

**A CLEVELAND NATURALISTS'
FIELD CLUB BULLETIN**

1994



**THE CLEVELAND COAST
FLORA AND HISTORY**

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1 INTRODUCTION

This study of the Cleveland coast is an attempt to show what types of vegetation exist on the coast today and what effect man's activities in the past may have had in moulding our landscape.

It is difficult to envisage exactly what our land was like even at the beginning of this century. It is like one big jigsaw puzzle. We have to examine the signs and evidence that are left in order to get a clearer picture of the past. This is why the history of the coast is included in this survey. The topography, climate and geology obviously have a fundamental effect upon what types of vegetation are found in a region but there are virtually no habitats left that are untouched by man's activities in the British Isles.

Much of our beautiful landscape has been destroyed, particularly in this last century since the Industrial Revolution but people are at long last beginning to realise that we must make a serious effort to conserve what is left.

Before conservation takes place we must know what types of habitats already exist and consider carefully how it is best to preserve them. We don't live in a time capsule; the landscape is constantly changing. We must make sure that any industrialization or urbanization of an area or any other of man's activities don't cause the massive loss of habitats that occurred at the beginning of this century when little thought or consideration was given to how these schemes might fit in with the local environment.

This study is an attempt to show what type of flora is to be found on the Cleveland coast from South Gare to Cowbar. It is a series of lists of plants and descriptions of their habitats which, I trust, will form a reference document not only for botanists but also for the many groups who are responsible for the preservation of this coast. The lists in themselves have a limited value but they may give some indication of where some of the more sensitive areas of our flora are to be found. We hope that more detailed ecological studies of these habitats will be carried out in the future.

The botanical records have been collected over a number of years but most of them have been collected during the last five years. An attempt has been made to collect as many of the old records for the coast as possible. In the old floras and plant lists studied the common plants are usually given no specific sites other than using such headings as abundant, common, hedgerows, fields, moors, woods etc. and so could not be included in our present lists. The ones chosen are where a specific site is listed, eg Coatham Marsh or where a plant has been shown by our surveys to be normally associated with the coast.

The present records have mainly come from members of the Cleveland Naturalists' Field Club. This club was established in 1881 and is still flourishing. A few years ago it was decided to form a section of it, a Recorders' Group, and to produce a set of Proceedings. The club ceased the production of these in the early 1930's. It was felt that with all the interest locally in conservation of our environment we could contribute to this by studying some of the local areas.

The study of the Cleveland coast has been done by members of the Recorders' Group with an interest in botany either as individual members or working in a group. A number of field-club outings were arranged for the club and information collected on these occasions. Cleveland County Council and Cleveland Borough Council arrange a number of natural history walks in the county; some of these are led by club members and as many of these have

been to the coast, valuable information has been collected on these walks. Other societies have visited the area, in particular the Yorkshire Naturalists' Union who have given us their help and advice.

It must be stressed that although most of the coast is accessible to the public, some areas are privately owned. South Gare is owned by the Corus Corporation and access is only open to people who work there or who are concerned with other activities in the area. Unlike most of the coast, Corus own the beach right down to the low water mark. Elsewhere the land is owned by the Crown Estate. This means that Corus can refuse access to the foreshore at South Gare, whereas the Crown Estate normally allow access right down to the low water mark. Corus does allow various organisations such as the R.S.P.B., the Teesmouth Bird Club and various other clubs to carry out natural history walks and there are others arranged by Cleveland County Council, Cleveland Borough Council wardens and the Tees River wardens. These groups should be approached if anyone is interested in seeing the area. It is possible to walk along the coast from Redcar to Cowbar. There is a cliff path from Saltburn and in places it is possible to walk along the beach here under the cliffs. The cliff path circles inland around two alum mines at Boulby. These mines can be very dangerous owing to falling rocks and there is no access to the general public. The coastal path runs very close to the cliffs in some places, particularly beyond Saltburn; it can be dangerous. Particular care should be taken if children go along this part of the coast. The tides along the coast can be hazardous; always consult a tide table before you set out.

If walking below the cliffs watch out for falling rocks. Sea bathing and water sports are normally carried out at Redcar and Saltburn. In the summer lifeguards are usually patrolling the beach but local notices and flags should be consulted. Other areas of the coast can be extremely risky and should not be used for these activities.

ENJOY THE COUNTRYSIDE AND RESPECT ITS LIFE AND WORK AND FOLLOW

THE COUNTRY CODE. IN PARTICULAR DO NOT PICK WILD FLOWERS.

The local tourist offices at Redcar, Saltburn and Guisborough supply a variety of excellent free leaflets on various aspects of the coast including tide-tables.

1.1 DETAILS OF THE SURVEY

The Borough of Cleveland was established as part of Cleveland County Council on April 1st 1974 when there was a complete reorganisation of local government throughout the country. Cleveland County was divided into four boroughs, Hartlepool in the north, Stockton in the west, Middlesbrough in the south and Lanbaugh in the east. How long these areas remain will depend upon the present government as plans are in progress to establish unitary authorities in the area.

The northern boundary of Cleveland is here defined as the river Tees and its eastern boundary is the North Sea. Inland are the Cleveland hills some of which are part of the North York Moors. Between the sea and the hills and moors are agricultural, urban and industrial areas. The county boundary between North Yorkshire and Cleveland, near the coast, is Staithes beck.

The Cleveland coast stretches from South Gare in the north to Cowbar in the south. In order to study the flora it was divided into nine main areas and the plants recorded as follows.

1. South Gare . Part of this lies on the edge of the river Tees and part of it along the coast. As this is nearly all reclaimed land, it was decided to treat it as one unit stretching inland as far as the north end of the golf course and the Corus Corporation's works, to the dunes along the coast.
2. Coatham Dunes. It was decided to start recording at the Amoco pipeline and record as far as Majuba Road which is near the Redcar Caravan Site. The pipeline was built recently and connects up with the new Enron Power Station at Wilton. Only a thin strip of the coast was recorded here. This consisted of the land on the leeward side of the beach as far as the golf course, which runs parallel with the dunes. Where the golf course ends and between the end of the golf course and the pipeline is a wet area which was included in the recording.
3. Redcar Stray. This is a stretch of grassland and dune running parallel with the coast road. It starts at the end of Granville Terrace near Zetland Park and ends at Cliff House, Marske.
4. Marske to Saltburn. There are a number of distinct areas here:
 - a. The Bits. This lies in front of a housing estate known as the Headlands and stretches from Cliff House to Saint Germain's church.
 - b. A thin stretch of dunes between St. Germaine's church and Hunnies Howle.
 - c. A thin stretch of dunes from Hunnies Howle as far as Saltburn promenade at Hazel Grove. The banks behind the promenade at Saltburn.

The different types of habitat are explained in the text but the list consists of all the plants found between Cliff House at Marske and the end of the promenade at Saltburn.
5. Cat Nab . All the plants on the hill were recorded.
6. Saltburn to Skinningrove. Areas recorded consisted of the flora lying between the cliff edge and fields behind; the plants on the banks above Cattersty sands and on the dunes, plants on the jetty and on the banks near to Skinningrove.
7. Skinningrove to Hummersea. The plants on top of the cliffs and banks lying between the fields and cliff edge, level with Rockcliff Farm.
8. Boulby Quarries. Plants recorded in both Boulby Quarry and Lingberry (Loftus) Quarry from the southern edge of the Hummersea area to the stile above Boulby Cottages.
9. Boulby Cottages to Cowbar. The plants from the stile above Boulby Cottages to the harbour at Cowbar. This consisted of the plants found between the cliff edge and Cowbar Lane and the plants growing on the side of the lane leading to the village. The fields on the cliff edge near Blas Car were not recorded as they are privately owned and the footpath passes behind these.

2 THE RIVER TEES AND THE SOUTH GARE.

The river Tees is the largest river in Cleveland and consequently is of considerable importance to its people. It is approximately 120 Km (25 miles) long. It rises on the eastern slope of Cross Fell in the Pennines at a place known as Tees Head 777m or 2,555 ft above sea level and then makes its

journey down to the sea. It has been an important trading river for hundreds of years. From the twelfth century Yarm was the main port as it was an ideal place for shipping agricultural products such as grain, butter, cheese etc. from the North Riding and South Durham and lead ore from Teesdale and Weardale. At the same time as the area became more prosperous sugar, tea, spices, brandy and other luxury goods were imported.

As time passed more and more people began to settle along the riverside. By the seventeenth century Stockton had replaced Yarm as the main port. This at first was mainly concerned with agricultural products but when the Stockton and Darlington Railway was built in 1825, coal from the Durham coalfields was brought here to be exported. In the 1830's, when the facilities at Stockton could no longer cope with all this trade the railway line was extended to what we now know as Middlesbrough but was originally called Port Darlington. This whole area expanded rapidly and although much of its coal trade was eventually lost to Hartlepool, when ironstone was found in the local hills, Middlesbrough became famous for its iron and steel industries. This was mainly due to the efforts of Joseph Pease, known as the founder of Middlesbrough, who with the help of some of the members of his family not only established the town but in 1839 persuaded Henry Bolckow and John Vaughan to establish their ironworks here.

The increase in industry and trade brought the demand for more boats and ships and as a result of this the ship building industry which was already established at Stockton had to expand so new shipyards were built. At the same time in order to make use of the iron and steel products, large numbers of heavy engineering works were set up in the area, in particular to meet the demands of the new railways for rolling stock and new track.

During the First World War another major industry became established, the chemical industry. Initially the chemicals produced were bi-products of the iron and steel industry from their coke oven plants and blast furnaces. Slag from the steel work was crushed and used to make phosphate fertilizer. When Bolckow and Vaughan discovered salt beds below their Cleveland works in South Bank, attempts were made by other firms to find similar beds. The areas north of the river proved the best but it was 1882 before suitable methods could be found to raise the salt to the surface. This was not a totally new industry to the area as salt works had existed in Roman times and the local abbeys and priories obtained supplies of salt from Coatham near Redcar. In 1926 four of the largest chemical companies combined to form 'The Imperial Chemical Industry' which became famous world wide for its products. These included agricultural products, nitric and sulphuric acid, petrol and many other commodities. In 1946 it bought 2,000 acres of land at Wilton in Redcar and set up a large Petro-chemical Division which included among its products, plastics, synthetic fibres, perspex, terylene and polythene.

In recent years, since the discovery of North Sea oil and gas, many oil and gas terminals have been set up particularly near the river estuary. By the 1950's most of the local ironstone mines had closed down as all the ironstone was exhausted and it became necessary to import large quantities of ore from abroad.

With the growth of industry there has been an explosion in the region's population, vast urban development and a network of road and rail communications. All this has had a vast effect on the river and gradually industry has moved closer to the river estuary. Since the port in Yarm in the

twelfth century three other ports have been built along the riverside, Stockton in the seventeenth century, Middlesbrough in the 1840's and lastly Teesport in 1963. There were a number of smaller ports that were used in the early days such as Coatham, Dabholme, Cargo Fleet (Caldecoates), Portrack, Newport and Billingham. As many of the larger ships could not get up the river goods were transferred to smaller ships at these ports.

The river has always presented many hazards to shipping. Owing to the presence of a bank of silt and sand near the entrance to the river it was always difficult for the larger ships to get into the river estuary. At the mouth of the river was a large area of mud flats or 'slems' as they were known locally and large areas of marshland which stretched all the way to Stockton, a distance of ten to twelve miles. There were also many obstructions in the river such as large rocks. Near to Stockton there were also meanders in the river which lengthened the time it took to reach the port and the river was so shallow here that the boats had to be pulled by hand. This process was known as tracking and gave its name to Portrack. In 1882, after a bill had been put before Parliament, a Tees Navigation Company was formed. As a result of their investigations two cuts were made in the river. The first between Portrack and Stockton was known as the Mandale cut. This reduced the journey by 2½ miles and helped to deepen the river as well, reducing the time of the high tides between Portrack and Stockton by twenty five minutes. The second cut was made in 1828 from the east side of the river near the previous cut. It was between Portrack and Newport and shortened journey to the sea by three quarters of a mile. Other improvements to the river were made such as the building of piers and jetties. Lights and buoys were placed at the river estuary to act as guides for the ships entering the river.

By the 1850's trade had increased considerably along the river owing to establishment of Middlesbrough and the growth of the ironstone industry. In 1852 the Tees Navigation Company was dissolved and a Tees Conservancy Commission was set up by the Owners of the Middlesbrough Estates and the Stockton and Darlington Railway Company. As a result of this a regular dredging programme was set up to deepen the river. They also reclaimed thousands of acres of land on both sides of the estuary by building miles of reclamation embankments and by using slag from the works and the sand and silt that had been dredged up from the river. This removed many of the unsightly banks of slag that were building up near the iron works and was an economical way of obtaining new land.

The Tees Conservancy Commission also decided to make a safe harbour for the ships at the river estuary. A similar project had been suggested for Redcar in 1859 but nothing came of this scheme despite the efforts of the local people. Initially little progress was made in establishing a safe harbour but in 1861 about sixty ships were wrecked near the mouth of the Tees after a terrible storm and many lives were lost. After this awful disaster it was decided that the scheme must go ahead and as a result of this the North and South Gares were constructed at the river estuary. The South Gare is 2.5 miles in length. Work on it started in January 1861 and the breakwater was officially opened in 1888. At the end of the South Gare is a lighthouse. This is made of cast iron and concrete and when first built had a copper dome. In this dome was a chimney which removed the fumes from the paraffin lamp. Rotating screens around the lamp produced a flash of three seconds every ten seconds. Today 1,000 candle power bulbs are used and magnified through thick lenses. The

lighthouse was first used in November 1884. Today the lighthouse is still privately owned and has a range of twenty miles. Out at sea is a foghorn powered by eight horns and a huge buoy to guide ships into the main channel. In 1877 a concrete apron was added to the end of the South Gare. This has curved walls which deflect the action of the waves. Large concrete blocks weighing 40 to 300 tons were also placed on the apron and many of these today can be seen lying in the sea below. Old barges were also filled with concrete and sunk to give added protection. A protective barrier of slag was also dumped near the entrance to the Gare. During the First World War a German ship ran aground here. The captain was said to be 'A right Charlie' and since then the heaps of slag have been referred to as the German Charlies.

Today there are other features here. Near the lighthouse on a metal tower is a rotating radar scanner which maintains surveillance of the shipping as it passes into the Tees. The Teesmouth lifeboat is housed here and there is a coastguard station. Pilot boats also go out from here to guide the larger ships into the river. A small bay known as 'Paddy's Hole' is used by local fishermen and nearby are a number of fishermen's huts. There is also thriving yacht club and the area near Bran Sands is used by other water sports enthusiasts.

Building of the North Gare was started in 1882 but by 1891 work on it ceased when only 1,110 yards of it had been built. At first it was thought it should be 2,000 yards long but there was a disagreement about this and the last section was never built. As slag was used to build both breakwaters they were built at a very low cost. Although the cost of the slag varied over the years it was only 2d to 5d a ton. The South Gare cost £219,393 and the North Gare £69,783.

Originally the river had many channels at its estuary and these were constantly changing. In order that larger boats could get up the river it had to be directed into one main channel. With the increase in size of boats such as tankers this channel has to be maintained and deepened for these new vessels. This means a regular dredging programme must be followed to prevent the river silting up.

One of the last tasks of the Tees Conservancy Commission was to establish deep water docks on the southern bank of the river 3½ miles from the estuary. This is now known as Teesport and was first used in 1963. In 1962 the government set up the Rochdale Inquiry into the Major Ports of Great Britain. As a result of this a National Ports Council was set up which recommended that a new Tees and Hartlepool Port Authority should be formed to take over the management of the river and the Hartlepool dock area. This replaced the Tees Conservancy Commission in 1966.

In 1967 it was decided to build a major oil terminal to serve all the local steel works. The site finally chosen was Redcar Jetty just below Teesport. This was completed in 1973 and when built was capable of handling ships up to 150,000 dwt but designed in such a way that it could be deepened to receive larger vessels when necessary.

In the 1970's the government sanctioned the building of a new steel works at Redcar. This still continues to flourish but as the world demand for steel has dropped the last phases of its building were never completed.

The most recent development along the Tees has been the building of a £50m barrage across the river near Stockton. This was opened on December 12th 1994. This means that the twelve mile stretch of river from Stockton to the Cleveland border with North Yorkshire is no longer tidal. It is hoped to develop some of this as a water-sports area with a caravan and camping site next to it.

It is obvious that over the years many changes have occurred which have affected the nature of the river Tees and most of it has been taken over by industry and urbanization. Virtually all the marshland and mud flats near the river estuary have disappeared along with their flora and fauna. Large reclamation schemes have resulted in slag from the works and silt from the river being dumped along the riverside, totally changing the habitats that existed in the past.

The country is now in a period of recession, many works have had to close leaving derelict land behind and creating unemployment. In the past Cleveland relied on only a few major industries; when they went into decline so did Cleveland. Shipbuilding and coalmining have disappeared and very little of the iron and steel industry remains. I.C.I. has closed its fertilizer works and is selling off a number of sections at its Wilton site. With grants from the Teesside Development Corporation and other sources attempts are being made to revitalize the whole area and attract new types of industry but this will obviously take time.

It is pleasing to see that steps are now being taken to try and re-address all the damage that has been done to our environment. At last people are much aware of how important it is for us to conserve our countryside. The marshland and mudflats can never be replaced but even in an industrial and urban environment it is possible to create habitats suitable for wild life. Stockton once had an important salmon fishing industry but that quickly disappeared when the river became heavily polluted from industry. Now that there is a National Rivers Authority, careful checks are made on the quality of the water and certainly there seems to have been some improvement in the river Tees over the last few years. Seal Sands as its name suggests was famous for its population of seals; for a time these disappeared but at long last they have returned to this area and are now beginning to breed successfully. English Nature are carrying out a number of schemes on the north bank of the Tees and an area near Hartlepool power station is to be designated a Site of Special Scientific Interest (S.S.S.I) Two Tees wardens have been appointed to keep a check on the part of the river in Cleveland.

Teesmouth has always been famous for its bird life but with the loss of suitable habitats many have disappeared. Despite this there are large flocks of resident and migratory birds that still use the river estuary and many rare birds are often seen here. A careful check is kept on the populations of these birds by various ornithological groups such as the Teesmouth Bird Club and the local members of the R.S.P.B. Some of the local universities and bird ringing groups also carry out surveys to see how these populations change. There is an active Cleveland Wildlife Trust who own or manage various habitats in the county and liaise with the public on these matters. The recently formed Community Forest Team are also concerned with planting many new trees and replacing the hedgerows that have been lost. Very few trees survive near the coast but hedgerows provide cover for the smaller birds that land on our shores. There is always a risk when wildlife exists close to industry that an oil slick or chemical leak or some other disaster will endanger them but in Cleveland a number of the industries have their own wildlife officers and Cleveland is the first county in the country to establish an Industry Nature Conservation Association (I.N.C.A.)

3 THE FLORA OF THE COAST

3.1 SOUTH GARE

Up to the 1920's the sandy beach between South Gare and Saltburn was one of the finest in the country. It was so flat that attempts at the world land speed record were held here. Various reasons have been given as to why the beach deteriorated but it was possibly owing to the dumping of millions of tons of slag into the sea near the South Gare and the continual dredging operations of the Tees.

From time to time after very stormy conditions the sand on the beach is swept away and the West Scar Rocks at Redcar and other areas become exposed to reveal peat beds. Embedded in the peat can be found large trunks of trees, chiefly oaks and firs and also decayed leaves, acorns and hazelnuts. These are the remains of an ancient submerged forest. After a storm in the 1870's antlers of the red deer and tusks of the wild boar were found at the Redcar site. Similar remains are to be found between Seaton Carew and Hartlepool. These beds revealed antlers of Irish Elk and tusks of a Mammoth. In the past local people used to dry out the peat and used it to burn on their fires as an addition to the sea-coal they used to collect from the beach. A few people still collect sea-coal but most of this occurs in the Hartlepool area. At the moment archeologists are making a serious study of the submerged forest sites before they totally disappear, particularly as the Hartlepool site is to undergo development in the near future.

When land reclamation began at Teesmouth and slag sea-walls were built, an impressive dune system was formed between South Gare and Redcar. Unfortunately these dune systems are very unstable and easily destroyed. An example of this has been seen this year. Since the last war a pill-box, part of the sea coast defence system, had gradually become covered in sand and had not been seen for over thirty years until after one severe storm this year it was totally exposed again and much of the surrounding dune system was destroyed at the same time.

The formation of a dune system takes many years. Vegetation on a sea shore is in distinct zones. The first group of plants forms what is known as the strand line vegetation, where dead seaweed, rubbish, flotsam and jetsam get tossed upon the beach at the high water mark. Some of it will rot and form humus. It is this humus that can supply the organic matter required by the first colonizers. This can happen only if there is sufficient moisture in the sand and the sand particles are not moving too quickly; otherwise the plants cannot establish a proper root system. Species that occur here on the strand line include (*Cakile maritima*) Sea Rocket with its beautiful white or purple flowers. This has big fleshy pods which either fall near the parent plant or are carried out by the high tide to new locations on the beach. We also find (*Atriplex sp.*) Oraches, of which there are a number of species and (*Honckenya peploides*) Sea Sandwort, which has very dark green leaves and white flowers. Occasionally plants of (*Salsola kali*) Prickly Saltwort can also be found but it is not very common and because it is an annual it is rarely found in the same place each year. It used to appear on the sands between Marske and Saltburn but has not been recorded here during the last three years.

Anything lying above the surface of the sand checks the speed of the wind. If particles are being carried in the air they will be deposited on the surface

to form a miniature dune. Plants growing under these conditions have to be very specially adapted if they are to survive. The sand is very porous, so the water-holding capacity of the sand is very poor. Because of this plants here always have difficulty in obtaining enough water for their survival. Owing to the constant high winds on the coast, water is also lost by transpiration from their leaves. In the summer the surface of the sand gets very hot and the high temperature of this and the surrounding air increases the rate of evaporation of water from the sand. Many of the plants in this environment and in particular the perennials will often be completely covered in sand for quite long periods. They are constantly sprayed with sea water. To give them protection many of these plants develop thick fleshy leaves which have special water-storage cells.

Once the strand line plants have become established on the sea shore a number of grasses take over such as (*Elytrigia juncea*) Sand Couch, (*Ammophila arenaria*) Marram grass, (*Leymus arenarius*) Lyme Grass and sometimes (*Carex arenaria*) Sand Sedge. All of these help to build up the dune system but in particular the Marram Grass. This has an extremely extensive root system which grows downwards and outwards and helps to bind the sand together. With this root system it can obtain water from great depths below the surface of the sand. The stomata in the leaves are found in furrows and in warm windy weather the leaves roll up to prevent water loss. It can also tolerate being constantly buried in sand.

Leymus arenarius has flowers in a dense upright spike and its rigid leaves are strap-shaped and blue-green or lime in colour. It gets its name from the fact that the first plants were found in Lyme Regis and not from the colour of its leaves. It is a plant that along our coasts is only common locally, but in Cleveland we are fortunate in having a lot of it along our shores. It is not quite as successful a dune builder as Marram Grass but has an extensive root system which helps to bind the sand together. (*Elytrigia juncea*) Sand Couch is fairly common on the dunes along the whole of our coast but early records for (*Elytrigia atherica*) Sea Couch, suggest that in the nineteenth century this was also very common and that hybrids between these two plants and (*Elytrigia repens*) Common Couch were recorded. Some of these hybrids do occur in places along the coast north of the river Tees.

Once the dune system has become established all kinds of plants can invade the area. These may be plants specifically adapted to maritime situations or just common inland plants. Lichens such as *Cladonia* and *Peltigera* species also colonise the surface and various kinds of mosses such as *Tortula ruraliformis* and *Brachythecium albicans*.

As the surface of the soil becomes covered in plants the pioneer species Sand Couch, Lyme Grass and Marram Grass disappear. This is partly owing to the competition from other plants but possibly in the case of Marram Grass it is owing to the lack of aeration in the soil. Their decaying remains form humus which supplies nutrients for the new colonisers. The grasses are then replaced by (*Festuca rubra*) Red Fescue and (*Festuca arenaria*) Rush-leaved Fescue.

Many of the first colonisers of the sand dune are calcicoles, lime-loving plants. The sandy soil on the dunes is often slightly alkaline partly owing to the alkalinity of sea water and also owing to the presence of broken bits of sea shells. On our coast these are represented by such species as (*Anthyllis vulneraria*) Kidney Vetch, (*Sanguisorba minor ssp. minor*) Salad Burnet, (*Carlina vulgaris*) Carlina Thistle, (*Linum catharticum*) Fairy Flax and many others. In the older (fixed) dunes much of the calcium carbonate may become leached out

and acid-loving plants, known as calcifuges, take their place. Plants that dominate the dune often adopt special modes of growth so that they are not ousted by their competitors. These are often the commoner plants like Daisies, Dandelions and Plantains which under normal conditions would grow with their leaves in an upright position. Instead their leaves are flattened over the soil surface to prevent other plants growing near to them. Wet areas formed between the dunes are known as dune slacks. These readily become colonised by moisture-loving plants.

Once the dunes have become established they are often invaded by rabbits which keep areas of the dune closely cropped. The South Gare has quite a thriving rabbit population and in the nineteenth century the nearby village of Warrenby, which was built for the local iron and steel workers, was named after the numerous rabbit warrens found there.

Over the years, owing to land reclamation schemes, large areas of the saltmarsh that were so common in the past, particularly near the river estuary, have been lost. Only a small area of this type of habitat remains at the South Gare. Behind the dune system is a wet area known as the Lagoon and it is here that the salt marsh vegetation is found. During periods of very high tides the sea water enters this area through a channel in the dune system referred to locally as the 'duddy'. For a time a build up of the dune system prevented salt water from entering this area but after a series of very high tides during the past two years this area has once more been flooded and the salt marsh flora which was gradually disappearing seems to have re-established itself.

In the spring the areas on the edge of the Lagoon are white all over with (*Cochlearia officinalis*) Scurvygrass. Later in the year this region is covered with such plants as (*Limonium vulgare*) Sea Lavender, (*Spergularia marina*) Lesser Sea-spurrey, (*Spergularia media*) Greater Sea-spurrey, (*Aster tripolium*) Sea Aster, (*Atriplex portulacoides*) Sea-purslane, (*Glauca maritima*) Sea-milkwort and (*Sueda maritima*) Annual Sea-blite. As the lagoon dries out in the summer various (*Atriplex* sp.) Oraches can be found growing on its surface including the rare (*Atriplex glabruriscula*) Babington's Orache. We also find the two glassworts, (*Salicornia europaea*) Common Glasswort and (*Salicornia ramosissima*) Purple Glasswort. Sometimes the rare (*Chenopodium glaucum*) Oak-leaved Goosefoot occurs here and not far from the Lagoon another rare plant (*Centaureum pulchellum*) Lesser Centaury. The dominant grass here is (*Puccinellia maritima*) Common Salt-marsh Grass and sometimes (*Puccinellia distans*) Reflexed Saltmarsh-grass occurs.

A few years ago (*Sueda vera*) Shrubby Seablite was introduced into the Lagoon area and it became very invasive. It does provide very good cover for all the birds that visit this area and they are attracted to its fruits but it needs to be kept under control if this valuable saltmarsh habitat is not to be lost. The plant is normally only found in south east England from Dorset to Lincolnshire.

Saltmarsh species are known as halophytes. Like the sand dune species many are specially adapted to the conditions in which they live. Although they often grow in wet areas they may in fact be short of water because of the high salinity of the water surrounding them. This salinity is often greater than that of the sea water. These areas are flooded only during periods of high tides. During the warm summer months the water evaporates and the salinity of that which remains increases. Plants take in water by a process known as osmosis but when the salinity increases they can no longer take in water in this way. As a result of this many plants develop special water-storage tissues.

In the deeper water areas of the Lagoon, brackish water species such as (*Bolboschoenus maritimus*) Sea Club-rush, (*Schoenoplectus tabermontani*) Grey Club-rush, (*Phragmites australis*) Common Reed, (*Triglochin maritimum*) Sea Arrowgrass (*Oenanthe crocata*) Hemlock Water-dropwort and (*Typha latifolia*) Bulrush can be found. Recently a large patch of (*Elytrigia atherica*) Sea Couch has become established. It will be interesting to see if hybrids with other couch grasses appear. It must be stressed that the type of vegetation growing in this area varies considerably according to how well it is flooded with sea water and how much the area dries out in the summer months.

Apart from the Lagoon there are a number of smaller ponds and marshy areas at the South Gare. Some of these have been there a long time and others were created as water-storage areas when Corus built their works in the late 1970's. Some of these have brackish water in them and some have fresh water. Like the Lagoon some of these have Bulrushes, Common Reeds and other water plants growing in them. Near the works and growing in one of these marshy areas is (*Oenanthe lachenalii*) Parsley Water-dropwort, which is one of the rarer plants in Cleveland.

The South Gare has quite a diversity of habitats. It is unfortunate that so much of our marshland was lost when land reclamation began but as industry has established itself on these sites new plants have colonized the area and become established. The slag which was used for building up large areas of South Gare came from the local ironworks which used limestone in their process. The slag is rich in calcium and magnesium salts and other elements used in the process. Pieces of slag when picked up give off a strong sulphurous smell. As a result of this the type of flora which has colonised this area is totally alien to this region. The types of plants found here would normally occur in limestone districts. In Cleveland we have very little limestone so we now have a range of plants here that would not have been seen before the ironstone works were established in this region. Without making special chemical tests on the slag it is difficult to know just what effect these chemicals are having on the growth and distribution of plants but this habitat does support a very rich and varied flora.

In front of the fishermen's huts and colonising the bare slag can be found (*Carlina vulgaris*) Carlina Thistle, (*Erigeron acer*) Blue Fleabane, (*Sedum acre*) Biting Stonecrop, (*Centaureum erythrae*) Common Centaury, (*Blackstonia perfoliata*) Yellow-wort and some years the fern (*Botrychium lunaria*) Moonwort. At the end of the Gare is a large clump of (*Smyrniium oulastrum*) Alexanders and one of the Gare's most beautiful plants (*Geranium sanguineum*) Bloody Crane's-bill. Unfortunately this does not grow in the profusion found in some of the areas north of the Tees as it has become badly trampled during the last few years. (*Trifolium fragiferum*) Strawberry Clover has been recorded from time to time but one of its sites was flooded when the Corus Works were built; it still thrives at Coatham Marsh.

