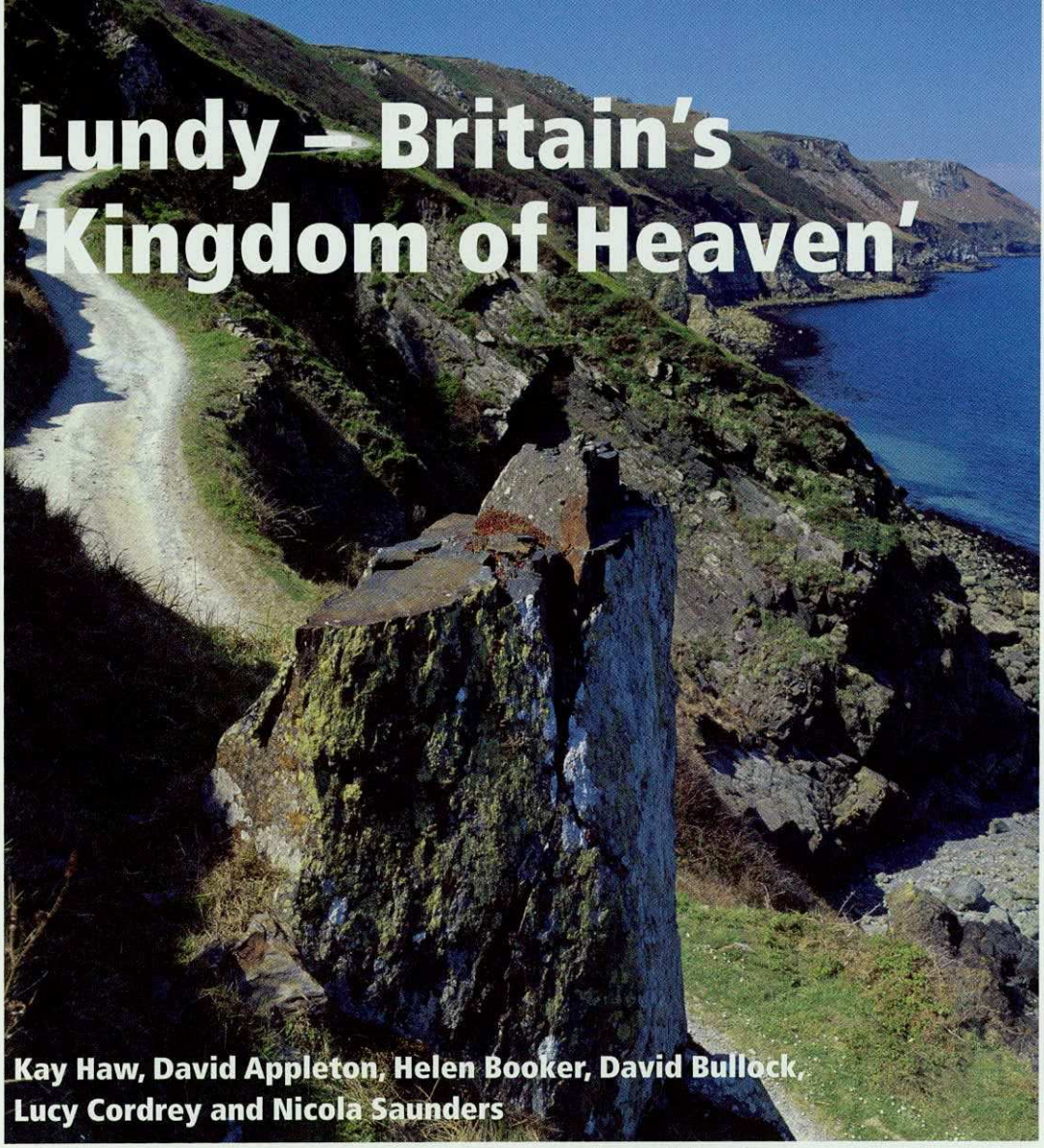
Lundy – Britain's 'Kingdom of Heaven'

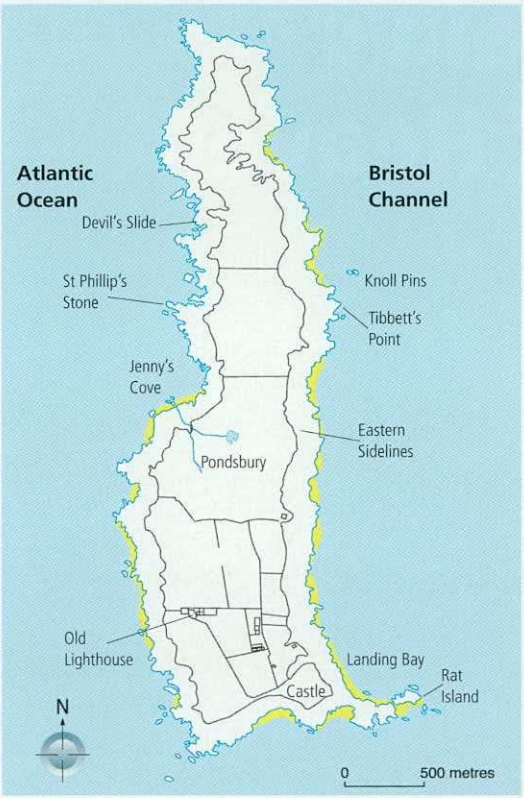
Kay Haw, David Appleton, Helen Booker, David Bullock, Lucy Cordrey and Nicola Saunders



