

A guide to The Upper Rock Nature Reserve



Charles Perez & Keith Bensusan



**The Gibraltar Ornithological
and Natural History Society**

2005





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Jews' Gate, Upper Rock Nature Reserve,
P.O. Box 843, Gibraltar

Plates 1 (special flowers) and 2 (butterflies)
by Christian Hook. Suggested walks plates
by Dylan Rocca.

All photographs are by the authors
unless otherwise stated.

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Introduction

The Upper Rock was designated a Nature Reserve in 1993 in an effort to protect and enhance Gibraltar's natural environment. In total, the Reserve constitutes about 40% of the land area of Gibraltar. Its location within Gibraltar is shown on the map.

The Nature Reserve is open from sunrise to sunset, with the tourist sites operating from 9am to 6pm.

All plants and animals within the Nature Reserve are protected by law. It is an offence to uproot plants and to disturb or feed animals.

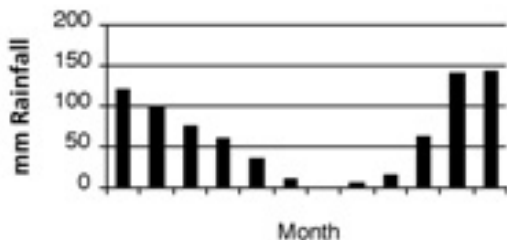


Gibraltar, with Upper Rock Nature Reserve shaded in green.

Climate

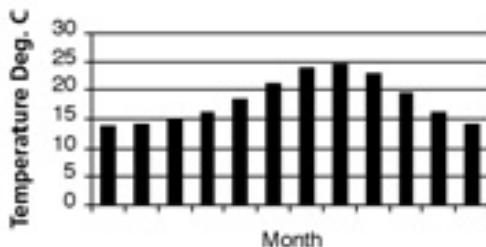
The climate of Gibraltar is typically Mediterranean, with hot, very dry summers and cool, wet winters. Climatological data are given below as yearly averages.

Annual Temperature	18.2°C
Temperature of Coldest Month.....	13.4°C
Temperature of Warmest Month.....	24.2°C
Yearly Minimum Temperature	14.9°C
Yearly Maximum Temperature	21.4°C
Annual Rainfall	768 mm



Mean monthly rainfall for Gibraltar.

Except in drought years, rainfall can be very high during the autumn and winter



Mean monthly temperature for Gibraltar.

months, but is largely absent during the summer. The weather is relatively warm the whole year round. Due to its proximity to the sea, Gibraltar rarely experiences the searing heat that afflicts inland areas during the summer months.

Winds at Gibraltar blow predominantly from the east and from the west. Easterlies prevail during the summer, whilst the winter is dominated by westerlies. The easterly winds produce a very notable condition that is known as the 'Levanter'. This occurs when moist air is blown towards the Rock when an easterly is blowing over the Mediterranean. This moisture suddenly comes into contact with the very steep, cliff-dominated

eastern side of the Rock, where it is pushed upwards, cools and condenses to form a cloud. This cloud is constantly forming, only to dissipate several hundred metres, or even a few kilometres, away from the crest of the Rock, giving the appearance that Gibraltar is constantly capped with a grey cloud.



Levanter cloud forming over the Rock.

L. Linares / GONHS

Geology

The Rock of Gibraltar is composed of fossiliferous limestone dating back to the Jurassic period, some 200 million years ago, and forms part of the Betic Cordillera, a mountain range that dominates south-eastern Iberia. To the north, the Rock rises



The North Face of the Rock of Gibraltar.

vertically from sea level up to 411.5m at Rock Gun Battery. The cliffs along the eastern side of the Rock drop down to a series of wind-blown sand slopes that date back to when sea levels were lower during the glaciations and a sandy plain extended east from the base of the Rock. These cliffs form part of the Rock's ridge, which at its southernmost point reaches an altitude of 424m, Gibraltar's summit.

The Rock contains over one hundred caves, some of which are found within the Nature Reserve. Of these, St. Michael's cave is the most prominent. A popular destination for tourists, this cave is by far the largest of all caves within the reserve, and was inhabited by early man. The cave boasts some impressive formations; stalagmites, stalactites and columns abound. The main chamber, known as the cathedral chamber, has been converted into an auditorium and is regularly used to host a variety of shows and concerts.

New St. Michael's cave was discovered following tunnelling operations during WWII to accommodate a hospital within the Rock. This cave boasts the most beautiful of formations, including a small lake. Visits to this cave are only possible with a pre-booked tour guide.



History

The Upper Rock Nature Reserve is rich in history. The presence of early man is confirmed through findings in caves, including a recently discovered iron-age burial site.



The 'Moorish' Tower at Douglas Path.

The Moors were the first civilization to reside permanently on the Rock, and it was they who first gave the Rock the name that we now recognise as Gibraltar. Although originally named Mons Calpe by the Romans, it was renamed Jebel Tarik, or mountain of Tarik after the Moorish commander who successfully invaded southern Iberia in 711AD. The term Jebel Tarik was with time corrupted into Gibraltar.

Several Moorish structures are present and clearly visible on the Upper Rock to this day. Undoubtedly the most prominent Moorish structure to be seen is the tower of Homage, part of the Moorish Castle. This castle was ordered to be built in 1068AD, by the Arab governor of Algeciras. The so-called "Moorish wall",

which runs vertically from Genoese Battery to the summit of the Rock, which was originally constructed to protect the town from invaders, appears to be of more recent origin.

In addition to these, a small watchtower located on the ridge of the Rock along Douglas Path has traditionally been attributed to the Moors. In fact, it is more likely that this tower is British in origin.

The Moors were present in Gibraltar until 1462, when the Rock was taken by the forces of Queen Isabella and King Ferdinand, whence it fell into Spanish hands. It was after 1540, when Barbary corsairs raided the town, that Charles V of Spain ordered the construction of a new defensive wall to protect the town from attack from the south. Subsequently, this wall was extended towards the ridge of the Rock, forming the wall known as Charles V Wall. In addition to this, the Spaniards also constructed several



Charles V wall.