There are a number of orchids to be found at the South Gare. These include (*Dactylorhiza fuchsii*) Common Spotted Orchid, (*Gymnadenia conopsea* ssp. *conopsea*) Fragrant Orchid and (*Dactylorhiza purpurella*) Northern Marsh-orchid. Unusual specimens of marsh orchids can often be found as they freely hybridise.

Along our coast can be found a number of violets. Here at the Gare we find (*Viola hirta*) Hairy Violet and (*Viola canina*) Heath Violet. Amongst the grassy areas can be found the calcicole (*Astragalus danicus*) Purple Milk-vetch.

This has a rather scattered distribution along the east coast of England but is not very common on the west coast and below the Humber it is mainly associated with inland sites.

In the summer the Gare is covered by a sea of yellow plants such as (*Senecio jacobae*) Common Ragwort, (*Senecio squalidus*) Oxford Ragwort, (*Reseda luteola*) Weld, (*Reseda lutea*) Wild Mignonette. There are also some interesting members of the (*Brassicaceae*) Cabbage family here, including (*Diplotaxis tenuifolia*) Perennial Wall-rocket and (*Diplotaxis muralis*) Annual Wall-rocket. Neither of these is very common in this country but the Perennial Wall-rocket grows in great profusion here and flowers well into the autumn. (*Sisymbrium orientale*) Eastern Rocket and (*Sisymbrium altissimum*) Tall Rocket, are two other members of the *Brassicaceae* which have invaded some of the waste places. In 1950 plants of (*Lactuca virosa*) Great Lettuce, became established here; they quickly invaded the area and have since spread to areas all over Cleveland. The first plants of (*Crepis vesicaria*) Beaked Hawk's-beard have been recorded this year. It has established itself in other parts of Cleveland and is gradually spreading throughout the County. 'The Atlas of the British Flora', when it was published in 1961, showed that this plant was very common in areas below the Humber but there were only a few records further north. It will be interesting to see how far this plant has spread when the new atlas comes out in the year 2,000.

There has always been a problem at the South Gare of 'fly tipping'. Despite vigorous efforts by Corus to control this, people still continue to dump their rubbish here. Some of this is garden rubbish and as a result a large number of garden plants have colonized the area. Some only survive for a short time and then disappear but some have been here for many years. They include (*Iris germanica*) Bearded Iris, (*Euphorbia cyparissias*) Cypress Spurge, (*Bergenia crassifolia*) Elephant-ears, (*Kniphofia uvaria*) Red-hot-poker, (*Colutea aborescens*) Bladder Senna and many others. The area surrounding Corus is all fenced off and is not open to general public. The rest of the Gare is used for all kinds of activities, the fishermen, the lifeboat crew, coastguards etc. all require access. A private road runs right down the Gare from Tod Point at Warrenby to the lighthouse. The general public are discouraged from using this area unless they have some genuine reason for being there. It is amazing considering how much it is used and its proximity to the steel works how such a diversity of plants manages to survive. Although emissions from works have been considerably reduced over the years, on still damp days a grey smog seems to cover the area. I.C.I. Wilton is also very close and when the wind is in an easterly direction pollutants may be blown towards the Gare. Water in some of the ponds is used as a coolant in the works and is then pumped out again often whilst still warm but despite this there are a number of amphibians that breed and survive here. The Gare is best known by naturalists for its bird life but many only survive here because the rock pools and mud flats have a rich fauna. The variety of plants also attracts many different kinds of insects. Because of the diversity of life here part of the area has been given S.S.S.I. status. The beautiful marshlands of the past have virtually disappeared with their rich flora and fauna but a unique flora has replaced it. If steps are not taken to protect this area this could also disappear.

3.2 COATHAM DUNES

Coatham dunes is an extension of the dune system at the South Gare so similar plants occur here. The area behind the dunes was made into a golf course and was one of the first to be created in the north of England. Between the golf course and the fore dune is an area of fixed dune which has a very rich flora. Situated at the Majuba road end of the dunes is the Redcar Caravan site. Recently the firm Amoco laid a pipeline across the far end of the dune to link up with the new Enron Power Station at Wilton. Botanical surveys were done by the firm before the project commenced and when the job was completed thousands of Marram grass plants obtained from Scotland were used to recolonise the area. Beyond the golf course and at the end of the dune where Amoco built their pipeline is an interesting wet area. This has similar plants to those along the edges of the ponds at the Gare such as (*Bolboschoenus maritimus*) Sea Club-rush, (*Schoenoplectus tabernaemontani*) Grey Club-rush, (*Typha latifolia*) Bulrush etc but we also have (*Ranunculus flammula*) Lesser Spearwort, (*Ranunculus trichophyllus*) Thread-leaved Water-crowfoot and (*Veronica catenata*) Pink Water-speedwell. In the deeper water can be found (*Groelandia densa*) Opposite-leaved Pondweed. There are a number of records for this in areas south of Cleveland but in our county and further north it is quite rare. Three Spike-rushes can be found growing in the wet areas of Coatham dunes (*Eleocharis palustris ssp. palustris*) Common Spike-rush, (*Eleocharis quinqueflora*) Few-flowered Spike-rush and (*Eleocharis uniglumis*) Slender Spike-rush.

There are a number of other interesting plants here which are not really associated with a dune type flora and we can only make a guess at their origins. These include (*Segurigera varia*) Crown Vetch, (*Onobrychis viciifolia*) Sainfoin, (*Medicago sativa ssp. sativa*) Lucerne. These were all introduced into England in the late nineteenth century as forage crops. They all grow very close together on the dunes and so it is possible they may have been part of a ship's cargo that landed them here or from one of the ships that was sunk near Teesmouth. Lucerne also occurs at Marske on the dunes and was probably grown as a crop in the nearby fields. Near the Coatham Lucerne plants and belonging to the same family is the bush (*Spartium junceum*) Spanish Broom. There are other possible relics of cultivation to be found here. These are (*Cichorium intybus*) Chicory and (*Petroselinum crispum*) Garden Parsley. Near the golf course is a clump of (*Saponaria officinalis*) Soapwort, which as its name suggests was used for washing purposes. In the past it was used to beautify and cleanse the skin and for cleaning tapestries and curtains. As we find other garden plants here this probably originated as a garden throw out.

One plant that occurs behind the dune is (*Lepidium draba ssp. draba*) Hoary cress. This also occurs on the coast near Skinningrove but over the past few years has spread to many sites in Cleveland. It was first introduced to England in 1809 during the Napoleonic wars after the fated expedition to the island of Walcheren. Soldiers stricken with fever were brought on hay mattresses to Ramsgate and a Thanet farmer ploughed this hay into his fields. Subsequently the cress appeared and was referred to as Thanet Cress but this was later changed to Hoary Cress.

(*Ophrys apifera*) the Bee Orchid is sometimes found on this stretch of coast but like many other orchids its numbers fluctuate considerably from year to year. The seeds of the Bee Orchid like those of other orchids are extremely

small and have no food reserves to rely up on when they begin to germinate. They will only germinate in association with special fungi in the soil known as mycorrhiza and they will only grow in certain types of soil. They prefer a basic soil. That is why they are so often found on chalk or limestone soils. It may take seven to eight years for the plants to grow before they produce seed and as many of them are monocarpic it means that once the seeds have been produced the plants then die. The structure of the flower as its name suggests mimics that of a bee. In Mediterranean regions the orchids would normally be pollinated by male bees of the genus *Eucera* which are attracted to them by their shape and smell. As these bees do not occur in this country the plants never get cross pollinated but fortunately their flowers are specially adapted to carry out self pollination. Only in certain years are the conditions favourable for the growth of these plants, so although large colonies may be recorded one year it may be many years before they are seen again. Although many different species of plants have been recorded from Coatham Dunes it is continually under threat. Motor cycle trials are carried out on the beach near Majuba Road and whilst they are carefully regulated it tends to attract other motorcyclists to this area who consider that the dune is just a convenient practice site. Over recent years these people have caused considerable damage to the dunes here and at the South Gare. Despite serious attempts to control this the damage continues. The caravan site, the golf course and a car park are very close to this area and there are plans to develop this side of Redcar in the near future. Because of these factors it is important that this area is given some degree of protection to preserve its flora and fauna.

3.3 COATHAM AND REDCAR

To the south of the river Tees were the two villages of Coatham and Redcar. At the beginning of the nineteenth century these were separated by an open green. In 1808 Mr William Hutton a well known historian and antiquary visited Redcar and Coatham, he described them as follows.

‘Coatham is half a street that is built only on one side, consists of about 70 houses and is 400 yards long. We then pass over an open green in the same line 400 yards more, which brings us to Redcar, which is one street built on both sides, 500 yards and containing about 160 houses. Most of the houses are covered with red tiles.’

He goes on to explain that the old whitewashed houses had low buildings in front which were not only used for washing, baking and storing timber but had the advantage that they protected them from the high winds and acted as a barricade to keep out the drifting sand. In some places the sand banks came right up to the eaves of the houses. Both Redcar and Coatham were important fishing towns and supplied a number of the monasteries in the area with fish. In earlier days this was quite lucrative. All the little villages along the coast had their small fleet of flat-bottomed boats, known as cobs, going out regularly to the fishing grounds in what was known in those days as the German Ocean. These boats are specially adapted to withstand the ravages of the high seas here and are still used today. Hutton describes how in his day each boat was manned by three fishermen. Each coble had seven lines with six hundred hooks four feet apart and three other lines with hooks four fathoms apart fixed to a buoy in the sea. The boats could go out as far as fifteen to twenty miles each day. The boats that did not go out fishing went ‘tranking’ which meant they were

going off with their pots to catch crabs and lobsters. Originally it was easy to push the boats out to sea on a board connected to two wheels but when the sands began to deteriorate in the 1930's tractors had to be used.

In the early nineteenth century both the village of Coatham and Redcar were quiet watering-places. People came to enjoy the sea and the sands but by 1870 the area had become very popular with visitors. By this time the villages had become united to form one town and the extension of the railway line to Redcar meant it was now accessible from all part of the country. A promenade was built and a sea wall that stretched the whole length of the town. Bathing huts were provided and sea trips were available. There were even donkeys on the beach. Visitors were delighted to watch the fishermen's cobs bringing in their daily catch and at low tide the Redcar scars could be investigated. Their seaweed strewn rocks were teeming with a large variety of crabs, sea anemones and other forms of marine life. In 1870 D. Ferguson had brought out his 'Natural History of Redcar' which gave details of all the marine life to be seen in the area as well as information about the flora of the coast. Redcar also offered its service as a health spa. It provided bath houses and Dr Horner's Hydropathic Establishment was famous.

In the 1870's both Coatham and Redcar built piers on the sea front. At that time the one at Coatham was said to be the longest in England but both were damaged by boats running into them in bad weather and in 1898 the Redcar pier-head was burnt down. Eventually both had to be demolished. The oldest lifeboat in the world is still to be seen in a museum on the promenade at Redcar. She was built in 1800 in South Shields and for a short time was used on the Humber. She was then purchased by the Redcar fishermen for £100, who named her the Zetland. For many years the sands at Redcar had been used for horse racing. It was such a popular sport that in 1871 Redcar decided to build a proper racecourse in the town.

Coatham in its early days was quite a significant port and this is mentioned in the Rev. Atkinson's 'History of Cleveland'. It supplied fish and salt to surrounding monasteries and it is thought that ships from places like Hartlepool, Stockton and Whitby all visited the area. It is said that in 1067 the marshes at Coatham provided a safe haven for soldiers in the north when they took refuge from William the Conqueror and his armies. There is evidence that in the marshes at Coatham, near what is known as Marsh House Farm, there was an ancient chapel known as St Sulpitius. The first reference to this was in a will in 1470.

Although we normally think of land reclamation in the area beginning the establishment of the Iron and Steel Industry, when building-land for the works was so much in demand. As early as 1723 embankments were being built near the marshes at Coatham. In 1777 Earl Lonsdale from the manor of Wilton spent £60,000 on a project to build banks to protect the marshes but after a dispute with the Turner family of Kirkleatham and when his money began to run out the scheme was abandoned. Unfortunately the banks were just heaps of soil which were to covered with sods. As the work was never completed, when the first bad storm occurred the embankments were washed away.

R. Lofthouse, a member of the Cleveland Naturalists' Field Club describes in one of the Proceedings a duck decoy that was at Coatham Marsh. It was also located near Marsh House Farm. He investigated the remains of this in 1887. A friend had informed him that birds taken included Sheldrake, Shoveller, Pintail, Mallard, Wigeon, Pochard, Scaup Duck and in 1850 a rare

Ferruginous Duck. Another article by him published in the Proceedings after his death, describes all the birds that were found at Teesmouth and how the wildfowlers used barrels on the marsh to hide in. An area not far from Marsh House Farm, known as 'Coatham Nature Reserve', is owned by Corus but is let at a 'peppercorn' rent to the Cleveland Wildlife Trust who manage the area. It has undergone many changes over the years but new ponds and wet areas have been created. Hides have been built so that the birds can be observed without being disturbed and the nearby slag heaps from the steel works have been allowed to recolonize.

On the nature reserve are a number of interesting mounds. We now know these are the remains of salt works which provided the local abbeys and priories with salt, although at first they were mistaken for Roman earthenworks or camps. The bed of the Tees consists mainly of boulder clay with patches of an estuarine deposit of sand and gravel. Beneath this is found New Red Sandstone and below this at depths varying from 1,000ft to 1,500ft a bed of rock salt about 100ft in thickness. It is this salt that was pumped up on the I.C.I. brine fields on the north bank of the river and used by the early salt industries on the coast.

Today Redcar is quite a busy town but its former glory as a holiday resort has receded. After the Second World War attempts were made to attract people to Redcar but as more and more took their holidays abroad the tourism industry declined. Now nearly all the visitors are day trippers. There are still a lot of cobbles at Redcar but there is no longer a flourishing fishing industry. These boats are just taken out by the locals in their spare time.

In the early 1970's when Redcar had the two major industries on its doorstep, I.C.I. and Corus, with Teesport only a few miles along the river it was envisaged that the town had a bright future ahead of it. Unfortunately since the recent recession in industry many people are now unemployed and many industries are going into decline. Recently Cleveland Borough Council has made a serious attempts to make the town more attractive in order to improve tourism here and attract new business to the area. With European grants the whole promenade has ben improved and the council is taking steps to improve the high street and other parts of the town.

3.4 REDCAR STRAY

This is a thin strip of land approximately a mile in length that stretches from the Zetland Park area of Redcar southwards to Cliff House on the edge af Marske. Before the beginning of this century it had a well developed dune system backed by farmers' fields. Today between the sea's edge and the road is a thin strip of grassland with two car parks, two toilet blocks and what was once a paddling pool area which has now been fenced off as a children's playground. There are now houses at the end of the Stray and a park known as Zetland Park. This park was named after the Zetland family who lived at Marske Hall and owned a lot of land in this area. Near the Marske end of the Stray is a large comprehensive school with extensive sports fields, two farmers' fields and a rugby pitch. At the edge of the school field is an area nown locally as the Fox Covert. The Fox Covert possibly got its name from the large number of foxes that were seen here in the past. It was also a haven for rabbits and during the First World War they provided a welcome source of meat. Both foxes and rabbits are seen

here today but in considerably reduced numbers. During both world wars the beaches all along the coast were normally closed to the general public. In the Second World War the Stray and other areas along the coast were protected by barbed wire, land mines, gun emplacements, pill boxes and searchlights. During the First World War there was an aerodrome at Marske and although this was not reopened in the Second World War the site and other areas nearby were used as an army camp.

At the end of Redcar Stray a promenade was built. After a series of storms in the 1970's a number of groynes were placed along the beach in front of the promenade in an attempt to arrest the movement of the sand. A 1960's holiday brochure claims 'Redcar for many years has been famous for fine golden sands stretching for miles to the East and West, a perfect playground for children of all ages but by the 1970's the sands at Redcar were reduced to mud flats and at Marske they were using bulldozers to clear away some of the excess sand. Owing to its proximity to the sea the Stray is a great tourist attraction in the summer and as a result of this a lot of the natural vegetation has been destroyed. A new sewage scheme has also resulted in disturbance owing to the laying of pipes and the construction of a huge outfall at the Marske end of the stray.

A number of Howles are marked on the map for this stretch of the coast and here it seems to denote a small bay. In the Rev. Atkinson's 'History of Cleveland' the meaning of the word 'Houl' 'Howl' or 'Holl' is given as a depression in the surface of the ground of no great length or lateral extent scarcely amounting to a valley.

3.4.1 THE FLORA OF THE STRAY

Baker in his 'Flora of Yorkshire' described how the people of Redcar and Marske at the end of the nineteenth century used (*Lycium barbarum*) The Duke Argyll's Teaplant as a hedging plant. This plant originates in China but seems to be well adapted to the maritime conditions on this coast and although it is rarely planted here now there are a lot of places in Cleveland where it can still be found. Along the Stray is a row of these shrubs which play an important role here as they supply cover for small migratory birds and the small, red, pear-shaped fruits that the bush bears are eaten by them.

In the spring in the grassland and on the grassy mounds can be found three small plants that could easily be overlooked. These are (*Cerastium semidecandrum*) Little Mouse-ear, (*Stellaria pallida*) Lesser Chickweed and (*Erophila verna*) Common Whitlow Grass. The first two are often found growing together. The flowers of *Stellaria pallida* rarely open and the yellowish green patches can easily be taken for young plants of (*Stellaria media*) Chickweed, which often flowers much later in the year although a few do flower in early spring. *Stellaria pallida* is often under-recorded but once recognised it does have quite a distinctive colour and the leaves are spoon shaped (spathulate). Until recently *Erophila verna* was often divided into a number of sub-species. In Stace's 'New Flora of the British Isles' three separate species are now recognised and these often grow together. It may be that there is more than one species in these colonies to be found on the coast but they require to be studied in more detail.

A number of duneland plants do manage to survive along the Stray despite its regular use by the general public. One fairly rare plant is (*Erodium lebelii*) Sticky Stork's-bill. The Common Stork's-bill is quite common along the coast but this one appears to be confined to the Marske area

There are a number of wet areas along the dunes where water drains down to the sea from the surrounding hillsides. Here we find such species as (*Scirpus maritimus*) Sea Club-rush, (*Juncus articulatus*) Jointed Rush, (*Epilobium hirsutum*) Hairy Willowherb and many others. Also along the promenade are a number species like (*Beta maritima*) Sea Beet and (*Honckenya peploides*) Sea Sandwort, which can survive here because they are not affected by the sea spray.

The beauty of some of our common plants is often overlooked. In early summer, masses of dandelions and daisies can be found on the Stray which form a wonderful splash of colour.

A number of bluebells can be found on the coast particularly at the South Gare, along the Stray and in the Marske area. We have (*Hyacinthoides non scripta*) Bluebell, (*Hyacinthoides hispanica*) Spanish Bluebell and also *Hyacinthoides non scripta* x *Hyacinthoides hispanica*. The hybrid is commonly grown in gardens and arises naturally where both parents grow together. It is intermediate in all characters and is fertile. The Spanish Bluebell has a much wider leaf up to 35mm compared with the ordinary Bluebell where the leaves are usually only up to 20mm wide. The flowers of the Spanish Bluebell are saucer-shaped and have blue anthers, whereas those of the ordinary Bluebell are tubular and have cream anthers.

3.5 MARSKE

Marske was originally called Mersc by the Angles who invaded this area between 547 and 550 A.D. Mersc means marsh but there are no marshy areas left in Marske today. It is possible the name referred to the whole area and included marshy areas near Teesmouth. Marske was built round Spoutbeck Chine. The beck has its source at Marske bank. In the late 1960's it drained into the ravine in Marske playing fields then into the area which is now the main car park between the houses on Spain Hill and finally down the Valley Gardens into the sea. Now the stream runs underground in land drain pipes and all adjoining marshy areas have disappeared. Locals still speak of the beautiful Globe Flower (*Trollius europaeus*) growing here. The existence of the stream was probably the reason why the original settlement was established here but unlike other places down the coast Marske does not have a very suitable bay for fishermen's boats.

The dominant feature on the coastline today is St Germain's Church. Originally a Norman church was built here but in the eighteenth century the church was allowed to fall into a sad state of disrepair and in 1821 was replaced by the present church. When the church of St Mark was built in the centre of the village it was much more convenient for the local people and St Germain's was no longer needed. In the 1950's it was finally demolished but the tower was left as a guide to fishermen. The church is now famous for its association with Captain Cook's father who is buried in

the churchyard.

Marske was originally the most important village along the coast and unlike Redcar and Saltburn was a significant enough village to be mentioned in the Domesday Book. When people died in Redcar their bodies were carried along the beach to St Germain's church to be buried in the churchyard. When Redcar and Saltburn developed as holiday resorts during the Victorian era the importance of Marske declined.

Another important building in Marske is Marske Hall which is now a Cheshire Home. This was built in 1625 by William Pennyman. The Pennymans, the Lowthers and the Dundas families who lived there were all great landowners in the district and had a great influence on how the area developed. The last male member the Dundas family to live at the hall was the Marquis of Zetland. He gave Marske Hall to the Cheshire Foundation as a home for severely and permanently handicapped people. They moved into the hall in 1961 on the death of his wife.

Another feature on the coast is Cliff House. Sir Joseph Pease the founder of Middlesbrough and promoter of the Stockton and Darlington Railway purchased a number of cottages above Spoutbeck Chine and built Cliff House as a summer residence in 1844. This has now been converted into homes for retired people. After the last war a lot of housing developments took place and except for a few fields along the coast the land between the coast and village was built on. Today even more housing developments are taking place between Redcar and Marske at the top of the village and much agricultural land is being lost.

Although Marske was an important village in the past it has not been affected as much by tourism as Redcar and Saltburn and the industry is confined to a small trading estate at the top of the village.

3.5.1 THE FLORA OF THE COAST BETWEEN MARSKE AND SALTBURN

This can be divided into several distinct areas. Between Cliff House and St Germain's Church is an area known as the Bits. Behind this is the housing estate known as the Headlands. In January 1901 the upper part of a florinated cross found on the Bits opposite Cliff House. The base had been there for some years. It was restored by Lord Zetland and is now in St Mark's church. This area was also part of the Vicars' Trod from the vicarage to St Germain's Church. Today a grassy area and the dunes front the houses. The grassy area is regularly mown and as on the stray (*Stellaria pallida*) and (*Cerastium semidecandrum*) are found here. On the dunes can also be found (*Dactylorhiza purpurella*) Northern Marsh-orchid and (*Gymnadenia conopsea*) Fragrant Orchid. A lot of garden rubbish is often dumped here. Most of the garden plants it contains do not survive but (*Lobularia maritima*) Alison seems to be establishing itself. Opposite St Germain's church and in front of St Germain's Lane is an area of dune known as the Blue Mountain. In Len Anderson's book 'Marske by the Sea' he says this name is given to this area because of the Harebells (*Campanula rotundifolia*) growing here. In the 1960's they were quite prolific on this land but (*Echium vulgare*) Viper's Bugloss, which has dense blue spikes also grows here and these may have given the mound its name or just the fact that there are a combination of blue flowers to be found here. It was interesting that in 1993 after the local

farmer had treated the field behind with weed killer and then a liquid organic fertilizer, (*Anchusa arvensis*) Bugloss formed a blue carpet all over the field. A few plants had been found along the coast between Marske and Saltburn but never in such profusion. The seeds of this plant are said to favour disturbed ground if they are to germinate and this could have happened here.

The ground here and along the Bits is very much trampled on by people walking their dogs and by motorcyclists but in the summer there are still a lot of plants in flower. The Ragworts, (*Senecio jacobaea*) Common Ragwort, (*Senecio erucifolius*) Oxford Ragwort, along with (*Rhinanthus minor*) Yellow-rattle and (*Galium verum*) Lady 's Bedstraw produce a lovely blaze of colour.

This part of the dune is also one of the sites along the coast for (*Thalictrum minus*) Lesser Meadow-rue. This prefers calcareous habitats. This plant was previously divided into eight species or sub-species but it is a very variable plant. This one on the coast is often referred to as *Thalictrum arenarium* or *T.dunense*.

The next area on the dune was at one period covered in a number of small wooden chalets and a shop. These were used by holiday makers but had no sewage system or water supply. They were known as the Hummershill chalets and had been there a long time before any of the houses were built. Towards the end of the 1960's the local council decided that they should be removed and many were burnt or dismantled. Most of the chalets had well established gardens and some of the plants that were in these gardens are still found here. These include (*Leucanthemum x superbum*) Shasta Daisy, (*Crococsmia x crocosmiiflora*) Montbretia, (*Cerastium tomentosum*) Snow-in-summer and (*Fallopia baldschuanica*) Russian Vine. All of which of which seem to be spreading. There are also two wet areas here, one which contains (*Iris pseudacorus*) Yellow Iris and the other (*Caltha palustris*) Marsh-marigold.

The next piece of dune between Hunnies Howle, Marske and Hazel Grove, Saltburn is one of the few areas that is not affected much by human interference. The dunes are backed by banks of boulder clay and behind these is a row of farmer's fields. The cliff path runs along the top of the dune. As water seeps down the banks from the fields above there are a number of wet areas. There is a large variety of plants in this section. They include (*Parnassia palustris*) Grass of Parnassus, which has only one other site on this stretch of coast (*Gentianella amarella*) Autumn Gentian and (*Polygala vulgaris*) Milkwort. This last plant is found in a variety of colours from blue to purple and also white. There are a number of members of the Pea Family (*Fabaceae*). These include (*Anthyllis vulneraria*) Kidney Vetch, (*Lotus corniculatus*) Common Bird's-foot, (*Vicia cracca*) Tufted Vetch, and (*Lathyrus pratensis*) Meadow Vetchling. The (*Plantaginaceae*) Plantain Family is also well represented here. (*Plantago media*) Hoary Plantain is present; it is quite common along the coast particularly in areas of grassland that are mown but only in a few places is it given a chance to produce its beautiful pink spikes.

Quite a large number of orchids and many hybrids are found along this stretch of the coast. The first to flower is (*Orchis mascula*) Early-purple Orchid but later in the year can be found (*Dactylorhiza fuchsii*) Common

Spotted-orchid, (*Dactylorhiza maculata*) Heath Spotted-orchid, (*Dactylorhiza pupurella*) Northern Marsh-orchid, (*Gymnadenia conopsea*) Fragrant Orchid, (*Listera ovata*) Common Twayblade.

One of the fields behind the coast is the only site in Cleveland for (*Orchis morio*) Green Winged Orchid. This was probably quite common in the past but it requires unimproved grassland and most of the fields here are now treated with fertilizer. Last year, only two specimens were recorded but most years it does not occur at all. Two years ago Bee Orchids were found on this part of the dune. They had not been recorded here before and did not appear the following year. One plant whose numbers seem to be declining here and on the rest of the coast is (*Scabiosa columbaria*) Small Scabious. It prefers dry calcareous grassland and possibly loss of suitable habitat has resulted in its loss. As the years go by much of the calcium carbonate in the soil is leached out when it rains. Observations of this stretch of the coast over the past thirty years seem to indicate that this is what has happened on parts of the coast here.

After Hazel Grove at Saltburn is the grassy bank above the Promenade. This is often cut but in the spring there are frequently patches of (*Primula vulgaris*) Primrose, (*Primula veris*) Cowslip and (*Viola riviniana*) Common Dog-violet.

Also at Hazel Grove on the top of the dune is (*Rosa pimpinellifolia*) Burnet Rose. This has numerous slender spines, white flowers and dark blackish-purple hips. This rose is usually associated with the coast but can be found inland. The majority of the roses on the coast are (*Rosa canina*) Dog Rose.

3.6 CAT NAB

This lies close to the Ship Inn at Saltburn. This is believed to have got its name from the wild cats that used to roam this region in bygone days. It is a very interesting feature of the landscape and is well used by visitors as a viewing point. Unfortunately over recent years it has suffered a lot from erosion and the constant stream of visitors using it has destroyed much of its surface. In an attempt to counteract this the top has been fenced off and covered in turfs and a new footpath laid. At one period there was a tumulus on top but that has been worn away. It is also recorded that the locals used the Nab for cockfighting. It was interesting that during this survey a feral cat was using a small cavity in the bank to bring up her young just as wild cats may have done in the past.

3.6.1 THE FLORA OF CAT NAB

A very warm summer a few years ago resulted in a sudden increase in the number thistle plants along the coast. For a time the banks of Cat Nab were covered in (*Cardus nutans*) Musk Thistle but often referred to as the Nodding Thistle because of the way it hangs its head. Another thistle that increased here was (*Carduus tenuiflorus*) the Slender Thistle. In old books it was always referred to as the Seaside Thistle, as it is normally found in coastal situations. This still seems to be increasing at Saltburn at the side of the Brotton road and near the coastguard

cottages. At the base of the Nab can be found a few plants of (*Malva neglecta*) Dwarf Mallow. It is not very common in the north of England but there a few sites for it in Cleveland mainly along the coast. At one time, one of the best sites for it was near the entrance to Saltburn Gill. Saltburn Gill is now a nature reserve owned and managed by the Cleveland Wildlife Trust. It lies behind Cat Nab and below the Brotton Road. This is a semi-ancient broadleaved woodland with oak, ash and elm predominating and the woodland floor is rich in woodland plants such as (*Mercurialis perennis*) Dog's Mercury, (*Anemone nemorosa*) Wood Anemone, (*Hyacinthoides non scripta*) Bluebell, (*Allium ursinum*) Ramsons and (*Adoxa moschatellina*) Moschatel. It is also rich in ferns, mosses and fungi. The upper regions of the reserve are covered in grass and bracken with some fine stands of Gorse and regenerating Oaks. In the reserve can be found a large variety of birds including woodpeckers, warblers and owls.

3.7 SALT BURN

Until the latter part of the nineteenth century Saltburn was just a small fishing hamlet situated on the edge of the coast. It was not until the 1850's that changes took place. One day Henry Pease brother of Joseph Pease of Cliffe House, Marske walked along the beach to Saltburn and realised that this little village had the potential to become a holiday town for the Ironmasters, the ironstone miners and the people of Middlesbrough. In 1859 the Saltburn Improvement Company was formed and building of the town we know today was begun. Most of the development took place on the hillside above the hamlet of Saltburn but the area along the coast was also affected. A promenade was built with bathing huts, a pier and originally a vertical hoist to carry people from the promenade up to the town. The building of the pier was started in January 1868 and opened to the public in May 1869. It was 1,500 ft long. It had six shops on it and in 1873 a grand saloon was added. It also had a landing stage, so that holiday makers could be taken out on boat trips. In October 1875 after a severe storm the pierhead and landing stage were washed away and the pier had to be reduced in size to 1, 250ft. In 1924 the pier was damaged again when a boat ran into it. The pierhead was cut off from the main part of the pier and remained like that until the 1930's. Once again the pierhead was damaged in a storm in October 1974. It was again decided to shorten it and to build a new pierhead. This is still in use today.

