## Appendix S1. Descriptive table of all included taxa and food web nodes of the Serengeti National Park, Tanzania

Taxa: by species name when known or higher order/family, according to latest ITIS Report (http://www.itis.gov/advanced\_search.html).

Common name: common name of species or of higher taxonomic classification.

- \* indicates introduced species in the Human stage (HU) food web scenario
- Node no.: identification number of single-species or multi-species grouped nodes within this food web topology (node number accounts for the first and any species below).
- IUCN status per species: Not Evaluated (NE), Data Deficient (DD), Least Concern (LC), Near Threatened (NT), Vulnerable (VU), Endangered (EN), Critically Endangered (CE). Please note: IUCN status used per node is given in bold (nodes 23 and 33 contained less than 20% of threatened species).
- No. trophic links: total number of resource and consumer links per node in the pristine stage (P) food web scenario; for introduced species at the HU-stage number of trophic links is given in brackets.
- Known non-trophic interactions per species or group: ecosystem engineer, landscape modifier, seed dispersers, disease control by scavenging.

Data sources are given in Appendix S2 (diet) and S3 (non-trophic interactions).

Taxa (species, family or order)	Common name	Node	IUCN	No.	Known non-trophic interactions
, <del>,</del>		no.	status	trophic	
				links	
-	Resource: Decaying material	1	-	17	
-	Resource: Plant juices	2	-	4	
-	Resource: Fruits and nectar	3	-	21	
-	Resource: Grains, seeds	4	-	20	
-	Resource: Grass and herbs	5	-	16	
-	Resource: Crops *	6	-	(6)	
-	Resource: Trees and shrubs	7	-	16	
Thripidae	Thrips	8	NE	4	
Coleoptera	Rove- and ground beetles	9	NE	31	
Heteroptera	Carnivorous true bugs		NE		
Diptera, Asilidae	Robberflies		NE		
Araneae, Araneidae	Orb-weaver spiders	10	NE	23	
Araneae, Thomisidae	Crab spiders		NE		
Araneae, Lycosidae	Wolf spiders		NE		
Hymenoptera, Formicidae	Ants	11	NE	19	Group: Ecosystem engineers
Hodotermes sp.	Harvester termites	12	NE	19	Group: Ecosystem engineers
Odontotermes badius	Common fungus-growing termites		NE		
Macrotermes subhyalinus	Large fungus-growing termites		NE		
Microcerotermes sp.	Common nest termites		NE		
Trinervitermes sp.	Snouted harverster termites		NE		
Diptera	Flies	13	NE	21	
Hymenoptera, Apidae	Bees		NE		

Neuroptera	Adult lacewings		NE		
Lepidoptera	Butterflies		NE		
Lepidoptera	Moths		NE		
Orthoptera, Gryllidae	Crickets	14	NE	35	
Homoptera	Planthoppers		NE		
Coleoptera	Dung beetles		NE		Group: Ecosystem engineers
Coleoptera	Weevils		NE		
Lepidoptera	Caterpillars		NE		
Phasmatodea	Stick insects		NE		
Orthoptera, Caelifera	Grasshoppers		NE		
Heteroptera	Herbivorous true bugs	15	NE	14	
Orthoptera, Tettigoniidae	Katydids	16	NE	18	
Mantodea, Mantidae	Preying mantids	17	NE	6	
Chilopoda	Centipedes	18	NE	11	
Dictyoptera, Blattodea	Cockroaches	19	NE	7	
Phrynobatrachus mababiensis	Dwarf Puddle Frog	20	LC	24	
Afrixalus stuhlmanni	Grassland Dwarf Leaf-folding Frog		LC		
Hyperolius nasutus	Sharp-nosed / Long Reed Frog		LC		
Afrixalus quadrivittatus	Striped Leaf-folding Frog		LC		
Hyperolius glandicolor	Common Reed Frog		LC		
Phrynobatrachus acridoides	Coast Puddle Frog		LC		
Hemisus marmoratus	Marbled Snout-burrower		LC		
Phrynomantis bifasciatus	Red-banded Rubber Frog		LC		
Kassina senegalensis	Senegal Kassina		LC		
Leptopelis bocagii	Bocage's Burrowing Tree Frog		LC		
Ptychadena anchietae	Anchieta's Rocket Frog		LC		
Bufo gutturalis	Guttural Toad		LC		