The Great Siege Tunnels.

chapels on the Upper Rock, but no trace of them remains.

In 1704, joint British and Dutch forces captured Gibraltar during the War of Spanish Succession, and in 1713 the Treaty of Utrecht, which marked the end of this war, granted Gibraltar to the British crown. In order to protect the town against a counter-offensive, the fortifications in Gibraltar were reinforced. Some batteries were established towards the northern end of the Rock, overlooking the Spanish lines. Willis's Battery was built where Princess Royal Battery now stands, and Salto del Lobo Battery where Princess Caroline's Battery is located.

In 1782, renewed Spanish military activity prompted the Governor, General George Elliott to find new ideas to counter the Spanish effort. One such idea arose from Warrant Officer Ince, who suggested mounting a gun battery on the notch that sits half way up the north face of the Rock. Tunnelling towards the notch commenced, and after mining some fifteen metres, an aperture was drilled to provide ventilation. It was

then realised that such windows would make for excellent gun emplacements. Mining therefore continued, and the resulting tunnels are known as the Upper Galleries, also known as the Great Siege Tunnels, one of the Nature Reserve's biggest tourist attractions. Other relics from this period include Healy's mortar at the Apes' Den and the lime kiln on Willis's Road.

In 1938, the then Governor of Gibraltar, Sir Edmund Ironside, began strengthening the Rock's defences against the possibility of a land attack, particularly those facing north. Defensive guns can still be seen at Princess Caroline's Battery. In addition to these, 9.2 inch guns were placed at the southern end of the Rock to defend the Strait of Gibraltar. Impressive examples of these still stand at O'Hara's Battery. Numerous anti-aircraft batteries and searchlight emplacements can also be found around the whole of the Upper Rock. Fortunately, only some of the anti-aircraft guns needed to be used to defend Gibraltar from attacks by Italian aircraft, as a full-scale attack of Gibraltar by Axis forces never took place.



Haynes Cave Battery, 1903.



Flora

Vegetation

The Upper Rock is covered mainly in a dense Mediterranean scrub known as maquis, and includes some 350 species of flowering plants. The maquis in Gibraltar is composed mainly of tall bushes such as Wild Olive, Mediterranean Buckthorn, Lentisc, Osyris and Terebinth, with smaller bushes such as Shrubby Scorpion Vetch, Spiny Broom, Teline, Wild Jasmine and Shrubby and Felty Germander. In some areas, the maquis also includes the Sweet Bay or Laurel, and the Dwarf Fan Palm. In the understory within this habitat, one may find such plants as the Intermediate Periwinkle, with its pretty blue flowers, Butcher's Broom, that bears bright red fruit under its leaf-like stems, the Italian Arum, or the very common Bear's Breech.



High Maquis, dominant vegetation of the Upper Rock.

The firebreaks that break up the maquis harbour a very large variety of flowering plants; more so than the maquis, where light can scarcely penetrate through the canopy, making growth of annual plants extremely difficult. These areas hold a total of 213 plant species; some 37% of the Rock's entire flora, and include some species that grow only on the firebreaks. These areas thus look very colourful during the winter and spring, when such plants as the Paper-white Narcissus,

Common Asphodel, Giant Tangier Fennel, Wild Gladiolus, Galactites and Mallow-leaved Bindweed as well as rarer species such as the Shrubby Sideritis and Yellow Bartsia add much character to the landscape.



Giant Tangier Fennel

L. Linares /GONHS

Smaller areas of the Upper Rock are dominated by garrigue; a low scrub habitat dominated by annuals and aromatic herbs. Plants that grow in this habitat include Wild Rosemary, Esparto Grass, White Asparagus, Toothed and Cut-leaved Lavender, Teline, Prasium, Shrubby Scorpion Vetch and the Germanders. Many beautiful flowers typically occur between these shrubs, such as the large, blue Giant Squill, a small iris known as the Barbary Nut, Narrow-leaved Purple Iris, Wild Gladiolus, Purple Jerusalem Sage and Star of Bethlehem.



Scilla peruviana

L. Linares/GONHS



Wild Olive

L. Linares/GONHS

Important populations of cliff-dwelling plants can be found in crags and fissures along the numerous cliffs that form much of the boundary of the Nature Reserve. These include the Joint Pine, Dwarf Fan Palm, Sweet Alison, Biscutella, Wild Parsley and most of the special flowers of Gibraltar.

Nowadays, trees found on the Upper Rock are mainly those that produce berries that are favoured by birds, who probably brought the seeds back onto the Rock in the first place. Thus, the Olive is still dominant, frequently towering above shorter, fruit-bearing shrubs. Carob trees, although scarcer, seem to be recolonising parts of the Nature Reserve. Similarly, young Nettle Trees can be seen sprouting in several areas.

Trees

The Upper Rock was once covered in woodland, but this was finally cleared during the great siege (1779-1783), when the besieged British Garrison felled most of the trees for fuel. Although the composition of the woodland before this date is not known, historians of the time mention an abundance of Carob and Olive trees. It is also likely that such trees as the Narrow-leaved Ash, Round-leaved Oak and Aleppo Pine may also have formed part of the woodland.



Aleppo Pine

In addition, many of the roads and paths on the Upper Rock are lined with trees that have been planted in the last 100 years. These include two species of pine, the Stone Pine and Aleppo Pine. Both these species are native to the region, but the Aleppo is typical of dry, limestone areas such as are found on Gibraltar. The two trees can be told apart by two main features: the Aleppo has elongated cones and dark bark with very small



scales, whilst the Stone Pine's cones are rounded and its bark is lighter reddish in colour, with much larger scales. Many of these trees died during a drought in the 1990s, although the Aleppo pine fared better than the Stone Pine.