The Vertical Hoist was opened in July 1870. This was rather a rickety structure built of wood and fastened down by guy ropes. It carried twenty passengers to the town above in a cage. In 1883 this was demolished and replaced by an inclined hydraulic tramway in 1884. It is amazing that it is still used today and carries over 70,000 passengers each summer. As a result of careful maintenance and restoration it is in much the same condition as it was when it was built.

The beautiful area of woodland below the town and alongside Skelton Beck (previously Holbeck) was converted into pleasure grounds where holidaymakers could stroll and listen to the band, play croquet, visit the beautiful Italian Gardens or just enjoy the beauty of the woods. Today this is one of the richest areas for wild flowers in Cleveland, as well as still

having beautiful gardens. Just this year the garden nursery has been converted into a nature centre. This is a joint project between Cleveland Borough Council and Cleveland Community Forest.

In 1869 a bridge was built across the lower part of the valley. It was known as known as the Ha'penny Bridge because of the toll charged for pedestrians. Unfortunately this beautiful structure was demolished in 1974 when it was considered too expensive to keep under repair.

Although Saltburn is not as popular as a holiday resort or spa town as it was in the past, it still attracts a lot of holidaymakers but usually as day trippers. Most of the big hotels like the Zetland have been converted into flats. Over recent years a genuine effort has been made to attract tourists to Saltburn. Steps have been taken to project the Victorian Image of the town. Many of the local buildings have been restored and a special Victorian week held in the summer when many of the local people go about in Victorian dress.

The beautiful bay at Saltburn is well protected by the towering Huntcliff. This provided a safe haven for fishermen and was probably the main reason why people settled here. There are still a few boats to be seen on the sea-front but these are used mainly by local people in their spare time. Saltburn is used for many water sports activities such as surfing, canoeing and water skiing as the beach is much safer here than at Marske and some of the other places along the coast. Saltburn along with other villages on the coast was famous for its smuggling activities and in particular the Ship Inn. The most famous smuggler in Saltburn was John Andrew. Recently a small heritage centre was opened at the side of the Ship Inn to show the exploits of this man and his fellow smugglers. Above the Ship Inn and standing back from the coast is a row of Coastguard cottages built around 1812. These are now private homes. During the Napoleonic wars the government could not tackle the problem of smuggling properly but after Nelson's victory at Trafalgar steps were taken to remedy this problem and in Saltburn the coastguard cottages were built for the men in order to resolve the problem .

3.8 SALTburn TO SKINNINGROVE

From the Ship Inn at Saltburn the land rises gradually and at Huntcliff reaches a height of 120 metres (394ft). Behind this lies Warsett Hill which reaches a height of 545ft. Steps have been built up the hill behind the Ship Inn and in 1993 a marker stone inscribed with ammonites was put in place to mark the beginning of the North Yorkshire and Cleveland Heritage Coast. 'Heritage Coast' is a term given to stretches of coastline because of their outstanding natural beauty, wildlife and historic interest. It was designated a Heritage Coast in 1974. It runs from Saltburn to Scalby Ness near Scarborough and is approximately 33 miles in length with the exclusion of areas at Skinningrove and Whitby. When an area is defined as an Heritage Coast greater protection is given to its unique features, whilst seeking to safeguard the interests of local people and encouraging visitors to enjoy the benefits of the area. The coastline between Saltburn and Cowbar is also part of the Cleveland Way Footpath. It was officially designated as Britain's second long distance footpath in 1969. It is 108 miles in length. The first section from Helmsley to Saltburn passes through

some of the finest heather moorland in Britain. The second section follows the magnificent coastline with its towering cliffs, rocky beaches and sandy bays from Saltburn to Filey. The path is also part of a circular walk round the borough of Cleveland known as the Cleveland Loop and is waymarked with a compass.

Also along the cliffs between Saltburn and Skinningrove are three sculptures. These are located above Huntcliff, close to Warsett Hill. These were part of a Skelton and Brotton New Milestone Project which links sculpture and the environment. Richard Farrington was commissioned by Skelton and Brotton Parish Council to design and build the sculptures. The largest sculpture is a 7ft diameter circle representing a new type of pit prop relating to ironstone mining. Hung on this are ten sculptured three dimensional images relating to the Parish and to the making of the work.

This coastal footpath was once used by Bronze Age Man about 2-300 BC. Tumuli that have been excavated at Warsett hill confirm these findings. It is also thought that a Danish encampment was established here. Also on Huntcliff was a Roman Signal Station. This was just one of a number along the coast and was used to warn the garrison of attack by Saxon pirates between 300 and 400 AD. This is also near to Warsett Hill. It is marked by an information board but owing to erosion much of the cliff face has disappeared here. It is thought it was similar to Goldsborough signal station which was excavated at Kettleness between 1918 and 1923.

Close to the coast and below Warsett Hill is the Saltburn to Skinningrove railway line. This was built in 1867 to serve the ironstone mines but in recent years was reopened and extended to serve the Boulby Potash Mine.

Before main-seam ironstone was discovered in Cleveland the local people of Saltburn used to collect ironstone nodules off the beach. When the cliffs above eroded these nodules were cast on the beach below. These were sent in tiny boats to the Tyne Iron Company of Newcastle who had two small blastfurnaces at their Leamington Iron Works. The boats were at the mercy of the high winds and tides and could not supply a regular supply to the works. The ironstone was said to be of rather dubious quality but it supplied a small income for those who collected the nodules. Later it was realised that other types of rock possibly got mixed in with the ironstone. As a result of this the firm lost a lot of money and the search for ironstone in the district was delayed.

The first main-seam ironstone was discovered at Skinningrove in 1847. When Samuel F. Oakley visited Saltburn to pay the wages of his men gathering ironstone on the beach he realised that suitable seams of it might be found in Cleveland. Later he visited a Mr L. Maynard of Skinningrove who showed him a bed of rock on his property. This was tested and as a result a mine was opened at Skinningrove by two miners, the Rosebay brothers, in 1848. The iron was taken to the river Tees by boat and then transferred to the Witton Park Furnaces of Bolckow and Vaughan. As insufficient ore was produced in the first year Bolckow and Vaughan took the mine over in 1849.

When it was realised how good the quality of the ironstone was at Skinningrove, attempts were made to find new seams in the surrounding area. As a result of this a new mine was established at Eston in 1850 and the following year Bolckow and Vaughan built three new blast furnaces

near their Middlesbrough foundry.

This was the beginning of ironstone mining in Cleveland and continued until the last mine at Skelton closed in 1964. A total of 83 mines were opened in the area, some as far apart as Swainby, Grosmont, and Roseberry but most were concentrated round Loftus, Skelton and Guisborough. Four of the mines were on the coast between Saltburn and Staithes. These were Cliffe, Huntcliffe, Skinninggrove and Boulby. The Eston mine eventually overtook Skinninggrove as Cleveland's centre of ironstone mining. Cliffe mine and Huntcliffe mine were situated near Warsett Hill. Cliffe was opened in 1866 and Huntcliffe in 1872. Both were owned by Bell Brothers and the ore that was mined was sent to their Port Clarence furnaces. In 1862 John Bell of Bell Brothers built Rushpool Hall on the opposite side of Skelton Beck to the Valley Gardens at Saltburn so he was already established in the area when these mines were built. The only visible remains on this part of the coast of the ironstone mining industry is a Gulibal fan house which was used to ventilate the mine and a waste heap at nearby Low Farm. The waste heap is gradually being removed. The Fan House is now scheduled as an ancient monument. This monument, Warsett Hill and part of the cliff path have now been purchased by the National Trust.

The cliffs are famous for their geology and the Jurassic fossils they contain. The rocky coast below is teeming with marine life. At one period there was a large seal colony and the locals hunted them for their meat. Today they are disliked by the fishermen because they steal the fish in their nets. The cliffs also provide very important nesting-sites for sea birds such as Kittiwakes, Herring Gulls, Fulmar Petrels and Cormorants. Along the beach can be seen large flocks of Oystercatchers, Dunlin, Sanderling, Ringed Plover, Turnstones, Redshanks and many other birds. From time to time a number of rare birds that have been blown off course, like the Ivory Gull that turned up here a few years ago, can be seen. Part of the cliff above the birds nesting-site is now owned and managed by the Cleveland Wildlife Trust.

Lying behind the coastal footpaths in many places are arable fields and in general this land supports good and profitable farming although this region is very bleak particularly in the winter and is open to the vagaries of the north east winds. In 1993 a large area between Warsett Hill and Low House Farm, Brotton was developed as a golf course. This has caused tremendous disturbance to the area. It will be interesting to see what effect this has on the wild life here and how the land is recolonized.

3.8.1 FLORA OF THE COAST BETWEEN SALTBURN AND SKINNINGROVE

There are very few records of this area in the old floras. This may be due to the fact that the early floras were written in Victorian times when the ironstone mines were here. Just as industrial sites are not really accessible to the public today it may have been difficult to visit these areas in the past. Many local people would be able to recognize the plants which were used as herbal remedies but many of the botanists were members of the upper class ie. doctors, vicars etc who may not have wished to associate with the lower classes on their daily trek along the cliff top to the mines on Warsett hill. Also the bare areas of slag at

Skinningrove and the abandoned alum works at Boulby may not have appeared interesting when so many plant gems were to be discovered in areas like Teesdale. Nevertheless it was the industrialists, the doctors and local vicars who were often the first people to form local natural history societies and many of these still survive today. Despite transport difficulties in those days members of these societies have left many valuable records of the flora of this region.

Over 220 plants have been recorded for this stretch of the coast. Many of them are ones that have been mentioned before but there are others that are of interest. Above the Ship Inn is the only site on the coast for (*Samolus valerandi*) Brookweed. It seems to prefer wet flushes on the boulder clay. Early records record this plant at Marske and it was found growing near Hunnies Howle until the 1960's but has now disappeared. (*Euphorbia exigua*) Dwarf Spurge is another rare Cleveland plant which sometimes appears growing on the edge of the fields above Huntcliff. On the cliffs beyond the Gulibal Fan House can be found (*Genista tinctoria*) Dyer's Greenweed. As its name suggests it was used in the past for dyeing cloth. A green dye known as Kendal Green was made from a mixture of the yellow dye obtained from Dyer's Greenweed and (*Isatis tinctoria*) Woad. Growing near this plant is (*Serratula tinctoria*) Saw-wort. This is one of the most northerly sites in England for this plant.

In the spring some of the banks are covered in masses of primroses, cowslips and the hybrid, *Primula x polyantha*. Until recently the hybrid was known as False Oxlip.

There are also areas of scrubland along these banks. Over recent years these have been affected by fires which were either started deliberately or accidentally. Although some of the shrubs may prevent the growth of some of the smaller duneland plants they do form a haven for wild life, particularly birds.

3.9 CATTERSTY SANDS AND SKINNINGROVE

Below the cliff path near Skinningrove lies Cattersty Sands. This is one of the finest areas of sand along the Cleveland coast. Considerable erosion of the cliffs has occurred here over recent years and now there are large areas of bare boulder clay. It is interesting to see that two of the earliest colonizers of the clay are (*Tussilago farfara*) Colt's-foot and (*Equisetum arvense*) Field Horsetail which are not specifically maritime species. The Colts-foot's flowers are one of the first to appear on the dunes in spring and the leaves are produced after the flowers. The large rounded leaves are thick and fleshy and have a cottony surface which probably gives them some protection. The horsetail is an extremely resilient plant and seems to be able to adapt itself to most conditions as gardeners know to their cost. When the ironstone mining industry was in its heyday large quantities of slag were tipped over the cliffs. Where this has occurred a flora has developed that is very similar to that found on the slag at the South Gare. Particularly common here are (*Centaureum erythraea*) Common Century, (*Blackstonia perfoliata*) Yellow-wort and (*Anthyllis vulneraria*) Kidney Vetch. There are a number of orchids here but one of the most beautiful ones is (*Anacamptis pyramidalis*) Pyramidal Orchid. Occasional ones are found near Huntcliff and Hummersea but most of them are found here.

The cliffs behind Cattersty Sands are used by birds as nesting sites particularly by Fulmar Petrels. An area behind the coast has recently been purchased by the Cleveland Wildlife Trust to manage as a nature reserve. At one end of Cattersty Sands is the jetty built during the ironstone mining era. On this grow two Scurvygrasses. These are (*Cochlearia officinale*) Common Scurvygrass and (*Cochlearia danica*) Danish Scurvygrass. These appear to hybridise here .

When the Cleveland Heritage Coast was established plans were formulated for the derelict land and buildings of the Corus Corporation which were no longer used, to be cleared and reclaimed. In their place a number of meadows were created. As a result of this we have a most interesting flora on these sites. Despite attempts to obtain a suitable seed mixture to spread on these areas, that was compatible with the rest of the flora, a number of plants were introduced which would not normally be found here. These included (*Agrostemma githago*) Corncockle, (*Centaurea cyanus*) Cornflower, (*Anthemis tinctoria*) Yellow Chamomile, (*Sanguisorba officinalis ssp.muricata*) Fodder Burnet, (*Trifolium incarnatum ssp.incarnatum*) Crimson Clover, (*Onobrychis viciifolia*) Sainfoin and many others. There was also a lot of (*Lotus corniculatus*) Common Bird's-foot Trefoil and (*Vicia cracca*) Tufted Vetch. These two plants attracted large numbers of butterflies and (*Zyganena filipendula*) the Six Spot Burnet Moth. The moths laid their eggs on the (*Lolium perenne*) Rye Grass which was the basic grass seed in the mixture and in the summer large numbers of them could be seen emerging from their straw-coloured cocoons.

(*Anthyllis vulneraria*) Kidney Vetch was also introduced here. Research needs to be done to see if this is the same as our native species or is an introduced sub-species. It has increased rapidly over the last few years. One of the banks just above the jetty was also seeded. For a time, this was covered in different kinds of poppies and marigolds. Many of the non-native species have now disappeared but there is always a danger that an introduced species may become invasive and destroy the native flora or hybridise with some of them.

Despite the effect of industrialization on this village, the banks are covered with a wealth of wild flowers in the summer and it now has one of the best floras on the Cleveland coast.

A sea wall was built between the jetty and the village in 1951 to stop erosion of the coast. Here unfortunately the concrete used was not the hydraulic concrete used on the jetty. Over the years the wall had gradually disintegrated as the waves hitting it were often as high as the banks behind so erosion continued to occur. In 1993 a vast project was carried out to improve the sea-defences not only here but also near the river mouth. The sea wall was demolished and large quantities of rock were brought over on barges from Larvik in Norway to replace it and strengthen the little harbours defences. While this was taking place the flora of the banks was damaged and some plants recorded in this survey may have disappeared.

3.10 SKINNINGROVE.

The name Skinningrove is a Scadinavian word meaning 'a rocky valley or

chasm' and was probably first used by the Vikings when they invaded our shores. Before the beginning of the nineteenth century the valley was only inhabited by a few people and like so many on the coast these were mainly concerned with fishing and farming but a few would have worked in the Alum works at Boulby.

When ironstone mining began in the valley in 1848 it had a devastating affect upon this small community. Originally the mine did not prosper mainly owing to the difficulties of shipping out the ore. For a time it was taken over by Bolckow and Vaughan and then in 1864 it was taken over by Pease and Partners. When the railway came to Skinningrove three years later it could be fully exploited.

The Pease family, who were Quakers, had a tremendous influence on Skinningrove. They were very concerned with the welfare of their workers and built a model village for their mining community. This included a cottage hospital, a school, Wesleyan and Primitive Methodist Chapels and also a Miners' Institute.

Between 1869 and 1874 an influx of miners came into Skinningrove from all over the country. This included Welsh and Durham coal miners and Cornish tin miners. In 1874 two new blast furnaces were opened. Owing to a slump in trade they were closed down in the 1880's but were later purchased and reopened by the Skinningrove Iron Company. In the late 1880's the jetty which can still be seen today was built to serve the new iron works. The company also chartered their own ships to take the ironstone to the Tyne and Tees blast furnaces. When the jetty was built, the concrete used known as hydraulic concrete was reinforced with slag. This made the structure so strong that attempts to blow it up during the last war completely failed. It was thought enemy ships might try to land there.

In 1910 a new plant was built at Skinningrove to produce steel. This played a very important part in both world wars. In 1967 it was modernised but by 1972 the last open hearth furnaces had to be closed, however the rolling mills were retained. Despite considerable difficulties in the steel industry today it has still managed to survive by producing specialist steel products in small quantities.

It is ironic that Pease and Partners took such a great deal of trouble to provide a model village here in Skinningrove, yet today it is excluded from Heritage Coast Status. The ravages of industry have taken their toll but improvements are continually being made. New houses have been built and old buildings renovated. The whole valley has been landscaped with trees and shrubs. Unfortunately the beck still remains a bright orange colour owing to the iron seeping out from the mines despite attempts to stop this. There has always been a tradition of fishing and keeping racing pigeons here. With high unemployment in the area they form valuable pastimes for the local people but the pigeon huts and fishermen's huts are considered by some people to detract from the beauty of the area.

It is now realised that it is just as important to protect our industrial heritage as well as our landscape and large country houses. On the site of the former Loftus Ironstone mine on the road leading out of Skinningrove is the Tom Leonard Ironstone Mining Museum. Tom Leonard was a journalist with the Middlesbrough Evening Gazette. He collected many memorabilia to do with the ironstone mining in the district. When he died in 1981 the family established the memorial to him. It is run by an enthusiastic band of

volunteers who are also keen to protect our industrial heritage.

3.11 SKINNINGROVE TO HUMMERSEA.

The next bay to Skinningrove is Hummersea. To reach this requires a steep climb out of Skinningrove to the cliffs above. A 'Pill Box' from the last war was situated here but unfortunately this has recently been removed, although steps have been taken in some places to preserve these. Behind the cliffs is a series of farmers' fields. There are a number of banks above the cliffs and these have a few orchids on them. These are mainly (*Dactylorhiza fuchsii*) Common Spotted-orchids. The banks here are not so species rich as in other areas, many of them are covered in scrub. (*Rubus fruticosus* agg.) Bramble, (*Crataegus monogyna*) Hawthorn and (*Prunus spinosa*) Blackthorn are often the commonest plants.

Hummersea is possibly better known for its geology rather than its flora as its beautiful little bay is rich in fossils. It is extremely difficult to get down to the beach here as the descent is very steep and although steps have been built, they are constantly under repair owing to the erosion of the cliffs. The National Trust has recently bought a section of the coast here.

There is one small, wet, calcareous area close to the steps, which has an interesting collection of plants. One of the earliest records of plants is recorded here. This is for (*Parnassia palustris*) Grass of Parnassus and appeared in Baker's Flora of 1863, although we cannot be completely certain of the location. As you move towards Boulby and the Alum mining sites there is a complete change in the vegetation.

3.12 BOULBY

The cliffs at Boulby are some of the highest in England and reach a height of 656ft, 200 metres. A spectacular view of the whole coast can be seen from them. Legend has it that Beowulf the legendary hero of the sixth century was buried here.

All along the coast a number of Bronze Age Barrows and Burial mounds have been found. Most of these were excavated in the nineteenth century but recently Cleveland County Archaeology Group excavated two at Boulby that had been left undisturbed. One excavated in 1980 had been built on the site of an earlier Neolithic Long Barrow. Half of the barrow had been destroyed by ploughing but there were the remains of four cremations, each in a collared urn and an accessory vessel. A few yards away they also found twenty one jet buttons of the Bronze Age period. The excavation of what was thought to be an earlier barrow from around 1500 BC was made in 1985.

Set in the face of Boulby cliff are the remains of two large alum quarries, Boulby Quarry and Lingberry (Loftus) Quarry. Lingberry was opened in the 1650's by Zachary Steward and it is thought that Boulby was opened in 1664 by Nicholas Conyers.

Supplies of alum originally came from eastern Mediterranean countries like Syria and Turkey. Attempts were always made to keep the process a secret but in the fifteenth century the Italians discovered how to do this and started their own mines. These were all under the control of the Pope and

Britain had to import all its alum from Italy. When Henry VIII broke with the Catholic Church in 1536 he tried to establish his own alum works. The first works were established on the Isle of Wight in 1567 but this venture was not much of a success. In 1609 James I seeing the profits made by the Pope in Italy made the extraction of alum a royal monopoly but it was many years before any alum works in England made a profit. The monopoly lasted until 1679 when it was removed by Charles II.

It was said that Sir Thomas Chaloner of Guisborough was the first person in Cleveland to notice that the rocks at Belman Bank, Guisborough were similar to those in Italy where alum was produced. He even obtained Italian workmen to help him when he opened an alum works there. Other local landowners then took a serious look at their rock formations and gradually the alum industry spread in Cleveland. Near the coast one mine was opened at Selby Hagg one and a half miles south of Saltburn, another to the east of the Brotton road in Deepdale and one on each side of Skelton beck near the mouth of the river. The Saltburn mines closed around 1720 but the one at Selby Hagg remained open much longer.

In the seventeenth century the production of woollen cloth was one of England's principal industries. Natural dyes obtained from plants were used for dyeing the wool and alum was used as a mordant for fixing the dyes and making them more permanent. Alum also had many other uses. These included the hardening of tallow for candles, the sizing of paper, the cleaning of furs and fabrics, water purification, as a styptic to stop bleeding, for whitening bread and by the tanning industry. Epsom salts were also produced as a bi-product, which was a valuable source of income when the alum industry went into decline.

At Boulby the alum was mined from the alum shales (Upper Blue Lias) on the cliff face. As these shales lie 20 yards below the surface it was necessary to first remove the upper layers of rock and boulder clay. The rocks were then allowed to roll down the cliffs to the base of the quarry. Cement nodules were first removed from the shales as these were valuable bi-products used by the cement industry. The shales were then prepared for calcining. Alum shale is a mixture of alumino-silicate compounds together with several other minerals. The shales here also contain iron pyrites (iron disulphide), which played an important part in the process.

To calcine the rock the shales were first placed on a platform of brushwood, furze and cinders. Alternate layers of combustible material and rock were then built up into huge heaps. These were often 100ft in diameter and 100ft high. The heaps were then set alight from the bottom and allowed to burn from three to twelve months.

During the heating process the iron pyrites combines with oxygen to form iron oxide and sulphur trioxide, these gases then react with the minerals in the clay causing them to breakdown and release aluminium. This then combines with the sulphur trioxide to form aluminium sulphate. This roasted or calcined rock changes during the process from a grey to a reddish colour.

In order to extract the aluminium sulphate from the shales the material was next dumped into pits and covered with water. It was then left there to soak for three days. At first these pits were made of wood but later they were lined with stone.

The liquor had to be extracted from the calcined shale but it had to be the correct specific gravity. In the beginning eggs were used for this purpose to see if they would float on the surface. The liquor was then passed into a series of pits, each containing fresh shales, so that the chemicals in the shales gradually dissolved out. When the liquor passed into each pit it was thoroughly stirred and then allowed to settle again for two to three days. The shales from the first pit were washed with the most concentrated liquor from the last operation. As this was slightly acidic it speeded up the process of dissolving out the aluminium sulphate. In the second pit the ash was washed with twice washed liquor and so on until finally it was washed with fresh water. The shales were then removed and often tipped over the cliffs into the sea. The liquor was then run down in wooden troughs to the Alum House.

At the Alum House the liquor was put into casks. These were large lead or copper pans which rested on iron plates laid on a brick furnace which was heated by coal. The liquor was boiled to evaporate the water and often what was known as Mother Liquor was added. The boiling also helped to remove unwanted impurities and any scum was skimmed off. The liquid was again run off and allowed to settle. To this ammonia was added to help the aluminium sulphate crystallize. The ammonia was obtained from human urine. It was collected either from local people or brought in from the rest of the country by boat. As a lot of the alum was shipped to London they would collect urine there and bring it back to Boulby. By this process ammonium alum produced. Potash alum was also produced; the potash was obtained from seaweed. At first the seaweed was obtained locally and as it was the ash that was required, seaweed burning could be seen at Saltburn and other places along the coast. Eventually there was not enough seaweed to be found locally and supplies had to be imported from elsewhere.

In the final process the liquid was boiled again and when it became a saturated solution it was cooled and allowed to crystallize in roaching-casks. Any liquid that remained was removed and reused. This was known as the Mother Liquor. The roaching-casks were broken open and after the crystals had been allowed to dry in the air they were then put into bags and prepared for transport.

The first alum ports were at Coatham and Whitby. These ports were also used for bringing in coal and seaweed. Whitby's alum garths were later closed and negotiations were made in 1856 to make a passage for ships near Loftus for the Lingberry works and a smaller one at Boulby Scar.

After many difficulties in getting the Alum industry established in England it did survive for nearly 300 years. By 1816 the price of alum was about £20 a ton but with the introduction of synthetic dyes the price of alum dropped rapidly. By the 1850's the production of alum was no longer a viable industry but the Boulby mines survived into the 1870's mainly supported by the sale of Epsom Salts. The Lingberry mine and adjoining land was recently purchased by the National Trust. The Boulby mine is owned by Len Tabner, famous for his paintings of the area and as one of the two authors of 'Images of the Tees'.

3.12.1 THE FLORA OF BOULBY

When the alum quarries were in production the industry must have devastated the surrounding areas. Large areas of the cliff face were removed so

that the miners could get at the beds of shale. From 100 tons of shale only three tons of alum were produced. Vast quantities of brushwood and furze were used in the clamps to burn the shales and this material was collected from the surrounding woodlands and moors. The cliffs were known locally as the burning mountain. When the industry closed down large areas of exposed shale and spoil heaps were left. It is nearly one hundred and fifty years since all this happened and many areas still remain bare. In the regions that have been recolonized there is a moorland type of vegetation, in fact the only region on the Cleveland coast where this type of vegetation occurs. A similar type of vegetation is to be found at Sandsend where there were also alum mines.

Where there is vegetation on the shale the first colonizer is usually the moss *Ceratodon purpureus*. This forms distinctive bright green patches and the capsules have bright red setae. Later the heathers become established and also plants like (*Potentilla erecta*) Tormentil and (*Galium saxatile*) Heath Bedstraw. These are all plants which prefer an acid type of soil. There is one bank covered in (*Chamerion angustifolium*) Rosebay Willow-herb. It is not very common on the coast although a large patch has become established at the South Gare. It is well known for its habit of colonising newly burnt ground. After the last war it became established on derelict bomb sites. Here at Boulby it may have been attracted to the areas of burnt shale. There are a number of wetland plants here as the pits and troughs left from the old workings and certain areas where they stored water still remain today. In these we find the two rushes (*Juncus effusus*) Soft Rush and (*Juncus conglomeratus*) Compact Rush and also (*Epilobium hirsutum*) Great Hairy Willow-herb and (*Cirsium palustre*) Marsh Thistle. There are also a number of a number of willow bushes, (*Salix caprea*) Goat Willow.

The village of Boulby is quite small consisting of a row of cottages and a few farms. There is also a building left from the alum mining era which has been converted into a private house.

3.13 BOULBY TO COWBAR.

Cowbar is really part of the village of Staithes or Steers as it pronounced by the local people but the Staithes beck running through it forms the county boundary between Cleveland and North Yorkshire. The two are connected by a small white bridge over the river. In the nineteenth century it was an important fishing village with 120 small fishing boats. Today a few of the traditional cobbles remain and at low tide these can be seen moored at the entrance to the beck and there are usually a few lobster pots stacked up near the harbour. Staithes is well known for its association with Captain Cook who in 1785 at the age of 17 began work here in a haberdasher's shop belonging to a Mr Sanderson. It was probably from seeing the boats at Staithes that he got his love of the sea. Staithes is rather a picturesque little village with tiny cobbled streets and houses with red pantile roofs set in a higgledy-piggledy fashion on the hillside.

Leading down from Boulby cottages is a road leading into Cowbar. From this can be seen the new Boulby Potash Mine. It is outside the heritage coast boundaries but does dominate the skyline at this point. Potash was first discovered in 1939 after a series of exploratory drillings had been made. Work started on the mine in 1969 but it was 1973 before the first potash was being commercially produced. It is the largest mine of its kind in Europe.

One of the problems along our cliffs is the amount of erosion that occurs. This year, 1994, it has been very serious near the village of Cowbar. Drastic

steps have had to be taken to keep a road open down to the village. A large area of the old road has had to be diverted. Cowbar Nab towers above the village of Staithes on its northern side. The name is derived from Colburn or Coalburn. Like other fishing villages along the coast this was well known for its smuggling activities. When Custom or Preventative Officers were believed to be in the area a fire was lit on top of the Nab to warn the villagers of their approach.

Staithes has had many lifeboats in its time. The present inshore rescue boat is housed on the promenade overlooking the beck at Cowbar. Because of its picturesque character Staithes is a local tourist attraction but owing to lack of employment in the area many local people have left the village. Now many of the cottages are used as holiday homes and remain boarded up in the winter months. It is also very rare to see the women of the village walking about in their traditional Staithes bonnets. The village is a haven for artists and pictures of the Staithes Group of artists give an insight into what the village was like in the past, particularly the paintings of Dame Laura Knight one of its founder members .

3.13.1 THE FLORA BOULBY TO COWBAR.

A lot of the vegetation along Cowbar Lane has been destroyed as a result erosion and the steps taken to divert the lane away from the crumbling cliffs. One plant which is abundant on the cliffs in early spring is (*Cochlearia officinale*) Scurvygrass. Captain Cook was known to take this plant on his voyages to give to his sailors. Scurvygrass is rich in vitamin C and prevents a disease called scurvy, which many of the sailors suffered from if they did not get sufficient fresh fruit. He probably learnt this from the village people of Staithes who would no doubt use it to substitute their diet.

There are a number of interesting plants in the village. One of the most spectacular is (*Brassica oleracea*) Wild Cabbage. This is mentioned in Baker's flora. He also points out that a number of our vegetables have their origins in wild species found on the coast eg. (*Daucus carota*) Wild Carrot and (*Pastinaca sativa var. sylvestris*) Wild Parsnip. (*Apium graveolens*) Wild Celery is found close to the village but it is a very poisonous plant and should not be eaten. The Duke of Argyll's Tea Plant is also used for hedging here as it is at Redcar and Marske.

