# Exploring the landscape of Charnwood Forest and Mountsorrel

A walkers' guide to the rocks and landscape of Charnwood Forest and Mountsorrel

by Keith Ambrose, John Carney, Graham Lott, Gill Weightman and Annette McGrath

Bibliographic reference: Ambrose, K, Carney, J N, Lott, G K, Weightman, G, And McGrath, A. 2007. Exploring the landscape of Charnwood Forest and Mountsorrel. A walkers' guide to the rocks and landscape of Charnwood Forest and Mountsorrel. Keyworth, Nottingham: British Geological Survey.

*Cover photograph:* The front cover features scenes from Bradgate Park. The main picture is a view eastwards across Cropston Reservoir, with cleaved Precambrian rocks in the foreground. In this park can be found typical Charnwood walking country, the famous landmark of Old John Tower, and herds of deer.

Walking photograph: © Libraryphotos.com. Deer photograph: © istockphoto.com

Old John Tower photograph: Reproduced by permission of the Bradgate Park Trust

# Contents

- Welcome to Charnwood Forest and Mountsorrel Walking in Charnwood Forest and Mountsorrel The geological timescale Plate tectonics and the rocks of Charnwood Forest Precambrian - volcanoes, seas and the dawn of Life Cambrian — the sea advances Ordovician — more magmatism Silurian and Devonian — orogeny, and the Caledonides mountain belt Carboniferous — warm seas and coral reefs Permian and Triassic — deserts and mountains Jurassic and Cretaceous — tropical seas Quaternary — the Great Ice Age Walk 1: Buck Hill, Out Woods and Beacon Hill Walk 2: Bardon Hill Walk 3: Cademan Wood and Grace Dieu Walk 4: Charnwood Lodge Nature Reserve Walk 5: Bradgate Park and Swithland Wood
- Walk 6: Ordovician granodiorite at Castle Hill and quarry, Mountsorrel

Walk 7: Morley Quarry Walk 8: Blackbrook Reservoir Walk 9: Mount St Bernard Abbey Walk 10: Hill Hole Quarry, Markfield Walk 11: Tickow Lane Minerals of Charnwood Forest Charnwood's quarries Stone in Charnwood Forest's buildings Geological glossary Useful information Further reading The National Forest Further information Acknowledgements

# **Useful information**

#### How to get to Charnwood Forest

Charnwood Forest lies in the west/central part of Leicestershire. The M1 Motorway bisects it, making access from outlying areas by car very easy; exit at Junction 22 for the main part of the Forest or Junction 23 for the northern part. There is also a good network of roads crossing the area. The nearest towns are Leicester, Loughborough and Coalville; all are linked to Charnwood Forest by good bus services.

Within Charnwood Forest, the largest walking area is Bradgate Park, centred around the village of Newtown Linford. The park includes a visitor centre.

### **Tourist Information**

Tourist information offices are in all three of the main towns and will have information on Charnwood Forest:

#### Coalville

Snibston Discovery Park, Ashby Road, Coalville, LE67 3LN Tel: +44 (0) 1530 813 608

### Leicester

7/9 Every Street, Town Hall Square, Leicester, LE1 6AG Tel: +44 (0) 116 299 8888

# Loughborough

Loughborough Town Hall, Market Place, Loughborough, LE11 3EB Tel: +44 (0) 1509 218 113

In addition, information can be obtained from a number of websites on the internet including:

www.goleicestershire.com www.information-britain.co.uk

www.aboutbritain.com/tourist-information-centres/leicestershire-tourist-information- centres.asp

www.heritagebritain.com/county/Leicestershire.html www.bgs.ac.uk

# **Further reading**

#### Geology

Precambrian rocks of England and Wales (2000) compiled by John Carney. *Geological Conservation Review Series*, vol. 20. Published by the Joint Nature Conservation Committee, Peterborough. ISBN 1 86107 4875. Detailed account of all the main Precambrian rock exposures in England and Wales.

Geology of the Loughborough district. A brief explanation of the geological map sheet 141 Loughborough (2002) compiled by John Carney, Keith Ambrose and Allan Brandon. *Sheet Explantion of the British Geological Survey.* ISBN 0 85272 411 x. Brief account of the geology of the northern part of Charnwood Forest. Available with map from the BGS bookshop.

Geology of the country between Loughborough, Burton and Derby (2001) compiled by John Carney, Keith Ambrose and Allan Brandon. *Sheet Description of the British Geological Survey 1:50 000 Series,* Sheet 141 Loughborough (England and Wales). ISBN 0 85272 388 1. Detailed account of the geology of the northern part of Charnwood Forest. Available from the BGS bookshop.