Amnirana galamensis	Galam White-lipped Frog		LC		
Schismaderma carens	Red-backed Toad		LC		
Ptychadena mascareniensis	Mascarene Rocket Frog		LC		
Diplopoda	Millipedes	21	NE	22	
Gastropoda	Land slugs and snails		NE		
Gastropoda	Aquatic snails		NE		
Crocidura sp.	Shrew	22	LC	17	
Pipistrellus nanus	Banana pipistrelle	23	LC	2	
Coleura afra	African Sheath-tailed bat		LC		
Eptesicus tenuipinnis	White-winged serotine		LC		
Kerivoula lanosa harrisoni	Lesser woolly bat		LC		
Myotis bocagii	Rufous mouse-eared bat		LC		
Nycticeius schlieffeni	Schlieffen's Twilight bat		LC		
Nycteris hispida	Hairy slit-faced bat		LC		
Scotoecus albofuscus	Light-winged lesser house bat		DD		
Mimetillus moloneyi	Moloney's Flat-headed bat		LC		
Myotis tricolor	Cape hairy bat		LC		
Laephotis wintoni	De Winton's Long-eared bat		LC		
Nycteris macrotis macrotis	Large-eared slit-faced bat		LC		
Tadarida pumila	Chaerephon Free-tailed bat		LC		
Glauconycteris variegatus	Butterfly bat		LC		
Eptesicus rendalli	Rendall's Serotine		LC		
Nycteris macrotis aethiopica	Large-eared slit-faced bat		LC		
Miniopterus inflatus	Greater Long-fingered bat		LC		
Pipistrellus rueppelli	Rüppel's pipistrelle		LC		
Nycticeius hirundo	Dark-winged lesser house bats		LC		
Kerivoula argentata	Damara woolly bat		LC		
Nycteris thebaica	Egyptian slit-faced bat		LC		

Glauconycteris argentata	Silvered bat		LC		
Taphozous mauritianus	Mauritian tomb bat		LC		
Tadarida major	Lappet-eared Free-tailed bat		LC		
Tadarida bemmeleni cistura	Gland-tailed Free-tailed bat		LC		
Cardioderma cor	Heart-nosed bat		LC		
Scotophilus leucogaster	White-bellied yellow bat		LC		
Scotophilus nigrita	Schreber's yellow bat		LC		
Lavia frons	Yellow-winged bat		LC		
Otomops martiensseni	Large-eared free-tailed bat		NT		
Tadarida condylura	Angolan free-tailed bat		LC		
Taphozous nudiventris	Naked-rumped Tomb bat		LC		
Tadarida africana	African giant free-tailed bat		DD		
Hipposideros caffer	African Leaf-nosed bat		LC		
Hipposideros commersoni gigas	Giant Leaf-nosed bat		NT		
Scorpiones	Scorpions	24	LC	8	
Empidonax wrightii	Gray flycatcher	25	LC	8	
Hirundo s. smithii	Wire-tailed swallow		LC		
Terpsiphone viridis	African Paradise flycatcher		LC		
Hirundo abyssinica	Lesser Striped swallow		LC		
Merops pusillus	Little bee-eater		LC		
Apus affinis	Little swift		LC		
Hirundo fuligula	African rock martin		LC		
Motacilla aguimp	African Pied Wagtail		LC		
Vanellus coronatus	Crowned plover/lapwing		LC		
Apalis flavida	Yellow-breasted apalis	26	LC	18	
Prinia subflava	Tawny-flanked Prinia		LC		
Cinnyris mariquensis	Mariqua/Marico sunbird		LC		
Eremopterix leucopareia	Fischer's sparrow lark		LC		