4 EARLY PLANT RECORDS

It is interesting to compare the early plant records with those listed in present survey. A number of plants are no longer frequent or abundant as stated in the early floras but still persist. This is particularly the case at South Gare where most of the marshes have disappeared. The hybrid Sand and Sea Couch have not been seen recently in Cleveland south of the river Tees but can be seen in the north of the county along some parts of the coast. Sea Couch has recently re-established itself at South Gare so it is possible the hybrids may appear. Much more work needs to be done on the distribution of these hybrids.

Sea Champion, Sea Barley and Sea Rush were all recorded at the South Gare until the 1970's but when B.S.C. built their steelworks there the site for these was destroyed.

The following plants have not been seen recently.

(*Crambe maritima*) Sea-kale. No records since Baker's flora.

(*Lepidium latifolium*) Dittander. Last record was in the Teesport area in 1962. There are no records for the Cleveland coast since Baker's Flora.

(*Limonium humile*) Lax-flowered Sea-lavender. This was found north of the Tees until the 1960's but there are no recent records here.

(*Medicago arabica*) Spotted Medick. No records since Baker's flora.

(*Polygonum oxyspermum* ssp. *rail*) Ray's Knotgrass. Attempts have been made to establish if this is still to be found on the coast. Identification can only be made when the plant has produced seeds rather late in the year. Some specimens found at South Gare appear to be *Polygonum oxyspermum* but need to be confirmed.

(*Potamogeton pectinatus*) Fennel Pondweed. This has been recorded north of the Tees at Cowpen Marsh but not seen recently here.

(*Sarcornaria perennis*) Perennial Glasswort. There are no recent records for this plant. Dr.W.A.Sledge's record in the 1930's, which states it was still at Teesmouth, is a Yorkshire record but may or may not refer to Baker's Coatham Marsh record.

(*Silene noctiflora*) Night-flowering Catchfly. This was recorded in the 1950's only a short distance from the coast near Warsett Hill but has not been seen recently.

(*Sium latifolium*) Greater Water-parsnip. This was last seen in a pond in Dormanstown in the early 1950's.

(*Zostera marina*) Eelgrass. There have been no recent records since Baker's Flora. It was previously recorded for areas above the Tees but is now thought to be extinct in Cleveland.

(*Zannichellia pedicellata*). In Kent only (*Zannichellia palustris*) Horned Pondweed is now recognized. *Zannichellia gibberosa* and *Z. pedunculata* are all included under *Z. palustris*. Clapham Tutin & Warburg class *Z. pendicellata* as a possible variation and give a description. They suggest that *Z. pedunculata* and *Z. gibberosa* should be classed in the same group. Plants of *Z. palustris* are still to be found at Coatham and the Tees estuary.

5 CLIMATE

The Cleveland coast is very bleak in winter and often battered by the north east winds. It is a very hostile environment in which plants have to grow. Compared with the west coast it is much colder here and there is less rainfall and lower humidity. Some plants actually prefer the dry east coast for example (*Astragalus danicus*) Purple Milk Vetch and (*Puccinellia distans* ssp. *distans*) Reflexed Saltmarsh-grass, whilst another maritime species (*Sagina maritima*) Sea Pearlwort is commoner on the west coast. There are some species which either reach their most northerly limit in north east England or as they do get further north their numbers decline. The following are included in this category:

<i>Blackstonia perfoliata</i>	Yellow-wort	<i>Groenlandia densa</i>	Opposite-leaved Pondweed
<i>Centaureum pulchellum</i>	Lesser Centaury	<i>Limonium vulgare</i>	Common Sea-lavender
<i>Erigeron acer</i>	Blue Fleabane	<i>Ophrys apifera</i>	Bee Orchid

<i>Erodium moschatum</i>	Musk Stork's-bill	<i>Orchis morio</i>	Green-winged Orchid
<i>Euphorbia exigua</i>	Dwarf Spurge	<i>Pulicaria dysenterica</i>	Fleabane
<i>Genista tinctoria</i>	Dyer's Greenweed	<i>Serratula tinctoria</i>	Sawort

(*Brassica oleracea*) Sea Cabbage which is found at Cowbar and Staithes has probably been introduced here as it is normally found on the south coast of England and there are a few Welsh records for this plant.

There are a few plants which prefer much colder conditions and as a result plant like (*Dactylorhiza purpurella*) Northern Marsh-orchid reaches its most southerly limit in the north east of England.

Wind is a very important factor in coastal regions as it increases the loss of water vapour from the leaves and blows the sand about so much that it is very difficult for the smaller plants to anchor themselves into the ground. There are very few trees or bushes in coastal situations. Those that do grow near the sea grow in a much more prostrate form than they would normally and very often are stunted. The larger trees assume distorted shapes as the shoots exposed to the prevailing winds go brown and shrivelled and only the shoots on the leeward side can survive, so the trees lean towards the land. This effect can be seen in the little wooded valley at Hazel Grove near Saltburn and at the entrance to Saltburn Valley Gardens.

Only in very harsh winters does snow settle for long periods on the coast as the salt in the sea spray causes it to melt. Snow can give protection to plants under harsh conditions but here on the coast they are exposed to the elements in winter.

Over recent years there has been a tendency for our summers to get warmer, really harsh winters of the past no longer seem to occur. It will be interesting to see if species found further south gradually move northwards.

6 GEOLOGY (STRATIGRAPHY) BETWEEN SOUTH GARE AND COWBAR

The Jurassic rocks of the Yorkshire coast are a classic area for geological studies. Studies have been carried out on these formations since the science of Geology was in its infancy. Consequently a great deal is known about all aspects of the rocks and the literature containing this knowledge is vast. The strata dip slightly along the coast so that as one moves along the coast from the North-west to South-east the age of the rocks on the foreshore becomes gradually younger. So a walk along the coast from South Gare to Cowbar can be viewed as a gradual walk forward in time.

All the rocks in situ along this section of coast are of Jurassic origin. The base of the Jurassic is dated at 192 million years B.P. Some other rocks can be found as boulders which are significantly younger and older. These have a wide variety of origins including glacial debris, ships' ballast, and long-shore drift. These boulders include Shap Granite, Carboniferous Limestone, Magnesian Limestone, Coal and associated deposits e.g. ganisters etc..

The oldest Jurassic rocks in situ are found at Redcar and Coatham. The Hettangian and Sinemurian stages of the Jurassic are represented at Redcar

with bands of shales with some thin limestones. These contain the zonal ammonites *Schlothimia angulata* and *Arietites bucklandi*. The *bucklandi* zone can be recognised by the 'Oyster Bed', a thin band composed of *Gryphaea arcuata*. These are succeeded by a long succession of shales. These extend through the Sinemurian stage into the lower Pliensbachian (Carixian). All these strata taken together are known as the Lower Lias. Between Redcar and Saltburn the Lower Lias is obscured by sand dunes and glacial drift which is predominantly boulder clay. This material is approximately 16,000 years old.

The Lower Lias shales form the foreshore and lower part of the cliffs at Huntcliff. These strata are also zoned using ammonites. They also contain many other fossils including belemnites, crinoids, oysters and wood. The remaining part of the cliff is Middle Lias. The junction of the Middle Lias and the Lower Lias has been taken to be the top of the *Pradactylioceras davoei* zone. The first ammonite zone in the Middle Lias is the *Almaltheus margaritatus* zone.

The Middle Lias is split into the Sandy Series and the Cleveland Ironstone Series and represents the Upper Pliensbachian Stage (Domerian) in Cleveland/North Yorkshire. The Sandy Series and the Ironstone Series can be seen from Huntcliff to Cowbar in the cliffs as the rocks gradually dip towards the foreshore. The Sandy Series consists of sequences of sandstones and thin shales. The Ironstone Series reaches the foreshore at Staithes. The Ironstones can be recognised as 'tramlines' (separate thin hard bands within the shales) in the cliff. The Ironstones are composed of sideritic (iron carbonate) and chamositic (iron aluminium silicate) ironstones which are often oolitic.

At Skinningrove the rocks are again heavily obscured by boulder clay, sand dunes and slag from the now demolished blast furnace(s).

From Skinningrove to Cowbar the cliffs offer an impressive section through the Lias and lower delta sequences of the Middle Jurassic in Cleveland/North Yorkshire. The upper members of the Lower Lias can be seen on the fore-shore all the way up through the Middle Lias and into the Upper Lias which can be examined in Boulby quarries. The junction of the Middle and Upper Lias is taken to be the top of the *Pleuroceras spinatum* zone. This also represents the end of the Pliensbachian stage in this area. The Upper Lias is placed in the Toarcian stage (Whitbian). The Upper Lias consists of a sequence of previously economically important shales and limestones. The Alum shales and Cement Shales were particularly important and were the objective of the extensive quarrying at Boulby and elsewhere. Again the Upper Lias is zoned using ammonites.

The upper-most members of the Toarcian (Yeovilian) are not present in this part of Cleveland/North Yorkshire (Ravenscar being the nearest locality). Therefore the top of the Lias also represents the top of the Lower Jurassic.

The quarries are capped with sandstones, ironstones and sandy shales from the Middle Jurassic. These have been assigned to the Aalenian stage and the first member is the Dogger. There is evidence of widespread erosion at the base of the Dogger i.e. at the junction of the Lower and Middle Jurassic. This junction represents a major break in the deposition of sediments. It is also thought the Dogger represents a considerable time span. Above the Dogger are sandstones from the Hayburn Formation. These are mostly unfossiliferous beds which used to be known as the Lower Deltaic Sandstones, a name which reflects their probable origin. Where shales occur in this formation there are often many fossil plant remains. Over 300 fossil plants have been identified from these beds and the palaeobotany is well documented and rightly famous. Fossil

Equisetum are widespread and easily found. The sandstones show extensive cross-bedding and channelling typical of deposits laid down in a delta.

The remaining cliffs to Cowbar are the same as the lower cliffs at Boulby.

Summary of Stratigraphy

Middle Jurassic

Best seen at Boulby Quarry

Stage

Member Name

Aalenian

Hayburn
Formation
Dogger

Lower Jurassic

Upper Lias

Best seen at Boulby Quarry and Cliff

Stage

Sub-stage

Ammonite Zone

Member Name

Toarcian

Yeovilian

Not present on
this part of coast.

Whitbian

Hildoceras bifrons

Cement Shales
Alum Shales
Hard Shales
Bituminous
Shales
Jet Rock
Grey Shales

*Harpoceras
falciferum*

*Dactyloceras
tenuicostatum*

Middle Lias

Best seen at Cowbar and Staithes

Pliensbachian

Domerian

*Pleuroceras
spinatum
Amaltheus
margaritatus*

Cleveland
Ironstone
Sandy Series

Lower Lias

Best seen at Huntcliff

Pliensbachian

Carixian

*Prodactyloceras
davoei*

*Tragophylloceras
ibex*

Uptonia jamesoni

*Echioceras
raricostatum*

*Oxynoticeras
oxynotum*

*Asteroceras
obtusum*

Ironstone Shales

Pyritous Shales

Siliceous Shales

Sinemurian

Upper

Best seen at Redcar and Coatham

Lower

	<i>Caenisites turneri</i>	
	<i>Arnioceras semicostatum</i>	
	<i>Arietites bucklandi</i>	
Hettangian	<i>Shlotheimia</i>	
	<i>angulata</i>	
	<i>Alsatites liasicus</i>	
	<i>Psiloceras</i>	Calcareous Shales
	<i>planorbis</i>	

7 SOIL FACTORS

The nature of the soil can alter considerably in a very small area but there a number of major types of vegetation that occur along the coast which are determined to a certain extent by the soil on which they grow. The dunes are slightly calcareous owing to the shell content within the sand. The areas covered in slag are also calcareous owing to their limestone content. After a time lime gets leached out by rain water and the older areas of dune, fixed dunes, may have soils which are slightly acidic so the vegetation will gradually change. Many of the cliffs are covered in boulder clay. The soils here are often slightly acidic, also these soils are not very stable and there is a lot of erosion in these places which means a lot of plants unless they have very strong roots cannot establish themselves. At Teesmouth there is often a lot of detritus and silt washed down into the river estuary. The soil on the riverside here may be rich in humus but because of the tidal effect of

the river the plants stems and roots may constantly be bathed in sea water. There are a few fresh water ponds at South Gare but the areas that are from time to time covered in sea water, because of the brackish water, give rise to a salt marsh vegetation.

At Boulby above the cliffs the soils are very shallow and as these lie above the sandstone rocks here, a more acidic type of vegetation is found similar to that found on the nearby North Yorkshire Moors.

8 CONSERVATION OF THE COAST

Anyone walking from South Gare to Cowbar will realise how important it is to preserve the beauty of this coast. The care of this area falls upon many different groups such as Cleveland County Council, local Parish Councils, local land owners and farmers, Corus Corporation, Heritage Coast Management Group, the National Trust and the Cleveland Wildlife Trust. Others involved are the Countryside Commission, English Nature, Industry Nature Conservation Association, National Rivers Authority, the Tourist Board and many agencies concerned with marine conservation. It is impossible to list all the groups as there are so many and there are a number of voluntary groups like the World Wildlife Fund, Greenpeace, RSPB etc. If these organisations are to achieve any success in protecting important sites along this coast all their activities must be coordinated

Various sites have already been given SSSI status by English Nature either for their geology or for their flora and fauna. Cleveland's Wildlife Strategy Plan has already acknowledged that the coast is an important wildlife corridor. Features of historical and archeological interest have been recognized and are being preserved. Steps are also being taken to preserve the heritage of the little fishing villages along the coast like Staithes and Skinningrove. It is also recognized that if these villages and places like Saltburn are to survive, tourism is an important issue and facilities are being provided to attract new people to the area. The needs of the local fishermen and farmers must also be considered. Now there is so much unemployment and people generally have more free time, facilities for sports and pastimes are in great demand.

Industries are now working much closer with local authorities but the river Tees is an important trading river and there is a lot of industry close to the estuary. Any oil-spill like the one recently at Redcar could cause an ecological disaster and the effluents and pollution from industry which often contains toxic substances could easily destroy our wildlife. Despite attempts to improve the sewage system in the area our beaches and sea water rarely meet E.E.C. standards at present but a new sewage system is being constructed.

All these factors must be taken into consideration if our north east coast is to retain its heritage. If the vegetation on our coast is not protected and the quality of our sea water is not maintained more of our wild life will disappear.

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9 EARLY RECORDS OF THE PLANTS OF THE COAST.

Present day Cleveland was covered in the past by two main groups of floras. Those concerned with areas north of the Tees and secondly those of Yorkshire covering areas south of the Tees. The coastal records covering the area from South Gare to Cowbar near Staithes came mainly from the Yorkshire floras.

One of the earliest floras of this latter area was Henry Baines' 'Flora of Yorkshire', published in 1840. Henry Baines (1793-1878) was at first a gardener in Halifax. Later he returned to his native city of York and worked for a Messrs Backhouse. From 1829 to 1870 he became sub-curator of the York Philosophical Society.

Baines' flora was followed by a supplement in 1854 by John Gilbert Baker (1834-1920). Baker was born in Guisborough but at quite an early age his family moved to Thirsk. He attended Ackworth and Bootham school in York. He was always interested in botany and at Bootham school was curator of the school herbarium. He became a friend of James Backhouse (1794-1869) who is now famous for the work he did on the flowers of Teesdale. He encouraged the young botanist and gave him a herbarium of alpine plants. There are numerous records of the present-day area of Cleveland in this supplement. Around 1852 he appears to have been botanising with William Mudd (1830-1869). William Mudd was born in Bedale and for a time he was in the employment of Mr Joseph Pease of Darlington but later became gardener to John Pease of Cleveland Lodge at Great Ayton. Here he came under the influence of the superintendent of the Great Ayton school, George Dixon (1812-1904). George Dixon encouraged all his boys to take an active interest in botany and to make their own herbarium collections. It is possible that Mudd helped at the school with horticultural instruction and that George Dixon was instrumental in encouraging him to take up botany. William Mudd had very little formal education but in later life became one of Yorkshire's most gifted lichenologists. He produced a book called 'British Lichens' and in later life became curator of the Botanic Garden at Cambridge University. Baines' supplement contains a number of Mudd's plant records.

In 1863 Baker published his own Flora. It was called, 'North Yorkshire, Studies of its Botany, Geology, Climate and Physical Geography'. It also contained a moss list for Yorkshire. This work was printed in Thirsk and contained 353 pages and four maps. Unfortunately, except for a few copies that were sent out to subscribers, the entire first edition was destroyed by fire at Baker's home. In 1868 Baker produced his 'New Flora of Northumberland and Durham' with George Ralph Tate (1805-1871) and a flora of the Lake District in 1885. He also produced many botanical texts and contributed to botanical works of other countries.

In 1906 Baker's flora of North Yorkshire was brought up to date by members of the Yorkshire Naturalists' Union. In the fourteen years since the previous edition only fifteen new plants were added to the flora but many new moss records were included.

The nineteenth century was also the era when many botanical societies were formed in this area. With improved transport facilities members were able to get much further afield. There were many ardent botanists amongst these groups and their records were often published in their local transactions or proceedings. The formation of the Yorkshire Naturalists' Union and the Northern Naturalists' Union helped to coordinate the actions of these societies. It is amazing that despite a period when two world wars have devastated the country many of these societies still survive.

Baker stresses in his flora that much of the coastline still remained unexplored. The new railway systems built in the late nineteenth century meant that the coast was more accessible but the railways were mainly built to give access to the ironstone mining areas. Many of these mines were near the coast particularly at places like Warsett Hill near Saltburn, Loftus and Skinningrove. This meant the ground would be considerably disturbed by these activities and the sites not always accessible to local botanists. Previous to this there would have been the alum mines and these too had left areas of disturbed, arid, bare ground. In fact some of the ironstone mining areas and some of the areas round Loftus and Boulby where the alum mines were situated still remain bare today. Despite this, over the years many areas have been recolonized and add to the beauty of the coastline today.

One of the areas that attracted naturalists in the early days was the coastal marshes around Teesmouth, not only for their botanical interest but for their ornithological interest and other fauna. The majority of the early records for the area concerned in this survey are ones from the marshes around Coatham. The marshes north of the Tees had also received a great deal of attention by early botanists. One of the earliest was by Nathaniel John Winch (1768-1838). On April 20th 1830 he read a paper on 'Remarks on the Distribution of the Indigenous Plants of Northumberland and Durham, as connected with the Geological Structure of those Counties'. This was later printed in the Transactions of the Natural History Society of Durham. It was one of the first ecological studies carried out in the north and had a section dealing with the distribution of the coastal plants found from the river Tweed to the Tees.

Another botanist interested in our coastal plants was John William Heslop-Harrison (1881-1967). Although his studies were carried out north of the river Tees around Greatham and Seaton they do give an insight into the flora and ecology of the Tees estuary. The establishment of the Northern Naturalists' Union and many records to be found in the 'Vasculum' were often the result of his efforts. He taught in Middlesbrough from 1905 to 1917 before becoming a lecturer, Reader and then Professor at Newcastle University.

Books and articles written in the late eighteenth century and early nineteenth century often give an insight into what conditions were like in the past. One delightful little book called 'The Natural History of Redcar and its Neighbourhood' by D. Ferguson is mainly about the marine life of the area. In an appendix is a very interesting list of coastal flowering-plants, ferns, mosses, liverworts and lichens.

In 1882 George Roberts published a book called 'Topography and Natural History of Lofthouse and its Neighbourhood. Diary of a Naturalist and

Rural Notes'. This is not about Loftus in Cleveland but he came to visit the coast here and the surrounding area. In the back of the book is a description of his walk along the coast and of the Valley Gardens in Saltburn.

A member of the Cleveland Naturalists' Field Club, Angus Mcphearson wrote a little book in 1888 called 'Rambles in South Durham and North Yorkshire. First Series. Redcar, Saltburn and Neighbourhood'. One article in this describes a walk between Marske and Redcar and also includes others on the Valley Gardens Saltburn and the Tees estuary. Although only a few plants are listed in the two books mentioned, they give an insight into what these areas were like at that time.

In 1913 T.J. Cozens, another member of the Cleveland Naturalists' Field Club, made a list of all the plants that had been recorded by the members in the previous thirty years and also listed plants which although not recorded by the members were known to be found in the area. As members travelled far afield on their club outings these lists are not restricted to Cleveland and infact many records for Teesdale are listed. These can be found in the club proceedings for 1913. Another member, R.Lofthouse, also contributed a number of articles on the Tees marshes but these were mainly concerned with their fauna.

10 PLANT CLASSIFICATION

When Carl Linnaeus introduced his binomial system of plant classification it made it much easier for botanists to record plants but over the years a number of these scientific names have changed. Plants may also have a number of common names. Some of these are only used locally so using these can make identification difficult. Where there has been a number of changes, as in the (*Gramineae*) Grass Family, it is often very difficult to trace to what species the text is referring. Every attempt has been made to make sure these lists are correct by consulting old floras and flower books. One problem is that in the past often aggregate names were used i.e. *Salicornia herbacea* was used to cover all the different species of glasswort.

In these lists the scientific and common names we use today have been taken from:

D.H.Kent. List of Vascular Plants of the British Isles. B.S.B.I. 1992.

Clive Stace. New Flora of the British Isles. Cambridge University Press. 1991

Old scientific and common names have been included where relevant.

The following were found useful in tracing the old names.

Clapham, Tutin & Warburgh. Flora of the British Isles. Edition 2. Cambridge University Press.

Bentham & Hooker. Handbook of the British Flora. Seventh edition revised by A.B.Rendle.

Dandy J.E. List of Vascular Plants. London.

Hubbard C.E. Grasses. Penguin Books 1954

EARLY RECORDS OF PLANTS OF THE COAST RECORDED FROM SOUTH OF THE TEES TO COWBAR NEAR STAITHES KEY TO THE BOOKS USED IN THIS ACCOUNT

Ba.1840. Henry Baines. Flora of Yorkshire.

Ba.Sup. A supplement written to Henry Baines' Flora of Yorkshire in 1854 by John Gilbert Baker.

BK.1906. A flora published originally by John Gilbert Baker in 1863 called 'North Yorkshire, Studies of its Botany, Geology, Climate and Physical Geography'.

This was brought up to date by members of the Yorkshire Naturalists Union in 1906. This second edition was the one used for the purpose of this study.

Ferg.1860. 'The Natural History of Redcar and its Neighbourhood'. Written in 1860 by D.Ferguson. N.B. It is possible this is Daniel Ferguson of Redcar who originally came from Catterick. The 1851 census says he was married and was a landed proprietor living with his wife, niece and servant in Redcar.

GR.1882. 'Topography and Natural History of Lofthouse and its Neighbourhood. Diary of a Naturalist and Rural Notes'. Appendix 2.

Mcp.1888. 'Rambles in South Durham and North Yorkshire. First Series. Redcar, Saltburn and Neighbourhood'. by Angus Mcphearson .

CN.1913. List of plants published in the proceedings of the Cleveland Naturalists' Field Club.

Copies of the above can be found in the following local archive departments.

Baines' 'Flora of Yorkshirre', Redcar Library.

Baines' Supplement, Guisborough Library.

Baker's 'North Yorkshire Flora' 1863, Guisborough Library.

Baker's 'North Yorkshire Flora' 1906, Redcar Library.

Ferguson. 'The Natural History of Redcar and its Neighbourhood'. Redcar, Skelton.and Stockton Libraries.

George Roberts. 'Topography and Natural History of Lofthouse and its Neighbourhood'. Stockton Library.

Angus Mcphearson. 'Rambles in South Durham and North Yorkshire'. Guisborough Library.

Proceedings of the Cleveland Naturalists' Field Club. Redcar, Guisborough, Darlington libraries.

Middlesbrough Archives Department, Dorman Museum Middlesbrough.

EARLY RECORDS

- Alisma plantago-aquatica.* Water-plantain
Ponds in Coatham. Ferg. 1860.
- Alopecurus pratensis.* Meadow Foxtail
Marske and Saltburn sand-hills.
- Ammophila arenaria.* Marram
(*Arundo arenaria*) (Sea Mat Reed)
On the sandy sea coast. Ba. 1840. BK. 1906
- Anchusa arvensis* Bugloss
(*Lycopsis arvensis*)
Near Redcar. Ba. 1840. GR. 1882. Redcar CN. 1913.
- Anthyllis vulneraria.* Kidney Vetch
Saltburn Hill. Ferg. 1860. Amongst the sand-hills and along the coastline, it is frequent from Middlesbrough to Scarborough. BK. 1906.
- Apiun graveolens* Wild Celery
Ditches in Coatham Marsh. Ba.1840.
Plentiful about the salt water ditches at Middlesbrough and Coatham. BK.1906.
Coatham. CN. 1913.
- Armaria maritima ssp.maritima.* Thrift
(*Statice armeria*) (Sea Gilliflower)
- Marshes at Coatham. Ba.1840. Salt-marshes and sea banks Coatham. Ferg.1860.
'Judging from the specimens which I have been enabled to examine in a dried or recent state the *Armeria* of the Yorkshire coastline is principally *A .pubigera* (*Hossi.*) and the plant of inland localities *A. pubescens.* (Link)' Ba.Sup.1854.
Along the coastline in Middlesbrough and Coatham Marshes. BK.1906.
- Artemisia maritima* Sea Wormwood
Along the coastline frequent at Middlesbrough and Coatham and more sparingly at Saltburn. BK. 1906.
- Aster tripolium* Sea Aster
On the muddy sea coast near Redcar. Ba .1840. Plentiful about the salt water ditches at Middlesbrough and Coatham. BK. 1906.
- Astragalus danicus* Purple Milk-vetch
(*Astragalus hypoglottis*)
Amongst the coast sand-hills at Middlesbrough, Coatham and Marske. BK. 1906. Saltburn Cliffs. GR. 1882.
- Atriplex glabriuscula* Babington's Orache
(*Atriplex Babingtoni*)
Redcar. Ferg. 1860. Middlesbrough, Coatham, Redcar and probably along the

coast. Ba.Sup. 1854. Amongst the salt-marshes at Middlesbrough and Coatham and in waste ground at Saltburn. BK. 1906.

Atriplex lacinata Frosted Orache .
(*Atriplex arenaria*)
Coatham Marshes. Ferg. 1860. Ditto. BK. 1906.

Atriplex littoralis Grass-leaved Orache
Plentiful about Middlesbrough and the Coatham Marshes. *A. littoralis* and *marina* both occur but seem to be connected by intermediate stages of transition. Ba.Sup. 1854. Coatham Marshes. Ferg. 1860. Middlesbrough and Coatham. BK. 1906.

N.B. *A.marina* appears to be a variation of *A.littoralis*. In the 'Flowering Plants of Great Britain' by Anne Pratt circa 1855, Volume IV . *A. marina* is described as being a form of *A. littoralis*.

"In the form often described as *A. marina* the leaves are egg-shaped and lanceolate, irregularly toothed or rarely entire and the perianth of the fruit is inversely heart-shaped and triangular, blunt, toothed, tuberculed on the back and closed. Both forms are common in salt-marshes."

Atriplex patula Common Orache
(*Atriplex angustifolia*) (Narrow-leaved Orache)
A tall narrow leaved *Atriplex* amongst the Coatham Marshes is probably *A. erecta* (*A. prostrata*).Ba.Sup. 1854.
Atriplex angustifolia. Coatham Marshes. Ferg. 1860.

Atriplex portulacoides Sea -purslane.
Waste ground near the sea, rare. Teesmouth. J. Backhouse Jun. Coatham marshes. W. Fogitt. BA.Sup. 1854. Coatham marshes. Ferg. 1860. Ditto. BK. 1906.

Atriplex prostrata Spear-leaved Orache
(*A. erecta*) (*A. hastata*) (*A. deltoides* Bab)
Coatham marshes. Ferg.1860. *A. deltoides* Not infrequent in waste ground upon the sea coast, Middlesbrough, Coatham, Redcar. BK. 1906.

Beta maritima Sea Beet
Frequent amongst the marshes at Middlesbrough and Coatham. B.K. 1906.
Teesmouth CN. 1913.

Blysmus compressus Flat-sedge
Amongst the coast sand-hills about Coatham, Redcar and Saltburn. Ba.Sup. 1854. Ditto. BK. 1906.

Bolboschoenus maritimus Sea Club-rush
(*Scirpus maritimus*) (Saltmarsh Club-rush)
Marshes at the mouth of the Tees. Coatham. Ba. 1840. CN. 1913. Redcar, saltmarshes.Common in the salt water ditches about Middlesbrough and Coatham. BK. 1906.

- Brassica oleracea* Cabbage (Sea Cabbage)
I place this as a denizen in consequence of information received from my friend William Mudd who collected it to the north of Staithes in 1882. He remarks in reply to my inquiries respecting its condition, that it grows in considerable abundance amongst the coast cliffs principally in inaccessible situations and that it has quite the appearance of being an indigenous inhabitant of the locality. (Baker -Baines Sup. 1854.) Cliffs from Whitby to Staithes. Ba. 1840. Huntcliffe. D.Ferg. 1860. Staithes. CN. 1913. Plentiful among the coast precipices in the vicinity of Staithes, whence it is recorded in the original Botanists' Guide by Archdeacon Pierson and where I saw it in plenty in 1881 but near the village only. Bk. 1906.
- Briza media* Quaking-grass
Marske and Redcar sand-hills. Mcp. 1888
- Cakile maritima* Sea Rocket
On the sandy coast near the mouth of the Tees near Coatham. Ba. 1840.
On the sands near Coatham sparingly. Ba. Sup. 1854. Coatham sands Ferg. 1860.
Plentiful amongst the salt-marshes at Middlesbrough and Coatham, more sparingly along the coastline southwards by way of Marske and Saltburn. Bk. 1906. Redcar and Marske sand-hills. Mcp. 1888.
- Campanula latifolia* Giant Bellflower
Coatham sand-hills. Ferg. 1860.
- Campanula rotundifolia* Harebell (Common Bell Flower)
Coatham sand-hills. Ferg. 1860. Marske and Redcar sand-hills. Mcp. 1888.
- Calystegia soldanella* Sea Bindweed
(*Convolvulus soldanella*)
Coast sand-hills in front of the village of Coatham. Ferg. 1860. Ditto. BK. 1906.
- Carduus tenuifolius* Slender Thistle
Frequent along the coastline by way of Middlesbrough, Coatham, Redcar, and Saltburn. BK. 1906.
- Carex arenaria* Sand Sedge (Sea Carex)
Salt-marshes at the mouth of the Tees. Ba. 1840. Redcar sand-hills. Ferg. 1860.
Plentiful amongst the coast sand-hills about Redcar, Marske, Coatham and Saltburn. Ba.Sup. 1854. Ditto. BK. 1906. Sea shore. CN.1913.
- Carex distans* Distant Sedge
Coatham marshes. Ferg. 1860. On the banks of the salt water ditches in Coatham marshes. Ba.Sup. 1854.
Ditto. BK. 1906.