The road along the eastern Sidelands of Lundy.
NTPL/Joe Cornish

Once a lair for Barbary pirates and dastardly smugglers, today much of the island of Lundy (430ha) has been designated a Site of Special Scientific Interest (SSSI), and its intertidal and subtidal coast is a Special Area of Conservation (SAC), part of England's first Marine Nature Reserve. Situated 18km from the North Devon coast at the mouth of the Bristol Channel, Lundy was isolated from the mainland as glacial meltwaters raised sea levels at the end of the last ice age. Geographical isolation is the greatest defining element of any island ecosystem, and Lundy is not without its examples of evolution and speciation.

Unearthed antiquities suggest that humans have occupied or visited Lundy since Mesolithic times (Blaylock 2006). In fact, Lundy has had a varied and turbulent human history; Vikings may have gathered here for attacks on the mainland, its caves have hoarded smugglers' cargo, and many ships have been wrecked on its coast. William de Marisco fled here in 1235 after being accused of killing a messenger of Henry III. His many acts of piracy led to his being hung, drawn and quartered for treason. Lundy was subjected to raids by the Scots in the 14th century and by Turkish marauders in the 17th century. In 1834, the island was bought by William Hudson Heaven and declared by many to be the 'Kingdom of Heaven' (see www.lundyisland.co.uk).



Map of Lundy

In 1946 the Lundy Field Society (LFS) was founded, and its members set about passionately researching the archaeology, geology, marine and terrestrial natural history and social history of the island, a job which they continue to do today. In 1969 Lundy was gifted to the National Trust, and the Landmark Trust took over its management. Today, the National Trust, the Landmark Trust and Natural England work in partnership to conserve and protect the island and its beauty. Around 20 staff live on the island, and the heart of the community is the Marisco Tavern, where all are made welcome.

The main body of the island is a solid granite plateau (the granite on Lundy is more similar to that of Skye than to that of Dartmoor) which formed around 59 million years ago from molten rock forcing its way up through the Earth's crust and slowly cooling. Of Lundy's many geological features, the Devil's Slide is among the most famous, being one of the longest single slabs of granite in Europe, and is a hotspot for rock-climbers. The island is orientated north to south, and the west side bears the full brunt of any fierce Atlantic weather. The vertical salt-sprayed cliffs support only hardy salt-tolerant species. In contrast, the eastern Sidelands are relatively sheltered and have shallower slopes.