Geology of the country around Coalville (1988) by Bernard Worssam and Robin Old. *Memoir of the British Geological Survey,* Sheet 155 (England and Wales). ISBN 0 11 884398 2. Detailed account of the geology of the southern part of Charnwood Forest. Available (map is separate) from the BGS bookshop.

British Regional Geology: Central England. London HMSO for Institute of Geological Sciences. ISBN 0 11 880088 4. Technical overview of the geology of Central England including Charnwood Forest. Available in the BGS bookshop.

The geology of the east Midlands (2003) compiled by Albert Horton and Peter Gutteridge. *Geologists' Association Guide* No. 63. ISBN 900717 89 0. Description of geological walks in the East Midlands including Charnwood Forest. the geology of the East Midlands (1968) by Peter Sylvester-Bradley and Trevor Ford. (Leicester: Leicester University Press.) ISBN 7185 1072 0. A good all-round account of East Midlands geology. Out of print but may be obtained from libraries including the British Geological Survey library.

#### Walking

Walking in Charnwood (1997) by Heather MacDermid, published by Cordee. ISBN 1 871890 18 17.

Thirty-two short walks based on the Leicestershire Round (1999) by Heather MacDermid, published by Cordee. ISBN 1

87189 039 x.

A geological walk around Bradgate Park (2004) by Annette McGrath, published by the British Geological Survey.

A geological walk around Cliffe Hill Quarry (2004) by Annette McGrath, published by the British Geological Survey.

### **The National Forest**

**The National Forest and beyond**: the attractions and activities guide and visitor guide provide further information on woodland sites, attractions, activities and accommodation in and around The National Forest area.

#### Britain's most ambitious environmental endeavour!

In the very Heart of England, across parts of Leicestershire, Derbyshire and Staffordshire, some 200 square miles of town and countryside is being transformed, blending ancient woodland with new planting to create a multipurpose forest for the nation on a scale not seen in this country for over a thousand years — it is a forest in the making. In just over 15 years seven million trees have been planted and the woodland cover has almost trebled. From one of the country's least wooded regions, the goal for The National Forest is to increase woodland cover to about a third of the Forest area, creating a green link between the ancient Forests of Charnwood and Needwood. Farmland, derelict coalfield land and mineral workings have been converted to woodland, and wildlife habitats are also being created or brought back into proper management.

**The National Forest Walks Guide:** a full colour guide of circular walks ranging from 3 to 22 miles in The National Forest. Within this pack, five walks are specifically designated as 'access for all', suitable for wheelchair and pram access and for people who have difficulty walking. The guide comes in a handy A5 file, with each walk on a detachable sheet. Available from the National Forest Company, Tourist Information Centres and other attractions across the area, price £5.

**For further information** on The National Forest or for details of all National Forest leaflets and guides contact:The National Forest Company, Enterprise Glade, Bath Lane, Moira, Swadlincote, Derbyshire DE12 6BD. Tel: 01283 551211 Fax: 01283 552844 Website: www.nationalforest.org Email: enquiries@nationalforest.org

# **Further information**

Information on the local geology can be obtained from a number of sources in the East Midlands. The British Geological Survey, at Keyworth near Nottingham is open for visiting parties by prior appointment and has a shop selling many geological publications, jewellery, rocks, minerals and fossils and various items manufactured in stone. The British Geological Survey have produced a DvD/video on the Geology of Charnwood Forest. This has been aimed at A Level students and can be obtained from the online shop at the BGS website, **www. bgs.ac.uk**. Another website on the geology of Leicestershire and Rutland can be found at **www. bgs.ac.uk/leicester/home** or it can be accessed from the BGS website under 'sites hosted by BGS'. There are two local geological societies that can provide information: the East Midlands Geological Society **www.emgs.org.uk** and the Leicester Literary and Philosophical Society **www.le.ac.uk/ litandphil**. In addition, The Russell Society **www.russellsoc.org** organises visits to study and collect minerals, particularly those found in the quarries of Charnwood Forest. Charnwood Forest forms part of The National Forest and further information can be obtained from **www.nationalforest.org**.

