

The unnatural history of desert birds in the Arabian peninsula. A review

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We are currently living in the Anthropocene, “the age of humans,” whether or not Anthropocene is also used as the name of a geological epoch. Anthropocene is a relatively new term first used in the year 2000 (Corlett 2015) in recognition of the overwhelming impact of humans on the planet and almost all of its geophysical and ecological systems. Callaghan *et al* (2018) proposed a new field of study for the 21st century, ‘unnatural history’, which they define as “the often opportunistic observation and description of avifauna placed in the context of a rapidly altered and changing world, and their adaptive or maladaptive behaviours, generally at an individual level.” Reported observations of desert birds in human situations in the Arabian peninsula clearly are part of this unnatural history. The Desert Lark *Ammomanes deserti* feeds around picnic scraps in a carpark near the top of Jebel Hafit, Abu Dhabi emirate (Cowan 2008). Gary Brown (pers comm) has watched Desert Larks rummaging around left-overs at a tourist hot-spot in northwest Saudi Arabia. I have seen Desert Larks seemingly associated with a petrol filling station in the Sumail gap of northern Oman and a Black-crowned Finch Lark *Eremopterix nigriceps* in a shaded petrol filling station forecourt in eastern Oman.

The Arabian peninsula, mainly desert, is conventionally considered to consist of Saudi Arabia, Yemen (excluding the Socotra archipelago), Oman, United Arab Emirates, Qatar, Bahrain and Kuwait. The Hajar mountains are in the extreme east whilst the Sarawat mountain range (Hejaz, Asir and Yemen mountains) extends along the west coast east of the coastal Tihama plain. The highest point in the Arabian peninsula, at 3666 m asl, is the summit of Jebel Nabi Shu’ayb in western Yemen. The highest point in the Hajar mountains is Jebel Shams, which reaches 3018 m asl. The higher parts of the southern Sarawat mountains are semi-arid or sub-humid (UNESCO 1979) and westward-flowing wadis can be forested at lower elevations (eg Hall *et al* 2008, Scholte 2010). The southwest-monsoon facing escarpments of Dhofar (southern Oman) and the Mahra (easternmost Yemen) are sometimes forested (eg Miller & Morris 1988). Within the Arabian peninsula the larger ungulates (gazelle spp, oryx sp, Tahr sp) have been largely supplanted by domesticated artiodactyls (sheep, goats, cattle, camels). See Durant *et al* (2014) for an analogous situation in the Sahara and Sahel. Overgrazed ‘rangelands’ consist largely of less palatable or unpalatable plant spp, the palatable spp having been consumed by domestic stock (see El-Keblawy 2017). A rapidly increasing human population lives almost anywhere including in large modern cities and linear developments along roads and coasts (urbanisation). Further major projects are underway: the proposed NEOM scheme (www.discoverneom.com) of extreme northwest Saudi Arabia is intended to include a very modern city and a new economic zone. The condition of the environment including human-generated pollution and climate-induced aridification seem to be of some concern to Arabian-peninsula governments. Environmental, including biodiversity, assessments, sometimes superficial, are carried out (reviewer pers comm). For a consideration of the environmental history of the Arabian peninsula see the chapters before the species accounts in Jennings (2010).

Effects of the human-altered environment on some of the biota have been studied eg Abu Baker *et al* (2017) investigated Ethiopian Hedgehogs *Paraechinus aethiopicus* in farmed and nature reserve environments in Qatar. The notion of returning the Arabian peninsula to a past, often idealized, state is faulty; the landscape has been humanized. Current and

proposed environments in the Anthropocene may have no historical analogues, the ‘novel ecosystems’ of Fleming & Bateman (2018), and already include a range of non-native species (Bowman *et al* 2017), some of which have been introduced for hunting purposes. Another relatively new word is ‘rewilding’, perhaps best defined as the introduction of ecological-equivalents (proxy taxa) for supplanted taxa. The alien subspecies *Struthio c. camelus* has been introduced to the Mahazat as-Sayd reserve in southern Saudi Arabia. The, now extinct, ostrich taxon in the Arabian peninsula was apparently *S. c. syriacus* (but see Jennings 2010). Rewilding embraces a stage further than just the reintroduction of extant species/taxa in the conservation ‘tool box’. It will be important to choose suitable taxa for rewilding (Cromsigt *et al* 2017). ‘Primitive’ breeds of horses and cattle have been released into reserves in Europe to replace the extinct wild cattle, horses and bison.