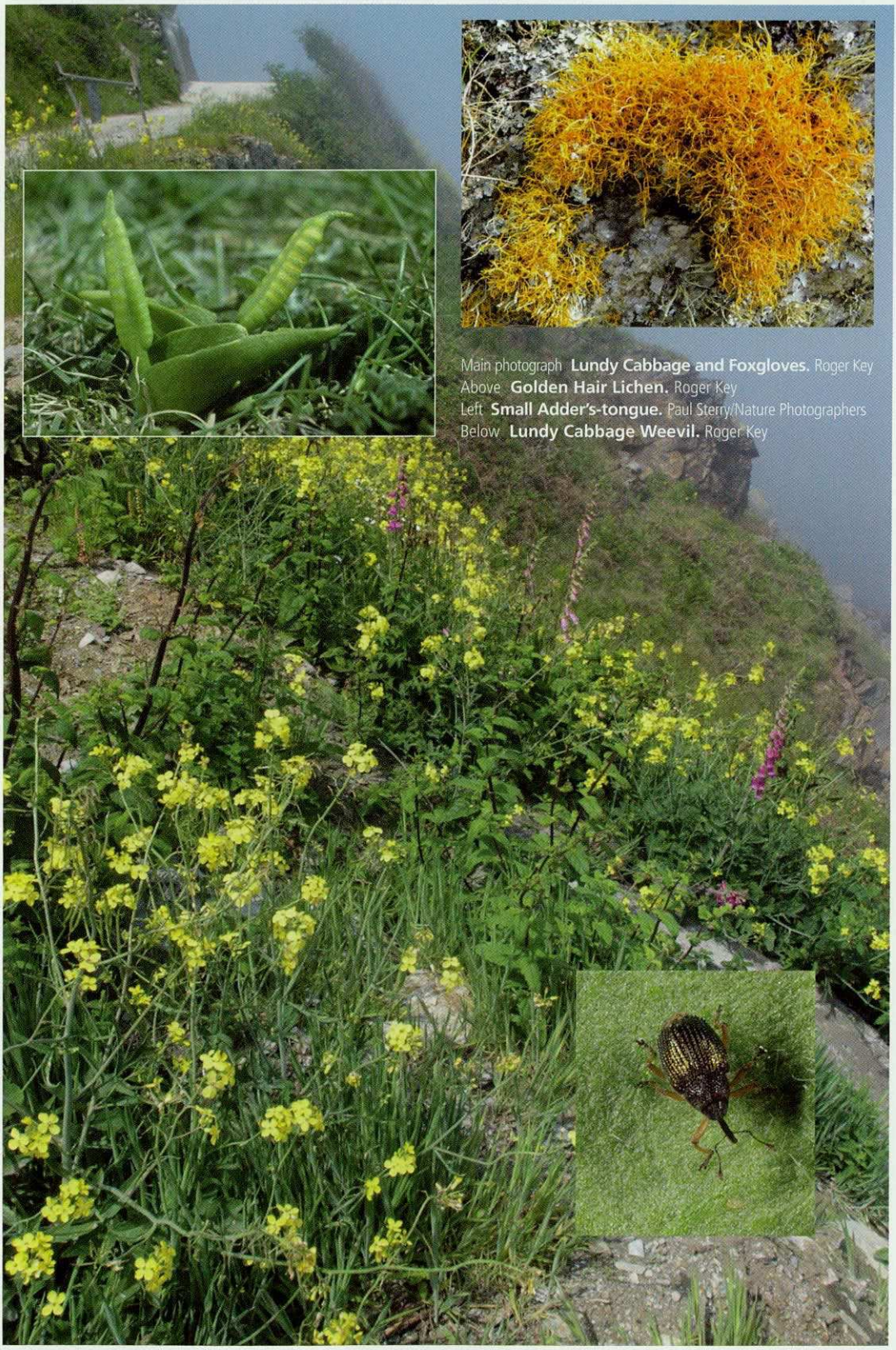
Flora

Lundy's vegetation is mostly a mosaic of grasslands, heathlands and mires, with very small patches of Gorse *Ulex europaeus* and wind-dwarfed Blackthorn *Prunus spinosus* scrub, as well as a few sparsely wooded coombes in the eastern Sidelands. In years when grazing pressure is relatively low, the Sidelands are a riot of pinks, whites, yellows and deep blues from Sea Thrift *Armeria maritima*, Sea Campion *Silene maritima*, Common Bird's-foot-trefoil *Lotus corniculatus* and Sheep's-bit *Jasione laevis*.

Lundy's mix of coastal and plateau acid grasslands, heath and mire in the north and west of the island is particularly rich. The unpolluted air allows the proliferation of the largest population of the eye-catching Golden Hair Lichen *Teloschistes flavicans* in the UK (Allen 2007). This species is now confined to the Welsh coast and south-west England, but in warmer areas of the world it becomes more common.

A close inspection just to the south of the old lighthouse on the thinner soils may reveal the Nationally Scarce Small Adder's-tongue Fern *Ophioglossum azoricum*, which is locally abundant here. The mires, dominated by Purple Moor-grass *Molinia caerulea* and Cross-leaved Heath *Erica tetralix*, mixed with Gorse, are best developed around Pondsbury, the largest permanent (dammed) waterbody. Delicate Heath Spotted-orchids *Dactylorhiza maculata* and glistening Round-leaved Sundews *Drosera rotundifolia* can also be found in the mires above Pondsbury. Lundy has three other ponds, which have all been well surveyed (George 2006).

The most significant of the island's plants is the Lundy Cabbage *Coincya wrightii*. The ancestors of the Lundy Cabbage are thought to have colonised the island after the last ice age (Compton *et al.* 2002, 2006). The species then evolved here in isolation and is now endemic on Lundy – as is the Bronze Lundy Cabbage Flea Beetle *Psylliodes luridipennis*, which lives only on this particular plant. Another flea beetle, *P. napi*, and the Lundy Cabbage Weevil *Ceutorhynchus contractus pallipes* also favour the Lundy Cabbage. Rabbits



Main photograph **Lundy Cabbage and Foxgloves.** Roger Key
Above **Golden Hair Lichen.** Roger Key
Left **Small Adder's-tongue.** Paul Sterry/Nature Photographers
Below **Lundy Cabbage Weevil.** Roger Key

Above **Sheep's-bit growing near the Old Lighthouse.** Roger Key
Right **A blue variant of Parrot Waxcap.** Gareth Griffith

Oryctolagus cuniculus and other mammalian herbivores, together with competition from other plants, are the biggest threats to the Lundy Cabbage.

The southern part of the eastern Sidelands were, until recently, dominated by dense impenetrable Rhododendron *Rhododendron ponticum*. Over many years of hard labour, staff and volunteers have gradually chopped and chipped this non-native invasive plant. Areas that have been cleared are already being colonised by early successional plants, including Lundy Cabbage, and will develop into acid grasslands with Bracken *Pteridium aquilinum*, Gorse and Bluebells *Hyacinthoides non-scripta*. There are also a few copses on the eastern Sidelands. These are important for migrant birds, and some additional tree-planting is underway to provide future cover.

