

EXMOOR NATIONAL PARK STATE OF THE PARK REPORT

CHAPTER 7. WILDLIFE - BIODIVERSITY

Vision for wildlife

The existing richness and variety of wildlife to be conserved. Valuable habitats carefully managed and extended and others reinstated to encourage the return of wildlife populations that have been lost.

Objectives and Indicators

Objectives relate to the Exmoor National Park Management Plan
Indicators may be shared with those from other plans or organisations

LP - Exmoor National Park Local Plan

BVPP – Exmoor National Park Best Value Performance Plan

AC – Audit Commission

CA – Countryside Agency indicators used in their ‘State of the Countryside Reports’

RWP – The Government’s Rural White Paper ‘Our Countryside’

NPA – ‘Headline’ indicators developed by the National Park Authorities’ Data Working Group

RO – Indicators developed for the South West’s Regional Observatory

Objective 7/1

To conserve and enhance the wildlife of Exmoor

Indicators:

Percentage of Local Biodiversity Action Plan habitats in favourable condition; populations of Local Biodiversity Action Plan species (AC)

Objective 7/2

To maintain a healthy population of wild red deer, managed so that it is in balance with the environment, farming and forestry

Indicators:

Population of red deer (AC); age and sex structure of red deer population

HOW WELL IS EXMOOR’S WILDLIFE BEING PROTECTED?

Current situation:

A large proportion of Exmoor’s semi-natural habitats is protected as Sites of Special Scientific Interest. A moderate proportion of Exmoor’s Sites of Special Scientific Interest is in unfavourable condition.

Trends:



The proportion of Exmoor’s semi-natural habitats in public ownership is steadily increasing



A moderate proportion of Exmoor’s Sites of Special Scientific Interest in unfavourable condition is showing no improvement.

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Exmoor's wildlife and habitats are increasingly being covered by designations but this does not necessarily safeguard them.

Nationally, habitat loss has been rapid in recent years. Since 1945 it is estimated that Britain has lost:

- 95% of lowland neutral grasslands
- 140,000 miles of hedgerows
- 50% of ancient semi-natural woodland
- 90% of lowland ponds
- 150,000 acres of wetland and 120,000 acres of moor and heath every year

Exmoor has suffered greatly from habitat loss. It lost an estimated:

- 58% of its ancient woodland from 1840 to 1979,
- 92% of its unimproved grassland from 1930 to 1990
- 65% of its moor and heath from 1913 to 1969.

Under Section 3 of the Wildlife and Countryside (Amendment) Act, 1985 a map was produced of the semi-natural habitats on Exmoor that were considered most important to conserve. This map, published in 1990, showed that there were 22680ha of moor and heath, woodland, cliff and foreshore important to conserve. There is need for review of the map but changes are unlikely to be significant. National Park designation does not in itself give any special legal protection to such areas. Currently 19,340ha is protected as Sites of Special Scientific Interest. Such sites may not be entirely within Section 3 areas as they also include habitats such as unimproved grasslands, wetlands and rivers but are largely within Section 3 areas. Exmoor also has 480ha of nature reserves. These are not entirely but mostly within Section 3 areas and SSSIs. It is estimated, therefore, that roughly 85% of Exmoor's semi-natural habitats have some form of legal protection.