Other trees introduced by man include the Red Gum and Tasmanian Blue Gum, both Australian species. These tall trees are frequently used by roosting booted eagles during the autumn migration.

Special Flowers

Gibraltar has some very unique features. It is part of Europe, and yet is only a stone's throw away from Africa. The Rock consists mainly of Jurassic limestone in contrast to its hinterland, which is mainly sandstone. These factors contribute towards a distinctive and exciting flora that includes some interesting species found only on the Rock. The attractive Gibraltar Candytuft is perhaps the most distinctive and well known of these plants, and large tufts of these very pretty, pink flowers colour the cliffs and ledges of the Nature Reserve. This species also grows across the Strait, but Gibraltar is its only European station.

The white Gibraltar Chickweed, which grows only in Gibraltar, is found mainly along the Mediterranean Steps and Rock Gun. Like the rest of the special plants, this species favours cliff habitats. Often found alongside this species is the Gibraltar Saxifrage, a variety that is endemic to the Rock. Stands of these plants hug the sides of cliffs and walls, and are characterised by their tiny white flowers and often-red, lobed and hairy leaves.

The aromatic Gibraltar Thyme is more common than the previous two species, and is very widespread within the Nature Reserve. This species favours cliffs, but is very commonly located on rocky roadsides. Although found mainly along coastal

habitats outside the Nature Reserve, a small stand of the Gibraltar Sea Lavender, found only in the Strait area, is located along the Mediterranean Steps, close to Martin's Cave.

Perhaps our most special plant is the Gibraltar Champion, a very rare species that is found only on the Rock of Gibraltar. After being seen for the last time in 1985, this plant was thought to have become extinct. However, it was rediscovered nine years later close to the site where it had last been observed. Since then, the Gibraltar Botanic Garden has kept a bank of seeds and grown hundreds of individuals, and some of these plants have been reintroduced into the wild. The Gibraltar Champion is a very attractive perennial. Each plant produces a number of pink flowers, and these emit a sweet scent during the evening and at night.



Silene tomentosa

Plate 1 provides illustrations of some of these most special flowers of the Upper Rock Nature Reserve.

Plate 1 Special flowers of the Upper Rock.



Plate 1

1. Gibraltar Saxifrage *Saxifraga globulifera* var. *gibraltatica*
2. Gibraltar Sea Lavender *Limonium emarginatum*
3. Gibraltar Campion *Silene tomentosa*
4. Gibraltar Candytuft *Iberis gibraltatica*
5. Gibraltar Thyme *Thymus wildenowii*
6. Gibraltar Chickweed *Cerastium gibraltarium*



Fauna

Birds

Gibraltar is a place that is of special importance for birds. Twice each year, thousands upon thousands of migrating birds concentrate at the Strait of Gibraltar on their way north to their European breeding grounds and then south to their wintering quarters in Africa. It was in fact from the Rock that the Rev. John White wrote to his brother, the famous 18th Century naturalist Gilbert White confirming the theory of bird migration.

It is the migration of soaring birds, and in particular the birds of prey that captures the imagination of most people. These movements can be quite spectacular, and it is not uncommon for several thousand birds belonging to a number of species to be seen in one day. Black Kites and Honey Buzzards are most plentiful; about 90 000 individuals of each species cross the Strait during the southward migration. Also frequent are Booted Eagles, Short-toed Eagles, Montagu's and Marsh Harriers, Egyptian Vultures, Griffon Vultures, Common Buzzards, Sparrowhawks, White Storks and Black Storks.

Migrating Raptors are best observed when the wind blows from the west, as it is during these times that the stream of birds is pushed towards Gibraltar. However, during the autumn, spectacular concentrations of Booted Eagles and other species can be seen flying back and forth, searching for a place from which to cross when Levanter conditions prevail and visibility across the Strait is poor.

Migration of smaller birds, or passerines and

near-passerines can also be quite noticeable at times. Those that migrate during daylight hours, such as finches, swallows and martins, and bee-eaters are perhaps most noticeable. However, during adverse weather conditions, nocturnal migrants are often grounded on the Upper Rock in some numbers. Warblers, thrushes and chats can often be seen flitting through the undergrowth, searching for food in order to replenish their energy and continue their arduous journey.

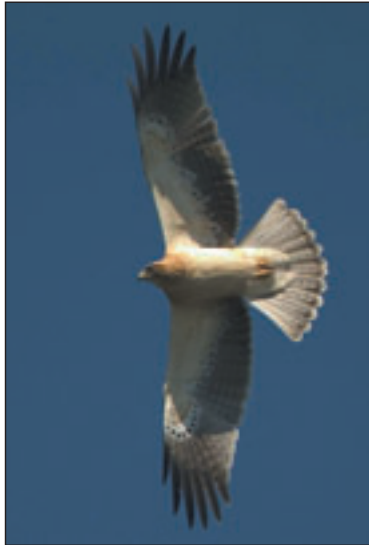
In addition, the unwary walker may sometimes startle larger birds such as nightjars and Hoopoes.

In addition to hosting an abundance of migratory birds, the Upper Rock Nature Reserve also harbours some interesting and even unique resident species. The Barbary Partridge, a bird that is not uncommon within the Reserve, is found nowhere else on mainland Europe. Like the Macaque, this bird was probably brought to Gibraltar from North Africa. It is possible that

this beautiful species was originally introduced by the British for sport.

Some interesting birds of prey are also to be found within the Nature Reserve. The cliffs around the Upper Rock sometimes hold up to six pairs of the Peregrine Falcon, a very high number for such a small area. There is enough food for this density to be maintained however, as the Falcons frequently hunt day-flying migrants. Watching a pair of Peregrines stooping after flocks of Swallows or Bee-eaters over the crest of the Rock is a spectacular and unforgettable sight.