Which avian desert species are likely to survive in the Anthropocene of the Arabian peninsula? Presumably species that can survive under human-influenced conditions. As the Anthropocene intensifies species may need to alter their behaviours to survive. To review changes that have already been described I have used the species accounts in the Arabian breeding-birds atlas by Jennings (2010) to find out which desert bird species that breed in the Arabian peninsula (Cowan 2000) have so far been recorded in anthropogenic (“produced through the agency of man”) situations.

I do not now consider Hume’s Wheatear *Oenanthe albonigra* a desert-bird species. Rather it is an inhabitant of both arid (desert) and semi-arid environments rather than being primarily of deserts. Egyptian Nightjar had not been recorded breeding in the Arabian peninsula until very recently (Jennings 2010, Babbington 2015, Campbell & Smiles 2017, 2018). The species entry for Egyptian Nightjar below is from the latter two publications. Otherwise I have solely used Jennings (2010) for data in the systematic list.

The question of species delimitation is of relevance. Jennings (2010) has an entry for Hume’s Owl *Strix butleri*. This taxon is now better considered to be *Strix hadorami* Desert Tawny Owl (Robb *et al* 2016). Jennings (2014) has confirmed the very different voice of *Strix omanensis*, now *S. butleri* (Robb *et al* 2016). The Houbara Bustard *Chlamydotis undulata* has been split by ‘authorities’ into two species, *undulata* and *macqueenii*. However, in my opinion the evidence to date is insufficient (see Cowan 2017, Collar & Combreau 2017). Also problematic is del Hoyo *et al*’s (2018) recent split of Dunn’s Lark *Eremalauda dunni* into an African species Dunn’s Lark *E. dunni* and the Arabian Lark *E. eremodites*. The ‘Tobias score’ of 7 to produce the latter split was based, in my opinion, on relatively minor differences in plumage and structure (see also Donald & Christodoulides 2018). Far more field observations of breeding behaviour are needed throughout the geographic range of avian desert taxa. Avoid the lab or museum if you can. Get out into the field and do natural history studies. If astronomers can deal with objects light-years apart and geologists biota from millions of years ago then ornithologists can certainly cope with allopatric taxa (see Mayr & Ashlock 1991).

Sand Partridge *Ammoperdix heyi*. Has been introduced to some offshore islands. Is not usually found around human habitation and does not utilise large cultivated areas. Has been reported from alfalfa *Medicago sativa* fields at a dairy farm. Several birds were found in the early morning near a large car park in circumstances suggesting they had come to find scraps from human food.

Houbara Bustard *Chlamydotis undulata* (= Asian Houbara *C. macqueenii* in Jennings 2010). Has been in steady decline due mostly to over-hunting. Breeds successfully in captivity. Reintroduction programmes operate. Is vulnerable to disturbance by humans. Nothing to suggest Houbara are taking advantage of habitat change especially the large increase

in agriculture. However, reintroduced birds in summer make extensive use of irrigated areas.

