

INTRODUCTION

Chosen for its classic coastline and outstanding natural environment, Gower was the first AONB to be designated. Except for the small, urbanised eastern corner, the entire Gower peninsula is an AONB. Complex geology gives a wide variety of scenery in a relatively small area. It ranges from the south coast's superb carboniferous limestone scenery at Worms Head and Oxwich Bay to the salt-marshes and dune systems in the north. Inland, the most prominent features are the large areas of common, dominated by sandstone heath ridges including the soaring sweep of Cefn Bryn. Secluded valleys have rich deciduous woodland and the traditional agricultural landscape is a patchwork of fields characterised by walls, stone-faced banks and hedgerows.

Gower's richly varied natural environment of heath, grassland, fresh and saltwater marsh, dunes and oak woodland, is nationally noted. The AONB has three National Nature Reserves, two Local Nature Reserves and many Sites of Special Scientific Interest. Among the many fine natural habitats are the mud-flats and salt-marsh of the Burry Inlet (a candidate Special Area of Conservation, Special Protection Area and Ramsar site) and the flora-rich limestone grasslands. Gower has been settled since prehistoric times and has a high concentration of ancient sites. The western end of the Peninsula is listed in the Register of Landscapes of Outstanding Historic Interest in Wales for its Neolithic and Bronze Age features and its surviving medieval open field system. Almost all the coast is in the protective ownership of City and Council of Swansea, the National Trust, the Countryside Council for Wales or the Glamorgan Wildlife Trust.

Gower is still traditionally farmed with small, mixed arable livestock and dairying enterprises, many exercising ancient commons grazing rights. The area is covered by Tir Gofal agri-environment scheme whereby farmers agree to manage their agriculture for the benefit of conservation, wildlife, access and to help maintain traditional landscapes. The scheme combines elements from a variety of predecessor schemes previously operating in Wales, and brings farming and conservation into a different level of partnership. It is available across Wales to farmers (or others) who have responsibility for, and control over, farmed land.

The Countryside Council for Wales's Agricultural webpages provide background information on Tir Cymen, the precursor to Tir Gofal, and an introduction to Tir Gofal, including information on the kinds of activities the scheme supports and eligibility for it.

With an AONB population of approximately 10,000 the vast majority of the working population of Gower's villages commute to Swansea. The AONB lies entirely within Swansea's boundaries and added to retirement and holiday homes, this dormitory element has considerably altered the area's social balance.

Tourism plays a major but highly seasonal part in the rural economy, largely through caravan sites and small-scale guesthouses and B&B. The AONB is

both a major water sports and family holiday destination for urban South Wales and the AONB is within four hours travelling time of 18 million people. The public rights of way network is extensive covering 431 km (268 miles) and is heavily used by both visitors and local people as it offers a wide variety of experiences reflecting the diversity of the Peninsula.

For Geography Students and Teachers alike, the Area of Outstanding Natural Beauty (AONB) of Gower offers an incredibly rich resource of environmental diversity contained within a small and relatively accessible geographical area.

An attractive feature of Gower, when compared with many other parts of Britain, is the ease of access onto so many open areas of land: coasts, cliffs, river valleys, woodland slopes, moorlands, sand dunes and marshes. The relatively small peninsula has an abundant network of rights of way and common land, however it is important to remember that all land in Gower is owned by someone and that access to land may have to be negotiated with either a landowner/land manager/protective agency.

Important groups of landowners on Gower include:

1. Private Ownership Owner occupier or Tenant. e.g. Farmers
2. Common Land . Mostly owned by the Somerset Trust (Duke of Beaufort) or Swansea City Council or Private Golf Clubs.
3. National Trust.
4. Forestry Commission \ Forest Enterprise
5. Countryside Council for Wales
6. Glamorgan Wildlife Trust.
7. City and County of Swansea

FIELDWORK ON GOWER

When deciding upon a site for fieldwork, group leaders / teachers will necessarily look at a number of features to assess its suitability for the type of work being carried out and the age, aptitude and ability of the group. In order to access the work site, you may have to walk some distance from the bus. Access to one or two famous sites on Gower can be quite dangerous and visits are not recommended e.g. Paviland Cave.