# Acknowledgements

This book and map have been produced by the British Geological Survey, funded by the Aggregates Levy Sustainability Fund through the Minerals Industry Research Organization (MIRO) and funded by the Department for Communities and Local Government. The map was compiled and the book written by Keith Ambrose, John Carney and Graham Lott of the British Geological Survey and by Gill Weightman (Weightman Associates) and Annette McGrath (National Forest Company). Ruth Richards is thanked for constructive criticism of the manuscript. Sophie Wood and Roger Parnaby are thanked for their cartographic input; thanks also go to many staff in BGS who have commented on the book manuscript and the map, in particular Elaine Johnston, David Bailey, Hugh Barron and Kathryn Goodenough; thanks also to Keith Ambrose and Gill Weightman who tested the walks. The book was edited by Joanna Thomas of the British Geological Survey and designed by Amanda Hill and Deborah Rayner. The photographs are derived from a number of sources, with many taken by Keith Ambrose, John Carney, Paul Witney, James Rayner and Tim Cullen. Keith Ambrose, John Carney and Graham Lott publish with permission of the Executive Director, British Geological Survey (NERC). Our grateful thanks also go to the Bradgate Park Trust for authorising the use of names/images on which it has formal Trade Mark registration and for the use of photographs of the Bradgate Park and Swithland Wood Park Estate. Also special thanks go to Michael Harrison, Land Agent and Surveyor to the Bradgate Park Trust.

Published by the British Geological Survey on behalf of MIRO and DCLG. Printed by Halstan & Co Ltd, Amersham.

Unless otherwise stated copyright in materials derived from the British Geological Survey's work is owned by the Natural Environment Research Council (NERC) and/or the authority that commissioned the work. you may not copy or adapt this publication without first obtaining permission. Contact the BGS Intellectual Property Rights Section, British Geological Survey, Keyworth, email ipr@bgs.ac.uk. you may quote extracts of a reasonable length without prior permission, provided a full acknowledgement is given of the source of the extracts.

© NERC 2007. All rights reserved.

The National Forest

**British Geological Survey** 

#### Natural Environment Research Council

# **Figures**

- (Figure 84) The National Forest. Photography by Robin Weaver
- (Figure 85) The National Forest. Photography by Christopher Beech
- (Figure 86) The National Forest. Photography by Lesley Hextall
- (Figure 87) National Forest Walks Guide. Photography by Lesley Hextall
- (Figure 88) National Forest Walks Guide. Photography by Christopher Beech
- (Figure 89) National Forest location map
- (Figure 90) National Forest photograph at botton of page
- (Figure 91) National Forest Forest walks

(Front cover) Front cover

(Rear cover) Rear cover



The National Forest.Photography by Robin Weaver.



The National Forest. Photography by Christopher Beech.



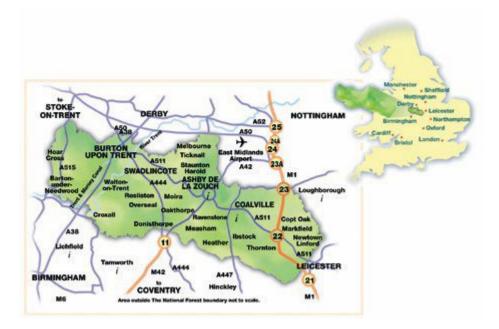
The National Forest. Photography by Lesley Hextall.



National Forest Walks Guide. Photography by Lesley Hextall.



National Forest Walks Guide. Photography by Christopher Beech.



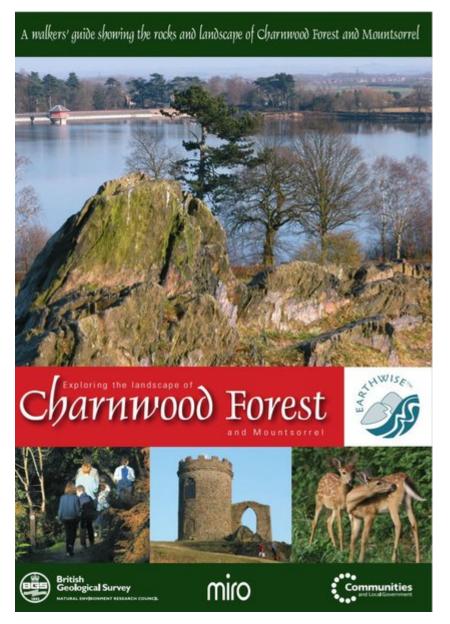
National Forest location map.



National Forest photograph at botton of page.



National Forest — Forest walks.



Front cover.



Charnwood Forest in Leicestershire has highly distinctive scenery, with crags of ancient Precambrian rocks jutting through a cover of much younger strata. These ancient rocks have long fascinated geological enthusiasts. Illustrated in this map and guidebook are the many discoveries made in this area, including the 'roots' of volcanoes and Britain's oldest fossils.

Explore 600 million years of geology through a series of walks and discover the evolution of the Leicestershire landscape. You will see natural rock exposures and many quarries resulting from the rich industrial heritage of the area. There is something here for everyone, from the Sunday stroller to the keen walker, as well as both amateur and professional geologists. We hope you enjoy exploring the landscape of Chamwood Forest.









Rear cover.