Habitat protection

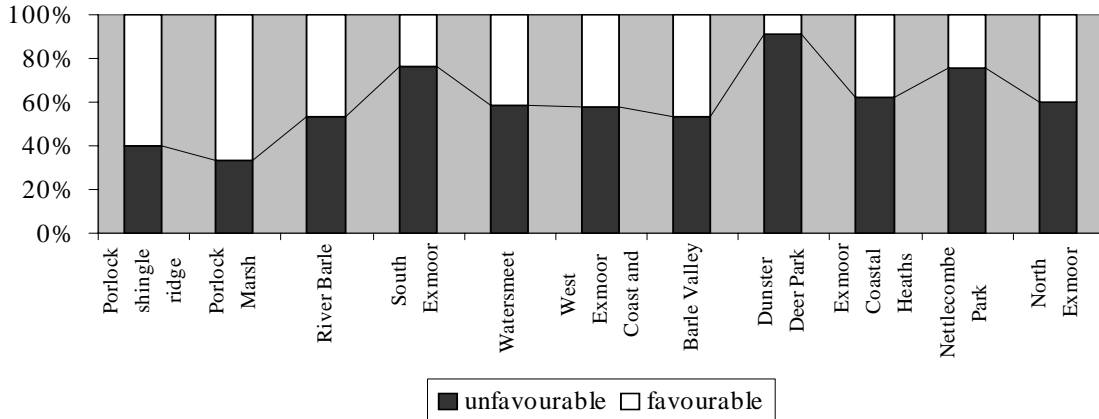
	Number	Acres	Hectares
Sites of Special Scientific Interest (excluding geological sites)	10	47,863	19,340
National Nature Reserves (Horner, Tarr Steps, Hawkcombe)	3	1,329	538
County Wildlife Trust reserves (Hurscombe, Mounsey Wood)	2	169	68
Exmoor Natural History Society reserve (Woodcock Gardens)	1	5	2
Woodland Trust reserves (Combe Brake, Garratt's Wood)	2	7	3
Area considered important to conserve under Section 3 of the Wildlife and Countryside Act, 1985			
Moor and heath		41,077	16,624
Woodland		11,999	4,856
Cliff and foreshore		1,930	781

SSSIs were surveyed for condition by English Nature during 2001 and 2002. Due to measures to control the foot and mouth epidemic some of the monitoring units within the SSSIs were not surveyed but roughly 88% of the area of was included in the monitoring. Of this area 63% was considered to be in unfavourable condition and 37% in favourable condition. With the exception of Porlock shingle ridge and marsh, all of Exmoor's SSSIs had over half of their area in unfavourable condition. The SSSI in worst condition was Dunster Park. This was largely due to lack of management, even though much of the area was in public ownership of the Crown Estate. The problems of undergrazing in some

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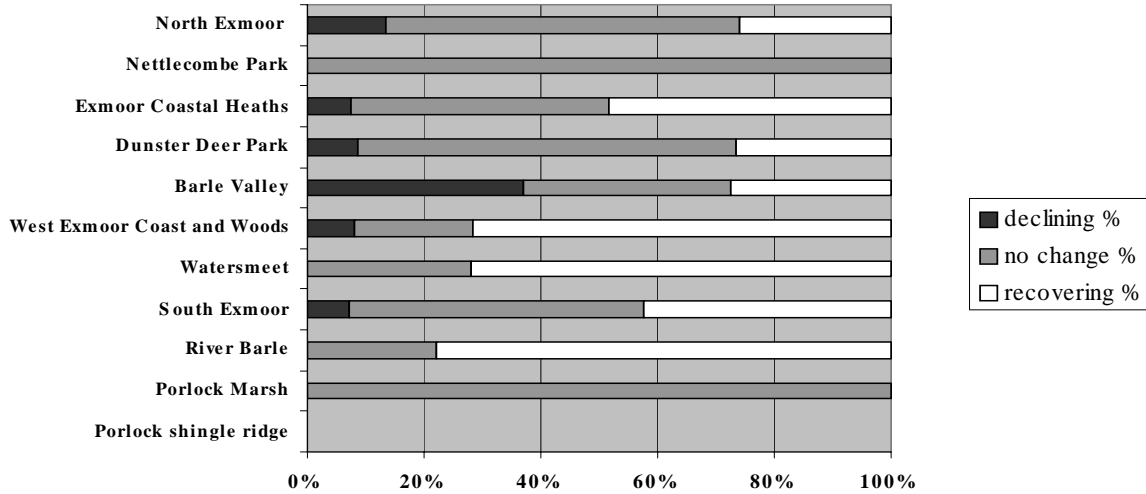
areas, overgrazing in others, lack of controlled burning and the encroachment of bracken and scrub seem to be the common problems in most other unfavourable areas. The invasion of non-native species such as rhododendron, sycamore, cherry laurel and knotweed is also a common problem of woodlands and wetlands.

Condition of Sites of Special Scientific Interest 2002



The good news, if any, was that only 9.5% by area of those monitoring units found unfavourable was found to be getting worse. 55.5% was not changing and 35% was recovering. Trends within areas considered to be favourable were not assessed as 'favourable condition' was taken to mean that sites were in good order and were likely to remain so for the foreseeable future.

