

An Introduction to the Bats of the United Arab Emirates

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1. An Overview of the Bat Species Recorded In and Around UAE

Sub-Order	Family	Genus	Species
Megachiroptera	Pteropodidae (fruit bats and flying foxes)	<i>Rousettus</i>	<i>R. aegyptiacus</i> (Egyptian fruit bat)
Microchiroptera	Rhinopomatidae (mouse-tailed bats)	<i>Rhinopoma</i>	* <i>R. microphyllum</i> (Greater mouse-tailed bat)
			* <i>R. hardwickei</i> (Lesser mouse-tailed bat)
			* <i>R. muscatellum</i> (Muscat mouse-tailed bat)
	Rhinolophidae (horseshoe and old world leaf-nosed bats)	<i>Rhinolophus</i>	* <i>R. hipposideros</i> (Lesser horseshoe bat)
			* <i>R. blasii</i> (Blasius' horseshoe bat)
		<i>Asellia</i>	<i>A. tridens</i> (Trident leaf-nosed bat)
		<i>Triaenops</i>	<i>T. persicus</i> (Persian leaf-nosed bat)
	Vespertilionidae (vespertilionid bats)	<i>Otonycteris</i>	<i>O. hemprichii</i> (Hemprich's long-eared bat)
		<i>Pipistrellus</i>	<i>P. kuhli</i> (Kuhl's pipistrelle)
			<i>P. arabicus</i> (Arabian pipistrelle)
		<i>Eptesicus</i>	* <i>E. bottae</i> (Botta's serotine bat)
			* <i>E. nasutus</i> (Sind serotine bat)
	<i>Myotis</i>	* <i>M. emarginatus</i> (Notch-eared bat/Geoffroy's bat)	
	Emballonuridae (sheath-tailed bats)	<i>Taphozous</i>	<i>T. nudiventris</i> (Naked bellied tomb bat)
			* <i>T. perforatus</i> (Tomb bat)
Molossidae (free-tailed bats)	<i>Tadarida</i>	* <i>T. teniotis</i> (European free-tailed bat)	
		* <i>T. aegyptiaca</i> (Egyptian free-tailed bat)	
*bat species not recorded within the UAE but occurring in neighbouring countries			

2. Species Descriptions: Bats Recorded in UAE

2.1 Egyptian fruit bat (*Rousettus aegyptiacus*)

Distribution

Throughout Africa (excluding Sahara), Turkey, Cyprus, Middle East, east to northern India

Habitat

Tropical forest, shrubland, savannah, grassland, hot deserts, subterranean caves

Description

Wing span 600mm, body length 150mm, weight 110-171g. Short or missing tail. Wings are crepe-textured, first and second digits are clawed. Males are larger than females and have a large scrotal sack. Colouration: light brown body, dark wings, rounded ears lacking tragus or antitragus; dark eyes, dog-like muzzle; simple, short, blunt teeth and muscular tongue.

Echolocation

Of all the megachiropteran bats, only bats of the genus *Rousettus* use echolocation in the form of sharp tongue clicks; may use grunts and screeches for communication – roosts are noisy. Paired FM clicks between 7-60kHz.

Population status

UAE Category – vulnerable; IUCN Red List – least concern

Roosting/foraging/commuting ecology

Nocturnal; roost in trees, ancient temples, date plantations but most commonly caves; tend to be in large groups and wrap wings around body, making bodily contact with others. Eat fruit and flower nectar/pollen, rasp and squeeze fruits to avoid eating seeds, fibre and rind. Have been observed consuming insects. May make limited seasonal migrations.

Reproduction

Tend to breed seasonally, mating June to September; sexually mature at 9 months, single young (occasionally twins) born after gestation of 115 to 120 days in October to December. Young are dependent until 3 months old when they can fly but tend not to disperse from the family colony.

Conservation Concern

Fruit bats are important pollinators of fruit (e.g. baobab tree is almost wholly reliant on fruit bats for pollination). Fruit bats are poisoned and shot by farmers for taking their crops (pest control) and harvested for food.

