Being totally blind means that other senses have to be used for communication between individuals. Sound, and vibrations through the soil, are both very important. Mole rats are characterised by a rich vocal repertoire and their main vocal energy is at about 500 Hz. This is an adaptation to the peculiar environment they inhabit since low frequency sounds travel better than higher frequencies through tunnels. Different chromosomal species have different courtship-call dialects, and females respond most strongly to the dialect of their own species. This is not the case with females from the most newly arisen species (2n=60), however, who presumably have yet to evolve a discriminating ear.

The inner ear of the mole rat shows unique organisation among mammals, giving it maximum sensitivity to low frequency sounds. Despite the very low frequencies of these air-borne calls, they are propogated over no more than five metres.

For longer distance communication, vibrations through the soil are used. Mole rats thump the roofs of their tunnels in a rhythmical pattern with their heads. Presumably the extremely flat profile of the mole rat skull (figure 2) is an adaptation for this. Two chromosomal species (2n=54 and 2n=58) examined from this point of view showed different thumping frequencies, which might function as a species-specific isolating mechanism. In addition to auditory messages, chemicals in urine are important in communicating between the sexes.

Like our own, true, mole, there is evidence that Israeli mole rats do come up onto the surface from time to time. Nevo has studied the fur colour variation within and between species and has found a correlation between fur colour and ground colour. The northern species (2n=52,54) inhabit terrains where the soil is generally reddish, and these have a reddish tinge to the fur. The other two species live on sandier substrates and have yellowish coats. Within species, poulations may live on different soil colour types and here, too, there is a match between fur and substrate colour. These observations suggest that the pelage colour of mole rats is subject to natural selection by overground predators whcih will spot more easily animals whose coat colour matches the background least well.

The Israeli mole rats provide a superb example of multiple speciation triggered by increasing climatic diversity. The evidence suggests that speciation itself might be relatively sudden, via shifts in chromosome number, but that within species, fine-tuning of tratis to local conditions is a more gradual process.

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CETACEANS IN YORKSHIRE WATERS

INFORMATION SOURCES, PROJECTS AND BIBLIOGRAPHY

INTRODUCTION

With the study, conservation and general appreciation of whales, dolphins and porpoises currently attracting considerable popular interest, it would seem atimely to outline the extensive Yorkshire literature and indicate archival sources relating to these fascinating beasts.

The occurences of cetaceans in Yorkshire waters have been collated and reviewed in Clarke and Roebuck (1881), Grabham (1907), Frazer (1956), Spalding (1966), Clegg (1980) and Delany (1985).

David Spalding (1966), who at the time worked at Hull City Museum and was therefore surrounded by the paraphernalia of the 18th and 19th century whaling industry, produced thr first extensive and critical review of Yorkshire and Lincolnshire records. Delany (1985),however, provides the best interpretation of occurrences in the light of recent knowledge af status, seasonality and migratory patterns of cetaceans in the North Atlantic and British waters.

RECENT STUDIES AND RECORDS

Subsequently there have been detailed reviews of the Yorkshire occurrences of minke whale (Howes et al 1987), Yorkshire and other British occurences of white whale (Howes 1990), observations on the occurrence and behaviour of minke whale and fin whale off Flamborough (Allport 1988). Limbert (1985), through critical analysis of historical literature, provides clarification of the often misquoted 1863/4 occurrence in the Humber of a herd of northern bottlenose whales.

Since Delany's 1985 review, a number of additional sightings and strandings have come to the attention of the YNU recorder, these forming the subject of a paper *'Recent cetacean records from Yorkshire waters'* recently submitted to the 'Naturalist' (Howes in press) and are as follows:

Common rorqual (1), Lesser rorqual (3), Beluga (1), Killer whale (3), Pilot whale (at least 35 animals), White-beaked dolphin (9), White-sided dolphin (1).

Copies of all records are forwarded to the Marine Mammals section of the British Museum (Nat. Hist.), the 'Cetacean Group' of the Mammal Society and to the Sea Mammal Research Group of NERC.