Fungi

The island's unimproved grassland (especially the airfield) and heathland are excellent for fungi, including the stunning Splendid Waxcap *Hygrocybe splendidissima*, the rare Olive Earthtongue *Microglossum olivaceum* (a UK BAP species), fairy rings of Wood Blewit *Lepista nuda*, and the impressive Giant Puffball *Langermannia gigantea*. Sites for grassland fungi are ranked according to the number of 'CHEGD' species present (Griffith *et al.* 2004) and Lundy scores an impressive 31. It is very likely that surveys in September 2009 will discover early-fruiting *Entoloma* species, which would further boost the score, making Lundy a site of national and perhaps even international significance. In 2007 a rather rare pink/blue colour variant of the Parrot Waxcap *Hygrocybe psittacina* was identified, and in 2004 a still unconfirmed record of a waxcap intermediate between *H. radiata* and *H. lacmus* was found fruiting prolifically in the Heather *Calluna vulgaris* at the far northern end of the island, adding to Lundy's increasing fame as a waxcap hotspot (Hedger *et al.* 2006).

Invertebrates

Apart from those that feed on the Lundy Cabbage, many of the specialist invertebrates are those of open-cliff communities, feeding on salt- and exposure-tolerant plants. These include the rare spider *Segestria bavarica,* which lives in silken tubes spun in rock crevices, the Green Hairy Snail *Ponentina subvirescens,* which lives secreted under crevice vegetation, the Hoary Footman moth *Eilema caniola,* whose larvae feed on encrusting lichens, and the Devonshire Wainscot *Mythimna putrescens*. The Purse-web Spider *Atypus affinis,* which lives in a burrow lined with silk, is also here, attacking large prey such as bumblebees from the safety of its silken 'sock'.

Lundy is one of the best places to see the Purse-web Spider in Britain. Paul Sterry/Nature Photographers

The few wooded coombes support Nationally Scarce species such as the Striated Whorl Snail *Vertigo substriata*, the rove beetle *Quedius fulgidus*, which favours tree and shrub fungi, and the ladybird *Scymnus limbatus*. As you move up into the grasslands and heathlands you may find the Dor-beetle *Geotrupes stercorosus* breeding in the horse dung, the Minotaur Beetle *Typhaeus typhaeus* amongst Rabbit, sheep and goat droppings, the Green Tiger Beetle *Cicindela campestris* and a large black, red and gold rove beetle *Staphylinus erythropterus*. The long list of butterflies and moths recorded from Lundy includes the Garden Tiger Moth *Arctia caja* and the Cream Spot Tiger Moth *A. villica*, and migrants such as Painted Lady *Vanessa cardui* and Hummingbird Hawkmoth *Macroglossum stellatarum*.

Mammals and grazing

Of the mammals on Lundy, perhaps only the Common Pipistrelle *Pipistrellus pipistrellus* and the Pygmy Shrew *Sorex minutus* have been long established. The others have been introduced within the last 1,000 years. Rabbits were amongst the earliest, coming to Lundy in the 13th century, when the island became a cherished royal warren of Henry III. It was profit from the highly prized skins of the dark form of the Rabbit that paid for Lundy Castle, and there are black Rabbits on Lundy today. Their numbers fluctuate, from tens of thousands to below 100, owing to myxomatosis, which first came to the island (so far as we know) in 1983, and viral haemorrhagic disease. Numbers are still recovering from a myxomatosis outbreak in 2006 which greatly reduced the population. Each outbreak is followed by a peak in the Lundy

Feral goats on Lundy. In the background are large areas of cleared and flowering Rhododendron. Roger Key

Cabbage population, but the plants' glory is short-lived as they are outcompeted by scrub or Bracken and an increasing sward height (Compton *et al.* 2002). The exposed precipitous cliffs will always offer a refuge for the Lundy Cabbage, away from the mouths of the mammalian grazers.

In 1924, Martin Coles Harman, an English businessman, bought Lundy and proceeded to introduce a wide variety of bird and mammal species. He also created the illegal Puffin and Half Puffin denomination coins for use on the island (now collectors' items), and in 1929 introduced the famous Lundy stamps. Of these introductions, only the stamps, Soay sheep, Sika Deer *Cervus nippon,* Lundy pony (a dun New Forest-Welsh Mountain pony cross) and Golden Orfe *Leuciscus idus* (in the ponds) have survived. Lundy is also home to feral goats (present since at least 1752) and domestic sheep. Approximately one quarter of Lundy has enclosed (inbye) fields which are grazed by domestic sheep, the few ponies and Rabbits (and, at night, by Sika Deer), or are cut for silage.

Annual counts of the mammals are conducted by the National Trust, Landmark Trust and Natural England and lots of volunteers, in order to monitor the numbers of feral livestock, Rabbits and deer. The diversity of plants and invertebrates in the open habitats on the island relies in part on the grazing by mammalian herbivores. However, the overall grazing pressure can become excessive when high numbers of sheep, goats and deer coincide with high Rabbit numbers. As an example of the rate of increase of one of the species, only seven Sika Deer were introduced in 1927, but by 1961 there were 90 individuals. So, the numbers of all these species are tracked annually and cull targets agreed. This sustainable harvest of free-range meat is then available for sale on the island, or cooked in the tavern.