2.2 Trident leaf-nosed bat (*Asellia tridens*)

Distribution

Morocco and Senegal to Egypt and Ethiopia, Arabian peninsula to Pakistan

Habitat

Tropical/subtropical forest, shrubland, hot deserts, caves and subterranean areas

Description

Head and body 50-62mm, tail length 18-27mm, forearm length 44-60mm, weight 6-10g. Colour varies with geographic location: pale buffy-grey and orange, buff in Egypt, pale yellow and silky in Iraq. Squat nose-leaf with three blunt protuberances on posterior margin; large almost hairless, broad pointed ears. Well-developed tail projecting 3-5mm beyond tail membrane.

Echolocation

CF calls with an FM ending at frequency 117-124kHz.

Population status

UAE Category – data deficient; IUCN Red List – least concern

Roosting/foraging/commuting ecology

Roosts in caves and man-made structures, wells, underground tunnels. May roost in large numbers – 5,000 in a cave in Iran (Nowak, 1994). May display inter-species roosting. In Iraq known to disperse to hibernacula between mid-September and mid-November and return to summer roosts in April. Consume desert insects and scorpions.

Reproduction

Females pregnant April/May, birthing in June, gestation around 9-10 weeks and lactation lasts 40 days.

Conservation concern

Unknown

2.3 Persian leaf-nosed bat (*Triaenops persicus*)

Distribution

Southern Iran, Yemen and Pakistan, Oman, East Africa from Ethiopia to Mozambique, Congo, eastern Madagascar, possibly Egypt.

Habitat

Savannah, subtropical/tropical dry shrubland, caves and subterranean habitats

Description

Head and body 50-57mm, tail 20-34mm, forearm 50-55mm, weight 8-15g. Diverse colouration: greys, browns, reds, some very pale, may be an age correlation? Wings are dark brown. Nose-leaf with three spear-shaped leaves on posterior, a fourth projects from the centre of the nose-leaf.

Echolocation

Unknown

Population status

UAE Category – data deficient; IUCN Red List – least concern

Roosting/foraging/commuting ecology

May roost in large colony numbers in caves and tunnels, closely but with no bodily contact. May display inter-species roosting. Consume small insects using moth-like flight.

Reproduction

Little is known but thought to be pregnant in December/January.

Conservation concern

Habitat loss and degradation (mining activities), human disturbance

2.4 Hemprich's/Desert long-eared bat (*Otonycteris hemprichii*)

Distribution

Morocco and northern Niger to Egypt, the northern Arabian peninsula to Pakistan.

Habitat

Desert zones, barren and arid regions

Description

Head and body 73-130mm, tail 47-70mm, forearm length 60-66mm, weight considered to be around 18-20g. Colouration: pale sandy to dark brown above and white underneath, pelage is long and dense. Large ears (40mm long) connected across forehead, small anti-tragus, large tragus, blunt round ear tip. Two pairs of pectoral mammae – unsure if both pairs are functional. Complicated penis structure.

Echolocation

FM calls, end frequency around 18kHz

Population status

UAE Category – data deficient; IUCN Red List – not listed

Roosting/foraging/commuting ecology

Roosts in buildings, rocky crevices. Slow, floppy flight. May be carnivorous (suggested by analysis of body mass, low aspect ratio, low relative wing loading). When disturbed in roosts emit a buzz call. Consume desert insects.

Reproduction

Little is known but thought to be pregnant in May/June.

Conservation concern

Unknown

2.5 Kuhl's pipistrelle (*Pipistrellus kuhli*)

Distribution

Southern Europe, northern and eastern Africa and south of the Sahara, Canary Islands, south-western Asia

Habitat

Occurs both at lowlands and mountainous low altitudes. Temperate forest, subtropical/tropical shrubland, Mediterranean vegetation, grassland, rural and urban areas

Description

Wingspan 210-220mm, head and body 40-47mm, tail 30-34mm, forearm length 30-36mm, weight 5-10g. Shorter broader ear than *Myotis* bats, slightly rounded with five horizontal creases on outer margin; rounded tragus, curving inwards. Back fur has black base and yellow-brown tips, but bats in some regions do not show the light tips; fur is lighter on underside; naked skin is dark brown-black. Narrow wings. Penis is spear-shaped with no medial stripe. White stripe on margin of arm wing membrane between fifth finger and hind foot, up to 5mm wide. Dental characters should be used for identification: first incisor has one point, second is small, first premolar is displaced inside and so not visible from outside.

