae	Water Scavenger Beetle	1										
Arthropoda	Insecta	Coleoptera	Haliplidae	Crawling Water Beetle larvae						2					
Arthropoda	Insecta	Coleoptera	Haliplidae	Crawling Water Beetle adult						2					
Arthropoda	Insecta	Diptera	Chironomidae	Non-biting Midge sp.1	4	3	26	50	19	50	50	50	20	4	4
Arthropoda	Insecta	Diptera	Chironomidae	Non-biting Midge sp.2				2	1						
Arthropoda	Insecta	Diptera	Simuliidae	Black Fly larvae sp 1				1		15			20		1
Arthropoda	Insecta	Diptera	Simuliidae	Black Fly larvae sp 2											
Arthropoda	Insecta	Diptera	Simuliidae	Black Fly adult				1		5					
Arthropoda	Insecta	Diptera	Sciomyzidae	Marsh Fly											
Arthropoda	Insecta	Diptera	Ceratopogonidae	Biting Midge			1			5	2	50		1	2
Arthropoda	Insecta	Diptera	Stratiomyidae	Soldier Fly larvae sp.1		2		1							
Arthropoda	Insecta	Diptera	Stratiomyidae	Soldier Fly larvae sp.2		1									
Arthropoda	Insecta	Diptera	Ephydriidae	Ephydrid			1			1					
Arthropoda	Insecta	Ephemeroptera	Caenidae	Mayfly	2				7	3	4				
Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Mayfly sp.1	5	3	40	50	34	3	1	4	1	2	2
	Insecta	Ephemeroptera	Leptophlebiidae	Mayfly sp.2			10								
Arthropoda	Insecta	Ephemeroptera	Baetidae	Mayfly									3		
Arthropoda	Insecta	Hemiptera	Notonectidae	Backswimmer			1								1
Arthropoda	Insecta	Hemiptera	Corixidae	Waterboatmen sp.1	1		1	7	13	1		1	6	2	2



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A.B.N. 80 000 189 248



Phylum	Class/Sub-class	Order	Family	Group Name	UC1	UC2	UC3	UC4	UC5	UC6	UC7	UC8	UC9	UC10	UC11
Arthropoda	Insecta	Hemiptera	Corixidae	Waterboatmen sp.2	1				1		50				
Arthropoda	Insecta	Hemiptera	Veliidae	Small Water Strider sp.1		1	1	2	5					1	
	Insecta	Hemiptera	Veliidae	Small Water Strider sp.2			1	1	1						
Arthropoda	Insecta	Hemiptera	Nepidae	Needle Bug				1							
Arthropoda	Insecta	Hemiptera	Gerridae	Water Strider	1										
Arthropoda	Insecta	Lepidoptera	-	Aquatic Caterpillar					1						
Arthropoda	Insecta	Megaloptera	Corydalidae	Dobsonfly	1	1						1			
Arthropoda	Insecta	Eiproctophora	Aeshnidae	Dragonfly						1					1
Arthropoda	Insecta	Zygopora	Coenagrionidae	Damselfly											1
Arthropoda	Insecta	Zygopora	Lestidae	Damselfly									1		
Arthropoda	Insecta	Plecoptera	Notenemouridae	Stonefly									1		
Arthropoda	Insecta	Trichoptera	Calocidae	Caddisfly	1		1	1		4	5	5	2	17	1
Arthropoda	Insecta	Trichoptera	Hydroptilidae	Microcaddis	1									1	
Arthropoda	Insecta	Trichoptera	Calamoceratidae	Sleeping Bag Caddis								5	3	5	
Chelicerata	Arachnida	-	Lycosidae	Wolf Spider		1									
Chelicerata	Arachnida	-	Tetragnathidae	Long-jawed Spider			1	1		2		1		1	
Chelicerata	Arachnida	Acarina	-	Water Mite		1			1				1		
Cnidaria		Hydrozoa	Hydridae	Hydra									1		
Mollusca	Gastropoda	-	Physidae	Freshwater Snail	2	2		3	1			2	1		1
Mollusca	Gastropoda	-	Lymnaeidae	Freshwater Snail		2									1
Mollusca	Gastropoda	-	Ancylidae	Freshwater Limpet				2	2						
Mollusca	Bivalvia		Sphaeriidae	Pea Shell								2		39	
Platyhelminthes	Turbellaria	Tricladida	Dugesidae	Flatworms											1



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Phylum	Class/Sub-class	Order	Family	Group Name	UC1	UC2	UC3	UC4	UC5	UC6	UC7	UC8	UC9	UC10	UC11
Chordata				Mosquito Fish								4	19	5	3
				Ant				1	2						



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<i>Descriptor</i>	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
1. Land-use pattern beyond riparian zone	1	1	2	3	4	3
2. Width of riparian vegetation	2	2	2	4	4	4
3. Completeness of riparian edge	1	1	1	4	3	4
4. Vegetation within 10m of channel	2	4	3	4	4	4
5. Stream bank structure	3	2	3	4	3	4
6. Bank undercutting	4	4	3	4	3	3
7. Channel form	4	1	4	3	2	3
8. Riffle/pool sequence	1	1	2	3	4	3
9. Retention devices in stream	1	1	2	2	3	2
10. Channel sediment accumulations	4	1	4	2	2	3
11. Stream bottom	2	1	2	2	3	3
12. Stream detritus	2	22	3	3	3	3
13. Aquatic vegetation	1	1	1	2	2	2
RCE score 2009	28	22	32	40	40	41
RCE score 2007	24	26	34	41	37	38
RCE score 2003 and 2004	28	19	27	40	43	36