Bird life

Lundy is probably most famous for its birds, and there are species records dating back to the Heaven family diaries in the 19th century. A total of 280 species has been recorded, with yearly sightings published in the LFS *Annual Reports*. Systematic recording began in 1947 with bird-ringing, conducted by the LFS, and the establishment of an observatory in the Old Lighthouse. Over the years, Heligoland traps and mist nets (from 1958) have been used to catch migrants, and nestlings are also ringed. By 2006, a total of 85,741 birds of 172 species had been ringed. Between 1947 and 2006, the top ringed birds were Willow Warbler *Phylloscopus trochilus* (12,814), Goldcrest *Regulus regulus* (8,353), Chaffinch *Fringilla coelebs* (6,885) and Swallow *Hirundo rustica* (6,155) (Davis & Jones 2007).

Bird populations fluctuate seasonally. Some migrants stay to breed, whereas others merely soar overhead or use Lundy as a resting post before continuing their long journeys. Birdwatchers tend to frequent Lundy in the spring or autumn, following the birds on migration. Whilst always treated to an array of interesting birds, Lundy's position in the Bristol Channel means that it cannot compete for bird rarities with the Isles of Scilly or Fair Isle. Nevertheless, it has had some UK 'firsts' such as the Pacific-coast Ancient Murrelet *Synthliboramphus antiquus* – the only record in the Western Palearctic. The bird remained around Lundy for the entire summer of 1990, attracting hordes of birders. Birdwatchers have also been treated to other rarities, such as Veery *Catharus fuscescens*, Rose-breasted Grosbeak *Pheucticus ludovicianus*, Red-eyed Vireo *Vireo olivaceus*, Radde's Warbler *Phylloscopus schwarzi*, Olive-backed Pipit *Anthus hodgsoni* and Black-faced Bunting *Emberiza spodocephala*.

Peregrines *Falco peregrinus* have nested on Lundy since the 13th century (Davis & Jones 2007), and their aerial displays continue to delight to this day. Lundy is also visited by a number of other birds of prey, including Kestrel *F. tinnunculus*, Merlin *F. columbarius*, Sparrowhawk *Accipiter nisus* and Buzzard *Buteo buteo*. But it is the seabirds for which the island is most renowned. Along the west side of the island, Fulmars *Fulmarus glacialis*, Black-legged Kittiwakes *Rissa tridactyla*, Common Guillemots *Uria aalge*, European Shags *Phalacrocorax aristotelis* and Razorbills *Alca torda* nest on the inaccessible cliffs, interspersed with pairs of Great Black-backed Gulls *Larus marinus* and occasional Oystercatchers *Haematopus ostralegus*. Above the cliffs, colonies of Lesser Black-backed Gulls *L. fuscus* and Herring Gulls *L. argentatus* occupy the coastal slopes, while Manx Shearwaters *Puffinus puffinus* and a few Atlantic Puffins *Fratercula arctica* occupy burrows between April and September. Every four years, the seabird colonies are counted by enthusiastic naturalists as a 'health check' for

these important populations. While the auks have remained relatively stable in recent decades, the gulls, especially the number of Kittiwake pairs, are declining on the island (Price 2004), reflecting a national trend.

A Lundy Puffin photographed in 1980, when the population was still measured in hundreds. Andrew Cleave/Nature Photographers