- Carex extensa* Long-bracted Sedge
On the sand banks in salt-marshes, Coatham. Ba.1840. Ditto. BK. 1906..
- Carlina vulgaris* Carlina Thistle
Banks of the Tees. Ba. 1840. Redcar sand-hills. Ferg. 1860.
Amongst the coast sand-hills Redcar, Marske, Saltburn. BK. 1906.
- Catapodium marinum* Sea Fern-grass
(*Triticum loliaceum*) (Dwarf Sea Wheat Grass)
(*Desmazeria marina*) (*Glyceria loliacea*).
In a glen between Redcar and Marske by the sea shore. Ba. 1840.
(*Glyceria loliacea*) Amongst the coast sand-hills about Coatham and Redcar.
BK. 1906.
- Centaurium pulchellum* Lesser Centaury.
Rare Coatham. CN. 1913.
- Cerastium diffusum* Sea Mouse-ear
Coatham and Redcar. Ba. 1840. Ba.Sup.1855.
With *C. semidecandrum* amongst the coast sand-hills at Coatham, Redcar and
Marske. BK.1906.
- Cerastium semidecandrum* Little Mouse-ear (Small Mouse-eared
Chickweed)
Redcar. Ferg 1860. In Cleveland it is a plant of the basaltic dike and the coast
sand-hills. BK.1906.
Redcar. CN. 1913.
- Chenopodium rubrum* Red Goosefoot .
Amongst the salt water ditches in Coatham Marsh. Ferg. 1840. Cultivated
ground and waste places. A small prostrate form amongst the salt water
ditches in Coatham Marshes. Ba.Sup. 1854. Redcar. CN. 1913.
- Cochlearia officinalis* Common Scurvygrass
Skinningrove. Ferg. 1860. Coatham. CN. 1913. Common along the coastline
from Stockton-on-Tees to Scarborough. *C. anglica* and *C. danica* I do not know
as growing within our limits. BK. 1906.
- Coronopus squamatus* Swine-cress
(*Senebria coronopus*) (Wart-cress)
Coatham marshes. Ferg. 1860.
- Crambe maritima* Sea-kale
Huntcliffe. Ferg. 1860. Sparingly on the sands at Coatham. BK. 1906.
- Diplotaxis tenuifolia* Perennial Wall-rocket

Sand-hills and waste ground in the vicinity of the sea coast, occasionally on walls and dry places inland. Plentiful about Middlesbrough and along the railway embankment to Redcar. Ba.Sup. 1854. Along the coast, plentiful about Middlesbrough and Coatham, rarer southward about Whitby and Scarborough. BK. 1906.

Dipltaxis muralis Annual Wall-rocket
Along the coast in waste ground about Middlesbrough and Coatham. BK.1906.

Dactylorhiza fuchsii agg. Spotted Orchids
(*Orchis maculata* agg.)
Redcar sand-hills. Mcp. 1888.

Echium vulgare Viper's-bugloss
Coatham ..Ferg. 1860. Ditto CN. 1913.

Elytrigia juncea ssp.*boreolantica* Sand Couch
(*Triticum junceum*) (Sea Rushy Wheat Grass)
(*Agropyron junceum*) (*Agropyron junceiforme*) (*Elymus farctus*
ssp.*boreolanticus*)
Sand-hills at Coatham and Redcar. Ba. 1840. Abundant. Ferg. 1860. Saltburn.
Ba.Sup. 1854.
Plentiful amongst the sand-hills between Marske and Saltburn. Ba.Sup. 1854.
Amongst the coast sand-hills at Middlesbrough, Coatham, Marske and
Saltburn. BK. 1906.

Elytrigia x Laxa Sand Couch x Common Couch
(*Triticum laxum*) (*Agropyron laxum*) (*Agropyron junceiforme x Agropyron*
repens)
(*Elytrigia juncea x Elytrigia repens*)
Plentiful amongst the ballast hills at Middlesbrough along the coast to Redcar
and Marske. The variety *macrostachyum* of Fries occurs amongst the marshes
at Coatham. Ba.Sup. 1854.

Elytrigia. x obtusiuscula Sand Couch x Sea Couch
(*Triticum acutum*) (*Agropyron acutum*) (*Agropyron junceiforme x Agropyron*
pungens)
(*Elytrigia juncea x Elytrigia antherica*)
Amongst the coast sand-hills at Middlesbrough, Coatham, Marske and
Saltburn. BK. 1906.

Elytrigia repens Common Couch
(*Triticum repens*) (*Agropyron repens*) (*Elymus repens*)
Coatham. Ferg. 1860.
Triticum littorale (Host.)
The maritime form of this species is common in the vicinity of the sea coast.
Ba.Sup. 1854.

Erodium cicutarium Common Stork's-bill

Saltburn and Redcar cliffs. GR. 1882. Frequent along the sea coast and inland.
BK.1906.
Redcar as Hemlock's Stork's-bill. C.N. 1913.

Erophila verna Common Whitlowgrass
Coatham. Ferg. 1860.

Euphorbia exigua Dwarf Spurge
Redcar. CN. 1913.

Euphrasia nemorosa Eyebright
(*Euphrasia officinalis* agg.)
Redcar sand-hills. Ferg. 1860.

Festuca rubra Red Fescue
(Creeping Fescue Grass)
Sand-hills at Coatham and Redcar etc. Ba. 1840.
Common amongst the coast cliffs and sand-hills. BK. 1906.

Fumaria officinalis Common Fumitory
Redcar. Ferg. 1860.

Galium palustre Common Marsh-bedstraw (Water Bed-
straw)
Coatham. BA. 1840.

Galium verum Lady's Bedstraw
Marske and Redcar sand-hills. Mcp. 1888.

Gentianella campestris Field Gentian
Coatham Common and below Redcar and Marske. Ferg. 1860.
Gentiana amarella Redcar. CN. 1913. This may not be a coastal record.

Geranium sanguineum Bloody Crane's-bill
Near the sea at Redcar. Ba. 1840. Amongst the coast sand-hills between
Redcar and Marske. BK. 1906.

Glaux maritima Sea-milkwort (Black Saltwort)
Mouth of the Tees and salt water ditches a Coatham. Ba. 1840. Coatham
sands. Ferg. 1860.
Plentiful in the salt-marshes at Middlesbrough and Coatham. BK. 1906.

Glyceria maxima Reed Sweet-grass
(*Glyceria aquatica*)
(Reedy Sweet-grass)
Ponds between Redcar and Marske. Ba. 1840.

Glyceria notata Plicate Sweet-grass

- (Glyceria plicata)*
Coatham and Middlesbrough. Ba.Sup. 1854.
- Groelandia densa* Opposite-leaved Pondweed
(Potamogeton densus) (Closed-leaved Pondweed)
Coatham Marsh. Ferg. 1860.
- Helianthemum nummularia* Common Rock-rose
(Helianthemum vulgare)
On the coast at Saltburn. BK. 1906.
- Honckenya peploides* Sea Sandwort
(Arenaria peploides) BA. *(Honckenya peploides)* BK. *(Arenaria marina)* Ferg.
Mouth of the Tees at Coatham. Ba. 1840. Coatham Ferg. 1860.
Amongst the coast sand-hills. Common at Middlesbrough, Coatham and
Redcar. BK.1906. Redcar CN. 1913.
- Hordeum marinum* Sea Barley
(Hordium maritimum)
Coatham and Redcar. Ba. 1840. Plentiful in the salt-marshes at Middlesbrough
and Coatham. BK. 1906.
- Hordeum murinum ssp.murinum* Wall Barley
Frequent in the low country especially along the coast. BK. 1906.
- Hyoscyamus niger* Henbane
Redcar and Coatham. Ba. 1840. Coatham Common. Ferg. 1860.
- Juncus articulatus* Jointed Rush
(Juncus laprocarpous)
A curious maritime form grows in the salt-marshes at Coatham. BK. 1906.
- Juncus compressus* Round-fruited Rush
Salt water ditches and hills about Coatham. Ferg.1860.
Plentiful on the margins of the salt water ditches at Middlesbrough and
Coatham. Probably it is a variety of this species. Ba. Sup. 1854.
- Juncus gerardii* Saltmarsh Rush
(Juncus coenosus) (Mud Rush)
Saltwater ditches and hills about Coatham. Ferg. 1860.
Plentiful in the salt-marshes about Middlesbrough and Coatham. BK. 1906.
- Juncus maritimus* Sea Rush
(Lesser Sharp Sea Rush)
Saltwater ditches and hills about Coatham. Ferg. 1860.
Among the sand-hills in front of the village of Coatham. BK.1906.

- Lemna trisulca* Ivy-leaved Duckweed
Coatham marshes. BK. 1906.
- Lepidium latifolium* Dittander
Coast cliffs between Redcar and Sandsend. BK. 1906.
- Lepidium ruderae* Narrow-leaved Pepperwort
On the banks of the muddy salt water ditches at Coatham near Redcar. Ba. 1840.
At Coatham marshes I could only find *Coronopus ruellii*. Ba.Sup. 1854.
Reported from Coatham marshes which I have searched without seeing it. BK> 1906.
- Leymus arenarius* Lyme-grass
(*Elymus arenarius*) (Sea Lyme-grass)
On sandy shore at Redcar and Coatham. Ba. 1840.
Sandy ground amongst the Coatham salt-marshes. BK. 1906
- Limonium humile* Lax-flowered Sea-lavender
(*Statice bahsiensis*)
Amongst the Coatham salt-marshes. BK. 1906.
- Limonium vulgare* Common Sea-lavender
(*Statice limonium*)
In marshes at Coatham near the mouth of the Tees. Ba. 1804. Ditto BK. 1906.
- Lotus corniculatus* Common Bird's-foot-trefoil
(*Trifolium ornithopoides*)
Marske and Redcar sand-hills. Mcp. 1888.
- Lycium barbarum* Duke of Argyll's Teaplant
The ordinary materials for the seaside fences in the vicinity of Redcar and Marske. Ba.Sup. 1854.
Frequently used for fences in the neighbourhood of the sea at Middlesbrough, Coatham and Marske.
Cultivated in gardens up tp 350 yds. BK. 1906.
- Medicago arabica* Spotted Medick
(*Medicago maculata*)
Plentiful at Marske in sandy ground at the end of the village nearest the sea.
BK. 1906.
- Myosotis laxa* Tufted Forget-me-not
(*Myosotis caespitosa*) (Tufted Scorpion Grass)
Coatham marsh. Ferg. 1860.
- Myriophyllum spicatum* Spiked Water-milfoil
Coatham pond. Ferg. 1860.
- Ononis repens* Common Restharrow
Sand-hills. Ferg. 1860. Marske and Redcar sand-hills. Mcp. 1888.

- Paropholis strigosa* Sea Hard-grass
(*Lepturus filiformis* ?) (*Rotobola incurvata*)
Upon banks at salt-marshes at Coatham. Ba. 1840. Amongst the salt-marshes at Middlesbrough. BK. 1906.
- Parnassia palustris* Grass-of-Parnassus
Amongst the coast banks at Lofthouse. BK. 1906.
- Phalaris canariensis* Canary-grass
Coatham. Ferg. 1860.
- Phleum arenarium* Sand Cat's-tail
(Seaside Catstail grass)
Coatham. Ferg. 1860. Marske and Redcar sand-hills. Mcp. 1880.
amongst the coast sand-hills at Coatham, Redcar and Marske. BK.1906.
- Picris echiodes* Bristly Oxtongue
(*Helminthia echiodes*)
Road-side between Marske and Upleatham. Frequent in dry sandy ground along the coastline, Middlesbrough, Lazenby, Redcar, Marske. BK. 1906.
- Pinguicula vulgaris* Common Butterwort
In the oozy places on the sea shore near Marske, very dwarf. GR. 1882.
- Plantago coronopus* Buck's-horn Plantain
At Coatham. Ba. 1840. Satlburn. Ferg. 1860. Frequent in sandy ground along the coast from Middlesbrough to Scarborough. Bk. 1906. Redcar CN. 1913.
- Plantago maritima* Sea Plantain
Coatham at mouth of the Tees. Ba. 1840. Marske. Ferg. 1860. Redcar CN. 1913.
Along the coastline from Middlesbrough to Filey. It is perhaps the most plentiful of all our characteristic maritime species growing both upon the cliffs and in low marshy ground. BK. 1906.
- Polygonum aviculare* Knotgrass
(*Polygonum littorale*)
N.B. A maritime variety distinguished as *P. littorale* (Link) with rather thicker leaves and larger flowers and nuts. (Bentham & Hooker flora) *P. littorale* is *P. maritima* which is a southern species and is not likely to be found in this area. See 'Atlas of the British Flora', Perring and Walters.
A much branched form, probably *P. littorale*, of authors grows amongst Coatham marshes. Ba.Sup. 1854.
Coatham marshes. Ferg. 1860.
- Potamogeton pectinatus* Fennel Pondweed

A maritime form grows in the salt water ditches in the Coatham and Middlesbrough Marshes. Ba.Sup. 1854.
Ditto. BK. 1906. Coatham Marsh. Ferg.1860.

Potentilla reptans Creeping cinquefoil
Marske and Redcar sand-hills. Mcp. 1888.

Puccinellia distans Reflexed Saltmarsh-grass
(*Poa distans*) (Reflexed Poa)
(*Glyceria distans*) (Reflexed Sweet Grass)
Banks of the salt water ditches in Coatham marshes near Middlesbrough.
Ba.Sup. 1854.
Plentiful in the salt-marshes at Middlesbrough and Coatham. BK. 1906.

Puccinellia maritima Common Saltmarsh-grass
(*Glyceria maritima*) (Creeping Sweet Grass)
(*Poa maritima*)
Banks of salt water ditches at Coatham and Redcar. Ba. 1840. Salt water ditches in Coatham Marsh. Ferg. 1860.
Common in damp places along the coastline from Middlesbrough to Scarborough. BK. 1906.

Puccinellia rupestris Still Saltmarsh-grass
(*Glyceria procumbens*) (*Poa procumbens*) (*Poa rupestris*)
With the two species *G. distans* and *G. plicata* (*P. distans* and *G. notata*) about Coatham and Middlesbrough but less plentiful than either of them. Ba.Sup. 1854.
Along the coastline at Middlesbrough and Coatham. BK. 1906.

Ranunculus aquatilis Common Water-crowfoot
A maritime variety which closely resembles *R. confusus* of Godron is plentiful in the ditches in Coatham marshes and a much branched state of the same also occurs with leaves, flowers and fruits only about 1/3rd the usual size. Vide. Phyt. 111, 721 & 933. Ba.Sup. 1854. Coatham. Ferg. 1860.

Ranunculus baudotii Brackish Water-crowfoot
Plentiful in the salt water ditches in Coatham marshes. BK. 1906.

Reseda lutea Wild Mignonette
In similar places to *Reseda luteola* but less frequent. Coast. BK. 1906.

Reseda luteola Weld
Coast. BK. 1906.

Rorippa nasturtium-aquaticum Water-cress
Coatham ditches. Ferg. 1860. In Cleveland in Coatham marshes. BK. 1906.

Ruppia maritima Beaked Tasselweed

Salt water ditches in marshes at Coatham. Named in honour of the German physician Henry Ruppian author of 'Flora Jenensis'. This plant, like *Vallisneria spiralis*, an inhabitant of rivers in the south of Europe, lengthens or contracts its fruit stalk according to the greater or less depth of water and assuming a spiral form, the flowers and fruiting is highly curious and interesting. It is beautifully illustrated in 'Flora Londenensis'. BA.1840.

This plant, so plentiful amongst the Coatham salt-marshes is the true *maritima* of Linnaeus. I am not aware of the occurrence of *Ruppia rostellata* within the limits of the county! But a considerable portion of our coastline has been as yet only very imperfectly explored. Ba.Sup. 1840.

Abundant in some of the salt water ditches in Coatham marshes. BK. 1906.

Sagina maritima Sea Pearlwort
Dry places on the sea coast. Rare? On the railway embankment near Redcar. 1852.

Coatham marshes plentiful. Ba.Sup. 1854.

Amongst the Coatham salt-marshes and in dry sandy ground in the same neighbourhood. BK. 1906.

Sagina nodosa Knotted Pearlwort
A glandulose variety, *S.glandulosa* Bess, grows among the coast sand-hills at Coatham and Redcar. Ba.Sup. 1854.
The coast sand-hills at Coatham and Redcar. Bk. 1906.

Salicornia sp. Glasswort
(*Salicornia herbacea*) (Jointed Glasswort)

Herbacea used in an aggregate sense.

Abundant in the salt-marshes at the mouth of the Tees. Ba. 1840

Samphire, Coatham Marsh. Ferg. 1860. Glasswort was often called Samphire but the true Samphire does not grow here.

Salicornia procumbens is plentiful amongst Coatham marshes. Ba.Sup. 1854.

This is *S. dolichostachya*. Redcar. CN. 1913. Frequent amongst the saltmarshes about Middlesbrough and Coatham. BK. 1906.

Please note *Sarcocornia perennis* below.

Salsola kali ssp.*kali* Prickly Saltwort
(*Salsola kali*)

On the sea coast at Redcar and Coatham at the mouth of the Tees. Ba. 1854.

Sands between Redcar and Coatham. Ferg. 1860. Frequent along the coastline in sandy ground from Middlesbrough to Filey. BK. 1906

Samolus valerandii Brookweed
Near Mr. Pease's mansion at Marske, Cliff House, and plentiful in the stream supplying Saltburn Mill. Ferg. 1860. The Mill was previously situated near the entrance to Saltburn Gill. Sea banks Marske. BK. 1906.

Sanguisorba minor Salad Burnet

(Poterium sanguisorba)

Amongst the coast sand-hills at Redcar and Marske. BK. 1906.

Sarcocornia perennis

Perennial Glasswort

(Salicornia radicans) (Salicornia perennis)

On the banks of some of the salt water ditches in Coatham marshes. W. Mudd Disc. 1852. Ba. Sup. 1854.

Coatham marshes. Ferg. 1860.

Muddy banks of some of the salt water ditches in Coatham marshes.

Mentioned in Gordon Graham's Durham Flora as *Arthrocnemum perennis*. He states that the record for Coatham Marsh is the one recorded in 'Atlas of the British Flora', Pering & Walters.

Scabiosa columbaria

Small Scabious

Redcar. Ferg. 1860. In Cleveland along sea-banks at Marske and Saltburn. BK. 1906.

Schoenoplectus lacustris

Common Club-rush

(Scirpus lacustris)

(Bull Rush)

Salt water ditches Coatham.

Schoenoplectus tabernaemontani

Grey Club-rush

(Scirpus glaucus) (Scirpus tabernaemontani)

Near Middlesbrough. Ferg. 1860. In the salt water ditches behind the mill at West Coatham. Doubtfully distinct as a species from *S. lacustris*. Ba. Sup. 1854.

In some of the salt water ditches that intersect the marshes at Middlesbrough and Coatham. Especially plentiful at the Decoy pond. BK. 1906.

Sedum acre

Biting Stonecrop

Coatham. Ferg. 1860.

Silene noctiflora

Night-flowering Catchfly

In the sandy fields between Redcar and Marske. Ba. 1840. Saltburn. BK. 1906.

Silene uniflora

Sea Campion

(Silene maritima)

This species in addition to its elevated localities grows also in the vicinity of the sea but either sparingly or else it has only been noticed in a few places on account of the Yorkshire coast having been explored botanically as yet in a very imperfect manner. Coatham marshes and rocks between Saltburn and Huntcliffe. W. Mudd. Ba. Sup. 1854. Coatham marshes. Ferg. 1860. Rare with us as a maritime plant. It has been met with in Coatham marshes and upon the sea banks between Marske and Saltburn. BK. 1906. Redcar. C.N. 1913.

Silybum marinum

Milk Thistle

(Carduus marianus)

Upon the coast banks at Huncliffe. BK. 1906.

- Sium latifolium* Great Water-parsnip
Coatham Marsh. Ferg. 1860. Ditto. BK. 1906.
- Spergularia marina* Lesser Sea-spurrey
(*Arenaria marina*) (Sea Spurrey Sandwort)
On marshes at Coatham. Ferg. 1860. Coatham Ba.Sup. 1854. Ditto. CN. 1913.
- Spergularia media* Greater Sea-spurrey
Plentiful among the salt-marshes at Middlesbrough and Coatham. BK. 1906.
- Spirea filipendula* Dropwort
Amongst the coast sand-hills between Marske and Saltburn. BK. 1906.
- Stellaria pallida* Lesser Chickweed
(*Stellaria boreaeana*)
S.pallida I have gathered in Coatham marshes. BK. 1906.
- Suaeda maritima* Annual Sea-blite
(*Schoberia fruticosa*)
Frequent amongst the salt-marshes about Middlesbrough and Coatham.
BK.1906.
- Thalictum minus* Lesser Meadow-rue
Redcar. Ferg. 1860. A glaucous and glandular variety of this species, *T. tubescens* Schreb, is plentiful amongst the sand-hills about Coatham, Redcar, and Marske. Vide. Phytologist Vol IV P. 933.
Probably it is the ordinary littoral form of this species. Ba.Sup. 1854.
It grows in tolerable plenty from Coatham southwards by way of Marske to Saltburn. BK. 1906.
Redcar. CN. 1913. Sandbanks near Saltburn. G.R. 1882.
- Thymus politrachus* Wild Thyme
(*Thymus drucei*)
Marske and Redcar sand-hills. Mcp. 1888.
- Torilis nodosa* Knotted Hedge-parsley
Redcar and Coatham abundant. Ba. 1840.
- Tripleurospermum inodorum* Scentless Mayweed
(*Pyrethrum inodorum*)
Common in cultivated fields and waste ground ascending from the Coatham marshes to flagstone quarries of Leyburn moor. BK. 1906.
- Trifolium fragiferum* Strawberry Clover
(Strawberry-headed Trefoil)

Coatham marshes. Ferg. 1860.
Plentiful amongst the Coatham
marshes. Ba. Sup. 1854.
Amongst the coast sand-hills, plentiful
at Middlesbrough and Coatham. BK.
1906.

Triglochin maritimum Sea Arrowgrass
In salt-marshes at Coatham near Redcar. Ba. 1840. Ditto BK. 1906.

Viola hirta Hairy Violet
Amongst the coast sand-hills Coatham. BK. 1906. Redcar. CN. 1913.

Zostera marina Eelgrass
(GrassWrack)
Ditches in the marshes at Coatham near Redcar. Ba. 1840.
In several places upon the shore of the Tees estuary. BK. 1906.

Zannichellia pedicellata Horned Pondweed
Grows in salt water ditches at Middlesbrough and Coatham. BK. 1906.

A Supplement to the Yorkshire Floras by F. Arnold Lees. Edited by C.A.
Cheetham and W. A. Sledge.
This appeared in the 'Naturalist' as supplementary parts in 1937 to 1940 based
on Dr F. A. Lees manuscript.
'Vegetation of Yorkshire and Supplement to Floras of York'. Published in 1907.
Genera nomenclature rearranged and additions.

Atriplex glaburiuscula Babington's Orache
(*Atriplex babingtoni*)
Salt marsh Coatham.

Cerastium diffusum Sea Mouse-ear
(*Cerastium tetrandrum*)
Redcar sand-hills.

Dactylorhiza fuchsii x *Dactylorhiza*
incarnata ssp. *coccinea*
(*Orchis fuchsii* x *Orchis latifolia*)
Teesmouth. W.A.S.

Festuca arundinacea Tall Fescue
Teesmouth. W.A.S. 1937.

Festuca rubra Red Fescue
Festuca rubra var. *genuina* (Hack) *grandiflora* (Hack) *glaucescens* (Heg
&.Heer) *dumetorum* (How = *barbart* -Hack) *plantifolia* (Hack) *arenaria* (Osby)
juncea (Hack)

Redcar and Saltburn Dunes.

N.B. Kent now divides *Festuca rubra* into a number of sub species *Festuca rubra var.junceae* is now *ssp.junceae*. The other variations are not mentioned in Kent. A Pelican book of Grasses by C.E. Hubbard, pub. 1954, gives descriptions of *barbata*, *arenaria* and *glaucescens*. A rare coastal grass is listed under *Festuca juncifolia*

Bentham & Hooker in their 'Handbook of the British Flora' describe *var.arenaria* as follows. *Var.arenaria (Koch)* is a seas side variety, extensively creeping, with all the leaves inrolled and hairy, fertile glumes.

Polygonum oxyspermum ssp.raii Ray's Knotgrass
(*Polygonum raii*)
Sea wall Redcar. J.Fogitt 1874.and to Saltburn through Marske Links by 1908.
West of Redcar 1931 W.A.S.

Puccinellia rupestris Stiff Saltmarsh-grass.
Saltburn.

Ranunculus baudotii Brackish Water-crowfoot
Tees. Coatham marshes.

Sagina maritima Sea pearlwort
Plentiful about Teesmouth.

Spergularia marina Lesser Sea-spurrey
(*Spergularia salina*)
Salt-marshes below Grangetown. W.A.S.

Salicornia ramosissima Purple Glasswort
Teesmouth. W.A.S. Naturalist 1931 p. 246.

Salicornia perennis Perennial Glasswort
Only known in Teesmouth and still there 1931.

Schoenoplectus tabernaemontani Grey Club-rush
(*Scirpus tabernaemontani*)
Salt-marshes Teesmouth. W.A.S.

Thalictrum minus Lesser Meadow Rue
(*Thalictrum arenarium*)
Redcar and Marske sand-hills.