Trends within unfavourable parts of Sites of Special Scientific Interest 2002



Many of the moorland and coastal SSSIs in Exmoor and surrounding parts of North Devon and the Quantocks were designated in 2000 as an Important Bird Area. Known as the Exmoor Coast and Heaths IBA, this covers 22,669ha. It is quoted as being under a medium level of threat both from agricultural intensification and reduction. The citation states that the area is important for a number of species, including merlin, and gives numbers for certain species included in recent surveys:

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peregrine – 20 (1995)
nightjar – 56 (1994)
whinchat – 450 (1993)
stonechat – 300 (1993)

The national Biodiversity Action Plan lists certain habitats which may be common or rare but whose range or area are most threatened and where most urgent conservation work is necessary. From the national and regional plans an initial 7 have been selected locally as key habitats for which Habitat Action Plans have been developed.

Status of Key Habitats from the Exmoor Biodiversity Action Plan:

- Only about 480ha of high quality blanket bog remain in the National Park, although there are about 4,000ha of purple moor-grass vegetation of which some may have potential for reversion to blanket bog.
- Little is known about the status of bracken and scrub on Exmoor. The Monitoring Landscape Change survey suggested that there were 3,874ha of bracken and 724ha of scrub in the National Park in the 1980s and that both had declined since the 1970s.
- There are thought to be about 1,500ha of lowland heath within the National Park, most of which is coastal heath. About one third of Exmoor's lowland heath was lost to farming and forestry in the 20th century.
- The Exmoor Grassland Survey of 1990 identified 212ha of species rich neutral grassland on 93 sites within the National Park. This included 9 different vegetation types. Some of these were incorrectly classified and some sites have since been destroyed, whilst there is potential for increasing diversity on semi-improved sites.
- Wood pastures, parklands and veteran trees are important habitats for wildlife which are declining throughout Europe. Their extent on Exmoor is not known but the two parkland SSSIs cover 824ha. About 1,000 veteran trees have been identified within parkland and wood pasture but not from the wider countryside.
- There are approximately 7,000 ha of upland heath on Exmoor. About 20% was lost between 1950 and 1980 to farming and forestry.

WHAT IS THE STATUS OF KEY SPECIES OF WILDLIFE WITHIN THE NATIONAL PARK?

Key species of wildlife are generally in decline on Exmoor.

Rare species

Exmoor is thought to have two endemic species (species which are native to Exmoor and found nowhere else) of whitebeam tree: *Sorbus subcuneata* and *Sorbus* 'Taxon D'. Taxon D is named after the area around Desolate where it is found. Other whitebeams endemic to the West Country have subspecies endemic to Exmoor. They are *Sorbus devoniensis*, *Sorbus vexans* and *Sorbus porrigentifomis*. Also found on Exmoor are *Sorbus anglica* and *Sorbus rupicola*, which are more widely distributed but nationally rare. A lichen, *Opegrapha fumosa*, is also thought to be endemic. The rarity of other species is relative. For instance there are species which are rare on Exmoor which but common elsewhere, such as cowslip and harebell. Some of the nationally rare species are introduced and common in other countries, such as the French crane's-bill and Pyrenean lily. The Red Data Book of internationally endangered species is probably the best guide to rarity. Pre-1995 the most endangered species were known as RDB1; they are now known as Critically Endangered or Endangered.

RDB1 species found on Exmoor include species of rove, dung and hop-flea beetles; a micro-moth and a spider. Other RDB species include: 6 species of fungi; 4 species of cranefly; 2 species of gnat; 2 other species of fly; 10 species of beetle; 6 species of moth; high brown fritillary and heath fritillary butterflies; a spider; goshawk, merlin, peregrine, red grouse, grey partridge, quail, curlew, redshank, guillemot, razorbill, barn owl, nightjar, Cetti's warbler, sedge warbler, Dartford warbler, lapwing; water vole, dormouse, brown hare, otter, greater and lesser horseshoe bats, serotine bat, whiskered bat, Daubenton's bat, Natterer's bat, noctule bat, pipistrelle bat, brown and grey long-eared bats. RDB plants include the whitebeams, Babington's leek, fragrant evening primrose and several species of non-flowering plants. A RDB lichen, *Biatoridium delitescens*, has its only known English site on Exmoor.