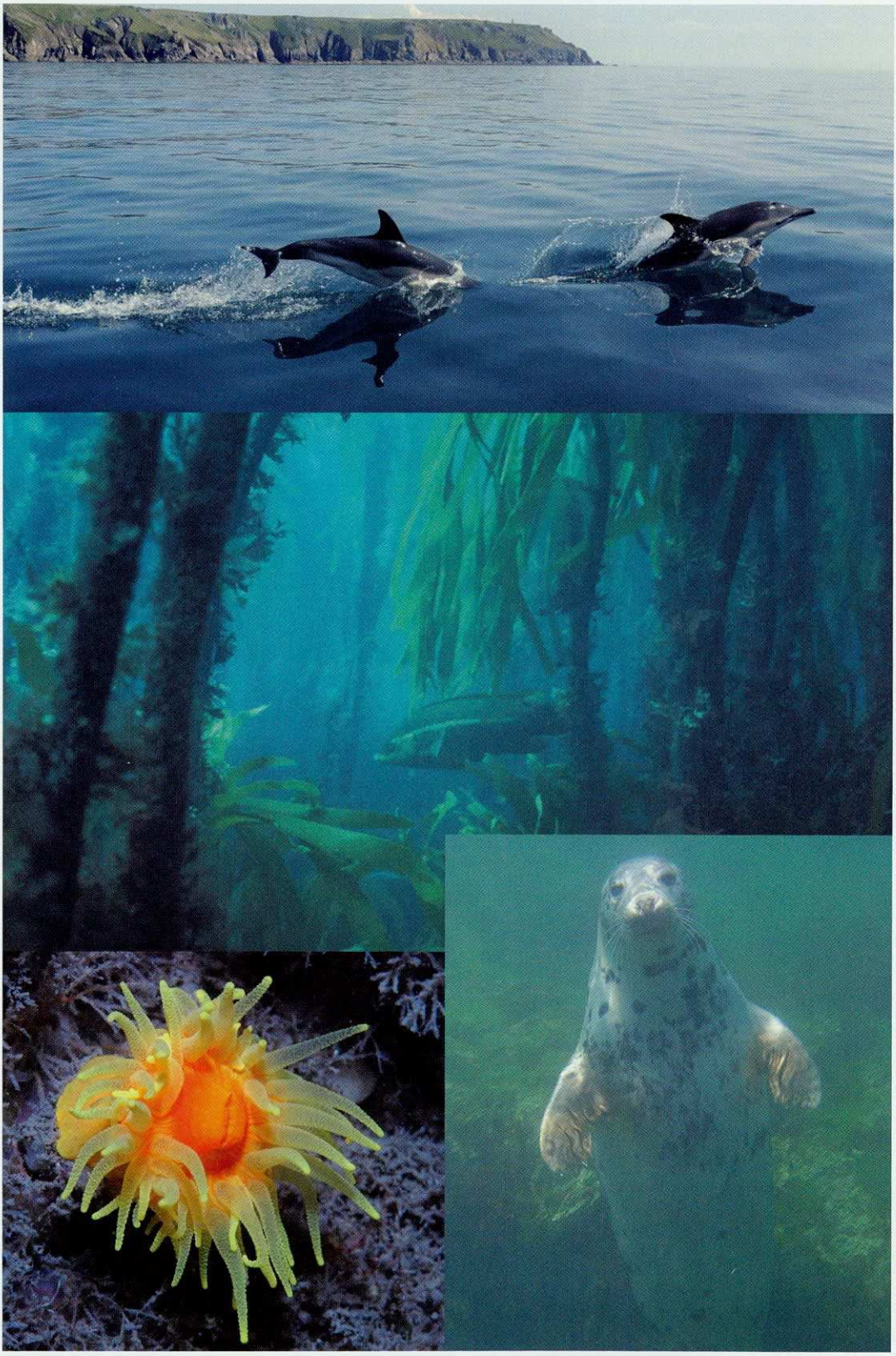
Puffin Isle

The origins of the word 'Lundy' are from the ancient Norse for 'Puffin Isle' or, possibly, 'Seabird Isle' (*Lund* + *ey*). In 1939 the cliffs were brimming with the activity of 3,500 breeding pairs of Atlantic Puffins, but by the turn of the century a mere 13 individuals remained (Price & Booker 2001). The population of Manx Shearwaters had fared only slightly better when, in 2001, a detailed survey returned an estimate of only 166 pairs (Price & Booker 2001). The UK and Ireland hold more than 90% of the world's Manx Shearwater population. This gives us a global responsibility to conserve and protect this species. In light of this, Lundy's Seabird Recovery Project (SRP) was set up, with a focus on halting and reversing the decline in the Manx Shearwater on the island (Appleton *et al.* 2006).

Although Lundy's seabirds were targeted for many years by humans for their feathers and eggs, this petered out, and finally stopped, with the Sea Birds Preservation Act of 1869. The seabirds' true undoing was the accidental introduction of Black Rats *Rattus rattus* and Brown Rats *R. norvegicus* to the island, probably from wrecked ships. Rats are opportunistic feeders and are renowned for their ability to decimate island bird populations, especially ground-nesters. For example, the island of Ailsa Craig, off south-west Scotland, first recorded rats in 1889; the rat population exploded and the seabirds started declining. An attempt was made in 1923 to eradicate the rats, but the poison was non-lethal, and some rats remained and their numbers recovered. Eventually, the Puffins died out. In 1990, a study on Fulmar chicks proved that rats were far from just scavenging carrion in the seabird colonies, but they were killing chicks while the parents were at sea. So, in the winter of 1991, a rat-eradication programme was carried out. In the following summer, Fulmar breeding success rose from complete failure to 100% success, three species colonised and many others increased in number. Then, in 2002, the Puffin returned to the island (Zonfrillo 2007). On Handa Island, Sutherland, the eradication of Brown Rats took place in 1997. Since then, there have been many benefits to the island's wildlife: three species of seabird have expanded their range, three bird species have colonised, four species have higher populations and four species have increased their breeding productivity (Stoneman & Zonfrillo 2007).

In 2002, in the light of these successes on other seabird islands, a decision was made to eradicate rats from Lundy. This difficult but necessary resolution angered some animal-rights groups and mammal specialists. The Black Rat is a rare species in the UK, having been usurped by the Brown Rat, introduced in the 18th century, but both non-native species are globally abundant, unlike the Manx Shearwater. The SRP, a joint initiative between English Nature (now Natural England), the RSPB, National Trust and Landmark Trust, was initiated to return Lundy to the birds. Rats were poisoned over two winters (2002/3 and 2003/4). The last bait take was recorded in February 2004 and, after a thorough check in early 2006, Lundy was declared rat-free (Appleton *et al.* 2006). It is now one of the largest rat-free islands in Europe. Since then, there have been almost yearly scares. However, vigilance for droppings and for signs of chewing remains high on the island and the supply boat, and a contingency plan of setting up bait stations for monitoring is in place for whenever suspected evidence is found. Visitors, especially overnighters, should make sure that anything they bring does not contain stowaway rodents.