11 THE COASTAL FLORA-Detailed Lists

11.1 SOUTH GARE

<i>Acer pseudoplatanus</i>	Sycamore	
<i>Achillea millefolium</i>	Yarrow	
<i>Agrostis stolonifera</i>	Creeping Bent	
<i>Aira praecox</i>	Early Hair-grass	
<i>Alliaria petiolata</i>	Garlic Mustard	
<i>Alopecurus geniculatus</i>	Marsh Foxtail	
<i>Ammophila arenaria</i>	Marram	
<i>Angelica sylvestris</i>	Wild Angelica	
<i>Anthyllis vulneraria ssp.vulneraria</i>	Kidney Vetch	
<i>Apium nodiflorum</i>	Fool's Water-cress	
<i>Arabidopsis thaliana</i>	Thale Cress	
<i>Arctium minus ssp.nemorosum</i>	Lesser Burdock	
<i>Armeria maritima ssp.maritima</i>	Thrift	
<i>Armoracia rusticana</i>	Horse-radish	Naturalised
<i>Arrhenatherum elatius</i>	False Oat-grass	
<i>Artemisia vulgaris</i>	Mugwort	
<i>Aster novi-belgii</i>	Confused Michaelmas-daisy	Introduced
<i>Aster tripolium</i>	Sea Aster	
<i>Astragalus danicus</i>	Purple Milk-vetch	
<i>Atriplex laciniata</i>	Frosted Orache	
<i>Atriplex littoralis</i>	Grass-leaved Orache	
<i>Atriplex patula</i>	Common Orache	
<i>Atriplex portulacoides</i>	Sea-purslane	
<i>Atriplex prostrata</i>	Spear-leaved Orache	
<i>Bellis perennis</i>	Daisy	
<i>Bergenia crassifolia</i>	Elephant-ears	Introduced
<i>Beta vulgaris ssp.maritima</i>	Sea Beet	
<i>Blackstonia perfoliata</i>	Yellow-wort	
<i>Bolboschoenus maritimus</i>	Sea Club-rush	
<i>Botrychium lunaria</i>	Moonwort	
<i>Briza media</i>	Quaking-grass	
<i>Bromus hordaceus ssp.hordeaceus</i>	Soft-brome	
<i>Buddleja davidii</i>	Butterfly-bush	Introduced
<i>Cakile maritima</i>	Sea Rocket	
<i>Calystegia silvatica</i>	Large Bindweed	
<i>Campanula rotundifolia</i>	Harebell	
<i>Capsella bursa-pastoris</i>	Shepherd's-purse	
<i>Cardamine flexuosa</i>	Wavy Bitter-cress	
<i>Cardamine pratensis</i>	Cuckooflower	
<i>Carduus nutans</i>	Musk Thistle	
<i>Carex arenaria</i>	Sand Sedge	
<i>Carex extensa</i>	Long-bracted Sedge	
<i>Carex otrubae</i>	False Fox-sedge	
<i>Carlina vulgaris</i>	Carlina Thistle	
<i>Catapodium marinum</i>	Sea Fern-grass	
<i>Centaurea nigra</i>	Common Knapweed	
<i>Centaurea scabiosa</i>	Greater Knapweed	Introduced
<i>Centaureum erythraea</i>	Common Centaury	
<i>Centaureum pulchellum</i>	Lesser Centaury	
<i>Cerastium diffusum</i>	Sea Mouse-ear	
<i>Cerastium fontanum ssp.holosteoides</i>	Common Mouse-ear	
<i>Cerastium semidecandrum</i>	Little Mouse-ear	
<i>Cerastium tomentosum</i>	Snow-in-summer	Introduced
<i>Chamerion angustifolium</i>	Rosebay Willowherb	

<i>Chenopodium album</i>	Fat-hen	
<i>Chenopodium glaucum</i>	Oak-leaved Goosefoot	
<i>Chenopodium rubrum</i>	Red Goosefoot	
<i>Cirsium arvense</i>	Creeping Thistle	
<i>Cirsium vulgare</i>	Spear Thistle	
<i>Cochlearia officinalis</i>	Common Scurvygrass	
<i>Colutea arborescens</i>	Bladder-senna	Introduced
<i>Conium maculatum</i>	Hemlock	
<i>Convolvulus arvensis</i>	Field Bindweed	
<i>Conyza canadensis</i>	Canadian Fleabane	
<i>Coronopus squamatus</i>	Swine-cress	
<i>Cotoneaster sp.</i>	Cotoneaster	Introduced
<i>Crataegus monogyna ssp.nordica</i>	Hawthorn	
<i>Crepis capillaris</i>	Smooth Hawk's-beard	
<i>Crocosmia x crocosmiiflora</i>	Montbretia	Introduced
<i>Cymbalaria muralis</i>	Ivy-leaved Toadflax	
<i>Dactylis glomerata</i>	Cock's-foot	
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid	
<i>Dactylorhiza purpurella</i>	Northern Marsh-orchid	
<i>Daucus carota ssp.carota</i>	Wild Carrot	
<i>Diplotaxis muralis</i>	Annual Wall-rocket	
<i>Diplotaxis tenuifolia</i>	Perennial Wall-rocket	
<i>Dryopteris filix-mas</i>	Male-fern	
<i>Echium vulgare</i>	Viper's-bugloss	
<i>Eleocharis palustris ssp.vulgaris</i>	Common Spike-rush	
<i>Elytrigia atherica</i>	Sea Couch	
<i>Elytrigia juncea ssp.boreoatlantica</i>	Sand Couch	
<i>Elytrigia repens ssp.repens</i>	Common Couch	
<i>Epilobium hirsutum</i>	Great Willowherb	
<i>Equisetum arvense</i>	Field Horsetail	
<i>Erigeron acer</i>	Blue Fleabane	
<i>Erodium cicutarium</i>	Common Stork's-bill	
<i>Erophila verna</i>	Common Whitlowgrass	
<i>Eupatorium cannabinum</i>	Hemp-agrimony	
<i>Euphorbia cyparissias</i>	Cypress Spurge	Introduced
<i>Euphorbia helioscopia</i>	Sun Spurge	
<i>Euphorbia peplis</i>	Purple Spurge	
<i>Euphrasia nemorosa</i>	Eyebright	
<i>Euphrasia tetraquetra</i>	Eyebright	
<i>Festuca arenaria</i>	Rush-leaved Fescue	
<i>Festuca rubra ssp.rubra</i>	Red Fescue	
<i>Fumaria officinalis ssp.officinalis</i>	Common Fumitory	
<i>Galium aparine</i>	Cleavers	
<i>Galium verum</i>	Lady's Bedstraw	
<i>Geranium lucidum</i>	Shining Crane's-bill	
<i>Geranium molle</i>	Dove's Foot Crane's-bill	
<i>Geranium sanguineum</i>	Bloody Crane's-bill	
<i>Glaux maritima</i>	Sea-milkwort	
<i>Gymnadenia conopsea ssp.conopsea</i>	Fragrant Orchid	
<i>Hedera helix</i>	Ivy	
<i>Heracleum sphondylium ssp.sphondylium</i>	Hogweed	
<i>Hieracium vagum</i>	Shrubby Hieracium	
<i>Hieracium vulgatum</i>	Common Hawkweed	
<i>Hippophae rhamnoides</i>	Sea-buckthorn	Introduced
<i>Honckenya peploides</i>	Sea Sandwort	
<i>Hordeum murinum ssp.murinum</i>	Wall Barley	
<i>Hyacinthoides hispanica</i>	Spanish Bluebell	Introduced
<i>Hypochaeris radicata</i>	Cat's-ear	
<i>Iris germanica</i>	Bearded Iris	
<i>Juncus ambiguus</i>	Frog Rush	
<i>Juncus articulatus</i>	Jointed Rush	

<i>Juncus bufonius</i>	Toad Rush	
<i>Juncus gerardii</i>	Saltmarsh Rush	
<i>Kniphofia uvaria</i>	Red-hot-poker	Introduced
<i>Lactuca virosa</i>	Great Lettuce	
<i>Lamium album</i>	White Dead-nettle	
<i>Lamium hybridum</i>	Cut-leaved Dead-nettle	
<i>Lamium purpureum</i>	Red Dead-nettle	
<i>Lathyrus pratensis</i>	Meadow Vetchling	
<i>Leontodon autumnalis ssp.autumnalis</i>	Autumn Hawkbit	
<i>Leontodon saxatilis</i>	Lesser Hawkbit	
<i>Leucanthemum vulgare</i>	Oxeye Daisy	
<i>Leymus arenarius</i>	Lyme-grass	
<i>Limonium vulgare</i>	Common Sea-lavender	
<i>Linaria purpurea</i>	Purple Toadflax	
<i>Linaria vulgaris</i>	Common Toadflax	
<i>Linum catharticum</i>	Fairy Flax	
<i>Lobularia maritima</i>	Sweet Alison	Introduced
<i>Lolium perenne</i>	Perennial Rye-grass	
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	
<i>Lunaria annua</i>	Honesty	Introduced
<i>Luzula campestris</i>	Field Wood-rush	
<i>Malus sylvestris</i>	Crab Apple	
<i>Malva sylvestris</i>	Common Mallow	
<i>Matricaria discoidea</i>	Pineapple-weed	
<i>Medicago lupulina</i>	Black Medick	
<i>Melilotus albus</i>	White Melilot	
<i>Melilotus altissimus</i>	Tall Melilot	
<i>Mentha aquatica</i>	Water Mint	
<i>Narcissus sp.</i>	Daffodil species	Introduced
<i>Oenanthe crocata</i>	Hemlock Water-dropwort	
<i>Oenanthe lachenalii</i>	Parsley Water-dropwort	
<i>Ononis repens ssp.repens</i>	Common Restharrow	
<i>Ophrys apifera</i>	Bee Orchid	
<i>Oxalis articulata</i>	Pink-sorrel	Introduced ?
<i>Papaver rhoeas</i>	Common Poppy	
<i>Parapholis strigosa</i>	Hard-grass	
<i>Pastinaca sativa</i>	Wild Parsnip	Naturalised
<i>Pedicularis sylvatica ssp.sylvatica</i>	Lousewort	
<i>Phalaris arundinacea</i>	Reed Canary-grass	
<i>Phleum arenarium</i>	Sand Cat's-tail	
<i>Phleum pratense</i>	Timothy	
<i>Phragmites australis</i>	Reed	
<i>Pilosella sp.</i>	Mouse-ear-hawkweed	
<i>Plantago coronopus</i>	Buck's-horn Plantain	
<i>Plantago lanceolata</i>	Ribwort Plantain	
<i>Plantago major ssp.major</i>	Greater Plantain	
<i>Plantago maritima</i>	Sea Plantain	
<i>Poa annua</i>	Annual Meadow Grass	
<i>Polygonum aviculare</i>	Knotgrass	
<i>Potentilla anserina</i>	Silverweed	
<i>Potentilla reptans</i>	Creeping Cinquefoil	
<i>Potentilla sterilis</i>	Barren Strawberry	
<i>Primula veris</i>	Cowslip	
<i>Pteridium aquilinum</i>	Bracken	
<i>Puccinellia distans</i>	Reflexed Saltmarsh-grass	
<i>Puccinellia maritima</i>	Common Saltmarsh-grass	
<i>Pyrus communis</i>	Pear	Introduced ?
<i>Ranunculus acris</i>	Meadow Buttercup	
<i>Ranunculus repens</i>	Creeping Buttercup	
<i>Ranunculus scleratus</i>	Celery-leaved Crowfoot	
<i>Reseda lutea</i>	Wild Mignonette	

<i>Reseda luteola</i>	Weld	
<i>Rhinanthus minor ssp.minor</i>	Yellow Rattle	
<i>Rosa canina</i>	Dog-rose	
<i>Rosa rugosa</i>	Japanese Rose	Introduced
<i>Rubus fruticosus agg.</i>	Bramble	
<i>Rumex acetosa ssp.acetosa</i>	Common Sorrel	
<i>Rumex acetosella ssp.acetosella</i>	Sheep's Sorrel	
<i>Rumex crispus ssp.crispus</i>	Curled Dock	
<i>Rumex obtusifolius</i>	Broad-leaved Dock	
<i>Sagina nodosa</i>	Knotted Pearlwort	
<i>Salicornia europaea</i>	Common Glasswort	
<i>Salicornia ramosissima</i>	Purple Glasswort	
<i>Salix caprea ssp.caprea</i>	Goat Willow	
<i>Salsola kali ssp.kali</i>	Prickly Saltwort	
<i>Sambucus nigra</i>	Elder	
<i>Schoenoplectus lacustris</i>	Common Club-rush	
<i>Schoenoplectus tabernaemontani</i>	Grey Club-rush	
<i>Sedum acre</i>	Biting Stonecrop	
<i>Sedum album</i>	White Stonecrop	Introduced
<i>Senecio erucifolius</i>	Hoary Ragwort	
<i>Senecio jacobaea</i>	Common Ragwort	
<i>Senecio squalidus</i>	Oxford Ragwort	
<i>Senecio vulgaris</i>	Groundsel	
<i>Seriphidium maritimum</i>	Sea Wormwod	
<i>Silene dioica</i>	Red Champion	
<i>Silene latifolia ssp.alba</i>	White Champion	
<i>Silene vulgaris ssp.vulgaris</i>	Bladder Champion	
<i>Silene x hampeana</i>	Champion hybrid	
<i>Sinapis arvensis</i>	Charlock	
<i>Sisymbrium altissimum</i>	Tall Rocket	
<i>Sisymbrium officinale</i>	Hedge Mustard	
<i>Sisymbrium orientale</i>	Eastern Rocket	
<i>Smyrniolum olusatrum</i>	Alexanders	
<i>Solanum dulcamara</i>	Bittersweet	
<i>Solidago canadensis</i>	Canadian Goldenrod	Introduced
<i>Sonchus arvensis</i>	Perennial Sow-thistle	
<i>Sonchus asper</i>	Prickly Sow-thistle	
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	
<i>Spergularia marina</i>	Lesser Sea-spurrey	
<i>Spergularia media</i>	Greater Sea-spurrey	
<i>Stellaria holostea</i>	Greater Stitchwort	
<i>Stellaria media</i>	Common Chickweed	
<i>Stellaria pallida</i>	Lesser Chickweed	
<i>Suaeda maritima</i>	Annual Sea-blite	
<i>Suaeda vera</i>	Shrubby Sea-blite	Introduced
<i>Syringa vulgaris</i>	Lilac	Introduced
<i>Tanacetum vulgare</i>	Tansy	
<i>Taraxacum officinale agg.</i>	Dandelion	
<i>Taraxacum oxoniense</i>	Dandelion sp.	
<i>Taraxacum unguilobum</i>	Dandelion sp.	
<i>Thalictrum minus</i>	Lesser Meadow-rue	
<i>Tragopogon pratensis ssp.pratensis</i>	Goat's-beard	
<i>Trifolium arvense</i>	Hare's-foot Clover	
<i>Trifolium campestre</i>	Hop Trefoil	
<i>Trifolium dubium</i>	Lesser Yellow Trefoil	
<i>Trifolium medium</i>	Zigzag Clover	
<i>Trifolium pratense</i>	Red Clover	
<i>Triglochin maritima</i>	Sea Arrowgrass	
<i>Triglochin palustris</i>	Marsh Arrowgrass	
<i>Tripleurospermum inodorum</i>	Scentless Mayweed	
<i>Tripleurospermum maritimum</i>	Sea Mayweed	

Tussilago farfara
Typha latifolia
Urtica dioica
Urtica urens
Veronica arvensis
Veronica chamaedrys
Veronica hederifolia ssp.hederifolia
Veronica longifolia
Veronica polita
Viola canina ssp.canina
Viola hirta
Viola x bavarica
Zannichellia palustris

Colt's-foot
 Bulrush
 Common Nettle
 Small Nettle
 Wall Speedwell
 Germander Speedwell
 Ivy-leaved Speedwell
 Garden Speedwell
 Grey Field-speedwell
 Heath Dog-violet
 Hairy Violet
 Hybrid Dog-violet
 Horned Pondweed

Introduced

11.2 COATHAM DUNES

Achillea millefolium
Agrostis stolonifera
Ammophila arenaria
Anagallis arvensis ssp.arvensis
Anisantha sterilis
Anthriscus sylvestris
Anthyllis vulneraria ssp.vulneraria
Arenaria serpyllifolia ssp.serpyllifolia
Armoracia rusticana
Arrhenatherum elatius
Artemisia vulgaris
Aster novi-belgii
Aster tripolium
Astragalus danicus
Atriplex prostrata
Ballota nigra ssp. foetida
Bellis perennis
Blackstonia perfoliata
Blysmus compressus
Bolboschoenus maritimus
Bromopsis inermis
Bromus hordaceus ssp.hordeaceus
Cakile maritima
Calystegia sepium ssp.sepium
Carduus tenuiflorus
Carex arenaria
Carex distans
Carex extensa
Carex flacca
Carex hirta
Carex nigra
Carex otrubae
Catapodium rigidum
Centaurium erythraea
Cerastium arvense
Cerastium diffusum
Cerastium fontanum ssp.holosteoides
Cerastium semidecandrum
Cerastium tomentosum
Chenopodium album
Cichorium intybus
Cirsium arvense
Cirsium vulgare
Cochlearia officinalis
Conium maculatum

Yarrow
 Creeping Bent
 Marram
 Scarlet Pimpernel
 Barren Brome
 Cow Parsley
 Kidney Vetch
 Thyme-leaved Sandwort
 Horse-radish
 False Oat-grass
 Mugwort
 Confused Michaelmas-daisy
 Sea Aster
 Purple Milk-vetch
 Spear-leaved Orache
 Black Horehound
 Daisy
 Yellow-wort
 Flat-sedge
 Sea Club-rush
 Hungarian Brome
 Soft-brome
 Sea Rocket
 Hedge Bindweed
 Slender Thistle
 Sand Sedge
 Distant Sedge
 Long-bracted Sedge
 Glaucous Sedge
 Hairy Sedge
 Common Sedge
 False Fox-sedge
 Fern-grass
 Common Centaury
 Field Mouse-ear
 Sea Mouse-ear
 Common Mouse-ear
 Little Mouse-ear
 Snow-in-summer
 Fat-hen
 Chicory
 Creeping Thistle
 Spear Thistle
 Common Scurvygrass
 Hemlock

Naturalised

Introduced

Introduced

Naturalised

<i>Conopodium majus</i>	Pignut	
<i>Convolvulus arvensis</i>	Field Bindweed	
<i>Crepis capillaris</i>	Smooth Hawk's-beard	
<i>Crepis vesicaria ssp.taraxacifolia</i>	Beaked Hawk's-beard	
<i>Dactylis glomerata</i>	Cock's-foot	
<i>Dactylorhiza purpurella</i>	Northern Marsh-orchid	
<i>Daucus carota ssp.carota</i>	Wild Carrot	
<i>Diplotaxis muralis</i>	Annual Wall-rocket	
<i>Diplotaxis tenuifolia</i>	Perennial Wall-rocket	
<i>Eleocharis palustris ssp.palustris</i>	Common Spike-rush	
<i>Eleocharis quinqueflora</i>	Few-flowered Spike-rush	
<i>Eleocharis uniglumis</i>	Slender Spike-rush	
<i>Elytrigia juncea ssp.boreoatlantica</i>	Sand Couch	
<i>Elytrigia repens ssp.repens</i>	Common Couch	
<i>Epilobium hirsutum</i>	Great Willowherb	
<i>Epilobium parviflorum</i>	Hoary Willowherb	
<i>Equisetum arvense</i>	Field Horsetail	
<i>Equisetum palustre</i>	Marsh Horsetail	
<i>Erigeron acer</i>	Blue Fleabane	
<i>Erodium cicutarium</i>	Common Stork's-bill	
<i>Erophila verna</i>	Common Whitlowgrass	
<i>Fallopia convolvulus</i>	Black Bindweed	
<i>Festuca arenaria</i>	Rush-leaved Fescue	
<i>Festuca arundinacea</i>	Tall Fescue	
<i>Festuca rubra ssp.juncea</i>	Red Fescue	
<i>Festuca rubra ssp.rubra</i>	Red Fescue	
<i>Fumaria capreolata ssp.capreolata</i>	White Ramping-fumitory	
<i>Fumaria muralis ssp.boraei</i>	Common Ramping-fumitory	
<i>Fumaria officinalis ssp.officinalis</i>	Common Fumitory	
<i>Galium palustre ssp.palustre</i>	Common Marsh-bedstraw	
<i>Galium verum</i>	Lady's Bedstraw	
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	
<i>Geranium molle</i>	Dove's Foot Crane's-bill	
<i>Gladiolus communis ssp.byzantinus</i>	Eastern Gladiolus	Introduced
<i>Glaux maritima</i>	Sea-milkwort	
<i>Groenlandia densa</i>	Opposite-leaved Pondweed	
<i>Heracleum sphondylium ssp.sphondylium</i>	Hogweed	
<i>Hieracium vagum</i>	Shrubby Hieracium	
<i>Holcus lanatus</i>	Yorkshire-fog	
<i>Honckenya peploides</i>	Sea Sandwort	
<i>Hordeum murinum ssp.murinum</i>	Wall Barley	
<i>Hyacinthoides hispanica</i>	Spanish Bluebell	Introduced
<i>Hyacinthoides non-scripta</i>	Bluebell	
<i>Hydrocotyle vulgaris</i>	Marsh Pennywort	
<i>Hypochaeris radicata</i>	Cat's-ear	
<i>Iris versicolor</i>	Purple Iris	
<i>Juncus articulatus</i>	Jointed Rush	
<i>Juncus gerardii</i>	Saltmarsh Rush	
<i>Juncus inflexus</i>	Hard Rush	
<i>Knautia arvensis</i>	Field Scabious	
<i>Koeleria macrantha</i>	Crested Hair-grass	
<i>Lactuca virosa</i>	Great Lettuce	
<i>Lamium album</i>	White Dead-nettle	
<i>Leontodon autumnalis ssp.autumnalis</i>	Autumn Hawkbit	
<i>Leontodon hispidus</i>	Rough Hawkbit	
<i>Leontodon saxatilis</i>	Lesser Hawkbit	
<i>Lepidium draba ssp.draba</i>	Hoary Cress	
<i>Leucanthemum vulgare</i>	Oxeye Daisy	
<i>Leymus arenarius</i>	Lyme-grass	
<i>Ligustrum ovalifolium</i>	Garden Privet	Introduced
<i>Linaria vulgaris</i>	Common Toadflax	

<i>Linum catharticum</i>	Fairy Flax	
<i>Lolium perenne</i>	Perennial Rye-grass	
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	
<i>Lycium barbarum</i>	Duke of Argyll's Teaplant	Introduced
<i>Malva neglecta</i>	Dwarf Mallow	
<i>Malva sylvestris</i>	Common Mallow	
<i>Matricaria discoidea</i>	Pineapple-weed	
<i>Matricaria recutita</i>	Scented Mayweed	
<i>Medicago lupulina</i>	Black Medick	
<i>Medicago sativa ssp.sativa</i>	Lucerne	Introduced
<i>Melilotus albus</i>	White Melilot	
<i>Melilotus altissimus</i>	Tall Melilot	
<i>Mentha aquatica</i>	Water Mint	
<i>Mentha spicata</i>	Spear Mint	
<i>Odontites vernus</i>	Red Bartsia	
<i>Onobrychis viciifolia</i>	Sainfoin	Introduced
<i>Ononis repens ssp.repens</i>	Common Restharrow	
<i>Ophrys apifera</i>	Bee Orchid	
<i>Oxalis articulata</i>	Pink-sorrel	Introduced
<i>Papaver dubium ssp.dubium</i>	Long-headed Poppy	
<i>Papaver rhoeas</i>	Common Poppy	
<i>Papaver somniferum ssp.somniferum</i>	Opium Poppy	Introduced
<i>Persicaria bistorta</i>	Common Bistort	
<i>Persicaria maculosa</i>	Redshank	
<i>Petroselinum crispum</i>	Garden Parsley	
<i>Phalaris arundinacea</i>	Reed Canary-grass	
<i>Phleum arenarium</i>	Sand Cat's-tail	
<i>Pilosella sp.</i>	Mouse-ear-hawkweed	
<i>Plantago coronopus</i>	Buck's-horn Plantain	
<i>Plantago lanceolata</i>	Ribwort Plantain	
<i>Poa annua</i>	Annual Meadow Grass	
<i>Poa pratensis</i>	Smooth Meadow-grass	
<i>Polygonum aviculare</i>	Knotgrass	
<i>Potentilla anserina</i>	Silverweed	
<i>Potentilla reptans</i>	Creeping Cinquefoil	
<i>Pulicaria dysenterica</i>	Common Fleabane	
<i>Ranunculus acris</i>	Meadow Buttercup	
<i>Ranunculus baudotii</i>	Brackish Water-crowfoot	
<i>Ranunculus bulbosus</i>	Bulbous Buttercup	
<i>Ranunculus flammula ssp.flammula</i>	Lesser Spearwort	
<i>Ranunculus repens</i>	Creeping Buttercup	
<i>Ranunculus scleratus</i>	Celery-leaved Crowfoot	
<i>Ranunculus trichophyllus</i>	Thread-leaved Water-crowfoot	
<i>Raphanus raphanistrum</i>	Wild Radish	
<i>ssp.raphanistrum</i>		
<i>Rhinanthus minor ssp.minor</i>	Yellow Rattle	
<i>Rosa canina</i>	Dog-rose	
<i>Rubus fruticosus agg.</i>	Bramble	
<i>Rumex acetosa ssp.acetosa</i>	Common Sorrel	
<i>Rumex crispus ssp.crispus</i>	Curled Dock	
<i>Rumex obtusifolius</i>	Broad-leaved Dock	
<i>Sagina nodosa</i>	Knotted Pearlwort	
<i>Salix caprea ssp.caprea</i>	Goat Willow	
<i>Sanguisorba minor ssp.minor</i>	Salad Burnet	
<i>Saponaria officinalis</i>	Soapwort	Introduced
<i>Schoenoplectus tabernaemontani</i>	Grey Club-rush	
<i>Securigera varia</i>	Crown Vetch	Introduced
<i>Sedum acre</i>	Biting Stonecrop	Introduced
<i>Sedum album</i>	White Stonecrop	
<i>Senecio jacobaea</i>	Common Ragwort	

<i>Senecio squalidus</i>	Oxford Ragwort	
<i>Senecio vulgaris</i>	Groundsel	
<i>Sinapis arvensis</i>	Charlock	
<i>Sisymbrium altissimum</i>	Tall Rocket	
<i>Sisymbrium officinale</i>	Hedge Mustard	
<i>Sisymbrium orientale</i>	Eastern Rocket	
<i>Solidago gigantea ssp.serotina</i>	Early Goldenrod	Introduced
<i>Sonchus asper</i>	Prickly Sow-thistle	
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	
<i>Spartium junceum</i>	Spanish Broom	Introduced
<i>Spergula arvensis</i>	Corn Spurrey	
<i>Stellaria media</i>	Common Chickweed	
<i>Stellaria pallida</i>	Lesser Chickweed	
<i>Taraxacum arenastrum</i>	Dandelion sp.	
<i>Taraxacum hamatifforme</i>	Dandelion sp.	
<i>Taraxacum lacistophyllum</i>	Dandelion sp.	
<i>Taraxacum officinale agg.</i>	Dandelion	
<i>Taraxacum pseudolarssonii</i>	Dandelion sp.	
<i>Taraxacum sahalinianum</i>	Dandelion sp.	
<i>Thalictrum minus</i>	Lesser Meadow-rue	
<i>Tragopogon pratensis ssp.pratensis</i>	Goat's-beard	
<i>Trifolium arvense</i>	Hare's-foot Clover	
<i>Trifolium campestre</i>	Hop Trefoil	
<i>Trifolium dubium</i>	Lesser Yellow Trefoil	
<i>Trifolium hybridum ssp.hybridum</i>	Alsike Clover	
<i>Trifolium pratense</i>	Red Clover	
<i>Trifolium repens</i>	White Clover	
<i>Triglochin palustris</i>	Marsh Arrowgrass	
<i>Tripleurospermum inodorum</i>	Scentless Mayweed	
<i>Typha latifolia</i>	Bulrush	
<i>Urtica urens</i>	Small Nettle	
<i>Veronica catenata</i>	Pink Water-speedwell	
<i>Vicia cracca</i>	Tufted Vetch	
<i>Vicia sativa ssp.satava</i>	Common Vetch	
<i>Vicia sepium</i>	Bush Vetch	
<i>Viola arvensis</i>	Field Pansy	

11.3 REDCAR STRAY

<i>Achillea millefolium</i>	Yarrow
<i>Aegopodium podagraria</i>	Ground-elder
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Ammophila arenaria</i>	Marram
<i>Anthriscus caucalis</i>	Bur Parsley
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Artemisia vulgaris</i>	Mugwort
<i>Astragalus danicus</i>	Purple Milk-vetch
<i>Bellis perennis</i>	Daisy
<i>Beta vulgaris ssp.maritima</i>	Sea Beet
<i>Bolboschoenus maritimus</i>	Sea Club-rush
<i>Brachypodium sylvaticum</i>	False Brome
<i>Bromopsis inermis</i>	Hungarian Brome
<i>Bromus hordaceus ssp.hordeaceus</i>	Soft-brome
<i>Calystegia silvatica</i>	Large Bindweed
<i>Campanula rotundifolia</i>	Harebell
<i>Capsella bursa-pastoris</i>	Shepherd's-purse
<i>Carex arenaria</i>	Sand Sedge
<i>Carex hirta</i>	Hairy Sedge
<i>Centaurea nigra</i>	Common Knapweed
<i>Cerastium fontanum ssp.vulgare</i>	Common Mouse-ear

<i>Cerastium semidecandrum</i>	Little Mouse-ear	
<i>Cerastium tomentosum</i>	Snow-in-summer	Introduced
<i>Chamerion angustifolium</i>	Rosebay Willowherb	
<i>Chenopodium album</i>	Fat-hen	
<i>Cirsium arvense</i>	Creeping Thistle	
<i>Cirsium vulgare</i>	Spear Thistle	
<i>Conium maculatum</i>	Hemlock	
<i>Dactylis glomerata</i>	Cock's-foot	
<i>Daucus carota ssp.carota</i>	Wild Carrot	
<i>Elytrigia juncea ssp.boreoatlantica</i>	Sand Couch	
<i>Elytrigia repens spp.repens</i>	Common Couch	
<i>Epilobium hirsutum</i>	Great Willowherb	
<i>Equisetum arvense</i>	Field Horsetail	
<i>Erodium cicutarium</i>	Common Stork's-bill	
<i>Erodium lebelii</i>	Sticky Stork's-bill	
<i>Erophila verna</i>	Common Whitlowgrass	
<i>Euphorbia helioscopia</i>	Sun Spurge	
<i>Fallopia japonica</i>	Japanese Knotweed	Naturalised
<i>Festuca rubra ssp.rubra</i>	Red Fescue	
<i>Filipendula ulmaria</i>	Meadowsweet	
<i>Galium aparine</i>	Cleavers	
<i>Galium verum</i>	Lady's Bedstraw	
<i>Geranium molle</i>	Dove's Foot Crane's-bill	
<i>Heracleum sphondylium ssp.sphondylium</i>	Hogweed	
<i>Holcus lanatus</i>	Yorkshire-fog	
<i>Honckenya pelloides</i>	Sea Sandwort	
<i>Hordeum murinum ssp.murinum</i>	Wall Barley	
<i>Hyacinthoides hispanica</i>	Spanish Bluebell	Introduced
<i>Hyacinthoides non-scripta</i>	Bluebell	
<i>Hypochaeris radicata</i>	Cat's-ear	
<i>Impatiens glandulifera</i>	Indian Balsam	
<i>Juncus articulatus</i>	Jointed Rush	
<i>Juncus inflexus</i>	Hard Rush	
<i>Lamium purpureum</i>	Red Dead-nettle	
<i>Lathyrus pratensis</i>	Meadow Vetchling	
<i>Leontodon hispidus</i>	Rough Hawkbit	
<i>Leucanthemum vulgare</i>	Oxeye Daisy	
<i>Leucanthemum x superbum</i>	Shasta Daisy	Introduced
<i>Leymus arenarius</i>	Lyme-grass	
<i>Linaria vulgaris</i>	Common Toadflax	
<i>Lolium perenne</i>	Perennial Rye-grass	
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	
<i>Lycium barbarum</i>	Duke of Argyll's Teaplant	Introduced
<i>Malva sylvestris</i>	Common Mallow	
<i>Medicago lupulina</i>	Black Medick	
<i>Ononis repens ssp.repens</i>	Common Restharrow	
<i>Oxalis articulata</i>	Pink-sorrel	Introduced
<i>Phleum pratense</i>	Timothy	
<i>Plantago coronopus</i>	Buck's-horn Plantain	
<i>Plantago lanceolata</i>	Ribwort Plantain	
<i>Plantago major ssp.major</i>	Greater Plantain	
<i>Plantago maritima</i>	Sea Plantain	
<i>Plantago media</i>	Hoary Plantain	
<i>Poa annua</i>	Annual Meadow Grass	
<i>Poa pratensis</i>	Smooth Meadow-grass	
<i>Poa trivialis</i>	Rough Meadow-grass	
<i>Polygala vulgaris ssp.vulgaris</i>	Common Milkwort	
<i>Potentilla anserina</i>	Silverweed	
<i>Potentilla reptans</i>	Creeping Cinquefoil	
<i>Ranunculus acris</i>	Meadow Buttercup	

<i>Ranunculus bulbosus</i>	Bulbous Buttercup
<i>Ranunculus ficaria ssp.ficaria</i>	Lesser Celandine
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rhinanthus minor ssp.minor</i>	Yellow Rattle
<i>Rosa canina</i>	Dog-rose
<i>Rubus fruticosus agg.</i>	Bramble
<i>Rumex acetosella ssp.acetosella</i>	Sheep's Sorrel
<i>Rumex crispus ssp.crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Sanguisorba minor ssp.minor</i>	Salad Burnet
<i>Sedum acre</i>	Biting Stonecrop
<i>Senecio jacobaea</i>	Common Ragwort
<i>Senecio squalidus</i>	Oxford Ragwort
<i>Senecio viscosus</i>	Sticky Groundsel
<i>Senecio vulgaris</i>	Groundsel
<i>Sinapis arvensis</i>	Charlock
<i>Sisymbrium officinale</i>	Hedge Mustard
<i>Sisymbrium orientale</i>	Eastern Rocket
<i>Sonchus arvensis</i>	Perennial Sow-thistle
<i>Sonchus asper</i>	Prickly Sow-thistle
<i>Sonchus oleraceus</i>	Smooth Sow-thistle
<i>Stellaria holostea</i>	Greater Stitchwort
<i>Stellaria media</i>	Common Chickweed
<i>Stellaria pallida</i>	Lesser Chickweed
<i>Taraxacum officinale agg.</i>	Dandelion
<i>Thalictrum minus</i>	Lesser Meadow-rue
<i>Thymus polytrichus ssp.britanicus</i>	Wild Thyme
<i>Tragopogon pratensis ssp.pratensis</i>	Goat's-beard
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Tussilago farfara</i>	Colt's-foot
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Common Nettle
<i>Veronica hederifolia ssp.hederifolia</i>	Ivy-leaved Speedwell
<i>Veronica persica</i>	Common Field-speedwell
<i>Vicia sepium</i>	Bush Vetch
<i>Viola riviniana</i>	Common Dog-violet