The O.S. Explorer Map E164 has Rights of Way information for Gower as well as National Trail and Recreational Path Routes shown. However, the fact that there is a right of way through an area of land does not give people the right to carry out fieldwork on that right of way or on land adjacent to it.

Suitable Sites for Fieldwork:

The list below outlines various sites suitable for fieldwork on Gower:

Rocky Shore Ecology:

1. Bracelet Bay
2. Langland Bay

3. Oxwich Bay
4. Port Eynon
5. Overton Mere

Salt Marsh Succession:

1. Crofty Salt Marsh west
2. Crofty Salt Marsh east
3. Llanrhidian Marsh
4. Oxwich Salt Marsh
5. Three Cliffs Salt Marsh

Stream Habitats and Fluvial Processes:

1. Ilston Stream/ Pennard Pill
2. The Burry Stream
3. The Bishopston Stream
4. Clyne river

Ponds:

1. Broad Pool
2. Oxwich (education pond only)
3. Millwood Pond

Grassland Studies:

They can be carried out at any site where there is relatively short turf. Many farmers would allow a short term use of a meadow or ley field which was not being used for hay or silage. However two sites of relative shelter and of easy access are:

1. Green Cwm
2. Pennard Pill Valley

Sandy Shores:

1. Oxwich Bay
2. Rhossili Beach
3. Llangennith Beach
4. Swansea Bay

Moorland:

Wetland and dry Heath areas can be found on all these sites:

1. Cefn Bryn Common
2. Ryers Down
3. Rhossili Down
4. Fairwood Common.

Sand Dunes:

1. Nicholaston Burrows
2. Oxwich NNR Sand Dunes (Management of an Ecosystem Geography 16-19 pps 17-19)
3. Llangennith Burrows
4. Hillend Burrows
5. Crymlyn Burrows Jersey Marine

Woodlands:

- *Deciduous Woodland*

1. Green Cwm
2. Ilston Cwm
3. Bishopston Valley
4. Moorlakes Wood
5. Gellihir Wood
6. Berry Wood
7. Millwood
8. Oxwich Wood
9. Nicholaston Wood

- *Coniferous Plantation*

1. Millwood
2. Cilibion Plantation

Coastal Geomorphology:

- 'Storm Beach' pebble ridges and demonstration of coastal erosion features, caves stacks, arches, blow holes:

1. Three Cliffs Bay
2. Bracelet Bay and Mumbles Head area
3. Pwll Du Bay and Seven Slades

- Quaternary features such as raised beaches, solifluction evidence, slopes and head deposits with redeposited glacial material. Sea caves with Quaternary deposits:

1. Hunts Bay / Deep Slade
2. Heatherslade

Geological Interests:

- *Structural*

1. Three Cliffs Bay *Carboniferous Sequence*
2. Caswell *Faulting Folding*
3. Bracelet Bay *Faulting Folding*
4. Clyne Brick Pit *e.g. of Coal Measures Cyclothem*
5. The Barland Stream *Namurian Shales SSI*

- *Collecting and Fossils .*

Fossils **MUST NOT** be collected in situ from any bedrock. Many of the pebble ridges around the coast supply readily available fossils for collection. Three Cliffs Bay is a good site for younger pupils to collect Fossils on the Storm Beach.

Villages for Village Study:

These are villages for which some resource material is available:

1. Oxwich
2. Parkmill – use caution with heavy traffic on main road
3. Reynoldston
4. Port Eynon

Historical and Pre-Historic Sites:

This is list of the more easily accessible sites on Gower, for which resource

material has been written:

1. Cathole Cave Mesolithic
2. Giants Grave Neolithic
3. Tooth Cave Bronze Age
4. Arthur's Stone Bronze Age
5. Hardings Down Iron Age Settlement
6. The Bulwark
7. Weobley Castle
8. Pennard Castle
9. Penmaen Old Castle Ring Work

Churches and Churchyards:

All churchyard and church visits should be arranged with the incumbent rector if possible. The churches in this list are particularly attractive locations:

1. Oxwich Church
2. Ilston Church with Ilston Chapel
3. Reynoldston Church
4. Rhossili
5. Port Eynon Church
6. Penrice Church

PLANNING YOUR VISIT

Providers for Trips to Gower

- **Precious Earth Field Education Service.** Suitable for any age, school, college, family groups, etc. Wide range of activities and fieldwork days on offer, catering for juniors and students (A Level or GSCE). Subjects cover geography, biology, flora & fauna, coastal geomorphology, habitats, ecosystems, etc. which can be tailored to an existing curriculum or project-based. From £130 a day. Contact Sheena Bishop on 01792 555336 or email s.bishop5@ntlworld.com

Sheena can also offer free advice and familiarisation tours of Gower to teachers planning fieldwork in the area (as long as it falls within CCW remit).

Also available: family days on behalf of The Gower Society.

- **The Bishops Wood Centre** also offers educational days for infants and juniors. The Forest School based at the Centre offers days out from £250. Run by the City and County of Swansea (Debs Hill).
- **Dryad Bushcraft** is dedicated to promoting understanding of our natural environment through the pursuit of primitive survival skills and wilderness adventure. They offer survival courses, teambuilding and special events, guided walks and wilderness adventures. Approved by the Wales Tourist Board. Suitable for students, families and visitors. Contact Andrew Price on 01792

547213 / mobile: 07901 873343, email info@dryadbushcraft.co.uk
or visit www.dryadbushcraft.co.uk

Site Familiarity

Common sense and health and safety awareness would suggest that all leaders should be familiar with a site chosen for fieldwork and access the access to and from that site. It is advisable to prepare a risk assessment schedule for each activity at each site. How far away is the nearest phone? Is there emergency vehicular access? Could you carry a casualty off the site if he/she was in immediate danger e.g. on a rising tide? Can all the students deal with the terrain?

Parking

There are various official Pay & Display car parks on Gower, including Bracelet Bay, Caswell, Llangland and Port Eynon. There also private car parks at Rhossili and Oxwich. All of these are suitable for coach parking. Please note that off road parking on Gower is difficult and potentially dangerous. You must ensure that you are not trespassing on private land or creating an obstruction to the oncoming traffic. It is often advisable to arrange for a coach to drop a party off near a site and then pick up the group at a prearranged place and time.

Public conveniences

Toilets are available at Rhossili, Port Eynon, Oxwich, Heatherslade, Llangland, Caswell and Bracelet Bay Car Parks. There are none associated with any inland sites away from the coast.

Accommodation

For SMALL groups, please contact:

Swansea Tourist Information Centre
Plymouth Street
Swansea SA1 3QG
Tel: 01792 468321
Email: tourism@swansea.gov.uk
Web: www.visitswanseabay.com

For LARGE groups, please contact:

Tonia Thomas
Group Travel Officer
City and County of Swansea
Tel: 01792 635208
Email: Tonia.Thomas@swansea.gov.uk
Web: www.visitswanseabay.com/grouptravel

BIBLIOGRAPHY AND REFERENCE MATERIAL FOR FIELDWORK IN GOWER

This list is not a complete bibliography of reference material but it should contain many items which are of use to teachers or group leaders who are designing fieldwork courses in Gower. Most lecturers / teachers who are organising A level and Undergraduate courses will already be familiar with the standard texts on fieldwork techniques and fieldwork projects in the areas of Biological Science, Geography and Geology. There are many excellent identification guides to most groups of animals and plants. Most of the material listed can be either purchased from booksellers or loaned from libraries (if your library does not stock the book then use the inter library loan system).

Maps of the Gower area:

1. OS Explorer E164 - Gower
2. Geological Survey Maps : Sheet 246 Worms Head (Drift) 247 Swansea (Solid and Drift)
3. Land Utilisation Survey Map 1962-64 Alice Coleman Survey. Sheet 210 Port Eynon, sheet 230 Llanelli South. but largely out of date today.
4. The definitive map of Public Rights of Way for Gower is held by the Planning Dept. of City and County of Swansea. It may be consulted by members of the public and advice can be obtained from the Council.