Two species of Kestrel breed on the cliffs of



Booted Eagle

F. Barrios / GONHS



Barbary partridge

F. Barrios / GONHS

the Nature Reserve. These are the Common Kestrel and the beautiful, globally endangered Lesser Kestrel. Although Lesser Kestrels breeding on the north face of the Rock once numbered about 40 or 50 pairs, these have unfortunately decreased to the point that in 2004, only seven pairs were left. It would be a tragedy to see these birds, decreasing drastically the world over, disappear from the Upper Rock.

Several pairs of Little Owl also nest on the cliffs in and around the Nature Reserve, and Tawny Owls are regular during the winter months.

Barbary Macaques

The famous Barbary Macaques, also known popularly as Barbary Apes or Rock Apes were almost certainly introduced to Gibraltar. Although this probably occurred during the Moorish period (711-1462), there is no mention of the presence of Macaques on the Rock until 1782 when the Spanish historian Ayala wrote a history of Gibraltar, after the British had already taken the Rock.

Presently, six groups of Macaques can be found within the Upper Rock Nature Reserve, and these number approximately 250 individuals. They are located at Royal Anglian Way, Ape's Den, Prince Phillip's Arch, Middle Hill, Faringdon's Battery and Spur Battery.

Group size in the Barbary Macaque ranges from approximately 30-50 individuals, although occasionally groups can be smaller or larger than this. Associations between many individuals in a group are strong, and this species is peculiar among macaques in that groups include a large number of adult males. Females will mate with more than one male, and bonds between adult individuals and infants are strong; infants receive attention from all Macaques in a group, and in particular from adult males.

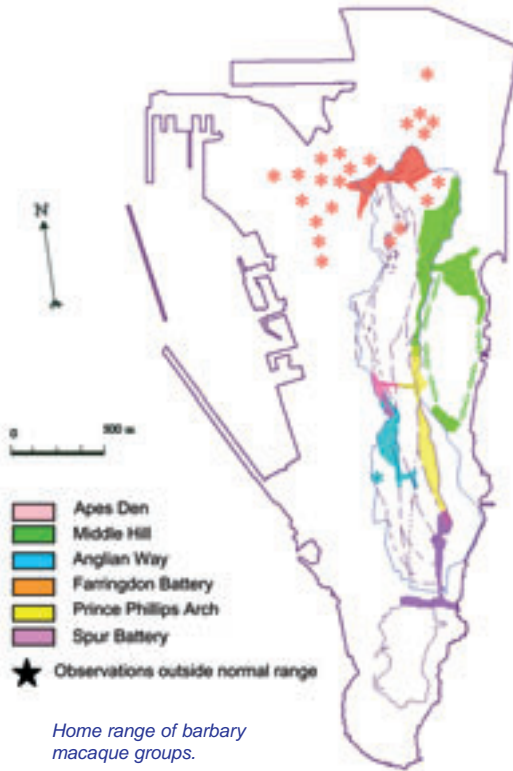
Macaques are fed natural foods on a daily basis. This consists of fruit, vegetables and grain. In addition, the Macaques will also forage, searching through the vegetation for



Barbary Macaque

E. Shaw / GONHS

edible plants and invertebrates. In this way, these animals receive their recommended daily intake of food. Visitors must realise that feeding the Macaques is against the law. Additional feeding will cause these animals



Home range of barbary macaque groups.

to become obese and unhealthy, particularly as the enticing sweets, crisps and pasta that they are regularly offered are very fattening. It will also encourage them to accost visitors and to bite if they do not receive food from them.

The Barbary Macaque extends naturally across the mountains of Morocco and Algeria. Within its native range, this animal is endangered, and its distribution has been reduced drastically. The presence of Macaques in Gibraltar is therefore of importance to the conservation of this species.

Mammals

Apart from the Macaques, few mammals are to be found on the Upper Rock, and most are difficult to see. A small population of Rabbits occurs, as do the White-toothed Shrew and Black Rat (which is in fact brown with a white belly). Small colonies of House Mice find

refuge only around human habitation. The Red Fox was found on the Upper Rock until the early 1980s. These gradually became extinct, although a reintroduction programme is currently underway.

A few species of bat are found within the Nature Reserve. The European Free-tailed Bat, the largest bat in Europe, makes its home within crags on the cliffs that surround the Upper Rock. Some of the caves and tunnels provide roosting and breeding sites for bats; the Large Mouse-eared Bat and rare Schreiber's Bat were formerly found at some of these sites in great numbers, but these have since undergone a sharp reduction, caused in part by human disturbance. The Mediterranean Pipistrelle is common within the Nature Reserve, and can frequently be seen throughout the whole of Gibraltar.

Reptiles

A total of twelve species of reptile occur within the Nature Reserve, twice the number of species that occur within the whole of the UK. These include five species of lizard, six snakes and an Amphisbaenian; a small, legless, subterranean reptile with no eyes. The Iberian Wall Lizard is the one most likely to be seen by the visitor. These small, green



Moorish Gecko

or brown lizards can frequently be observed basking on rocks and walls, even during wintertime. The Algerian Sand-racer, a larger, browner lizard is also common, particularly along paths, and the large, squat Moorish Gecko, a chiefly nocturnal species, is frequent on walls and rocks. The Turkish Gecko and Ocellated Lizard (the largest lizard in Europe) are also found on the Upper Rock, but the latter is particularly rare.

Snakes are not encountered as frequently as lizards, but the sometimes-large Horseshoe Whip-snake in particular is relatively common. In addition to this, one may also find the Montpellier Snake, Southern Smooth Snake, False Smooth Snake, Grass Snake and Ladder Snake.

Invertebrates

The Mediterranean area is rich in invertebrates, and Gibraltar is no exception to this. A diverse range of insects can be observed on the Upper Rock, and these are sometimes large and colourful. Large Praying Mantises are a feature of the late summer months, and during this period, the migration of dragonflies across the Strait can also be very noticeable at times.