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Extinct species

The species which used to live on Exmoor and have become locally extinct are endless, but some of the more notable ones are as follows: elk, reindeer, bison, wild dog (c5000 BC); aurochs (c 1500BC); brown bear, beaver (Saxon times); wolf, wild boar (Tudor times); pine marten, wild cat, red kite [as breeding species], marsh harrier (19th century); polecat, red squirrel, chough\ puffin\ hen harrier\wood lark\ringed plover\golden plover\dunlin [as breeding species], black grouse, silver-studded blue butterfly (20th century). Recently extinct plants include marsh and alpine clubmosses.

Stronghold species

There are certain species which can be considered characteristic of Exmoor in that they are relatively abundant compared with their national or regional distribution, counting England and Wales as the nation and Devon, Somerset, Cornwall, Dorset, Gloucestershire and the former Avon as the region. Amongst the nationally important can be included red deer, dormouse, whinchat, stonechat, heath fritillary and high brown fritillary butterflies, the whitebeam species already mentioned, Irish spurge, ivy-leaved bellflower, alternate water milfoil and Cornish moneywort. Added to this are several lichens, including the 'sausage' lichen (*Usnea articulata*). Exmoor is the only national location for the lichens *Rinodina fimbriata* and *Rinodina flavosoralifera*, the latter having been found only on a single tree.

Regionally Exmoor is important for sessile oak, sheep's bit, common cow-wheat, heath rush, deer sedge, hare's tail cottongrass, early hair grass, wavy hair grass, bristle bent grass, heath pearlwort, sand spurrey, round leaved crowfoot and climbing corydalis.

Priority species

The national Biodiversity Action Plan lists certain species which may be common or rare but whose range, numbers or habitats are most threatened and where most urgent conservation work is necessary. Of these Exmoor is the only National Park in which the following occur: stag beetle; high brown fritillary butterfly; heath fritillary butterfly; a fungus, *Battarraea phalloides*; a lichen, *Schismatomma graphidioides*. Other priority species found on Exmoor are: water vole; brown hare; otter; dormouse; harbour porpoise; pipistrelle bat; greater horseshoe bat; skylark; grey partridge; song thrush; great crested newt; pearl-bordered fritillary butterfly; a robber fly, *Asilus crabroniformis*. From the national plan an initial 7 species have been selected locally as key species for which Action Plans have been developed.

Status of Key Species from the Exmoor Biodiversity Action Plan:

- The ballerina wax-cap fungus is currently found on 8 sites on Exmoor form a total of 14 sites on which it has previously been noted.
- The dormouse has been recorded at eight sites on Exmoor, although it is likely to exist in several other parts of the National Park.
- The heath fritillary butterfly is currently recorded from 13 sites on Exmoor but has occurred on 25 sites. It is thought that there are 6 main 'meta-populations' which develop different sites each year.
- The high brown fritillary butterfly occurs at 51 known sites in England and Wales, 11 of which are on Exmoor. It has been recorded from 14 sites on Exmoor. At 7 of its current sites populations are small and vulnerable.
- Four species of lungwort lichens occur on Exmoor, where they are known from 34 sites. Only one species, *Lobaria pulmonaria*, however, is common.
- The British population of nightjars was estimated at 3400 pairs and a partial survey of Exmoor in 1995 revealed 33 pairs at 20 sites. There are certain to be many more sites and Exmoor probably has a nationally important population of these birds.
- Seven species of whitebeam trees occur on Exmoor. Three of these species are endemic—that is, they grown nowhere else - and another endemic variety awaits classification. They are known from 21 sites on Exmoor, all but 2 of which are coastal.

Within the Exmoor Biodiversity Action Plan there are actions to find more information about these Key Species but monitoring of heath fritillary populations has already been taking place:

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Heath fritillaries

Current situation:

Exmoor is the national stronghold for this species.

The species is possibly Britain's rarest breeding species of butterfly.

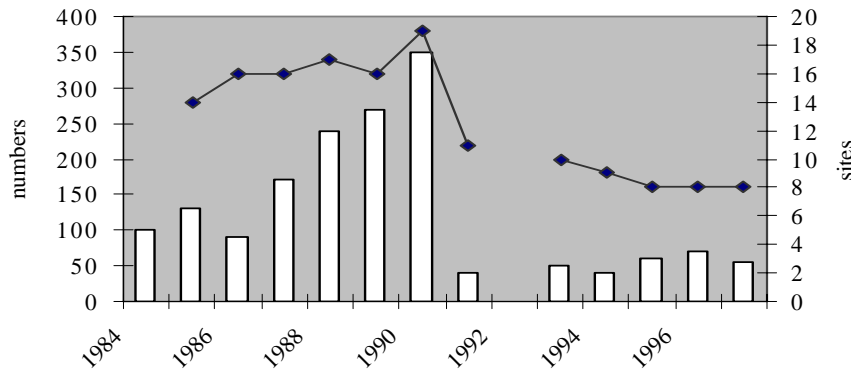
Trends:



Both the population and breeding sites for heath fritillaries on Exmoor appear to be in decline.