General and Historical Background:

1. 'Swansea and its Region' edited by W.G.V. Balchin British Association Handbook 1971 a survey of the Geology Botany Zoology Geomorphology etc. of the local area in the usual B.A. format.
2. 'The City of Swansea Challenges and Change' edited by Ralph Griffiths B.A. Handbook 1990. A historical treatment of the City of Swansea including its industrial development.
3. 'A Portrait of Gower' by Wynford Vaughan Thomas, a popular travelogue with interesting anecdotes.
4. 'A Guide to Gower' published by the Gower Society.
5. The CADW guide to ancient monuments and castles in Gower
6. *The Gower Journal* published by the Gower Society. Published each year and containing several articles covering topics of historical geographical and natural history interest. Some of these articles are referenced separately under the Biology and Geography headings.
7. 'An Anthology of Gower' by David Rees, a useful historical and topographical publication.
8. 'Shipwrecks of Gower' by A W Rees
9. 'The Castles of Gower', a Gower Society publication
10. 'The Caves of Gower', a Gower Society publication
11. 'The Gower Churches' by Geoffrey Orrin
12. 'Noteworthy Gower Churches' by L.A. Toft and H. Grenfell
13. 'Reynoldston' by R. Lucas

14. 'Rhossili' by R. Lucas
15. 'The History of Bishopston' by Geoffrey Orrin
16. 'The Story of the Village of Mumbles' by Gerald Gabb
17. 'Higher and Lower' (History of Llanrhidian)
18. 'Walking around Gower' by The Rambler's Association
19. 'Gower Walks' by Ruth Ridge
20. 'The Caves of Gower' by Tony Oldham
21. 'Prehistoric Gower (Early Archaeology of West Glamorgan)' by J.G. Rutter
22. 'Glamorgan County History, Series Vol 1, Natural History'
23. 'Glamorgan County History, Series Vol 11 - Vol V1 Prehistory to Modern Wales'
24. 'The Royal Commission on Ancient and Historical Monuments in Wales' (Three Volumes)
25. 'The Gower Management Plan - Swansea Unitary Authority', The Local Plan for the Management of Gower A.O.N.B., obtainable from The City and County of Swansea
26. 'West Glamorgan Structure Plan 1994'
27. 'The Collected Poems of Vernon Watkins', which contains several poems and ballads about Gower landscapes, including the ballad of Culver Hole!
28. 'Survey of Gower and Kilvey' by Baker and Francis for the Cambrian Archaeological Association 1870 (Swansea Ref. Library)
29. 'Census Enumeration Data for Gower from the 1841, 1851, 1861, 1871, 1881 and 1891 Census', held in the Swansea Reference Library and by West Glamorgan Archives dept. In addition, the 1881 census for Gower is obtainable on Microfiche from the West Glamorgan Archives dept and the Glamorgan Family History Society.
30. 'Gower Management Plan 1994', Planning Dept, City and County of Swansea.
31. 'The Way Ahead', a Conference Report on A.O.N.B. published by Gower Society C/O Swansea Museum.

Geography Geology and Geomorphology:

1. There are many M.A., M.Sc. and PhD. thesis in the library of Swansea University that contain research about features of geological and geomorphological interest in Gower.
2. 'Classic Landforms of the Gower Coast' by Mike Bridges no. 7 in the Classic Landform series produced by the Geographical Association.
3. 'Geographical Excursions from Swansea, Vol. 1 Physical Environment', by G Humphries. Can be obtained from the Geography Dept of Swansea University.
4. 'Geology Explained in South Wales' by T. R. Owen David and Charles
5. 'The Glaciations of Wales and Adjoining Regions' by D.Q. Bowen.
6. 'The Geology of the South Wales Coal Field, part V111', Swansea HMSO.
7. 'Wales - a Physical, Historical and Regional Geography', edited by E.G. Bowen.
8. 'British Regional Geology South Wales' by T. Neville George HMSO.
9. 'The History of Coal Mining in Gower 1700-1832' by R.P. Roberts Univ. of Wales MSc. Thesis

Biology and Natural History:

1. 'The Natural History of Gower' by Mary Gillham. D Brown and Sons
2. 'Birds of Gower', Gower Ornithological Society
3. 'Plant Life in Gower' by G Goodman published by the Gower Society
4. 'Problems of a Small Estuary', a collection of Symposium papers relating to the Burry Inlet and Three Cliffs Salt Marsh, edited by A Nelson Smith University of Swansea 1977.
5. 'Where to go for Wildlife in Glamorgan', edited by Nigel Ajax Lewis. This is an inventory and description of Glamorgan Wildlife Trust sites.