11.4 "CLIFF HOUSE", MARSKE TO SALTBURN BANK

<i>Achillea millefolium</i>	Yarrow	
<i>Agrimonia eupatoria</i>	Agrimony	
<i>Agrostis stolonifera</i>	Creeping Bent	
<i>Alliaria petiolata</i>	Garlic Mustard	
<i>Alopecurus pratensis</i>	Meadow Foxtail	
<i>Ammophila arenaria</i>	Marram	
<i>Anagallis arvensis ssp.arvensis</i>	Scarlet Pimpernel	
<i>Anchusa arvensis</i>	Bugloss	
<i>Angelica sylvestris</i>	Wild Angelica	
<i>Anisantha sterilis</i>	Barren Brome	
<i>Anthriscus sylvestris</i>	Cow Parsley	
<i>Anthyllis vulneraria ssp.vulneraria</i>	Kidney Vetch	
<i>Armoracia rusticana</i>	Horse-radish	Naturalised
<i>Arrhenatherum elatius</i>	False Oat-grass	
<i>Artemisia vulgaris</i>	Mugwort	
<i>Aster novi-belgii</i>	Confused Michaelmas-daisy	Introduced
<i>Atriplex laciniata</i>	Frosted Orache	
<i>Atriplex patula</i>	Common Orache	
<i>Atriplex prostrata</i>	Spear-leaved Orache	
<i>Avena fatua</i>	Wild-oat	
<i>Bellis perennis</i>	Daisy	

<i>Bolboschoenus maritimus</i>	Sea Club-rush	
<i>Brassica napus ssp.oleifera</i>	Oil-seed Rape	
<i>Briza media</i>	Quaking-grass	
<i>Bromopsis inermis</i>	Hungarian Brome	
<i>Cakile maritima</i>	Sea Rocket	
<i>Calendula officinalis</i>	Pot Marigold	
<i>Caltha palustris</i>	Marsh-marigold	
<i>Calystegia silvatica</i>	Large Bindweed	
<i>Campanula rotundifolia</i>	Harebell	
<i>Capsella bursa-pastoris</i>	Shepherd's-purse	
<i>Carduus nutans</i>	Musk Thistle	
<i>Carex acutiformis</i>	Lesser Pond-sedge	
<i>Carex arenaria</i>	Sand Sedge	
<i>Carex distans</i>	Distant Sedge	
<i>Carex flacca</i>	Glaucous Sedge	
<i>Carex otrubae</i>	False Fox-sedge	
<i>Carex panicea</i>	Carnation Sedge	
<i>Carlina vulgaris</i>	Carlina Thistle	
<i>Centaurea macrocephala</i>	Armenian Knapweed	Introduced
<i>Centaurea montana</i>	Perennial Cornflower	Introduced
<i>Centaurea nigra</i>	Common Knapweed	
<i>Centaureum erythraea</i>	Common Centaury	
<i>Cerastium diffusum</i>	Sea Mouse-ear	
<i>Cerastium semidecandrum</i>	Little Mouse-ear	
<i>Cerastium tomentosum</i>	Snow-in-summer	Introduced
<i>Chamerion angustifolium</i>	Rosebay Willowherb	
<i>Chenopodium album</i>	Fat-hen	
<i>Cirsium arvense</i>	Creeping Thistle	
<i>Cirsium palustre</i>	Marsh Thistle	
<i>Cirsium vulgare</i>	Spear Thistle	
<i>Conopodium majus</i>	Pignut	
<i>Convolvulus arvensis</i>	Field Bindweed	
<i>Coronopus squamatus</i>	Swine-cress	
<i>Crataegus monogyna ssp.nordica</i>	Hawthorn	
<i>Crocoshia x crocosmiiflora</i>	Montbretia	Introduced
<i>Cruciata laevipes</i>	Crosswort	
<i>Dactylis glomerata</i>	Cock's-foot	
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid	
<i>Dactylorhiza maculata ssp.ericetorum</i>	Heath Spotted-orchid	
<i>Dactylorhiza purpurella</i>	Northern Marsh-orchid	
<i>Daucus carota ssp.carota</i>	Wild Carrot	
<i>Echinops bannaticus</i>	Blue Globe-thistle	Introduced
<i>Echium vulgare</i>	Viper's-bugloss	
<i>Eleocharis palustris ssp.palustris</i>	Common Spike-rush	
<i>Elytrigia juncea ssp.boreoatlantica</i>	Sand Couch	
<i>Elytrigia repens spp.repens</i>	Common Couch	
<i>Epilobium ciliatum</i>	American Willowherb	
<i>Epilobium hirsutum</i>	Great Willowherb	
<i>Equisetum arvense</i>	Field Horsetail	
<i>Erodium cicutarium</i>	Common Stork's-bill	
<i>Erodium lebelii</i>	Sticky Stork's-bill	
<i>Eupatorium cannabinum</i>	Hemp-agrimony	
<i>Euphorbia helioscopia</i>	Sun Spurge	
<i>Euphrasia nemorosa</i>	Eyebright	
<i>Euphrasia tetraquetra</i>	Eyebright	
<i>Fallopia baldschuanica</i>	Russian-vine	Introduced
<i>Festuca arundinacea</i>	Tall Fescue	
<i>Festuca pratensis</i>	Meadow Fescue	
<i>Festuca rubra ssp.rubra</i>	Red Fescue	
<i>Fumaria muralis ssp.boraei</i>	Common Ramping-fumitory	
<i>Fumaria officinalis ssp.officinalis</i>	Common Fumitory	

<i>Galium aparine</i>	Cleavers	
<i>Galium verum</i>	Lady's Bedstraw	
<i>Gentianella amarella ssp.amarella</i>	Autumn Gentian	
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	
<i>Geranium molle</i>	Dove's Foot Crane's-bill	
<i>Glaux maritima</i>	Sea-milkwort	
<i>Gymnadenia conopsea ssp.conopsea</i>	Fragrant Orchid	
<i>Hedera helix</i>	Ivy	
<i>Heracleum sphondylium ssp.sphondylium</i>	Hogweed	
<i>Holcus lanatus</i>	Yorkshire-fog	
<i>Honckenya peploides</i>	Sea Sandwort	
<i>Hordeum murinum ssp.murinum</i>	Wall Barley	
<i>Hyacinthoides hispanica</i>	Spanish Bluebell	Introduced
<i>Hyacinthoides non-scripta</i>	Bluebell	
<i>Hypericum tetrapterum</i>	Square-stemmed St'John's-wort	
<i>Hypochaeris radicata</i>	Cat's-ear	
<i>Iris pseudacorus</i>	Yellow Iris	
<i>Juncus articulatus</i>	Jointed Rush	
<i>Juncus bufonius</i>	Toad Rush	
<i>Juncus gerardii</i>	Saltmarsh Rush	
<i>Lamium album</i>	White Dead-nettle	
<i>Lamium purpureum</i>	Red Dead-nettle	
<i>Lapsana communis ssp.communis</i>	Nipplewort	
<i>Lathyrus pratensis</i>	Meadow Vetchling	
<i>Leontodon autumnalis ssp.autumnalis</i>	Autumn Hawkbit	
<i>Leontodon hispidus</i>	Rough Hawkbit	
<i>Leontodon saxatilis</i>	Lesser Hawkbit	
<i>Leucanthemum x superbum</i>	Shasta Daisy	Introduced
<i>Leymus arenarius</i>	Lyme-grass	
<i>Linum catharticum</i>	Fairy Flax	
<i>Listera ovata</i>	Common Twayblade	
<i>Lobularia maritima</i>	Sweet Alison	Introduced
<i>Lolium perenne</i>	Perennial Rye-grass	
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	
<i>Lycium barbarum</i>	Duke of Argyll's Teaplant	Introduced
<i>Malva sylvestris</i>	Common Mallow	
<i>Matricaria discoidea</i>	Pineapple-weed	
<i>Medicago lupulina</i>	Black Medick	
<i>Medicago sativa ssp.sativa</i>	Lucerne	Introduced
<i>Mentha aquatica</i>	Water Mint	
<i>Oenanthe crocata</i>	Hemlock Water-dropwort	
<i>Ononis repens ssp.repens</i>	Common Restharrow	
<i>Ophrys apifera</i>	Bee Orchid	
<i>Orchis mascula</i>	Early-purple Orchid	
<i>Orchis morio</i>	Green-winged Orchid	
<i>Papaver dubium ssp.dubium</i>	Long-headed Poppy	
<i>Papaver rhoeas</i>	Common Poppy	
<i>Papaver somniferum ssp.somniferum</i>	Opium Poppy	Introduced
<i>Parnassia palustris</i>	Grass-of-Parnassus	
<i>Pastinaca sativa</i>	Wild Parsnip	Naturalised
<i>Phleum pratense</i>	Timothy	
<i>Pilosella sp.</i>	Mouse-ear-hawkweed	
<i>Plantago coronopus</i>	Buck's-horn Plantain	
<i>Plantago major ssp.major</i>	Greater Plantain	
<i>Plantago maritima</i>	Sea Plantain	
<i>Plantago media</i>	Hoary Plantain	
<i>Poa annua</i>	Annual Meadow Grass	
<i>Poa pratensis</i>	Smooth Meadow-grass	
<i>Poa trivialis</i>	Rough Meadow-grass	
<i>Polygala vulgaris ssp.vulgaris</i>	Common Milkwort	
<i>Polygonum aviculare</i>	Knotgrass	

<i>Potentilla anserina</i>	Silverweed	
<i>Potentilla reptans</i>	Creeping Cinquefoil	
<i>Primula veris</i>	Cowslip	
<i>Primula vulgaris</i>	Primrose	
<i>Primula x polyantha</i>	False Oxlip	
<i>Prunella vulgaris</i>	Selfheal	
<i>Pulicaria dysenterica</i>	Common Fleabane	
<i>Ranunculus acris</i>	Meadow Buttercup	
<i>Ranunculus bulbosus</i>	Bulbous Buttercup	
<i>Ranunculus ficaria ssp.ficaria</i>	Lesser Celandine	
<i>Ranunculus repens</i>	Creeping Buttercup	
<i>Rhinanthus minor ssp.minor</i>	Yellow Rattle	
<i>Rorippa nasturtium-aquaticum</i>	Water-cress	
<i>Rosa canina</i>	Dog-rose	
<i>Rosa pimpinellifolia</i>	Burnet Rose	
<i>Rubus fruticosus agg.</i>	Bramble	
<i>Rumex acetosa ssp.acetosa</i>	Common Sorrel	
<i>Rumex crispus ssp.crispus</i>	Curled Dock	
<i>Rumex obtusifolius</i>	Broad-leaved Dock	
<i>Salix caprea ssp.caprea</i>	Goat Willow	
<i>Salsola kali ssp.kali</i>	Prickly Saltwort	
<i>Sambucus nigra</i>	Elder	
<i>Sanguisorba minor ssp.minor</i>	Salad Burnet	
<i>Scabiosa columbaria</i>	Small Scabious	
<i>Sedum acre</i>	Biting Stonecrop	Introduced
<i>Sedum album</i>	White Stonecrop	Introduced
<i>Senecio cambrensis</i>	Welsh Groundsel	
<i>Senecio jacobaea</i>	Common Ragwort	
<i>Senecio squalidus</i>	Oxford Ragwort	
<i>Senecio vulgaris</i>	Groundsel	
<i>Silene dioica</i>	Red Campion	
<i>Silene latifolia ssp.alba</i>	White Campion	
<i>Silene x hampeana</i>	Campion hybrid	
<i>Sinapis arvensis</i>	Charlock	
<i>Sisymbrium officinale</i>	Hedge Mustard	
<i>Sonchus arvensis</i>	Perennial Sow-thistle	
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	
<i>Stellaria media</i>	Common Chickweed	
<i>Succisa pratensis</i>	Devil's-bit Scabious	
<i>Taraxacum cordatum</i>	Dandelion sp.	
<i>Taraxacum duplidentifrons</i>	Dandelion sp.	
<i>Taraxacum expalidiforme</i>	Dandelion sp.	
<i>Taraxacum hamatum</i>	Dandelion sp.	
<i>Taraxacum marklandii</i>	Dandelion sp.	
<i>Taraxacum officinale agg.</i>	Dandelion	
<i>Taraxacum oxoniense</i>	Dandelion sp.	
<i>Taraxacum polyodon</i>	Dandelion sp.	
<i>Taraxacum pseudolarssonii</i>	Dandelion sp.	
<i>Taraxacum subhamatum</i>	Dandelion sp.	
<i>Thalictrum minus</i>	Lesser Meadow-rue	
<i>Thlaspi arvense</i>	Field Penny-cress	
<i>Tragopogon pratensis ssp.pratensis</i>	Goat's-beard	
<i>Trifolium dubium</i>	Lesser Yellow Trefoil	
<i>Trifolium hybridum ssp.hybridum</i>	Alsike Clover	
<i>Trifolium medium</i>	Zigzag Clover	
<i>Trifolium pratense</i>	Red Clover	
<i>Trifolium repens</i>	White Clover	
<i>Triglochin palustris</i>	Marsh Arrowgrass	
<i>Tussilago farfara</i>	Colt's-foot	
<i>Ulex europaeus</i>	Gorse	
<i>Urtica dioica</i>	Common Nettle	

Urtica urens
Veronica chamaedrys
Veronica hederifolia ssp.hederifolia
Vicia cracca
Vicia sativa ssp.satava
Vicia sepium
Viola canina ssp.canina
Viola riviniana

Small Nettle
 Germander Speedwell
 Ivy-leaved Speedwell
 Tufted Vetch
 Common Vetch
 Bush Vetch
 Heath Dog-violet
 Common Dog-violet

11.5 "CAT NAB", SALTBURN

Achillea millefolium
Aegopodium podagraria
Agrostis stolonifera
Alliaria petiolata
Allium ursinum
Anthriscus sylvestris
Arctium minus ssp.nemorosum
Arrhenatherum elatius
Arum maculatum
Atriplex patula
Bellis perennis
Briza media
Bromus hordaceus ssp.hordeaceus
Carduus nutans
Carduus tenuiflorus
Centaurea nigra
Cerastium fontanum ssp.holosteoides
Chaerophyllum temulum
Chenopodium album
Cirsium arvense
Cirsium vulgare
Conium maculatum
Convolvulus arvensis
Dactylis glomerata
Daucus carota ssp.carota
Epilobium hirsutum
Equisetum arvense
Eupatorium cannabinum
Festuca arundinacea
Festuca rubra ssp.rubra
Filipendula ulmaria
Galium aparine
Genista tinctoria ssp.tinctoria
Geranium molle
Glechoma hederacea
Hedera helix
Heracleum sphondylium ssp.sphondylium
Holcus lanatus
Hordeum murinum ssp.murinum
Hypochaeris radicata
Lapsana communis ssp.communis
Ligustrum vulgare
Lolium perenne
Lotus corniculatus

Lycium barbarum
Malva neglecta
Ononis repens ssp.repens
Papaver rhoeas
Picris echioides

Yarrow
 Ground-elder
 Creeping Bent
 Garlic Mustard
 Ramsons
 Cow Parsley
 Lesser Burdock
 False Oat-grass
 Lords and Ladies
 Common Orache
 Daisy
 Quaking-grass
 Soft-brome
 Musk Thistle
 Slender Thistle
 Common Knapweed
 Common Mouse-ear
 Rough Chervil
 Fat-hen
 Creeping Thistle
 Spear Thistle
 Hemlock
 Field Bindweed
 Cock's-foot
 Wild Carrot
 Great Willowherb
 Field Horsetail
 Hemp-agrimony
 Tall Fescue
 Red Fescue
 Meadowsweet
 Cleavers
 Dyer's Greenweed
 Dove's Foot Crane's-bill
 Ground-ivy
 Ivy
 Hogweed
 Yorkshire-fog
 Wall Barley
 Cat's-ear
 Nipplewort
 Wild Privet
 Perennial Rye-grass
 Common Bird's-foot-trefoil
 Duke of Argyll's Teaplant Introduced
 Dwarf Mallow
 Common Restharrow
 Common Poppy
 Bristly Oxtongue

<i>Plantago coronopus</i>	Buck's-horn Plantain	
<i>Plantago lanceolata</i>	Ribwort Plantain	
<i>Plantago major ssp.major</i>	Greater Plantain	
<i>Plantago maritima</i>	Sea Plantain	
<i>Potentilla anserina</i>	Silverweed	
<i>Potentilla reptans</i>	Creeping Cinquefoil	
<i>Prunella vulgaris</i>	Selfheal	
<i>Prunus spinosa</i>	Blackthorn	
<i>Ranunculus ficaria ssp.ficaria</i>	Lesser Celandine	
<i>Reseda lutea</i>	Wild Mignonette	
<i>Rorippa nasturtium-aquaticum</i>	Water-cress	
<i>Rosa canina</i>	Dog-rose	
<i>Rubus fruticosus agg.</i>	Bramble	
<i>Rumex acetosa ssp.acetosa</i>	Common Sorrel	
<i>Rumex crispus ssp.crispus</i>	Curled Dock	
<i>Rumex obtusifolius</i>	Broad-leaved Dock	
<i>Rumex sanguineus</i>	Wood Dock	
<i>Sambucus nigra</i>	Elder	
<i>Sanguisorba minor ssp.minor</i>	Salad Burnet	
<i>Scrophularia auriculata</i>	Water Figwort	
<i>Senecio jacobaea</i>	Common Ragwort	
<i>Senecio squalidus</i>	Oxford Ragwort	
<i>Senecio vulgaris</i>	Groundsel	
<i>Sisymbrium officinale</i>	Hedge Mustard	
<i>Sonchus arvensis</i>	Perennial Sow-thistle	
<i>Sonchus asper</i>	Prickly Sow-thistle	
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	
<i>Stachys officinalis</i>	Betony	
<i>Stellaria media</i>	Common Chickweed	
<i>Tamus communis</i>	Black Bryony	
<i>Taraxacum officinale agg.</i>	Dandelion	
<i>Trifolium pratense</i>	Red Clover	
<i>Trifolium repens</i>	White Clover	
<i>Tripleurospermum maritimum</i>	Sea Mayweed	
<i>Tussilago farfara</i>	Colt's-foot	
<i>Ulex europaeus</i>	Gorse	
<i>Urtica dioica</i>	Common Nettle	
<i>Veronica beccabunga</i>	Brooklime	
<i>Vinca major</i>	Greater Periwinkle	Introduced

11.6 SALT BURN TO SKINNING GROVE

<i>Achillea millefolium</i>	Yarrow	
<i>Aethusa cynapium ssp.cynapium</i>	Fool's Parsley	
<i>Agrimonia eupatoria</i>	Agrimony	
<i>Agrostis stolonifera</i>	Creeping Bent	
<i>Alopecurus pratensis</i>	Meadow Foxtail	
<i>Alyssum saxatile</i>	Golden Alison	Introduced
<i>Ammophila arenaria</i>	Marram	
<i>Anacamptis pyramidalis</i>	Pyramidal Orchid	
<i>Anagallis arvensis ssp.arvensis</i>	Scarlet Pimpernel	
<i>Angelica sylvestris</i>	Wild Angelica	
<i>Anthemis tinctoria</i>	Yellow Chamomile	Introduced
<i>Anthriscus sylvestris</i>	Cow Parsley	
<i>Anthyllis vulneraria ssp.vulneraria</i>	Kidney Vetch	
<i>Aphanes arvensis</i>	Parsley-piert	
<i>Apium graveolens</i>	Wild Celery	
<i>Arctium minus ssp.nemorosum</i>	Lesser Burdock	
<i>Arenaria serpyllifolia ssp.leptoclados</i>	Thyme-leaved Sandwort	
<i>Armoracia rusticana</i>	Horse-radish	Naturalised
<i>Arrhenatherum elatius</i>	False Oat-grass	

<i>Artemisia vulgaris</i>	Mugwort	
<i>Arum maculatum</i>	Lords and Ladies	
<i>Atriplex laciniata</i>	Frosted Orache	
<i>Atriplex prostrata</i>	Spear-leaved Orache	
<i>Avena sativa</i>	Oat	
<i>Bellis perennis</i>	Daisy	
<i>Beta vulgaris ssp.maritima</i>	Sea Beet	
<i>Blackstonia perfoliata</i>	Yellow-wort	
<i>Brachypodium sylvaticum</i>	False Brome	
<i>Brassica napus ssp.oleifera</i>	Oil-seed Rape	
<i>Bromus hordeaceus ssp.hordeaceus</i>	Soft-brome	
<i>Calamagrostis epigejos</i>	Wood Small-reed	
<i>Calendula officinalis</i>	Pot Marigold	Introduced
<i>Campanula rotundifolia</i>	Harebell	
<i>Capsella bursa-pastoris</i>	Shepherd's-purse	
<i>Cardamine pratensis</i>	Cuckooflower	
<i>Carduus nutans</i>	Musk Thistle	
<i>Carduus tenuiflorus</i>	Slender Thistle	
<i>Carex nigra</i>	Common Sedge	
<i>Carex panicea</i>	Carnation Sedge	
<i>Carlina vulgaris</i>	Carlina Thistle	
<i>Carum carvi</i>	Caraway	Introduced
<i>Catapodium marinum</i>	Sea Fern-grass	
<i>Centaurea nigra</i>	Common Knapweed	
<i>Centaurea scabiosa</i>	Greater Knapweed	Introduced
<i>Centaureum erythraea</i>	Common Centaury	
<i>Cerastium fontanum ssp.holosteoides</i>	Common Mouse-ear	
<i>Cerastium semidecandrum</i>	Little Mouse-ear	
<i>Cerastium tomentosum</i>	Snow-in-summer	Introduced
<i>Chaerophyllum temulum</i>	Rough Chervil	
<i>Chamerion angustifolium</i>	Rosebay Willowherb	
<i>Chenopodium album</i>	Fat-hen	
<i>Cirsium arvense</i>	Creeping Thistle	
<i>Cirsium palustre</i>	Marsh Thistle	
<i>Cirsium vulgare</i>	Spear Thistle	
<i>Cochlearia danica</i>	Danish Scurvygrass	
<i>Cochlearia officinalis</i>	Common Scurvygrass	
<i>Cochlearia officinalis x C.danica</i>	Scurvygrass Hybrid	
<i>Conium maculatum</i>	Hemlock	
<i>Conopodium majus</i>	Pignut	
<i>Crataegus monogyna ssp.nordica</i>	Hawthorn	
<i>Crepis capillaris</i>	Smooth Hawk's-beard	
<i>Cruciata laevipes</i>	Crosswort	
<i>Cynosurus cristatus</i>	Crested Dog's-tail	
<i>Dactylis glomerata</i>	Cock's-foot	
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid	
<i>Dactylorhiza maculata ssp.ericetorum</i>	Heath Spotted-orchid	
<i>Dactylorhiza purpurella</i>	Northern Marsh-orchid	
<i>Daucus carota ssp.carota</i>	Wild Carrot	
<i>Deschampsia cespitosa ssp.cespitosa</i>	Tufted Hair-grass	
<i>Dipsacus fullonum</i>	Wild Teasel	Introduced
<i>Dryopteris filix-mas</i>	Male-fern	
<i>Echium vulgare</i>	Viper's-bugloss	
<i>Elytrigia juncea ssp.boreoatlantica</i>	Sand Couch	
<i>Elytrigia repens spp.repens</i>	Common Couch	
<i>Epilobium hirsutum</i>	Great Willowherb	
<i>Epilobium palustre</i>	Marsh Willowherb	
<i>Equisetum arvense</i>	Field Horsetail	
<i>Equisetum telmateia</i>	Great Horsetail	
<i>Eupatorium cannabinum</i>	Hemp-agrimony	
<i>Euphorbia exigua</i>	Dwarf Spurge	

<i>Fallopia japonica</i>	Japanese Knotweed	Naturalised
<i>Festuca arenaria</i>	Rush-leaved Fescue	
<i>Festuca ovina ssp.ovina</i>	Sheep's-fescue	
<i>Festuca rubra ssp.rubra</i>	Red Fescue	
<i>Filipendula ulmaria</i>	Meadowsweet	
<i>Filipendula vulgaris</i>	Dropwort	
<i>Fragaria vesca</i>	Wild Strawberry	
<i>Fumaria capreolata ssp.capreolata</i>	White Ramping-fumitory	
<i>Fumaria officinalis ssp.officinalis</i>	Common Fumitory	
<i>Galium aparine</i>	Cleavers	
<i>Galium saxatile</i>	Heath Bedstraw	
<i>Galium verum</i>	Lady's Bedstraw	
<i>Genista tinctoria ssp.tinctoria</i>	Dyer's Greenweed	
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	
<i>Geranium pratense</i>	Meadow Crane's-bill	
<i>Geranium robertianum</i>	Herb-Robert	
<i>Glaux maritima</i>	Sea-milkwort	
<i>Gymnadenia conopsea ssp.conopsea</i>	Fragrant Orchid	
<i>Hedera helix</i>	Ivy	
<i>Heracleum sphondylium ssp.sphondylium</i>	Hogweed	
<i>Hieracium vagum</i>	Shrubby Hieracium	
<i>Holcus lanatus</i>	Yorkshire-fog	
<i>Honckenya peploides</i>	Sea Sandwort	
<i>Hordeum murinum ssp.murinum</i>	Wall Barley	
<i>Hypericum hirsutum</i>	Hairy St John's-wort	
<i>Hypericum pulchrum</i>	Slender St John's-wort	
<i>Hypochaeris radicata</i>	Cat's-ear	
<i>Juncus articulatus</i>	Jointed Rush	
<i>Juncus inflexus</i>	Hard Rush	
<i>Lactuca virosa</i>	Great Lettuce	
<i>Lamium purpureum</i>	Red Dead-nettle	
<i>Lapsana communis ssp.communis</i>	Nipplewort	
<i>Lathyrus latifolius</i>	Broad-leaved Everlasting-pea	Introduced
<i>Lathyrus pratensis</i>	Meadow Vetchling	
<i>Leontodon hispidus</i>	Rough Hawkbit	
<i>Leymus arenarius</i>	Lyme-grass	
<i>Ligustrum vulgare</i>	Wild Privet	
<i>Linaria vulgaris</i>	Common Toadflax	
<i>Linum usitatissimum</i>	Flax	
<i>Listera ovata</i>	Common Twayblade	
<i>Lolium perenne</i>	Perennial Rye-grass	
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	
<i>Lycium barbarum</i>	Duke of Argyll's Teaplant	Introduced
<i>Matricaria discoidea</i>	Pineapple-weed	
<i>Medicago lupulina</i>	Black Medick	
<i>Melilotus altissimus</i>	Tall Melilot	
<i>Mercurialis perennis</i>	Dog's Mercury	
<i>Myosotis arvensis</i>	Field Forget-me-not	
<i>Onobrychis viciifolia</i>	Sainfoin	Introduced
<i>Ononis repens ssp.repens</i>	Common Restharrow	
<i>Origanum vulgare</i>	Wild Marjoram	
<i>Papaver dubium ssp.lecoqii</i>	Long-headed Poppy	Introduced
<i>Papaver rhoeas</i>	Common Poppy	
<i>Phleum pratense</i>	Timothy	
<i>Picris echioides</i>	Bristly Oxtongue	
<i>Pilosella sp.</i>	Mouse-ear-hawkweed	
<i>Pimpinella saxifraga</i>	Burnet-saxifrage	
<i>Plantago coronopus</i>	Buck's-horn Plantain	
<i>Plantago lanceolata</i>	Ribwort Plantain	
<i>Plantago major ssp.major</i>	Greater Plantain	
<i>Plantago maritima</i>	Sea Plantain	

<i>Plantago media</i>	Hoary Plantain
<i>Poa annua</i>	Annual Meadow Grass
<i>Poa pratensis</i>	Smooth Meadow-grass
<i>Poa trivialis</i>	Rough Meadow-grass
<i>Polygala vulgaris ssp.vulgaris</i>	Common Milkwort
<i>Polygonum aviculare</i>	Knotgrass
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla reptans</i>	Creeping Cinquefoil
<i>Potentilla sterilis</i>	Barren Strawberry
<i>Primula veris</i>	Cowslip
<i>Primula vulgaris</i>	Primrose
<i>Primula x polyantha</i>	False Oxlip
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus spinosa</i>	Blackthorn
<i>Pteridium aquilinum</i>	Bracken
<i>Puccinellia distans</i>	Reflexed Saltmarsh-grass
<i>Puccinellia maritima</i>	Common Saltmarsh-grass
<i>Pulicaria dysenterica</i>	Common Fleabane
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus bulbosus</i>	Bulbous Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Raphanus raphanistrum</i>	Wild Radish
<i>ssp.raphanistrum</i>	
<i>Reseda lutea</i>	Wild Mignonette
<i>Reseda luteola</i>	Weld
<i>Rhinanthus minor ssp.minor</i>	Yellow Rattle
<i>Rosa caesia ssp.glauca</i>	Glaucous Dog-rose
<i>Rosa canina</i>	Dog-rose
<i>Rosa pimpinellifolia</i>	Burnet Rose
<i>Rubus fruticosus agg.</i>	Bramble
<i>Rumex acetosa ssp.acetosa</i>	Common Sorrel
<i>Rumex acetosella ssp.acetosella</i>	Sheep's Sorrel
<i>Rumex crispus ssp.crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Rumex sanguineus</i>	Wood Dock
<i>Sagina maritima</i>	Sea Pearlwort
<i>Salix caprea ssp.caprea</i>	Goat Willow
<i>Sambucus nigra</i>	Elder
<i>Samolus valerandi</i>	Brookweed
<i>Sanguisorba minor ssp.minor</i>	Salad Burnet
<i>Sanguisorba officinalis</i>	Great Burnet
<i>Sedum acre</i>	Biting Stonecrop
<i>Senecio erucifolius</i>	Hoary Ragwort
<i>Senecio jacobaea</i>	Common Ragwort
<i>Senecio squalidus</i>	Oxford Ragwort
<i>Senecio sylvaticus</i>	Heath Groundsel
<i>Senecio vulgaris</i>	Groundsel
<i>Serratula tinctoria</i>	Saw-wort
<i>Silaum silaus</i>	Pepper-saxifrage
<i>Silene dioica</i>	Red Campion
<i>Sinapis arvensis</i>	Charlock
<i>Sisymbrium officinale</i>	Hedge Mustard
<i>Smyrnium olusatrum</i>	Alexanders
<i>Sonchus arvensis</i>	Perennial Sow-thistle
<i>Sonchus asper</i>	Prickly Sow-thistle
<i>Sonchus oleraceus</i>	Smooth Sow-thistle
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Stellaria holostea</i>	Greater Stitchwort
<i>Stellaria media</i>	Common Chickweed
<i>Succisa pratensis</i>	Devil's-bit Scabious
<i>Tamus communis</i>	Black Bryony