Cisticola chiniana	Rattling Cisticola		LC		
Calendulalauda africanoides	Fawn-colored lark		LC		
Passer griseus	Northern Grey-headed sparrow		LC		
Mirafra rufocinnamomea	Flappet lark		LC		
Pycnonotus barbatus dodsoni	Common bulbul		LC		
Oenanthe pileata	Capped wheatear		LC		
Trachyphonus darnaudii usambiro	D'Arnoud's/Usambiro barbet		LC		
Tricholaema diademata	Red-fronted barbet		LC		
Myrmecocichla cinnamomeiventris	Mocking Cliff chat		LC		
Myrmecocichla nigra	Sooty chat		LC		
Caprimulgus poliocephalus	Montane/Abyssinian nightjar		LC		
Mirafra africana	Rufous-naped lark		LC		
Lybius leucocephalus	White-headed barbet		LC		
Lamprotornis superbus	Superb starling		LC		
Bubalornis niger	Red-billed buffalo weaver		LC		
Lamprotornis purpuroptera	Rueppell's long-tailed glossy starling		LC		
Lamprotornis chalybaeus	Greater Blue-eared glossy starling		LC		
Streptopelia senegalensis	Laughing dove		LC		
Eremomela icteropygialis	Yellow-bellied Eremomela	27	LC	25	
Batis molitor	Chin-spot Batis		LC		
Parus fringillinus	Red-throated tit		LC		
Nilaus afer minor	Brubru		LC		
Empidornis semipartitus	Silverbird		LC		
Anaplectes rubriceps	Red-headed weaver		LC		
Dicrurus ludwigii	Square-tailed drongo		LC		
Passer motitensis	Southern Rufous sparrow		LC		
Anthus richardi	Richard's Pipit		LC		
Tchagra australis	Brown-crowned Tchagra		LC		

Macronyx ameliae	Rosy-throated Longclaw		LC		
Dicrurus adsimilis	Common/ Fork-tailed Drongo		LC		
Laniarius funebris	Slate-coloured Boubou		LC		
Halcyon chelicuti	Striped kingfisher		LC		
Dendropicos goertae	Gray woodpecker		LC		
Macronyx croceus	Yellow-throated Longclaw		LC		
Indicator indicator	Greater honeyguide		LC		
Lanius excubitoroides	Grey-backed Fiscal		LC		
Lamprotornis hildebrandti	Hildebrandt's starling		LC		
Upupa epops	Eurasian Hoopoe		LC		
Dinemellia dinemelli	White-headed buffalo weaver		LC		
Eurocephalus anguitimens	White-crowned shrike		LC		
Phoeniculus purpureus	Green wood hoopoe		LC		
Corvinella melanoleuca	Magpie shrike		LC		
Sylvietta whytii	Red-faced Crombec	28	LC	6	
Chalcomitra senegalensis	Scarlet-chested sunbird		LC		
Colius striatus	Speckled mousebird		LC		
Tauraco schalowi	Schalow's Turaco		LC		
Corythaixoides personatus	Bare-faced Go-away bird		LC		
Charadrius tricollaris	Three-banded plover	29	LC	12	
Charadrius pecuarius	Kittlitz's sandplover		LC		
Vanellus armatus	Blacksmith plover/lapwing		LC		
Micropteropus pusillus	Dwarf Epauletted Bat	30	LC	2	
Epomophorus labiatus/anurus	African Epauletted Bats		LC		
Rousettus aegyptiacus	Egyptian Rousette Bat		LC		
Steatomys pratensis	Fat or tree mouse	31	LC	37	Group: Seed/disease dispersers
Lemniscomys barbarus	Striped/Zebra mouse small striped		LC		