Echolocation

FM-CF or quasi-CF calls, end frequency 40-42kHz (Israel), 36-40kHz (Europe). Variable repetition rate, audible from 25 metres away.

Population status

UAE Category – not listed; IUCN Red List – least concern

Roosting/foraging/commuting ecology

Emerge late evening. Forages over high vegetation and around illuminated urban areas for small flying insects using fast agile flight, many swoops and turns. Summer roosts tend to be around buildings and winter roosts are in cliffs and fissures.

Reproduction

Females are sexually mature in first year, have small maternity roosts. Two young are born.

Conservation concern

Declining due to habitat degradation and loss of natural roosts (e.g. hollow trees) and use of wood-treating chemicals in buildings where they roost

2.6 Arabian pipistrelle (*Pipistrellus arabicus*)

Distribution

Oman

Habitat

Unknown

Description

Measurements are unknown for this species, measurements for genus *Pipistrellus* are head and body 35-62mm, tail 25-50mm, weight 3-20g; shorter, broader ear than *Myotis*, less sharply pointed tragus. Colour varies: usually dark brown/black but also grey, reddish brown or pale brown.

Echolocation

Unknown

Population status

IUCN Red List – VU D2 (faces a high risk of extinction in the wild in the medium-term future, due to a population restriction of the area of occupancy or the number of locations; prone to effects of stochasticity and/or human impacts; capable of becoming endangered or critically endangered very soon)

Roosting/foraging/commuting ecology

First emergers of the evening. Flight is erratic with many swoops and turns. Forage on insects.

Reproduction

Unknown

Conservation concern

Unknown

2.7 Naked bellied tomb bat (*Taphozous nudiventris*)

Distribution

Africa, Arabian peninsula

Habitat

Dry savannah, subtropical/tropical dry shrubland, subtropical/tropical dry lowland grassland, hot deserts, caves and subterranean areas

Description

Head and body length 80-97mm, tail length 25-33mm forearm length 65-79mm, weight 20-30g. Sheath-tailed bat, tail half sheathed within the interfemoral membrane. Have strong-smelling glands in throat sacs which may be used in courtship. Parts of belly are naked; fur does not extend to the tail membrane. Large club-shaped tragus. Well-developed calcar. Skin pocket below the wrist.

Echolocation

Quasi-CF calls, two prominent harmonics, lower harmonic end frequency 21-25kHz

Population status

UAE Category – data deficient; IUCN Red List – least concern

Roosting/foraging/commuting ecology

Seasonal migrators. May roost in groups 200-1000+, all-female during late pregnancy and lactation. If disturbed while roosting instead of flying bats crawl sideways, and mark individual roost stations with greasy smears from throat sacs.

Reproduction

May arrive in summer roosts March, single young born in mid-April, carried by females until 8 weeks old

Conservation concern

Human disturbance (tourism and other)

3. Species Descriptions: Bats recorded in areas Surrounding the UAE

3.1 Greater mouse-tailed bat (*Rhinopoma microphyllum*)

Distribution

Northern Africa, Saudi Arabia to India, Sumatra

Habitat

Subtropical and tropical dry shrubland, treeless arid regions, subdeserts

Description

Head and body length 50-63mm, tail length 48-68mm, forearm length 50-60mm, weight 10-12g. Face, rump and posterior abdomen is hair-free. Back coloured greyish-brown or dark brown, underside is paler. Deposits of fat around hind limbs and tail base. Whip-like tail almost always shorter than fore arm. Large rhomboid ears connected across forehead, large tragus. Large prominent black eyes. Small nose-leaf on snout. Small dermal ridge on muzzle.

Echolocation

Long quasi-CF calls with one prominent harmonic, end frequency 27-30kHz, energy peak 28kHz.

Population status

IUCN Red List – least concern

Roosting/foraging/commuting ecology

Roost in houses, caves, wells, pyramids, palaces; hang by thumbs and feet. May form colonies of thousands of bats but can live in small mixed-sex groups or same-sex groups. Undergo torpor (rather than hibernation). Poor fliers but well adapted to very hot, arid conditions of low humidity. Feed on desert beetles and insects, swooping and gliding at 5-10 metres of the ground.