In the springtime, butterflies abound on the Upper Rock with 33 species having been

recorded within the Nature Reserve boundary. The colourful yellow and orange male Cleopatra, fast-flying Two-tailed Pasha, striking Swallowtail and Scarce Swallowtail, and Spanish Festoon are among the most obvious of the butterflies. During the summer months, the Striped Grayling can be observed on grassy slopes and rocks, where the large eyes on the underside of this species' wings flash as predators (such as lizards) approach.



Gibraltar Funnel-web Spider

Some of the moths found within the Upper Rock are also quite spectacular and colourful. The striking, red and black Burnet Moth can be seen during May and September, when they can be seen flying slowly to and from their food

plants. Also common during the daytime is the Hummingbird Hawkmoth, which flies from flower to flower in search of their nectar. In addition, such beautiful moths as the Striped Hawkmoth and Cream-spot Tiger can sometimes be encountered.

In addition to insects, other invertebrates are also common. Several large spiders occur, the most notable of which is the Gibraltar Funnel-web Spider, a very large, hairy, black spider whose webs can be seen in many of the tree trunks and crevices of the Nature Reserve. Equally notable is the large centipede *Scolopendra cingulatus*, which is commonly found under rocks and bark on trees. Both these animals are protected by law and can inflict a nasty bite, and in particular children should be careful to avoid them.

Plate 2 provides illustrations of some of the characteristic butterflies of the Upper Rock Nature Reserve.



Cream-spot Tiger



Plate 2: A selection of butterflies from the Upper Rock.



Plate 2

1. Morocco Orange-tip *Anthocharis belia eupheniodes*
2. Striped Grayling *Pseudotergumia fidia*
3. Cleopatra *Gonopteryx cleopatra*
4. Two-tailed Pasha *Charaxes jasius*
5. Spanish Festoon *Zerynthia rumina*
6. Scarce Swallowtail *Iphiclides podalirius feisthameli*

Upper Rock Walks

Three walks within the Upper Rock Nature Reserve have been highlighted for the visitor. These combine the Nature Reserve's natural beauty and stunning views with

some sites of historic interest that do not feature as part of any tour. Each of the three routes is illustrated, in plates 3-5.

Royal Anglian Way

Length: 600m
Difficulty: Easy
Time: 20-30 minutes

The path at Royal Anglian Way is the shortest of the three walks, and sits at about 210m above sea level. The walk begins on Queen's Road, where the visitor can park in the adjacent car park. Here, the walker will see a sign that clearly indicates commencement of the path, which was cleared and refurbished by the Royal Anglian Regiment during 1968 and 1969. The road that leads down has been blocked to traffic, so that the visitor can enjoy a tranquil walk. To the right of this road, an interesting community of plants can be enjoyed during the spring-time. The lanky Esparto Grass, with its long, drooping blades is a prominent feature, and the area is made colourful by the presence of flowering plants such as Wild Gladiolus, Toothed Lavender, and Felty and Shrubby Germander. It is in this area that a few individuals of the Barbary Partridge can often be observed.



Common Gladiolus

Further down, at the bottom of the hill, we reach Rooke Battery, which was originally a gun emplacement. Guns are no longer present here, but the battery affords scenic views across the Bay and down towards Gibraltar's South District. During the



Royal Anglian Way

spring, we can notice the light green foliage of the deciduous Nettle Trees sprouting in the wooded areas below the battery. To the north of the battery, beautiful stands of the blue Rough Bugloss enliven the sides of the path, along which we continue.

From here, the path descends a flight of steps and skirts the cliffside. A pair of Common Kestrels nest along these cliffs, and two Northern Ravens can often be seen flying around the area in their daily searches for food. The walker may also notice that this area holds some buildings and old military installations dating back to the last World War.

As the path begins to ascend, the walker reaches the gun emplacement at Hayne's Cave Battery. Adjacent to this, he or she will find a feeding station for the mischievous Barbary Macaques. These animals may be encountered anywhere along this walk, but they are usually located towards the northern end. Those who visit this path during the early morning or late evening will be rewarded with views of the Macaques foraging through the vegetation and interacting with each other free of disturbance from the large number of tourists which, during peak hours, attract these animals up towards the road above.

From here, we leave the path and join up to Old Queen's Road, which leads down to the Apes Den, where further views of the playful Macaques can be enjoyed.



Barbary Macaques at Royal Anglian Way

Royal Anglian Way

This path runs down from Old Queen's Road and follows the contours along the edge of the western cliffs of the Rock, following a series of World War II installations and batteries, terminating at the top of the hill at Queen's Road. Built during the last great conflict, the Royal Anglian Regiment refurbished the path in 1969, hence it's name.

Here the 'Anglian Way Macaque Group' has its feeding area, and its territory encompasses the whole path. The walker will delight in observing the antics of these animals in an entirely natural setting.

Close by are Haynes Cave Batteries, dating back to 1903. The first of a series of two small gun batteries interspersed by further military installations, along a series of two cirques, consisting of the ablutions and the kitchen area where two tall ceramic chimney stacks are located. The rambler will relish exploring these relics, which uncover an interesting facet in Gibraltar's history.

The path then ascends to a vantage point where Rooke Battery is located. It commands a view of the approaches to the Bay of Gibraltar, and dominates the western flank. The gun was removed during the Second World War and replaced by a smaller one. The views over the southern end of the Town and in particular the dockyard with its dry-docks are astounding.