Nationally most of Britain's 59 butterfly species are in decline and 30 could be facing extinction in the near future. According to the Butterfly Conservation Society, species such as the large heath, purple emperor, mountain ringlet and marsh fritillary showed a particularly rapid decline in the 1990s despite a milder climate and longer breeding season. Only a few species such as the ringlet and marbled white appeared to be increasing. Somerset has chosen the marbled white as one of its environmental indicators and this may prove to be more of an indicator of climate change rather than countryside quality.

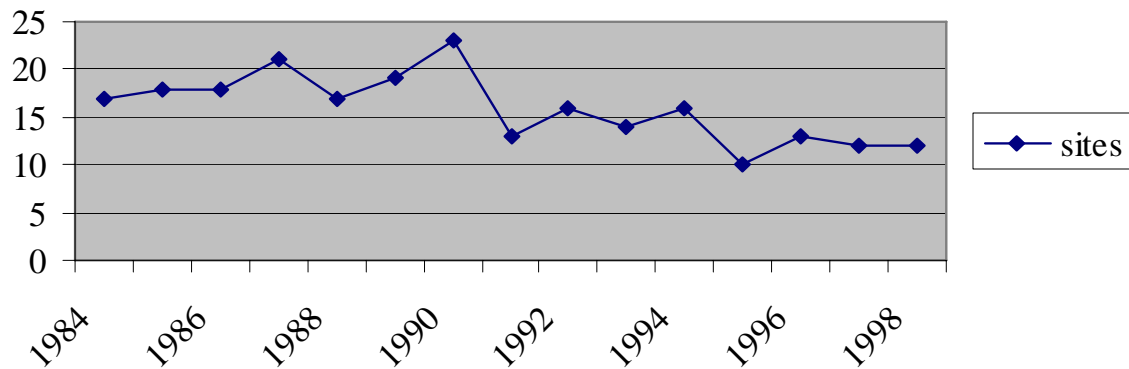
heath fritillary populations on Exmoor



The heath fritillary is a priority species in the UK Biodiversity Action Plan due to its rarity and rapid decline. The last major survey was in 1989 and then it was found that the known colonies had reduced from 82 to 44. Since then the overall range of the butterfly nationwide seems to have remained similar in area, although locations have changed. The number of colonies appears to have decreased from 44 to 40. On Exmoor the majority of colonies have been discovered between 1984 and 1989, when their importance was recognised, the area having over 50% of the national total of sites. Over half of the Exmoor sites are in the Dunkery area. Of 24 Exmoor sites between 1989 and 1997, 10 colonies appear to have become extinct, 12 remained stable and 2 new colonies developed. Surveys are taken annually but not all sites are surveyed each year and the butterflies move around, so the same sites may not be used each year. The graph shows the number of sites at which the butterflies have been recorded each year. The numbers at sites also appear to have declined, although a series of wet years for surveys has probably led to an underrecording.

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heath fritillary sites on Exmoor



HOW HEALTHY IS THE POPULATION OF WILD RED DEER ON EXMOOR?

Current situation:

Exmoor has the highest concentration of wild red deer in England and Wales.

Numbers of red deer on Exmoor are thought to be roughly equivalent to those that would exist in a completely natural situation, although the numbers of roe deer are well below that.

Trends:



The number of red deer on Exmoor appears to be increasing.

There are probably as many red deer on Exmoor now as there have ever been.