Reproduction

Unknown

Conservation concern

Unknown

3.2 Lesser mouse-tailed bat (*Rhinopoma hardwickei*)

Distribution

Northern Africa, Arabian peninsula,

Habitat

Subtropical and tropical dry shrubland, rocky areas, caves and subterranean areas, hot deserts

Description

Head and body length 50-63mm, tail length 48-68mm, forearm length 50-60mm, weight 10-12g. Face, rump and posterior abdomen is hair-free. Back is coloured greyish-brown or dark brown, underside is paler. Whip-like tail usually longer than fore arm. Large rhomboidal ears connected across forehead, large tragus. Large prominent black eyes. Small nose-leaf on snout. Pronounced dermal ridge on muzzle.

Echolocation

Long quasi-CF calls with one prominent harmonic, 30-34kHz, peak energy 32kHz

Population status

IUCN Red List – least concern

Roosting/foraging/commuting ecology

Roost in houses, caves, wells, pyramids, palaces; may form colonies of thousands of bats but tend to roost 4-10 individuals, in loose groups of 80-100 animals in total. Sexual segregation may be seen for part of the year in the smaller groups. Poor fliers but well adapted to very hot, arid conditions of low humidity. Feed on desert beetles and insects, swooping and gliding at 5-10 metres of the ground.

Reproduction

Unknown

Conservation concern

Unknown

3.3 Muscat mouse-tailed bat (*Rhinopoma muscatellum*)

Distribution

Oman, Iran, southern Afghanistan, Pakistan, possibly Ethiopia

Habitat

Arid treeless regions

Description

Unknown for this species but measurements for *Rhinopoma* are head and body length 53-90mm, tail length 43-75mm, weight 6-14g. Face, rump and posterior abdomen is hair-free. Back is coloured greyish-brown or dark brown, underside is paler. Tail very long. Large ears connected across forehead, large tragus. Nose leaf on snout

Echolocation

Unknown

Population status

UAE Category – data deficient; IUCN Red List – low risk/least concern

Roosting/foraging/commuting ecology

Roost in houses, caves, wells, pyramids, palaces. Has been found at altitudes of up to 2,000 metres. May form colonies of thousands of bats. Characteristic flight, rising and falling like a small bird, gliding and fluttering.

Reproduction

Unknown

Conservation concern

Unknown

3.4 Lesser horseshoe bat (*Rhinolophus hipposideros*)

Distribution

British Isles in western Europe to Arabian peninsula and central Asia, Morocco to Sudan

Habitat

Shrubland, Mediterranean vegetation, caves and subterranean areas.

Description

Wingspan 192-254mm, body length 35-45mm, tail length 23-33mm, forearm length 37-42.5mm, weight 5-9g. Fur brown on back, grey-white underneath, juveniles dark grey. Fur is soft and sparse. Large ears, no tragus. Dummy teats on chest of females in addition to functional mammary glands in the second year. Small eyes, vision obstructed by nose-leaf. Broad wings with rounded ends.

Echolocation

Nose-leaf surrounding nostrils through which sound is emitted, 102-112kHz, most energy at 110kHz, average call duration 31.7ms. CF and steep terminal FM. Demonstrates Doppler effect to detect changes in speed in acoustic environment.

Population status

IUCN Red List – least concern

Roosting/foraging/commuting ecology

Roost in houses, caves and tunnels, free of drafts. Winter roosts are humid with a temperature of 6-9°C. They roost so as to hang freely, wrap wings around body and resemble hanging fruit or pod. Glean, fly less than 5m above the ground, consume small insects, beetles and spiders. Agile and quite fast, flight is fluttering or hovering. Insects caught in flight may be tucked under wing membrane and manipulated by mouth; may alight to eat prey. Evening emergence is later than most bats. Hibernate close to nursery sites in cellars, mines and caves. Generally no migration.

Reproduction

In Europe undergo delayed fertilisation. Sexually mature in first year, mate in autumn partly in winter roost, gestation is 7 weeks; give birth to one pup late spring/early summer which is independent at 6-7 weeks. Maternity roosts may be mixed species, occupied in April and break up in August.

Conservation concern

Habitat loss; pollution e.g. use of agricultural insecticides and pesticides; human disturbance due to conspicuous roosts; changes in predator-prey dynamics and decline in available food.