Length: 600

Time: ½ Hr

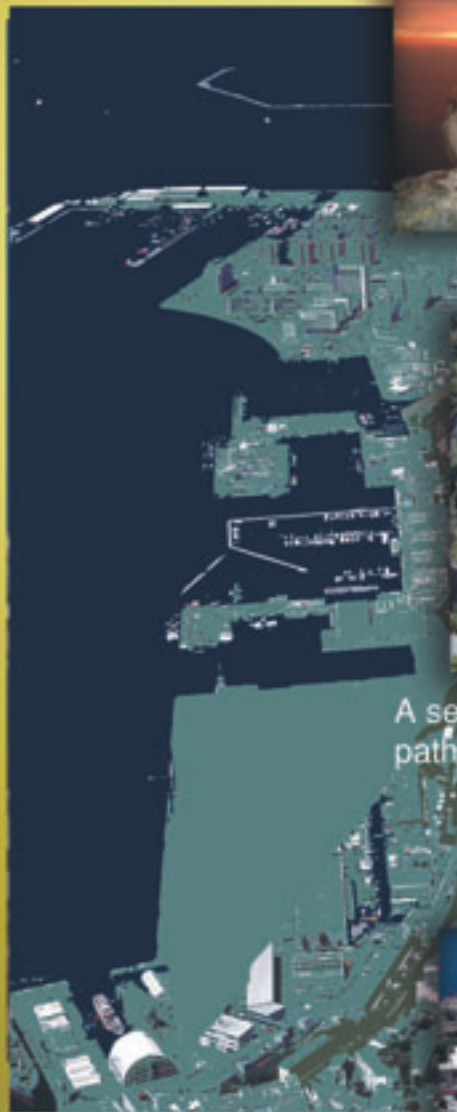
Difficulty: Easy



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Wild Macaques



Hayne's Cave Battery 1903



Ceramic chimneys from cookhouse



Section of Anglian Way



View of Dockyard and drydocks



View of the town of Gibraltar to the north

Inglis Way

Length: 1200m

Difficulty: Medium

Time: 1-1^{1/2} hours

The path known locally as Inglis Way takes the walker through the dense maquis across about a third of the Nature Reserve, from south to north. The walk begins at Queen's Gate, part of Charles V Wall. From here, we join a path that leads upward from Queen's Road to Charles V Road. On this path, the visitor will find a WWII gun emplacement and adjacent building. The vegetation along this path is relatively sparse when compared to that of the Upper Rock as a whole, and includes such plant species as White Asparagus, Common Asphodel, Germander and Esparto Grass. It is from the top of this path that Inglis Way proper veers off through a breach in the so-called Moorish Wall.

As we begin the slow descent along this track, the increasing density of the vegetation is immediately noticeable. This is the Mediterranean maquis at its most dense, with thick stands of creepers such as the Smilax, December Clematis, Pipe Vine and Black Bryony enveloping the predominantly Olive canopy. The shade given by this vegetation increases the suitability of the area for ferns, such as the Southern Polypody and the Rusty-back Fern. Birds that favour thick vegetation can also be found here; the Sardinian Warbler and Wren, although common, are more often heard than seen. One or two Woodcock also spend the occasional winter in this area.

Some openings in this dense vegetation provide interesting arrays of flowers. The Purple Jerusalem Sage stands out in these assemblages of aromatic herbs and pretty flowers. If lucky, the walker may



Yellow-Bee Orchid



also find one or two individuals of the Yellow-bee and Brown-bee Orchid. These beautiful and very interesting small plants mimic the female of certain species of bee on whose males they rely for pollination.

Also found just off this path are two of the WWII installations that are so characteristic of the Upper Rock Nature Reserve, and our three paths in particular. Past these features, we arrive at even denser vegetation, where the hardy Smilax dominates. The canopy here cuts out the sunlight to a large extent, and gives visitors the feeling that they are walking through a tunnel of vegetation that suddenly opens out to Bruce's Farm firebreak. It is at this point that the walker can appreciate a magnificent view across the northern end of the town of Gibraltar, and across the Bay towards Algeciras.

The firebreak at Bruce's Farm is one of the areas of the Nature Reserve that is richest in flora, with several species found in this area and nowhere else within the Reserve. The path leading from Inglis Way cuts across to the other side of this clearing, where it then continues upward, bordering a wall that faces a thickly wooded area. The walk continues along the edge of the firebreak, where some of the fauna of the more open areas of the Nature Reserve may be observed. Barbary Partridge can frequently be seen in this area, as can rabbits. With some luck, we may also find the Ocellated Lizard, Europe's largest lizard. In addition to this, the Iberian Wall lizard, Algerian Sand Racer and Moorish Gecko are all common.

The last stretch of the path then winds its way steeply down to the road alongside Upper Bruce's Farm. This leads down to Queen's Road, where the walk ends.

Inglis Way

This path was possibly named after a Mr. Inglis of the Armed Forces during the 1800's. However, some believe that the name is derived from the Spanish 'El camino del Ingles', the Englishman's Path. It is a relatively easy path that is ideally suited to everyone, and can be accessed from Charles V Wall or the Upper Bruce's Farm firebreak, running through the centre of the Nature Reserve.

Parts of the path traverse more open areas such as the section from Charles V Wall to the Moorish Wall and Bruce's Farm firebreak. Here one can appreciate the astounding views of the town area and delve in the great variety of flowering plants and the beauty of the Mediterranean vegetation. In the spring Spanish Festoon and Morocco Orange-tip butterflies fly and chase each other over the grassy slopes.

From the firebreak to the Moorish wall the vegetation is much thicker dominated by the Olive and shrouded by creepers such as the Pipe vine and Virgin's Bower. The lucky rambler may find some of Gibraltar's rare orchids, such as the Yellow-bee Orchid, along the edges of the path. In the shady glades flies the Speckled Wood butterfly reflecting the brown and orange hues in the shafts of sunlight penetrating the maquis.

Along this path are vestiges of three World War II installations which can be explored. These formed part of a network of observation posts and searchlight emplacements during the last great conflict.