Articles published in the Gower Journal (Swansea reference library):

1. 'Birds of Prey in Gower' by Stephen Usher Vol. 44 1993
2. 'The Gower Choughs' by Stephen Usher Vol 42 1991
3. 'Watermills of Gower' by Brian Taylor Vol 42 1991
4. 'Gower and Marine Pollution' by J. Wardley Smith Vol 40 1989
5. 'Lichens on Gower' by Bob Burn Vol 40 1989
6. 'Below Mumbles Pier (seashore life)' by Julia Berney Vol 38 1987
7. 'Marine Fish of Gower' by J Cox & P. King Vol 38 1987
8. 'Port Eynon Point Cave' by C.J. Harrison Vol 38 1987
9. 'The Penrice Corn Mills' by L. A. Toft Vol 38 1987
10. 'Broad Pool' by A. Lack & P.Llewellyn Vol 37 1986
11. 'A New Locality for Iron Ore' by Ted Nield Vol 37 1986
12. 'Gower: The Ice Age Limit' by E. M. Bridges Vol 36 1985
13. 'The Penclawdd Cockle Industry' by Delyth Lloyd Vol 35 1984
14. 'Walterston - an Old Gower Settlement' by David Reece Vol 35 1984
15. 'The Dune Slacks of Whitford N.N.R.' by Michael Hughes Vol 34 1983
16. 'Evaluating Gower's Coastline' by M. Bristowe Vol 34 1983
17. 'Dragonflies of Gower' by C. Stockton & P. King Vol 33 1982
18. 'New Evidence for the Glaciation of West Gower' by S. Campbell and R.A. Skakesby Vol 33 1982
19. 'Ilston a Village in History' by E.W. Nield Vol 32 1981
20. 'The Butterflies of Gower' by David Elias Vol 31 1980
21. 'Scanning Electron Microscopy in Clyne Valley' by S. Campbell and R. A. Shakesby Vol 31 1980
22. 'A History of Oxwich Village' by Greg Nuttgens Vol 30 1979
23. 'The Bush Crickets of Gower' by David Elias Vol 30 1979
24. 'Limestone Quarrying at Pwll Du' by W.N. Jenkins Vol 28 1977
25. 'Erosion in the Valley of Pennard Pill' by Damien Lawler and P.A. Bull Vol 28
26. 'Lead Mining at Bishopston' by Mary Tucker Vol 27 1976
27. 'The Palaeoenvironment of a Killay Cyclothem (Killay Brickpit)' by Victor Hitchings Vol 26 1975
28. 'Oxwich Castle' by Bernard Morris Vol 25 1974
29. 'Oxwich Burrows' by Charles Harris Vol 25 1974
30. 'The Excavation at Minchin Hole' by Charles Harris Vol 24 1973
31. 'Geology and Scenery in Swansea' by T.R. Owen Vol 24 1973
32. 'The Carboniferous Limestone of Gower' by T. R. Owen Vol 23 1972
33. 'Ferns of Gower' by John Hayward Vol 23 1972
34. 'A Limestone Feature at Nicholaston' by W. J. Chambers Vol 23 1972

35. 'Pseudoscorpions' by P.E. King Vol 22 1971
36. 'Patterns of Farming in Gower and its Environs' by H.J.R. Henderson Vol 22 1971
37. 'Sea Weeds of Gower' by John Hayward Vol 22 1971
38. 'The Shape of Gower' by T.R. Owen Vol 21 1970
39. 'Gower in Triassic Times' by T.R. Owen Vol 18 1967
40. 'The Limestones of Gower' by T. R. Owen Vol 17 1966
41. 'Spiders of the Gower Sand Dunes' by Llynwen Owen Vol 16 1965
42. 'Notes on some Gower Fossils' by T.R. Owen Vol 16 1965
43. 'A Guide to the Geology of Gower' by T. R. Owen Vol 11 1960