3.5 Blasius' horseshoe bat (*Rhinolophus blasii*)

Distribution

Italy to Afghanistan, Morocco to Ethiopia and Transvaal

Habitat

Savannah, Mediterranean vegetation, caves and subterranean habitats

Description

Wingspan 280mm, head and body length 46-54mm, tail length 25-30mm, forearm 45-48mm, weight 10-12g. Large ears, no tragus, dummy teats on chest of females in addition to functional mammary glands. Wing membranes are light grey. Sparse fur, very light at base, dorsal is grey-brown with a pinkish tinge, underside is yellowy-white.

Echolocation

Nose leaf surrounding nostrils through which sound is emitted. Call is CF ending with frequency drop, 93-98kHz, call duration 40-50ms. Resting frequency (from bats in the hand) correlates positively with forearm length, body mass and body condition index.

Population status

IUCN Red List – near threatened

Roosting/foraging/commuting ecology

Glean, fly <5m from ground, eat small insects. Roost so as to hang freely, wrap wings around body and resemble hanging fruit or pod. Fluttering or hovering flight. Insects caught in flight may be tucked under wing membrane and manipulated by mouth; may alight to eat prey. Evening emergence is later in evening than most bats. Breeds in mines and caves in clusters

Reproduction

Maternity roosts in caves, single pup is born.

Conservation concern

Habitat loss and human disturbance.

3.6 Botta's serotine bat (*Eptesicus bottae*)

Distribution

North-eastern Egypt, middle east, central and south-western Asia

Habitat

Rocky areas, temperate deserts

Description

Head and body length around 55mm, tail length 39-42mm, forearm length 40-42mm. Short muzzle and big eyes, short ears, tragus longer than wide. Similar appearance to *Pipistrellus* but have only one upper incisor. Penis broadened at end with triangular furrow at tip. Colouration: yellow-brown on back, whitish underneath, dark black face and ears. Post calcareal lobe narrow without visible keel. Blunt, rounded tail membrane.

Echolocation

FM-CF or quasi-CF, end frequency 27-32kHz. Audible clicks made during flight.

Population status

IUCN Red List – least concern

Roosting/foraging/commuting ecology

Flight like that of *Pipistrellus*, erratic with dives, feeding on small insects

Reproduction

Unknown

Conservation concern

Unknown

3.7 Sind serotine bat (*Eptesicus nasutus*)

Distribution

Limited: Afghanistan, Iran, Iraq, Oman, Pakistan, Saudi Arabia, Yemen

Habitat

Unknown

Description

Head and body length 42-52mm, tail length 38-38.5mm, forearm length 30-38.5mm. Tail is well-developed and completely enclosed within membrane except for extreme tip. Blunt, rounded tail membrane. Small ears, well-developed tragus. Pelage is pale and limbs and ears are blackish. Similar appearance to *Pipistrellus* but have only one upper incisor.

Echolocation

Unknown

Population status

UAE Category – data deficient; IUCN Red List – VU A2c (faces a high risk of extinction in the wild in the medium-term future; within three generations the population is expected to decrease by at least 20% due to a decline in area of occupancy, extent of occurrence and/or habitat quality).

Roosting/foraging/commuting ecology

Flight like that of *Pipistrellus*, erratic with dives, feeding on small insects

Reproduction

Unknown

Conservation concern

Range restriction, human disturbance

3.8 Notch-eared bat/Geoffroy's bat (*Myotis emarginatus*)

Distribution

Southern and central Europe to Iran, Pakistan and Morocco

Habitat

Unknown

Description

Wingspan 220-245mm, head and body length 41-53mm, tail length 38-46mm, forearm length 36-41mm, weight 7-15g. Distinct, right-angled notch in ear and six or seven horizontal creases. Lanceolate tragus with notches on the outer edge. Dorsal fur is long and woolly, dorsal colouration is graded: hairs are slate-grey at base, buff in middle and reddish tinged at end. Ventral surface is paler. Juveniles are darker and do not display the red tinge. Tail is well-developed with only tip extending beyond membrane. Ears and broad wings are dark.

Echolocation

52-55kHz, steep FM, rapid pulse rate. Shrill calls produced in maternity roosts.