Length: 1 Km

Time: 2 Hrs

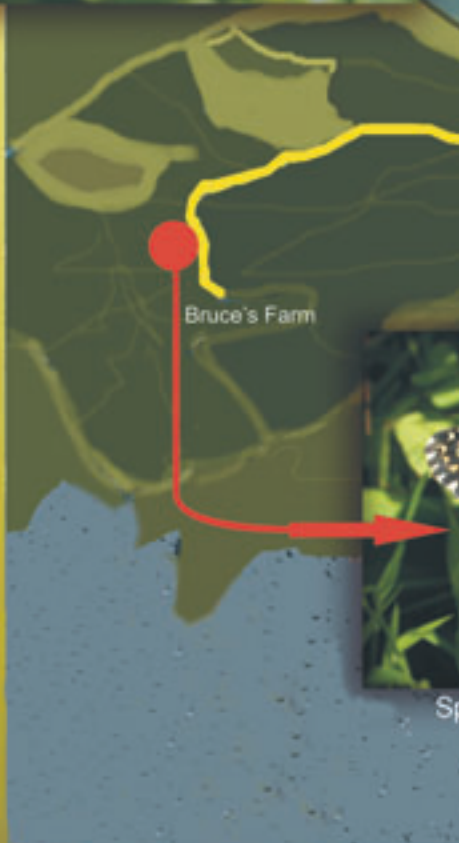
Difficulty: Medium



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Morocco Orange - tip Butterflies mating



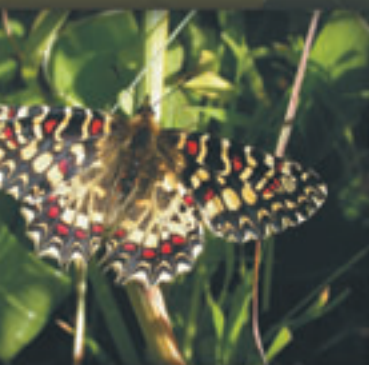
Speckled Wood Butterfly



Queen's Gate



Yellow-Bee Orchid



Spanish Festoon Butterfly



One of three WWII military installations that can be explored

Mediterranean Steps

Length: 1400m

Difficulty: Hard

Time: 1^{1/2} to 2^{1/2} hours

This is the hardest of the three walks mentioned in this guide. It is steep and at times arduous, and not for people without a head for heights. Time is an important factor when negotiating this path. Early mornings are usually preferable, but during the summer months a late afternoon walk will provide the visitor with plenty of much-needed shade. The area is particularly appealing during the spring, when the visitor is greeted by an interesting and very beautiful array of flowers.



Dwarf Fan Palm

L. Linares / GONHS

The Mediterranean Steps take the walker from Jews' Gate on the southern end of the Nature Reserve at 180m above sea level, up towards O'Hara's Battery at 419m, close to the summit of the Rock. The path runs mainly along the eastern side of the Rock, an area that is comprised primarily of cliffs and low Mediterranean scrub.

Before starting the walk, we can visit the exhibition at the Jews' Gate Field Study Centre, which is run by the Gibraltar Ornithological and Natural History Society (GONHS). Here, we can appreciate the diversity and abundance of wildlife found within the Upper Rock Nature Reserve.

The walk starts alongside the Centre, leading south through some dense maquis, which gradually opens out into a beautiful garrigue,

from which the walker is afforded a spectacular view of North Africa across the Strait. Here on the south-facing slope the Esparto Grass, Asphodels, Paper White Narcissus and a wealth of other flora comprise a beautiful habitat that is practically unique within Gibraltar. It is also here that we begin to notice many individuals of the Dwarf Fan Palm, a plant that quickly becomes a dominant feature of this walk.

From here, we continue along a narrow path that borders along the edge of cliffs, where we may be lucky enough to observe the resident pair of Peregrine Falcons that nests here. The melodious song of the Blue Rock Thrush frequently echoes along these cliffs during the springtime, and this species can be observed in this area throughout the whole year. It is here that we begin to appreciate the silence and serenity that this path has to offer, and the cries of the Yellow-legged Gulls are frequently all that can be heard. These birds may mob walkers during the nesting season, but they are harmless, and will do no more than swoop over the unwary visitors' heads.

Continuing north along this path past the steps leading upwards, Martin's Cave comes into view. This cave is particularly important as a roosting and breeding site for the rare Schreiber's Bat, and it is for this reason that access into the cave is restricted. Some maritime plants grow around this cave, and these include the Gibraltar Sea Lavender, the only site within the Nature Reserve where this species may be observed. **B a r b a r y** Partridges may startle the walker as they explode into flight at his or her feet; these birds may be



Peregrine Falcon *J. Cortes / GONHS*



encountered throughout the entire course of the walk.



Martin's Cave, where bats roost and breed.

Retracing our way, we begin to ascend a steep flight of steps that leads to the Goat's Hair Twin Caves; two caves that lie directly to the left of the path. Excavations during the 1970s in one of these caves unearthed artefacts that indicate that prehistoric man had once inhabited them. It is amazing to consider that these caves, like Martin's Cave, were once at sea level. The view from the entrance to these caves is breathtaking, taking in the Mediterranean Sea, Europa Point lighthouse, and the Spanish enclave of Ceuta and Morocco on the other side of the Strait.

Continuing the climb, we reach a building that was constructed by the Military during WWII. Here, we finish the first flight of steps, and commence a path that leads through a small tunnel and on towards some WWII fortifications. We now reach a platform that offers the visitor a unique view northwards towards the cliffs that line the eastern side of the Rock, and Spain's Costa del Sol. Beautiful stands of the Gibraltar Candytuft sit between the crags and ledges that border the rest of the walk, and this ranks amongst the best places where this special plant can be observed.

The path winds its way upward, and starts to get steeper. Looking up towards the top of the Rock, we can now see the zigzagging stairway

that hugs the cliffside and leads to the end of the walk. Passing through the thick scrub that dominates along this section of the path, it is impossible to miss the loud, musical song of the tiny Wren. Here, we also encounter another set of WWII fortifications.