Dhahdama amilia	Form string of among manage		I.C		1
Rhabdomys pumilio	Four-striped grass mouse		LC		
Lemniscomys striatus	Striped/Zebra mouse large spotted		LC		
Acomys wilsoni	Spiny Mouse		LC		
Grammomys dolichurus	Narrow-footed/woodland thicket rat		LC		
Lemniscomys griselda	Striped/Zebra mouse plain-colored		LC		
Thallomys paedulcus	Acacia rat		LC		
Gerbillus harwoodi	Egyptian Gerbil		LC		
Otomys angoniensis	Groove-toothed rat		LC		
Aethomys chrysophilus	Red Rock Rat		LC		
Aethomys kaiseri	Kaiser's Rock Rat		LC		
Arvicanthis niloticus	Unstriped Grass Rat		LC		
Rattus rattus	Black rat		LC		
Lepus capensis	Cape hare		LC		
Pedetes capensis	Springhare or Cape Jumping Hare		LC		
Heliophobius argenteocinereus	Silky/Silver Blesmol		LC		
Tachyoryctes splendens	Root rat		LC		
Thryonomys swinderianus	Marsh Cane-rat		LC		
Thryonomys gregorianus	Savanna Cane-rat		LC		
Dendromus melanotis	Climbing mouse		LC		
Mus minutoides	African pygmy mouse		LC		
Mus musculus	House mouse		LC		
Graphiurus murinus	African Dormouse		LC		
Zelotomys hildegardeae	Broad-headed mouse		LC		
Mastomys natalensis	Natal multimammate rat		LC		
Saccostomus campestris	Pouched mouse		LC		
Tatera robusta	Plains Gerbil		LC		
Elephantulus rufescens	Spectacled or Long-eared Elephant Shrew		LC		
Xenopus muelleri	Mueller's Clawed Frog	32	LC	21	

Hoplobatrachus occipitalis	Eastern Groove-crowned Bullfrog		LC		
Pyxicephalus adspersus	African Bullfrog		LC		
Anas capensis	Cape teal	33	LC	19	
Uraeginthus bengalus	Red-cheeked Cordon-blue		LC		
Uraeginthus ianthinogaster	Purple Grenadier		LC		
Pytilia melba	Green-winged Pytilia		LC		
Agapornis fischeri	Fischer's lovebird		NT		
Histurgops ruficaudus	Rufous-tailed weaver		LC		
Poicephalus meyeri	Meyer's parrot		LC		
Streptopelia capicola	Ring-necked dove		LC		
Treron calvus	African Green pigeon		LC		
Columba guinea	Speckled pigeon		LC		
Alopochen aegyptiacus	Egyptian goose		LC		
Lygodactylus capensis	Cape Dwarf Gecko	34	NE	24	
Hemidactylus squamulatus	Nyika/Tornier's leaf-toed Gecko		NE		
Lygodactylus manni	Mann's Dwarf Gecko		NE		
Chamaeleo dilepis	Flap-necked Chameleon		NE		
Chamaeleo anchietae	Angola Chameleon		NE		
Hemidactylus affinis	Brook's Gecko		NE		
Hemidactylus mabouia	Tropical House Gecko		NE		
Homopholis fasciata	Banded/Striped Velvet Gecko		NE		
Pachydactylus turneri	Turner's Thick-toed Gecko		NE		
Nucras boulengeri	Boulenger's Scrub Lizard		NE		
Heliobolus spekii	Speke's Sand Lizard		NE		
Eumecia anchietae	Western Serpentiform Skink		NE		
Agama mwanzae	Mwanza Flat-headed Agama		NE		
Acanthocercus atricollis	Blue-headed Tree Agama		NE		
Trachylepis varia	Variable Skink		NE		

Lygosoma sundevalli	Sundevall's Writhing Skink		NE		
Lygosoma afrum	Peter's Writhing Skink		NE		
Mabuya striata	Striped Skink		NE		
Mabuya maculilabris	Speckle-lipped Skink		NE		
Decapoda	Aquatic crustaceans, e.g. crabs	35	NE	12	
Pelomys fallax	Creek rat	36	LC	10	
Petrodromus tetradactylus	Four-toed elephant shrew		LC		
Perciformes	Fish, e.g. catfish	37	NE	19	
Psammophis angolensis	Dwarf Sand Snake	38	NE	19	
Lamprophis fuliginosus	Brown House snake		NE		
Elapsoidea loveridgei	Loveridge's Garter Snake		NE		
Causus resimus	Velvety-green Night Adder		NE		
Crotaphopeltis hotamboeia	White-lipped Snake		NE		
Dasypeltis scabra	Common Egg-eater		NE		
Philothamnus semivariegatus	Spotted Bush Snake		NE		
Philothamnus battersbyi	Battersby's Green Snake		NE		
Telescopus semiannulatus	Tiger Snake		NE		
Glaucidium perlatum	Pearl-spotted owlet	39	LC	19	
Coracias caudatus	Lilac-breasted roller		LC		
Falco ardosiaceus	Gray Kestrel		LC		
Elanus caeruleus	Black-shouldered Kite		LC		
Kaupifalco monogrammicus	Lizzard buzzard		LC		
Melierax metabates	Dark Chanting goshawk		LC		
Buteo augur	Augur buzzard		LC		
Pterocles gutturalis	Yellow-throated Sandgrouse	40	LC	2	
Poecilogale albinucha	Striped weasel	41	LC	5	
Tockus nasutus epirhinus	African Grey hornbill	42	LC	15	
Balearica regulorum	Grey Crowned Crane		VU		