Since the conclusion of this mammoth effort,



some bird populations have begun to recover. In 2008, the RSPB resurveyed the island and estimated that there were over 1,000 pairs of breeding Manx Shearwaters (Price & Booker 2009). In 2005, a Puffin chick was recorded for the first time in 30 years on the island, and in 2008 active Puffin burrows and chicks were seen at St Phillips Stone and Jenny's Cove. Of course, it will take time for Lundy's feathered inhabitants to return to pre-*Rattus* levels, but early indications are encouraging.

Marine treasures

In 1973, the seas around Lundy became the UK's first voluntary marine reserve, with a management plan developed by the Lundy Field Society, Nature Conservancy, Landmark Trust and Devon Sea Fisheries Committee, and in 1986 they became England's first Marine Nature Reserve (MNR). Since 2003, an area off the east of the island has been designated a statutory No Take Zone (NTZ). This prohibits all fishing and collection of sea life within the designated area, and forbids anchors or diver shotlines within 100m of the Knoll Pins. These protected areas support a stunning array of marine habitats and wildlife, including a number of rare and unusual species. This is, in part, due to the varied amounts of water movement around Lundy: nutrient-rich estuarine water from the Bristol Channel, cool clear Atlantic waters, and warmer waters from the Gulf Stream.

Hundreds of divers flock annually to the island to view the life and shipwrecks of Lundy. As you delve beneath the waves a tall swaying Kelp forest greets you, the marine equivalent of a terrestrial oak woodland. A little further down you will find stunning yellow Sunset Cup-corals *Leptopsammia pruvoti*, residing here at their northernmost limits, while Red Sea Fingers *Alcyonium glomeratum* tease the waters, together with delicate Pink Sea Fans *Eunicella verrucosa* and the elusive Red-band Fish *Cepola rubescens*. Divers can also visit the wrecks around Lundy, such as that of the *MV Robert*, which lies off Tibbett's Point. This vessel sank intact and now forms an artificial reef teeming with marine life. Two of the wrecks are protected as Scheduled Ancient Monuments, and special permission is required to dive on these.

Lundy's SAC designation is due to features of the reef habitats around the island, including a breeding population of around 100 Grey Seals *Halichoerus grypus*. These are graceful and inquisitive in the water, though less so on land, and are known to nibble the fins of unsuspecting divers. At low tide the intertidal area of Devil's Kitchen, behind Rat Island, is a lovely spot for rock-pooling, with Cushion Stars *Asterina gibbosa*, Shore Crabs *Carcinus maenas* and Strawberry Anemones *Actinia fragacea* delighting many island visitors.

In some years Lundy's waters are a prime location for Short-beaked Common Dolphin *Delphinus delphis*, Bottlenose Dolphin *Tursiops truncatus*, Harbour Porpoise *Phocoena phocoena* and Thornback Ray *Raja clavata*. When the waters around the island are particularly plankton-rich, Basking Shark *Cetorhinus maximus* and Sunfish *Mola mola* can be witnessed. There are also records of Minke Whale *Balaenoptera acutorostrata*, Long-finned Pilot Whale *Globicephala melas* and Killer Whale *Orcinus orca*. The range of ocean life visiting the area is a testament to the variety of waters and high levels of food species available, including Sea Gooseberries *Pleurobrachia pileus* and Compass Jellyfish *Chrysaora hysoscella*.

To date there have been no reports of trawling or dredging in the restricted zones, and evidence shows that this is benefiting many species. Natural England's monitoring of Lundy's NTZ for the past five years indicates that the protected area enhances the sealife both within and around it. For example, the number of large lobsters (carapace over 90mm long) inside the NTZ is seven times greater than that outside the protected area (Lumbis 2008). There have been some infringements in terms of illegal pots and angling, but the pots are removed by the Devon Sea Fisheries Committee, and the handful of angling incidents has been by vessels claiming to be unaware of the restrictions. Advice to visitors of Lundy and users of the MNR is to report any suspicious activities. Vigilance and good communication are the keys to the success of these conservation efforts. It is reported that species richness inside marine reserves generally increases by 21% and biomass by 446% on average (PISCO 2007) compared with those outside.

Opposite top **Short-beaked Common Dolphins off Lundy in 2009.** Andrew Cleave/Nature Photographers
Middle **Lundy's kelp forest.** Keith Hiscock
Bottom left **Sunset Cup-coral at Knoll Pins.** Keith Hiscock
Bottom right **One of Lundy's Grey Seals.** Keith Hiscock

Lundy's future

The new Marine and Coastal Access Bill (currently progressing through Parliament) will convert Lundy's current MNR into a Marine Conservation Zone (MCZ). Along with other MCZs, it will help to form a network of Marine Protected Areas across the UK and Europe. This will help to safeguard important species and habitats for the future, allowing them chance to recover.

Lundy has a commercial farm in which the number of sheep has been regulated to allow the terrestrial habitat features of the SSSI to flourish through a Sheep Wildlife Enhancement Scheme co-ordinated by Natural England. The scheme expires this year, prompting discussions about future land use.