8000 years ago, when most of Britain was forested, it is estimated that there were about 6.5 red deer per sq km, giving a natural population of about 4,500 on Exmoor. A similar calculation suggests there would have been about 3,000 roe deer and 200 elk. Early records of deer in on Exmoor suggest that they were mainly in the wooded valleys of the Barle, Exe, Horner and Haddeo. Accounts from the 16th century onwards suggested that there was no cover and no deer inside the Royal Forest and outside the Forest they were persecuted, particularly during the Civil War and Commonwealth when royal protection ceased. By the early 19th century the numbers of red deer on Exmoor were only about 200. They then dropped to about 60 by the mid 19th century, reputedly because of the temporary cessation of hunting, although they were being exterminated throughout most of the country regardless of hunting and had been hunted to extinction on Dartmoor. Some were given sanctuary by landowners and by the end of the 19th century numbers had returned to over 200. The numbers and range of all deer increased until the 1930s, when there were thought to be more than a thousand red deer. In 1970 there were estimated to be between 500 and 600 red deer on Exmoor, rising to 1,400 by the end of the decade. During the early 1980s numbers, particularly of stags, appeared to decline and 918 deer were counted in 1982 and 800 in 1982 by the Exmoor Natural History Society. This was attributed to shooting. By the time the first regular park-wide counts were being made in the mid 1990s numbers had more than doubled.

Deer numbers in Britain are generally increasing by an estimated 10% per annum but this is mostly within introduced species. There are about 300,000 deer of all species in England and Wales and five million in Scotland. Most of these are introduced species and the total of red deer for Scotland is around 350,000 and 12,500 for England and Wales. Exmoor has a significant proportion of the total for England and Wales - between a quarter and a third. It is claimed that it is the only part of those countries where red deer have remained in the wild - populations having been re-introduced in other areas - but the Lake District population may also be indigenous.

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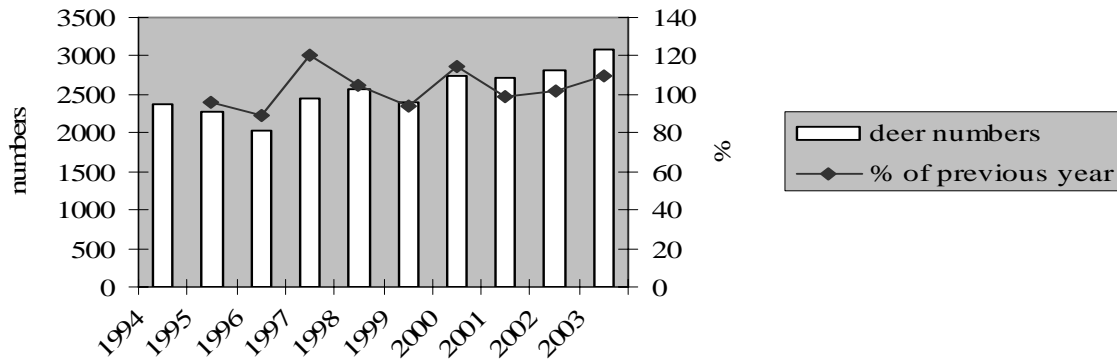
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red deer counts and annual change