Amaurornis flavirostra	Black crake		LC		
Gallinula chloropus	Common moorhen		LC		
Francolinus coqui	Coqui francolin	43	LC	3	
Francolinus rufopictus	Grey-breasted Spurfowl		LC		
Rhamphiophis oxyrhynchus rostratus	Rufous Beaked Snake	44	NE	22	
Psammophis mossambicus	Olive Sand Snake		NE		
Naja nigricollis	Black-necked spitting Cobra		NE		
Dispholidus typus	Boomslang		NE		
Bitis arietans	Puff Adder		NE		
Leptotyphlops scutifrons	Peter's Worm Snake		NE		
Duberria lutrix	Slug-eater		NE		
Typhlops lineolatus	Common lined worm Snake		NE		
Atelerix albiventris	Four-toed African hedgehog	45	LC	8	
Tachybaptus ruficollis	Little Grebe	46	LC	13	
Scopus umbretta	Hamerkop		LC		
Ardea cinerea	Grey heron		LC		
Phoenicopterus minor	Lesser flamingo		NT		
Eupodotis senegalensis	White-bellied bustard	47	LC	20	
Numida meleagris	Helmeted guineafowl		LC		
Heterohyrax brucei	Bush hyrax	48	LC	6	
Asio capensis	African marsh owl	49	LC	23	
Hieraaetus spilogaster	African hawk eagle		LC		
Bubo lacteus	Verreaux's eagle owl		LC		
Terathopius ecaudatus	Bateleur		NT		
Stephanoaetus coronatus	African crowned hawk-eagle		LC		
Polemaetus bellicosus	Martial eagle		NT		
Helogale parvula	Dwarf mongoose	50	LC	25	
Herpestes sanguineus	Slender mongoose		LC		

Ictonyx striatus	Zorilla		LC		
Mungos mungo	Banded mongoose		LC		
Nandinia binotata	Palm civet		LC		
Genetta tigrina	Large-spotted genet		LC		
Genetta genetta	Common genet		LC		
Atilax paludinosus	Marsh mongoose		LC		
Herpestes ichneumon	Egyptian mongoose		LC		
Ichneumia albicauda	White-tailed mongoose		LC		
Felis silvestris libyca	East African wild cat		LC		
Necrosyrtes monachus	Hooded vulture	51	LC	13	Disease control
Aquila rapax	Tawny eagle		LC		
Pronolagus rupestris	Smith's red rock hare	52	LC	12	
Lepus microtis microtis	African savanna hare		LC		
Procavia johnstoni	Rock hyrax		LC		
Haliaeetus vocifer	African fish eagle	53	LC	11	
Gallus gallus f. domestica	Domestic chicken *	54	LC	(14)	
Cairina moschata	Muscovy duck *		LC		
Otolemur crassicaudatus	Greater bush baby	55	LC	14	
Galago senegalensis	Lesser bush baby		LC		
Erythrocebus patas	Patas monkey		LC		
Chlorocebus aethiops	Vervet monkey		LC		
Papio anubis	Olive baboon		LC		
Leptoptilos crumeniferus	Marabou stork	56	LC	11	
Bucorvus leadbeateri	Southern ground hornbill	57	LC	15	
Sagittarius serpentarius	Secretary bird		LC		
Felis silvestris catus	Domestic cat *	58	LC	(1)	
Otocyon megalotis	Bat-eared fox	59	LC	14	
Lutra maculicollis	Spot-necked otter	60	LC	6	