Population status

IUCN Red List – VU A2c (faces a high risk of extinction in the wild in the medium-term future; within three generations the population is expected to decrease by at least 20% due to a decline in area of occupancy, extent of occurrence and/or habitat quality).

Roosting/foraging/commuting ecology

Feeds in woodland, pasture, scrubland and parkland. Buildings, trees, cellars and caves are used as nursery roosts, but may prefer natural areas like trees or vegetation. May be found at altitudes of 1,000m. Summer roosts are in warm attics (36 to 40°C), winter roosts in cellars, tunnels and caves. Hibernation (October to March/April) occurs in warm places (6 to 9°C). Forage on small insects caught with slow flight less than 5m off ground. Migration, if it occurs, is over short distances (usually less than 40km). Emerges early evening for feeding, taking predominantly spiders, as well as dipterids, gleaned.

Reproduction

Females, although capable of breeding in first year, may do it later. Mating begins in the autumn. In May maternity roosts form, number of bats present varies between 20 and 1,000. Birth occurs June to early July to one pup, which can fly at four weeks old. Break up of maternity roosts happens in September.

Conservation concern

Roost loss, especially caves

3.9 Egyptian tomb bat (*Taphozous perforatus*)

Distribution

Senegal to India, south to Zimbabwe

Habitat

Dry savannah

Description

Head and body length 60-74mm, tail length 21-27mm, forearm length 59-65mm, weight 20-30g. Belly is covered in fur. Less developed calcar than *T. nudiventris*. Sheath-tailed bat, tail half sheathed within the interfemoral membrane. Have strong-smelling glands in throat sacs which may be used in courtship.

Echolocation

Quasi-CF calls, two prominent harmonics, lower harmonic end frequency 27-29kHz

Population status

IUCN Red List – least concern

Roosting/foraging/commuting ecology

If disturbed while roosting instead of flying bats crawl sideways, and mark individual roost stations with greasy smears from throat sacs.

Reproduction

Unknown

Conservation concern

Unknown

3.10 European free-tailed bat (*Tadarida teniotis*)

Distribution

Mediterranean Europe, northern Africa, Middle East through China to Japan and Taiwan

Habitat

Unknown

Description

Body length 84-94mm, tail length 43-55mm, forearm length 58-64mm. Long broad ears with rounded tips that project over face, touch at base, conspicuous anti-tragus. Long muzzle, five creases in upper lip. Short silky fur, blackish-grey on back some may have brown tinge. Tail extends beyond membrane and has stiff hairs at end. Long narrow wings (wing span 400-450mm). Three pairs of lower incisors. Wrinkled lips, thin jaws. Smell strongly, and hairs on the outer toes disperse the scent.

Echolocation

Audible and loud songs 9-14kHz. Levelled FM, almost CF calls, sound like 'tseek tseek'. Pulse rate is slow and regular, speeding up on approach of objects. Audible from 150 metres.

Population status

IUCN Red List – lower risk/least concern

Roosting/foraging/commuting ecology

Feed on aerial insects, flies high when hunting. Roost in buildings and rock clefts and will sometimes use high caves and mines.

Reproduction

Unknown

Conservation concern

Colony disturbance, remedial timber treatment and decrease in insect prey are main causes of decline.

3.11 Egyptian free-tailed bat (*Tadarida aegyptiaca*)

Distribution

Africa, Arabian peninsula, India, Sri Lanka

Habitat

Dry savannah

Description

Head and body length around 66mm, tail length 34-55mm, forearm 48-54mm. Two pairs of lower incisors. Ears meet across head but are not joined, they are large and forward facing, small tragus. Wrinkled lips, thin jaws. Pelage is fine and light grey-brown dorsally. Tail is free after a narrow membrane. Smell strongly, and hairs on the outer toes disperse the scent.

Echolocation

Quasi-CF calls, end frequency thought to be around 20kHz

Population status

IUCN Red List – least concern

Roosting/foraging/commuting ecology

Narrow wings allow long-distance flying

Reproduction

Unknown

Conservation concern

Unknown

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Nader, I.A. *Bats of the Kingdom of Saudi Arabia*
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Appendix I - Saudi Arabian Bat References
(from <http://www.saudicaves.com/saudibats/>)

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