Useful Contact Names / Phone numbers:

Countryside Council For Wales
Maes Y Ffynon
Penrhosgarnedd
Bangor
Gwynedd
LL57 2LQ
Tel: 0845 130 6229
Email: enquiries@ccw.gov.uk
Web: www.ccw.gov.uk

City and County of Swansea
AONB Team
Environment & Conservation Section
Environment Department
Guildhall
Swansea SA1 4PH
Tel: 01792 635741
Email: robert.latham@swansea.gov.uk
Web: www.swansea.gov.uk/aonb

Bishops's Wood Nature Reserve
Caswell Bay
Gower
Swansea
Tel: 01792 361703
Guided tours for school groups, walks, talks, exhibition, workshops, etc. Run by the City and County of Swansea.

Swansea Tourist Information Centre
Plymouth Street
(Opposite the Quadrant Bus Station)
Swansea
SA1 3QG
Tel: 01792 468321
Email: tourism@swansea.gov.uk
Web: www.visitswanseabay.com

Kilvrough Manor Outdoor Education Centre

Tel: 01792 232743

May be able to offer advice on suitable sites for outdoor pursuits / field studies sites.

Gower Activity Centres

Tel: 01792 401548

Consist of three centres at Dan-Y-Coed House, Borfa House and Rhossili. Suitable for groups, dormitory accommodation available.

Forest Enterprise - Morgannwg Forest

Tel: 01639 710221

National Trust

Tel: 01792 390636

Should be informed before any visit involving field studies activities on N.T. Property.

Glamorgan Wildlife Trust

Tel: 01656 724100

Would welcome any information concerning fieldwork on GWT reserves for monitoring purposes.

Swansea Museum

Tel: 01792 653763

Can offer help and advice on the material in the Royal Institute and its relevance to sites in the field.

Gower Society

Tel: 01792 653763

Based at Swansea Museum

Swansea Reference Library

Tel: 01792 516753 or 01792 516757

Swansea Environmental Forum

Tel: 01792 473239

Advice and help about facilities in the rest of West Glamorgan and the Urban District of Swansea.

The Environment Agency (South West Wales)

Tel: 01437 760081

Produces a pack on the River Ilston available to schools and colleges.

Abbreviations and Acronyms used in the text:

C.C.W. Countryside Council for Wales

S.S.S.I. Site of Special Scientific Interest. These are sites, notified to the planning authorities and to the land managers/owners. C.C.W. has no rights

over these sites but it has to be consulted by planning authorities if any developments are planned.

G.R. Grid Reference. Six Figure G.R. are used to locate the spot site and Four figure G.R. references are used to denote a larger area.

G.W.T. Glamorgan Wildlife Trust, who own and manage several small nature reserves in the Gower Peninsula.

N.N.R. National Nature Reserve. A statutory description under a 1973 Act which requires the CCW to manage areas to protect the wild life therein. NNRs tend to be excellent examples of different types of Habitat and Landscape, which are considered to be the best available at the time.

L.N.R. Local Nature Reserve established by the Local Authority. In Gower these are managed by The City and County of Swansea, e.g. Mumbles Hill, Pwll Du, etc.

N.T. National Trust, one of the largest land owners on Gower owning several areas of important Nature conservation interest.

R.O.W. Right of Way, Public Footpaths and Bridlepaths on the definitive map

By-Laws. Laws, which have been made by a public body such as a local authority or the National Trust or the Gower Commoners.

F.C. Forestry Commission

Common Land. Land owned by a land owner, but over which particular individuals (called Commoners, mostly farmers) have certain registered rights, e.g. right to graze a registered number of stock. The term 'common land' does not necessarily mean that the public have right of access to the land. Access across private land MUST be on Registered Public Rights of Way.

Land Manager. An agent of an organisation (not necessarily the land owner) who manage the land for business profit or conservation purposes.

G.F.E.P. Gower Field Education Project, managed by CCW.