Psammobates pardalis	Leopard tortoise	61	LC	15	
Kinixys spekii	Speke's hinged tortoise		LC		
Malacochersus tornieri	Pancake tortoise		VU		
Pelomedusa subrufa	Helmeted terrapin		LC		
Gyps africanus	African white-backed vulture	62	NT	(excluded)	Disease control
• • •		(excl.)			
Gyps rueppellii	Rueppell's vulture		NT		Disease control
Torgos tracheliotus	Lappet-faced vulture	63	VU	7	Disease control
Varanus niloticus	Nile monitor lizard	64	NE	11	
Ardeotis kori	Kori bustard	65	LC	7	
Colobus guereza	Black-and-white colobus monkey	66	LC	8	
Cercopithecus mitis albogularis	Sykes' monkey		LC		
Canis mesomelas	Black backed jackal	67	LC	25	
Canis aureus	Golden jackal		LC		
Civettictis civetta	African civet		LC		
Canis adustus	Side-striped jackal		LC		
Mellivora capensis	Honey badger		LC		
Proteles cristatus	Aardwolf		LC		
Manis temminckii	Ground pangolin	68	LC	3	
Leptailurus serval	Serval cat	69	LC	10	
Caracal caracal	Caracal		LC		
Aonyx capensis	African clawless otter	70	LC	9	
Madoqua kirkii	Kirk's dikdik	71	LC	8	Landscape modifier
Raphicerus campestris	Steenbok		LC		Landscape modifier
Oreotragus oreotragus	Klipspringer		LC		_
Tragelaphus scriptus	Bushbuck		LC		
Tragelaphus imberbis	Lesser kudu		NT		
Hystrix cristata	Crested porcupine	72	LC	5	

Hystrix africaeaustralis	Cape porcupine		LC		
Ourebia ourebi	Oribi	73	LC	7	
Sylvicapra grimmia	Gray duiker		LC		Seed disperser
Gazella thomsoni	Thomson's gazelle		NT		
Aepyceros melampus	Impala		LC		Landscape modifier
Gazella granti	Grant's gazelle		LC		
Lycaon pictus	African wild dog	74	EN	11	
Acinonyx jubatus	Cheetah		VU		
Dendroaspis polylepis	Black mamba	75	NE	19	
Python natalensis	African rock python		NE		
Canis lupus familiaris	Domestic dog *	76	LC	(3)	
Hyaena hyaena	Striped hyena	77	NT	7	
Capra aegagrus hircus	Domestic goat *	78	LC	(5)	
Orycteropus afer	Aardvark	79	LC	3	Landscape modifier
Panthera pardus	Leopard	80	NT	20	
Crocuta crocuta	Spotted hyena		LC		
Ovis aries	Domestic sheep *	81	LC	(4)	
Redunca redunca	Bohor reedbuck	82	LC	6	
Phacochoerus aethiopicus	Warthog		LC		
Potamochoerus porcus	Bushpig	83	LC	6	Landscape modifier
Homo sapiens	Human *	84	LC	(13)	
Struthio camelus	Ostrich	85	LC	5	
Panthera leo	Lion	86	VU	9	
Damaliscus lunatus lunatus	Topi	87	LC	6	
Alcelaphus buselaphus	Kongoni		LC		
Connochaetes taurinus	White-bearded wildebeest		LC		Landscape modifier
Kobus ellipsiprymnus	Defassa waterbuck		LC		_
Equus burchellii	Burchell's zebra		LC		

Hippotragus equinus	Roan antelope		LC		
Syncerus caffer	Buffalo	88	LC	2	
Tragelaphus oryx	Southern eland	89	LC	6	
Bos taurus	Domestic cattle *	90	LC	(3)	
Crocodylus niloticus	Nile crocodile	91	LC	9	Ecosystem engineer
Giraffa camelopardalis	Maasai giraffe	92	LC	1	Landscape modifier
Diceros bicornis	Black rhinoceros	93	CE	2	
Hippopotamus amphibius	Hippopotamus	94	LC	1	Ecosystem engineer
Loxodonta africana	African elephant	95	NT	2	Ecosystem engineer