- Cream-coloured Courser** *Cursorius cursor*. Has been bred in captivity. Regularly seen on the outskirts of towns and even inside urban areas at public parks and golf courses. Has been recorded at an airport. Several records of pairs on farms near crops irrigated by pivots in spring though no confirmed breeding records from agricultural sites. Outside breeding season often frequents irrigated fields, especially stubble and cut fodder crops and has been seen feeding in cattle pens and at farm rubbish sites. Sometimes hunted by falconers. Some nests found within 20 m of a well-used track.
- Lichtenstein's Sandgrouse** *Pterocles lichtensteinii*. Numbers may be increasing due to the much wider availability of water. Shot at waterholes, hunted by falconers.
- Crowned Sandgrouse** *Pterocles coronatus*. Has bred ferally. Does not utilise irrigated cereal farms in central Arabian peninsula. Once observed feeding in camel yards.
- Spotted Sandgrouse** *Pterocles senegallus*. Has bred ferally and in captivity. Apparently associated with irrigated cereal farms at two sites.
- Desert Tawny Owl** *Strix hadorami* (*S. butleri* in Jennings 2010). Does not appear to exploit man-made habitats but nests reported from abandoned stone towers.
- Egyptian Nightjar** *Caprimulgus aegyptius* (not in Jennings 2010). Present at one irrigated site in winter. Recorded breeding and roosting in an area of cultivated and formerly cultivated desert, regularly visited and drank at, in 2017, a concrete tank holding water, recorded on tracks and on one occasion seen feeding or drinking over an illuminated water tank in 'true darkness' (Campbell & Smiles 2017, 2018).
- Black-crowned Finch Lark** *Eremopterix nigriceps* ('Black-crowned Sparrow-Lark' in Jennings 2010). Colonised irrigated alfalfa pivots, and frequents arable and dairy farms. Commonly seen near cultivation, at farms, by the roadside and irrigated grassy flanks of highways. Seen to eat spilt grain at a site and uncooked rice spilt on a concrete lorry park. Been seen drinking at roadside rainwater pools and effluent streams. Nests have been found on the side of a water catchment bank and below a concrete block.
- Dunn's Lark** *Eremalauda dunni*. Shuns cultivated fields. Not found around human sites.
- Bar-tailed Desert Lark** *Ammomanes cinctura* ('Bar-tailed Lark' in Jennings 2010). Usually well away from human sites. An adult caught flies at a rubbish dump and took them presumably to feed young. Sits in shade of track-side debris *eg* discarded tyres in heat of day.
- Desert Lark** *Ammomanes deserti*. Seen to pick up spilt grain and visits human sites to pick up discarded human food, including bread scraps. Has been reported from rubbish dumps.
- Hoopoe Lark** *Alaemon alaudipes* ('Greater Hoopoe-Lark' in Jennings 2010). Has been recorded on ships. Readily utilises human sites *eg* feeding at rubbish dumps, at manure heaps on cattle farms and taking invertebrates around dead animals. Was seen to eat spilt rice (uncooked) and to peck crumbs off a cake wrapper. Once displayed from building roof. A nest found in a hollow on a concrete block on top of an old oil drum.
- Thick-billed Lark** *Ramphocoris clotbey*. January flock reported at a farm. Maximum winter count of 80 on farmlands. Has been seen to pick up grain. In winter habit of frequenting farms and abandoned bedouin camps suggests grain and seeds are most important food. Reported feeding amongst rubbish. Not generally found close to human habitation. Development of agriculture since 1980s may possibly have assisted Thick-billed Lark through increasing availability of grain in winter.

Temminck's Horned Lark *Eremophila bilopha* ('Temminck's Lark' in Jennings 2010). In winter flocks have been reported to visit rubbish regularly.

Desert Wheatear *Oenanthe deserti*. Winter visitors often common on cultivated areas. Found on highland cultivated areas. Large areas under cultivation may provide new breeding habitats.

Hooded Wheatear *Oenanthe monacha*. In winter often found around isolated buildings. Has been recorded singing from the tops of inhabited houses and once a petrol filling station. Has bred in a barn on a farm. Presence in breeding season near human habitation infrequent and Hooded Wheatear not considered as particularly commensal with man. Will come to water in animal drinking troughs.

White-crowned Black Wheatear *Oenanthe leucopyga* ('White-crowned Wheatear' in Jennings 2010). In some parts of its range associates closely with humans, often foraging and nesting in and around desert villages and oases. Protected by some bedouin who welcome it to their habitations. In a few instances has fed among growing crops in irrigated pivots.

Arabian Babbler *Turdoides squamiceps*. Occurs in periphery of cultivated farms. Does not occur in urban areas. Has visited bedouin camps. One party observed to enter tented accommodation at a military camp, presumably seeking food scraps.

Brown-necked Raven *Corvus ruficollis*. Found near small towns in July. Breeds beside highways. Probably concentrate there for greater food availability *eg* from spilt grain, road kills, rubbish from vehicles. Attracted to carrion. Highways attractive, especially parking areas, presumably due to dependable supply of food scraps. Attends temporary desert camps, including bedouin tents, for scraps. Fond of, and forages at, human rubbish areas. Surprising it does not occur more often in towns and villages. Often associates with domestic stock. Nested on electricity pylon. Occasionally electrocuted by some types of overhead power lines when perching. Unusual nest sites include top of 100 m high microwave pylon, on roadside telephone box, on well markers in oil fields and in loop of a disused basketball pole. Tall communication towers used for nesting but not towers in towns or built-up areas.

Trumpeter Finch *Bucanetes githagineus*. Comes to mirrors on vehicles and pecks at them. Has been recorded on post-harvest stubble.

According to Ellis & Ramankutty (2008) much of the Arabian peninsula is part of one of their three 'wild biome' classes and to be contrasted with 18 'anthropogenic biome' classes, all defined on the basis of human population density. They ask if conventional biome systems, based on climate, terrain and geology, are obsolete but answer no. Conventional biomes and ecoregions *eg* desert (Cowan 1997) have been modified by man. Some desert bird species will probably be able to survive in the increasingly human-modified environments of the Arabian peninsula. More observations are needed.

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