Climate change may soon begin to modify and mould the composition of Lundy's biodiversity. The warming oceans may bring more tropical life to the island's waters, affecting the present marine ecosystem and the food supply for the island's seabirds and other marine life. Some species may be lost, but others will move northwards with the warming waters, one hopes, filling the niches left behind. However, climate change may cause problems for the Grey Seals. They require haul-out sites, using these and Lundy's caves for birthing their young, and a little sunbathing. If sea levels rise too much, these rock ledges and openings may well disappear underwater. Will this mean that the population will have to find another home?

Another big threat to Lundy from climate change is increased storminess. The south-east corner of the island is made from shale, not granite, and this is where the jetty and the only road up to the top are situated. Recently, eroding parts of the road have had to be repaired. Rising sea levels and storm intensification could increase erosion and threaten the road, and therefore the island's main supply route. On Lundy, the overriding goal is to restore the island's habitats to good condition, which will benefit species both on land and at sea. By making the island's habitats more robust, we give Lundy's nature the best possible chance of adapting to climate change, thereby ensuring, it is hoped, that it will continue to flourish and evolve.

Visiting

Travel to Lundy is from Bideford or Ilfracombe, Devon, aboard the *MS Oldenburg* or by helicopter. The island is open to both day visitors and those wanting to stay in the various accommodation and camping available. Volunteers, for *Rhododendron* clearing, etc, are always welcome. For more information on Lundy, please go online to www.lundy.org.uk and www.lundyisland.co.uk.

Acknowledgements

Warm thanks to all those who generously gave their time and expertise during the editing stages: Gavin Black, Shirley Blaylock, Steve Compton, Gareth Griffith, Kevin Hiscock, Roger Key, Steve Mulberry, Melanie Parker and Sophie Wheatley.

References

Allen, A 2007 *Lundy Lichens*. Lundy Field Society

Appleton, D, Booker, H, Bullock, D J, Cordrey, L, & Sampson, B 2006 The Seabird recovery Project: Lundy Island. *Atlantic Seabirds* 8: 51-59

Blaylock, S 2006 *Patterns of Settlement on Lundy: Putting Lundy's Archaeology on the Map*. In: J George (ed) *Proceedings of the 60th Symposium of the Lundy Field Society* 15-30. Malago Press

Compton, S G, Key R S, & Key, R J D 2002 Conserving our little Galapagos – Lundy, Lundy Cabbage and its beetles. *British Wildlife* 13: 184-190

Compton, S G, Craven, J C, Key, R S, & Key, R J D 2006 Lundy Cabbage: Past, Present and Future. In: J George (ed) *Proceedings of the 60th Symposium of the Lundy Field Society* 161-178. Malago Press

Davis, T, & Jones, T 2007 *The Birds of Lundy*. Harpers Mill Publishing, Exeter

George, J 2006 *Lundy's Lentic Waters: their Biology and Ecology*. In: J George (ed) *Proceedings of the 60th Symposium of the Lundy Field Society* 103-128. Malago Press

Griffith, G W, Bratton, J L, & Easton, G L 2004 Charismatic megafungi: the conservation of waxcap grasslands. *British Wildlife* 16: 31-43

Hedger, J N, George, J D, Griffith, G W, & Lewis, D 2006 *The Macrofungi of Lundy*. In: J George (ed) *Proceedings of the 60th Symposium of the Lundy Field Society* 139-160. Malago Press

Lumbis, R 2008 *Distribution of Southwest England inshore fishing effort and the Pink seafan, Eunicella verrucosa (Pallas, 1766) between 1990 and 2007*. www.mcsuk.org/downloads/biodiversity/pink%20seafan%20and%20southwest%20fisheries%201990_2007.pdf

PISCO (Partnership for Interdisciplinary Studies of Coastal Oceans) 2007 *The Science of Marine Reserves*. University of California, Santa Barbara. www.piscoweb.org/outreach/pubs/reserves

Price, D 2004 *Lundy census of breeding seabirds – site register for 2004*. Unpublished report

Price, D, & Booker, H 2001 Manx shearwaters on Lundy: report on the results of a breeding season survey in May 2001. *Annual Report of the Lundy Field Society 2001* 51: 95-103

Price, D, & Booker, H 2009 Manx Shearwaters on Lundy: a study of population and distribution change from 2001 to 2008. *Journal of the Lundy Field Society* 2009 Vol 2

Stoneman, J, & Zonfrillo, B 2007 The Eradication of Brown Rats from Handa Island, Sutherland. In: *Tackling the problem of invasive alien mammals on seabird colonies – Strategic approaches and practical experience*. www.ntsseabirds.org.uk/File/Conference%20proceedings.pdf

Zonfrillo, B 2007 *Ailsa Craig – Rat Eradication – history and effects*. In: *Tackling the problem of invasive alien mammals on seabird colonies – Strategic approaches and practical experience*. www.ntsseabirds.org.uk/File/Conference%20proceedings.pdf

Kay Haw is reading a BSc in Conservation Biology at the University of the West of England, Bristol. David Appleton is a Conservation Officer at Natural England. Helen Booker is an RSPB Senior Conservation Officer. David Bullock, Head of Nature Conservation, and Lucy Cordrey, Nature Conservation Technician, work for The National Trust. Nicola Saunders, Landmark Trust, is Lundy Island's Warden.