Following the track, the walker arrives at the base of the cliff, where the final flight of steps subjects the visitor to a last, strenuous effort in order to reach the summit. Halfway up these steps, we notice a hole at the base of the cliff. This is Spider Cave, a small hollow that was used by the military during WWII. Further up, close to the end of the path, we can find five of the seven special plants growing on the cliffs. These are the Gibraltar Candytuft, Gibraltar Thyme, Gibraltar Champion, Gibraltar Chickweed and Gibraltar Saxifrage.

On reaching the crest of the Rock, the visitor finds an impressive view across the Bay and the Strait beyond. Immediately to the south lies Lord Airey's and O'Hara's Batteries. The 9.2-



Gibraltar Candytuft L. Linares / GONHS

inch guns at these emplacements were installed at these sites during WWII, and were last fired by the Royal Gibraltar Regiment in 1972. From here, where the walk ends, we can either retrace our steps, or preferably follow the road down to St. Michael's Cave or on towards Prince Phillip's Arch, where there is a pack of Barbary Macaques.

Because of the narrowness of the track in sections and the possibility of rock falls it is recommended that the prospective walker check the safety of the path from the Reserve authorities before attempting it.

Mediterranean Steps

This path borders the southern slopes of the Rock, affording magnificent views of the Strait of Gibraltar. It then follows north, and is set along the edge of the spectacular eastern cliffs of the Nature Reserve. Rising up the first flight of winding steps, we can appreciate the peace and tranquillity of this area. The wonderful flowers and plants, combined with the song of the Blue Rock Thrush and the Wren and the calls of the hundreds of Yellow-legged Gulls echoing amongst the towering cliffs, is an experience the walker will always treasure. With a bit of luck we may catch a fleeting glimpse of the Peregrine Falcons that nest in the area.

Early man must have appreciated these surroundings, for many of his remains have been found in Martin's and Goat's Hair twin caves. Further along, a series of World War II installations serve to illustrate another facet in the history of Gibraltar. Here small gun batteries protected the approaches to the eastern shores, which can be appreciated by the magnificent views of the eastern cliffs and sand slopes running along to the northern reaches of the Rock.

Continuing along the winding path, the walker reaches the steps proper, many hewn out of the limestone and set against the cliff face. The climb culminates near the summit, where we find the O'Hara's and Lord Airey's 9.2" batteries, from where the views across the Bay and the Strait are spectacular.

Length: 1½ Km

Time: 2 Hrs

Difficulty: Hard*

* Not recommended for people who suffer from vertigo.



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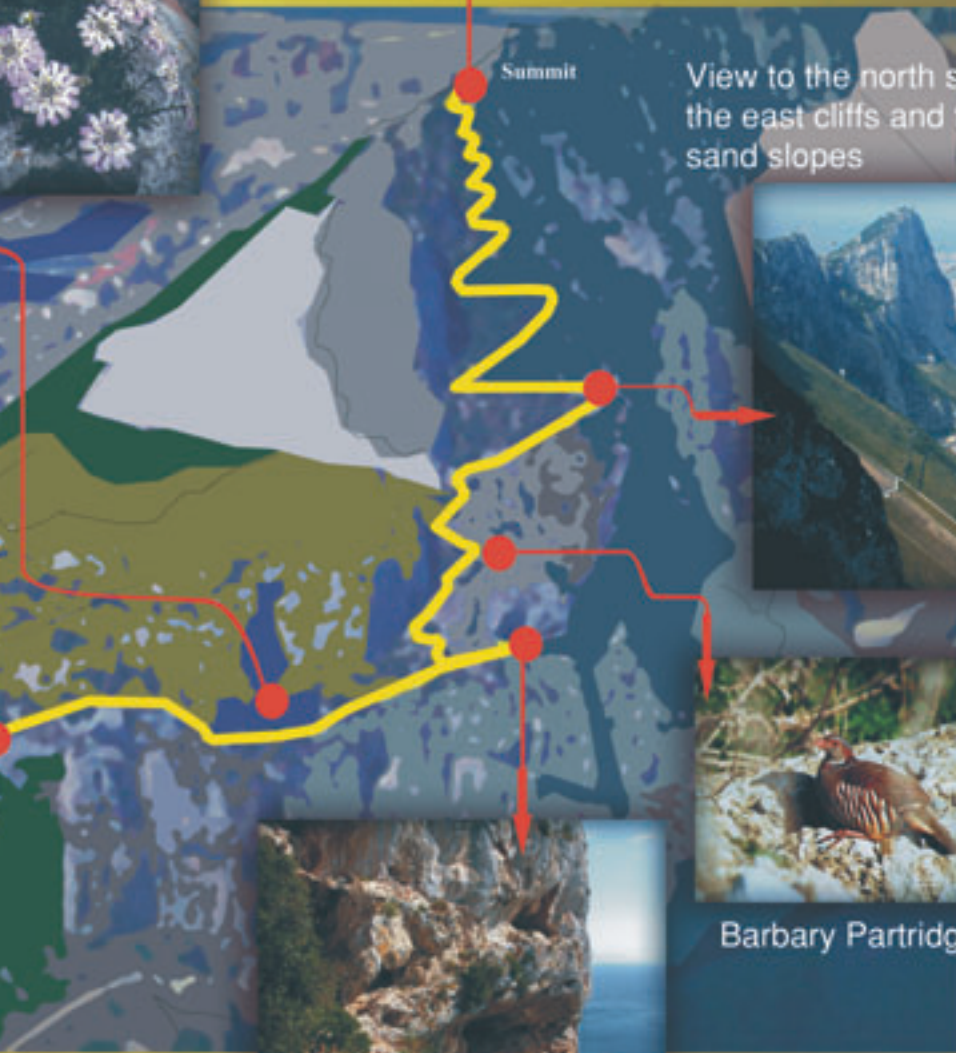
Peregrine Falcon



Yellow-legged Gulls

Jews Gate

Gibraltar Candytuft



Summit

View to the north showing the east cliffs and the sand slopes



Barbary Partridge



Martin's Cave and a WWII Military Installation



Red Fox
Eric Shaw
GONHS

Recommended Reading:

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