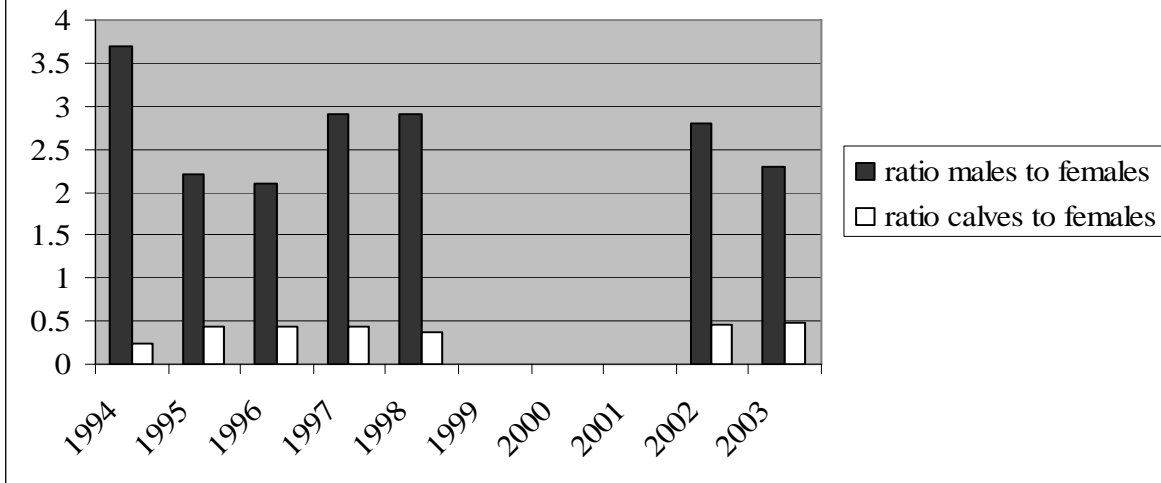
Since 1994 there has been an annual count of deer within the National Park and a small area to the south west of the Park. The count for 2002 revealed 2751 red and 69 roe deer. Of the red deer, 20% were stags, 57% hinds and 23% calves. Fallow deer are not counted but estimated to be about 500. The total of red deer for 2000 was 2752. Fears that many deer were shot in the absence of hunting during the outbreak of foot and mouth disease in 2001 appear to be unfounded, although such fears may have been realised on the Quantocks. The numbers appear to have recovered from the mid 1990s, when there was a decline in hinds and calves. They compare with an estimated 1500 red deer in the rest of North Devon, North Cornwall and West Somerset. The count is useful for showing trends in numbers and sex ratios. However, this is only the deer seen on one count over two days in March and actual numbers are likely to be greater, especially of roe deer. A recent survey (Savage Report, 1993) suggested that dung counts indicated that that actual figure was about twice the number seen and estimated about 5,500 red deer in the Exmoor area and 7,000 within 10km of the National Park. The same survey estimated from carcasses going through game dealers that between 500 and 700 deer were culled annually on Exmoor. This number had been around 1,000 during the 1980s. In addition an average of 69 per annum are killed through staghunting and 26 wounded deer dispatched by the hunt. However, one must also consider the number of illegally and accidentally killed deer not going through game dealers (estimated at between 120 and 320 per annum, including 50-90 in Road Traffic Accidents). Thus up to 1,200 deer per annum are lost through non-natural causes. Those dying from natural causes are estimated at 10% pre-natal, 8% infant and 3% adult mortality. It follows that if the population was 2751 then up to 55% would be lost annually through natural and unnatural causes, yet only 23% of the population is calves and the population appears to be increasing. It has been estimated that the annual recruitment to the population (increase of the population by yearlings) is about 40% on average. To survive the current mortality with such a recruitment the population would have to be 3,700. To sustain the current increase in population the actual population is more likely to be nearer 5,000.

A minimum sustainable population of 1,250 has been suggested. A maximum would be dependent upon the numbers of other grazing animals. Given present conditions, it has been estimated that 4339 would be tolerable if deer were optimally spread across habitats and the National Park. However, problems are caused by concentrations of animals.

There is little information on the health of the red deer on Exmoor. A healthy population may simply be defined as a sustainable one, or one with a balanced age and sex ratio, or one with an absence of disease. Long term figures on age and sex ratios are not available but it would appear that in 2002 the population was the healthiest since 1994 in terms of the number of calves per hind surviving their first year. The subject is an emotive one as a justification for hunting deer with hounds is that it is claimed to weed out the old and weak ones and leave the population healthier as a result. It is difficult to confirm this as it would be necessary to examine a group of deer both in the presence and absence of hunting. Evidence, however, suggests that deer to the south and west of Exmoor, beyond the National Park boundary and where there is no hunting, are healthier than on Exmoor. This may simply reflect the better grazing and less harsh conditions in such areas. Analysis of body weights shows that deer in parts of Devon beyond the National Park boundary are 12% heavier on average (*University of Southampton, 1997*). In turn weight affects fecundity and the age at which hinds first conceive, so deer in those areas are likely to produce more calves and produce them from an earlier age. The same study looked at injuries in deer. Different samples produced different results but only a small proportion (up to 6%) of deer were shown to have physical injuries. 36% of those injuries were from road traffic accidents and 30% from wounding by shooting.

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age and sex ratios of red deer population



Actions

Some of these actions are objectives and actions from the Exmoor National Park Management Plan

Objective 7/3

To increase knowledge and understanding of species, their distribution and importance.

Action 7/1

Monitor red deer population and its health

Action 7/2

Monitor Exmoor Biodiversity Action Plan species

Action 7/3

Implement research strategies

NB The information contained in this report is based upon the best information available at the time. Although every effort has been made to confirm its accuracy and ensure that it has been used in the proper context, Exmoor National Park Authority cannot guarantee the accuracy of the information.