<i>Tanacetum parthenium</i>	Feverfew
<i>Tanacetum vulgare</i>	Tansy
<i>Taraxacum officinale</i> agg.	Dandelion
<i>Teucrium scorodonia</i>	Wood Sage
<i>Thymus polytrichus</i> ssp. <i>britannicus</i>	Wild Thyme
<i>Torilis japonica</i>	Upright Hedge-parsley
<i>Tragopogon pratensis</i> ssp. <i>pratensis</i>	Goat's-beard
<i>Trifolium campestre</i>	Hop Trefoil
<i>Trifolium dubium</i>	Lesser Yellow Trefoil
<i>Trifolium incarnatum</i> ssp. <i>incarnatum</i>	Crimson Clover
<i>Trifolium medium</i>	Zigzag Clover
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Triglochin palustris</i>	Marsh Arrowgrass
<i>Tripleurospermum inodorum</i>	Scentless Mayweed
<i>Tripleurospermum maritimum</i>	Sea Mayweed
<i>Tussilago farfara</i>	Colt's-foot
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Common Nettle
<i>Veronica chamaedrys</i>	Germander Speedwell
<i>Veronica persica</i>	Common Field-speedwell
<i>Vicia cracca</i>	Tufted Vetch
<i>Vicia sepium</i>	Bush Vetch
<i>Viola arvensis</i>	Field Pansy
<i>Viola riviniana</i>	Common Dog-violet

11.7 SKINNINGROVE TO HUMMERSEA

<i>Acer pseudoplatanus</i>	Sycamore
<i>Achillea millefolium</i>	Yarrow
<i>Anacamptis pyramidalis</i>	Pyramidal Orchid
<i>Angelica sylvestris</i>	Wild Angelica
<i>Anisantha sterilis</i>	Barren Brome
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Anthyllis vulneraria</i> ssp. <i>vulneraria</i>	Kidney Vetch
<i>Arctium minus</i> ssp. <i>nemorosum</i>	Lesser Burdock
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Artemisia vulgaris</i>	Mugwort
<i>Arum maculatum</i>	Lords and Ladies
<i>Atriplex prostrata</i>	Spear-leaved Orache
<i>Avena fatua</i>	Wild-oat
<i>Bellis perennis</i>	Daisy
<i>Blackstonia perfoliata</i>	Yellow-wort
<i>Brachypodium sylvaticum</i>	False Brome
<i>Briza media</i>	Quaking-grass
<i>Capsella bursa-pastoris</i>	Shepherd's-purse
<i>Carduus tenuiflorus</i>	Slender Thistle
<i>Carex caryophyllea</i>	Spring Sedge
<i>Carex flacca</i>	Glaucous Sedge
<i>Carex panicea</i>	Carnation Sedge
<i>Carlina vulgaris</i>	Carlina Thistle
<i>Centaurea nigra</i>	Common Knapweed
<i>Cerastium fontanum</i> ssp. <i>holosteoides</i>	Common Mouse-ear
<i>Cerastium semidecandrum</i>	Little Mouse-ear
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Chenopodium album</i>	Fat-hen
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium palustre</i>	Marsh Thistle
<i>Cirsium vulgare</i>	Spear Thistle

<i>Cochlearia officinalis</i>	Common Scurvygrass
<i>Conopodium majus</i>	Pignut
<i>Convolvulus arvensis</i>	Field Bindweed
<i>Coronopus squamatus</i>	Swine-cress
<i>Crataegus monogyna ssp.nordica</i>	Hawthorn
<i>Crepis capillaris</i>	Smooth Hawk's-beard
<i>Cruciata laevipes</i>	Crosswort
<i>Cynosurus cristatus</i>	Crested Dog's-tail
<i>Cytisus scoparius ssp.scoparius</i>	Broom
<i>Dactylis glomerata</i>	Cock's-foot
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid
<i>Daucus carota ssp.carota</i>	Wild Carrot
<i>Deschampsia cespitosa ssp.cespitosa</i>	Tufted Hair-grass
<i>Dryopteris filix-mas</i>	Male-fern
<i>Eleocharis palustris ssp.palustris</i>	Common Spike-rush
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Equisetum arvense</i>	Field Horsetail
<i>Equisetum telmateia</i>	Great Horsetail
<i>Eupatorium cannabinum</i>	Hemp-agrimony
<i>Festuca pratensis</i>	Meadow Fescue
<i>Festuca rubra ssp.rubra</i>	Red Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fumaria officinalis ssp.officinalis</i>	Common Fumitory
<i>Galium aparine</i>	Cleavers
<i>Galium verum</i>	Lady's Bedstraw
<i>Genista tinctoria ssp.tinctoria</i>	Dyer's Greenweed
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill
<i>Geranium pratense</i>	Meadow Crane's-bill
<i>Glechoma hederacea</i>	Ground-ivy
<i>Hedera helix</i>	Ivy
<i>Heracleum sphondylium ssp.sphondylium</i>	Hogweed
<i>Holcus lanatus</i>	Yorkshire-fog
<i>Honckenya peploides</i>	Sea Sandwort
<i>Hordeum murinum ssp.murinum</i>	Wall Barley
<i>Hyacinthoides non-scripta</i>	Bluebell
<i>Hypericum hirsutum</i>	Hairy St John's-wort
<i>Hypericum perforatum</i>	Perforate St John's-wort
<i>Hypericum pulchrum</i>	Slender St John's-wort
<i>Hypericum tetrapterum</i>	Square-stemmed St'John's-wort
<i>Hypochaeris radicata</i>	Cat's-ear
<i>Juncus articulatus</i>	Jointed Rush
<i>Juncus effusus</i>	Soft-rush
<i>Juncus inflexus</i>	Hard Rush
<i>Lamium purpureum</i>	Red Dead-nettle
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Leontodon hispidus</i>	Rough Hawkbit
<i>Lepidium draba ssp.draba</i>	Hoary Cress
<i>Linum catharticum</i>	Fairy Flax
<i>Lolium perenne</i>	Perennial Rye-grass
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil
<i>Lotus pedunculatus</i>	Greater Bird's-foot-trefoil
<i>Luzula campestris</i>	Field Wood-rush
<i>Malva sylvestris</i>	Common Mallow
<i>Matricaria discoidea</i>	Pineapple-weed
<i>Myosotis arvensis</i>	Field Forget-me-not
<i>Ononis repens ssp.repens</i>	Common Restharrow
<i>Orchis mascula</i>	Early-purple Orchid
<i>Parnassia palustris</i>	Grass-of-Parnassus
<i>Pilosella sp.</i>	Mouse-ear-hawkweed
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago major ssp.major</i>	Greater Plantain

<i>Plantago maritima</i>	Sea Plantain
<i>Plantago media</i>	Hoary Plantain
<i>Poa annua</i>	Annual Meadow Grass
<i>Poa pratensis</i>	Smooth Meadow-grass
<i>Poa trivialis</i>	Rough Meadow-grass
<i>Polygala vulgaris ssp.vulgaris</i>	Common Milkwort
<i>Polygonum aviculare</i>	Knotgrass
<i>Potentilla anglica</i>	Trailing Tormentil
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla erecta ssp.erecta</i>	Tormentil
<i>Potentilla reptans</i>	Creeping Cinquefoil
<i>Potentilla sterilis</i>	Barren Strawberry
<i>Primula veris</i>	Cowslip
<i>Primula vulgaris</i>	Primrose
<i>Primula x polyantha</i>	False Oxlip
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus spinosa</i>	Blackthorn
<i>Pteridium aquilinum</i>	Bracken
<i>Puccinellia distans</i>	Reflexed Saltmarsh-grass
<i>Pulicaria dysenterica</i>	Common Fleabane
<i>Ranunculus bulbosus</i>	Bulbous Buttercup
<i>Ranunculus ficaria ssp.ficaria</i>	Lesser Celandine
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rosa canina</i>	Dog-rose
<i>Rubus fruticosus agg.</i>	Bramble
<i>Rumex acetosa ssp.acetosa</i>	Common Sorrel
<i>Rumex acetosella ssp.acetosella</i>	Sheep's Sorrel
<i>Rumex crispus ssp.crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Sagina procumbens</i>	Procumbent Pearlwort
<i>Sambucus nigra</i>	Elder
<i>Sanguisorba minor ssp.minor</i>	Salad Burnet
<i>Sanguisorba officinalis</i>	Great Burnet
<i>Senecio erucifolius</i>	Hoary Ragwort
<i>Senecio jacobaea</i>	Common Ragwort
<i>Senecio sylvaticus</i>	Heath Groundsel
<i>Senecio vulgaris</i>	Groundsel
<i>Silene dioica</i>	Red Campion
<i>Sinapis arvensis</i>	Charlock
<i>Sisymbrium officinale</i>	Hedge Mustard
<i>Sonchus arvensis</i>	Perennial Sow-thistle
<i>Sonchus asper</i>	Prickly Sow-thistle
<i>Sonchus oleraceus</i>	Smooth Sow-thistle
<i>Stachys officinalis</i>	Betony
<i>Stellaria holostea</i>	Greater Stitchwort
<i>Stellaria media</i>	Common Chickweed
<i>Succisa pratensis</i>	Devil's-bit Scabious
<i>Taraxacum lacistophyllum</i>	Dandelion sp.
<i>Taraxacum officinale agg.</i>	Dandelion
<i>Tragopogon pratensis ssp.pratensis</i>	Goat's-beard
<i>Trifolium medium</i>	Zigzag Clover
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Triglochin palustris</i>	Marsh Arrowgrass
<i>Tripleurospermum inodorum</i>	Scentless Mayweed
<i>Trisetum flavescens</i>	Yellow Oat-grass
<i>Tussilago farfara</i>	Colt's-foot
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Common Nettle
<i>Vaccinium myrtillus</i>	Bilberry
<i>Veronica chamaedrys</i>	Germander Speedwell

Veronica persica
Vicia cracca
Vicia sepium
Viola canina ssp. canina
Viola riviniana

Common Field-speedwell
Tufted Vetch
Bush Vetch
Heath Dog-violet
Common Dog-violet

11.8 LOFTUS (LINGBERRY) & BOULBY ALUM MINES & THE COASTAL AREA TO BOULBY COTTAGES

<i>Acer pseudoplatanus</i>	Sycamore	
<i>Achillea millefolium</i>	Yarrow	
<i>Agrostis stolonifera</i>	Creeping Bent	
<i>Agrostis vinealis</i>	Brown Bent	
<i>Aira praecox</i>	Early Hair-grass	
<i>Alopecurus geniculatus</i>	Marsh Foxtail	
<i>Anisantha sterilis</i>	Barren Brome	
<i>Anthriscus sylvestris</i>	Cow Parsley	
<i>Arctium minus ssp.nemorosum</i>	Lesser Burdock	
<i>Arrhenatherum elatius</i>	False Oat-grass	
<i>Artemisia vulgaris</i>	Mugwort	
<i>Athyrium filix-femina</i>	Lady-fern	
<i>Atriplex patula</i>	Common Orache	
<i>Bellis perennis</i>	Daisy	
<i>Betula pendula</i>	Silver Birch	
<i>Brassica napus ssp.oleifera</i>	Oil-seed Rape	
<i>Bromus hordeaceus ssp.hordeaceus</i>	Soft-brome	
<i>Calluna vulgaris</i>	Heather	
<i>Campanula rotundifolia</i>	Harebell	
<i>Capsella bursa-pastoris</i>	Shepherd's-purse	
<i>Carlina vulgaris</i>	Carlina Thistle	
<i>Centaurea nigra</i>	Common Knapweed	
<i>Cerastium fontanum ssp.holosteoides</i>	Common Mouse-ear	
<i>Chamerion angustifolium</i>	Rosebay Willowherb	
<i>Chenopodium album</i>	Fat-hen	
<i>Cirsium arvense</i>	Creeping Thistle	
<i>Cirsium palustre</i>	Marsh Thistle	
<i>Cirsium vulgare</i>	Spear Thistle	
<i>Conopodium majus</i>	Pignut	
<i>Crataegus monogyna ssp.nordica</i>	Hawthorn	
<i>Cynosurus cristatus</i>	Crested Dog's-tail	
<i>Dactylis glomerata</i>	Cock's-foot	
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid	
<i>Deschampsia cespitosa ssp.cespitosa</i>	Tufted Hair-grass	
<i>Deschampsia flexuosa</i>	Wavy Hair-grass	
<i>Dryopteris affinis ssp.affinis</i>	Scaly Male-fern	
<i>Dryopteris dilatata</i>	Broad Buckler-fern	
<i>Dryopteris filix-mas</i>	Male-fern	
<i>Epilobium hirsutum</i>	Great Willowherb	
<i>Epilobium parviflorum</i>	Hoary Willowherb	
<i>Equisetum arvense</i>	Field Horsetail	
<i>Equisetum telmateia</i>	Great Horsetail	
<i>Erica cinerea</i>	Bell Heather	
<i>Erica tetralix</i>	Cross-leaved Heath	
<i>Eupatorium cannabinum</i>	Hemp-agrimony	
<i>Fallopia japonica</i>	Japanese Knotweed	Naturalised
<i>Festuca arenaria</i>	Rush-leaved Fescue	
<i>Festuca arundinacea</i>	Tall Fescue	
<i>Festuca ovina ssp.ovina</i>	Sheep's-fescue	
<i>Festuca rubra ssp.rubra</i>	Red Fescue	
<i>Fumaria muralis ssp.boraei</i>	Common Ramping-fumitory	
<i>Galeopsis tetrahit</i>	Common Hemp-nettle	
<i>Galium aparine</i>	Cleavers	
<i>Galium saxatile</i>	Heath Bedstraw	
<i>Genista tinctoria ssp.tinctoria</i>	Dyer's Greenweed	
<i>Heracleum sphondylium ssp.sphondylium</i>	Hogweed	

<i>Hieracium vagum</i>	Shrubby Hieracium	
<i>Hieracium vulgatum</i>	Common Hawkweed	
<i>Holcus lanatus</i>	Yorkshire-fog	
<i>Holcus mollis</i>	Creeping Soft-grass	
<i>Hordeum murinum ssp.murinum</i>	Wall Barley	
<i>Hyacinthoides non-scripta</i>	Bluebell	
<i>Hypochaeris radicata</i>	Cat's-ear	
<i>Ilex aquifolium</i>	Holly	
<i>Juncus conglomeratus</i>	Compact Rush	
<i>Juncus effusus</i>	Soft-rush	
<i>Lamium purpureum</i>	Red Dead-nettle	
<i>Lathyrus linifolius</i>	Bitter-vetch	
<i>Lathyrus pratensis</i>	Meadow Vetchling	
<i>Leontodon hispidus</i>	Rough Hawkbit	
<i>Leucanthemum vulgare</i>	Oxeye Daisy	
<i>Lolium perenne</i>	Perennial Rye-grass	
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	
<i>Luzula campestris</i>	Field Wood-rush	
<i>Matricaria discoidea</i>	Pineapple-weed	
<i>Myosotis arvensis</i>	Field Forget-me-not	
<i>Papaver somniferum ssp.somniferum</i>	Opium Poppy	Introduced
<i>Persicaria lapathifolium</i>	Pale Persicaria	
<i>Persicaria maculosa</i>	Redshank	
<i>Phalaris arundinacea</i>	Reed Canary-grass	
<i>Pilosella sp.</i>	Mouse-ear-hawkweed	
<i>Plantago lanceolata</i>	Ribwort Plantain	
<i>Plantago maritima</i>	Sea Plantain	
<i>Poa annua</i>	Annual Meadow Grass	
<i>Polygala serpyllifolia</i>	Heath Milkwort	
<i>Polygala vulgaris ssp.vulgaris</i>	Common Milkwort	
<i>Potentilla anserina</i>	Silverweed	
<i>Potentilla erecta ssp.erecta</i>	Tormentil	
<i>Potentilla reptans</i>	Creeping Cinquefoil	
<i>Potentilla x mixta</i>	Hybrid Cinquefoil	
<i>Prunella vulgaris</i>	Selfheal	
<i>Pteridium aquilinum</i>	Bracken	
<i>Raphanus raphanistrum ssp.raphanistrum</i>	Wild Radish	
<i>Rosa canina</i>	Dog-rose	
<i>Rubus fruticosus agg.</i>	Bramble	
<i>Rubus idaeus</i>	Raspberry	
<i>Rumex acetosa ssp.acetosa</i>	Common Sorrel	
<i>Rumex acetosella ssp.acetosella</i>	Sheep's Sorrel	
<i>Rumex crispus ssp.crispus</i>	Curled Dock	
<i>Rumex obtusifolius</i>	Broad-leaved Dock	
<i>Sagina maritima</i>	Sea Pearlwort	
<i>Sagina procumbens</i>	Procumbent Pearlwort	
<i>Salix caprea ssp.caprea</i>	Goat Willow	
<i>Sambucus nigra</i>	Elder	
<i>Sedum album</i>	White Stonecrop	Introduced
<i>Senecio jacobaea</i>	Common Ragwort	
<i>Senecio squalidus</i>	Oxford Ragwort	
<i>Senecio sylvaticus</i>	Heath Groundsel	
<i>Senecio vulgaris</i>	Groundsel	
<i>Silene dioica</i>	Red Campion	
<i>Sisymbrium officinale</i>	Hedge Mustard	
<i>Sonchus asper</i>	Prickly Sow-thistle	
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	
<i>Sorbus aucuparia</i>	Rowan	
<i>Spergula arvensis</i>	Corn Spurrey	
<i>Stellaria holostea</i>	Greater Stitchwort	

<i>Stellaria media</i>	Common Chickweed
<i>Symphytum x uplandicum</i>	Russian Comfrey
<i>Tamus communis</i>	Black Bryony
<i>Taraxacum officinale agg.</i>	Dandelion
<i>Teucrium scorodonia</i>	Wood Sage
<i>Trifolium dubium</i>	Lesser Yellow Trefoil
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Trisetum flavescens</i>	Yellow Oat-grass
<i>Tussilago farfara</i>	Colt's-foot
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Common Nettle
<i>Vaccinium myrtillus</i>	Bilberry
<i>Valeriana officinalis</i>	Common Valerian
<i>Veronica arvensis</i>	Wall Speedwell
<i>Veronica chamaedrys</i>	Germander Speedwell
<i>Veronica officinalis</i>	Heath Speedwell
<i>Vicia cracca</i>	Tufted Vetch
<i>Vicia sepium</i>	Bush Vetch
<i>Viola arvensis</i>	Field Pansy
<i>Viola riviniana</i>	Common Dog-violet

11.9 BOULBY COTTAGES TO COWBAR

<i>Achillea millefolium</i>	Yarrow	
<i>Alliaria petiolata</i>	Garlic Mustard	
<i>Alopecurus pratensis</i>	Meadow Foxtail	
<i>Anisantha sterilis</i>	Barren Brome	
<i>Anthriscus sylvestris</i>	Cow Parsley	
<i>Apium graveolens</i>	Wild Celery	
<i>Arctium minus ssp.nemorosum</i>	Lesser Burdock	
<i>Armoracia rusticana</i>	Horse-radish	Naturalised
<i>Arrhenatherum elatius</i>	False Oat-grass	
<i>Artemisia vulgaris</i>	Mugwort	
<i>Arum maculatum</i>	Lords and Ladies	
<i>Atriplex prostrata</i>	Spear-leaved Orache	
<i>Bellis perennis</i>	Daisy	
<i>Brassica napus ssp.oleifera</i>	Oil-seed Rape	
<i>Brassica oleracea</i>	Cabbage	
<i>Bromus hordaceus ssp.hordeaceus</i>	Soft-brome	
<i>Capsella bursa-pastoris</i>	Shepherd's-purse	
<i>Carduus crispus ssp.multiflorus</i>	Wetted Thistle	
<i>Carduus tenuiflorus</i>	Slender Thistle	
<i>Cerastium fontanum ssp.holosteoides</i>	Common Mouse-ear	
<i>Cerastium glomeratum</i>	Sticky Mouse-ear	
<i>Cerastium semidecandrum</i>	Little Mouse-ear	
<i>Cerastium tomentosum</i>	Snow-in-summer	Introduced
<i>Chaerophyllum temulum</i>	Rough Chervil	
<i>Chenopodium album</i>	Fat-hen	
<i>Cirsium arvense</i>	Creeping Thistle	
<i>Cirsium vulgare</i>	Spear Thistle	
<i>Cochlearia officinalis</i>	Common Scurvygrass	
<i>Conium maculatum</i>	Hemlock	
<i>Conopodium majus</i>	Pignut	
<i>Convolvulus arvensis</i>	Field Bindweed	
<i>Crataegus monogyna ssp.nordica</i>	Hawthorn	
<i>Crepis capillaris</i>	Smooth Hawk's-beard	
<i>Cruciata laevipes</i>	Crosswort	
<i>Cynosurus cristatus</i>	Crested Dog's-tail	

<i>Dactylis glomerata</i>	Cock's-foot	
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid	
<i>Daucus carota ssp.carota</i>	Wild Carrot	
<i>Epilobium ciliatum</i>	American Willowherb	
<i>Equisetum arvense</i>	Field Horsetail	
<i>Erysimum cheiri</i>	Wall-flower	Naturalised
<i>Fallopia japonica</i>	Japanese Knotweed	Naturalised
<i>Festuca arenaria</i>	Rush-leaved Fescue	
<i>Festuca pratensis</i>	Meadow Fescue	
<i>Festuca rubra ssp.rubra</i>	Red Fescue	
<i>Fumaria officinalis ssp.officinalis</i>	Common Fumitory	
<i>Galium aparine</i>	Cleavers	
<i>Galium verum</i>	Lady's Bedstraw	
<i>Geranium molle</i>	Dove's Foot Crane's-bill	
<i>Hedera helix</i>	Ivy	
<i>Heracleum sphondylium ssp.sphondylium</i>	Hogweed	
<i>Holcus lanatus</i>	Yorkshire-fog	
<i>Hordeum murinum ssp.murinum</i>	Wall Barley	
<i>Hyacinthoides non-scripta</i>	Bluebell	
<i>Hypochaeris radicata</i>	Cat's-ear	
<i>Juncus effusus</i>	Soft-rush	
<i>Lamium album</i>	White Dead-nettle	
<i>Lamium purpureum</i>	Red Dead-nettle	
<i>Lapsana communis ssp.communis</i>	Nipplewort	
<i>Lathyrus linifolius</i>	Bitter-vetch	
<i>Lathyrus pratensis</i>	Meadow Vetchling	
<i>Leontodon hispidus</i>	Rough Hawkbit	
<i>Leucanthemum vulgare</i>	Oxeye Daisy	
<i>Lolium perenne</i>	Perennial Rye-grass	
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	
<i>Lycium barbarum</i>	Duke of Argyll's Teaplant	Introduced
<i>Malva sylvestris</i>	Common Mallow	
<i>Mathiola incana</i>	Hoary Stock	Naturalised
<i>Matricaria discoidea</i>	Pineapple-weed	
<i>Medicago lupulina</i>	Black Medick	
<i>Myosotis arvensis</i>	Field Forget-me-not	
<i>Ononis repens ssp.repens</i>	Common Restharrow	
<i>Papaver somniferum ssp.somniferum</i>	Opium Poppy	Introduced
<i>Petroselinum crispum</i>	Garden Parsley	
<i>Plantago coronopus</i>	Buck's-horn Plantain	
<i>Plantago lanceolata</i>	Ribwort Plantain	
<i>Plantago major ssp.major</i>	Greater Plantain	
<i>Plantago maritima</i>	Sea Plantain	
<i>Plantago media</i>	Hoary Plantain	
<i>Poa annua</i>	Annual Meadow Grass	
<i>Poa trivialis</i>	Rough Meadow-grass	
<i>Polygonum aviculare</i>	Knotgrass	
<i>Potentilla anserina</i>	Silverweed	
<i>Potentilla reptans</i>	Creeping Cinquefoil	
<i>Prunus spinosa</i>	Blackthorn	
<i>Pulicaria dysenterica</i>	Common Fleabane	
<i>Ranunculus acris</i>	Meadow Buttercup	
<i>Ranunculus bulbosus</i>	Bulbous Buttercup	
<i>Ranunculus ficaria ssp.ficaria</i>	Lesser Celandine	
<i>Ranunculus repens</i>	Creeping Buttercup	
<i>Reseda luteola</i>	Weld	
<i>Rosa canina</i>	Dog-rose	
<i>Rubus fruticosus agg.</i>	Bramble	
<i>Rumex acetosa ssp.acetosa</i>	Common Sorrel	
<i>Rumex acetosella ssp.acetosella</i>	Sheep's Sorrel	

<i>Rumex crispus ssp.crispus</i>	Curled Dock	
<i>Rumex obtusifolius</i>	Broad-leaved Dock	
<i>Rumex sanguineus</i>	Wood Dock	
<i>Sambucus nigra</i>	Elder	
<i>Sedum acre</i>	Biting Stonecrop	Introduced
<i>Sedum album</i>	White Stonecrop	Introduced
<i>Senecio cineraria</i>	Silver Ragwort	
<i>Senecio jacobaea</i>	Common Ragwort	
<i>Senecio squalidus</i>	Oxford Ragwort	
<i>Senecio vulgaris</i>	Groundsel	
<i>Silene dioica</i>	Red Campion	
<i>Silene latifolia ssp.alba</i>	White Campion	
<i>Sinapis arvensis</i>	Charlock	
<i>Sisymbrium officinale</i>	Hedge Mustard	
<i>Sonchus arvensis</i>	Perennial Sow-thistle	
<i>Sonchus asper</i>	Prickly Sow-thistle	
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	
<i>Stellaria holostea</i>	Greater Stitchwort	
<i>Stellaria media</i>	Common Chickweed	
<i>Tanacetum parthenium</i>	Feverfew	
<i>Taraxacum officinale agg.</i>	Dandelion	
<i>Taraxacum rhampodos</i>	Dandelion sp.	
<i>Tragopogon porrifolius</i>	Salsify	Introduced
<i>Tragopogon pratensis ssp.pratensis</i>	Goat's-beard	
<i>Trifolium medium</i>	Zigzag Clover	
<i>Trifolium pratense</i>	Red Clover	
<i>Trifolium repens</i>	White Clover	
<i>Tussilago farfara</i>	Colt's-foot	
<i>Urtica dioica</i>	Common Nettle	
<i>Vicia cracca</i>	Tufted Vetch	
<i>Vicia hirsuta</i>	Hairy Tare	
<i>Vicia sativa ssp.satava</i>	Common Vetch	
<i>Vicia sepium</i>	Bush Vetch	
<i>Viola reichenbachiana</i>	Early Dog-violet	
<i>Viola riviniana</i>	Common Dog-violet	

11.10 THE OCCURRENCE OF SPECIES IN THE NINE REGIONS OF THE COASTLINE

1. SOUTH GARE 2. COATHAM DUNES 3. REDCAR STRAY 4. REDCAR TO SALT BURN 5. CAT NAB, 6. SALT BURN TO SKINNING GROVE 7. SKINNING GROVE TO HUMMERSEA 8. BOULBY 9. BOULBY TO COWBAR

		1	2	3	4	5	6	7	8	9
<i>Acer pseudoplatanus</i>	Sycamore	X						X	X	
<i>Achillea millefolium</i>	Yarrow	X	X	X	X	X	X	X	X	X
<i>Aegopodium podagraria</i>	Ground-elder			X		X				
<i>Aethusa cynapium ssp.cynapium</i>	Fool's Parsley						X			
<i>Agrimonia eupatoria</i>	Agrimony				X		X			
<i>Agrostis stolonifera</i>	Creeping Bent	X	X	X	X	X	X		X	
<i>Agrostis vinealis</i>	Brown Bent								X	
<i>Aira praecox</i>	Early Hair-grass								X	
<i>Alliaria petiolata</i>	Garlic Mustard	X			X	X				X
<i>Alopecurus geniculatus</i>	Marsh Foxtail	X							X	
<i>Alopecurus pratensis</i>	Meadow Foxtail				X		X			X
<i>Alyssum saxatile</i>	Golden Alison						X			
<i>Ammophila arenaria</i>	Marram	X	X	X	X		X			
<i>Anacamptis pyramidalis</i>	Pyramidal Orchid						X	X		
<i>Anagallis arvensis ssp.arvensis</i>	Scarlet Pimpernel		X		X		X			
<i>Anchusa arvensis</i>	Bugloss				X					
<i>Angelica sylvestris</i>	Wild Angelica	X			X		X	X		

		1	2	3	4	5	6	7	8	9
<i>Anisantha sterilis</i>	Barren Brome		X		X			X	X	X
<i>Anthemis tinctoria</i>	Yellow Chamomile						X			
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass							X		
<i>Anthriscus caucalis</i>	Bur Parsley			X						
<i>Anthriscus sylvestris</i>	Cow Parsley		X	X	X	X	X	X	X	X
<i>Anthyllis vulneraria</i>	Kidney Vetch	X	X		X		X	X		
<i>ssp.vulneraria</i>										
<i>Aphanes arvensis</i>	Parsley-piert						X			
<i>Apium graveolens</i>	Wild Celery						X			X
<i>Apium nodiflorum</i>	Fool's Water-cress	X								
<i>Arabidopsis thaliana</i>	Thale Cress	X								
<i>Arctium minus ssp.nemorosum</i>	Lesser Burdock	X				X	X	X	X	X
<i>Arenaria serpyllifolia</i>	Thyme-leaved Sandwort						X			
<i>ssp.leptoclados</i>										
<i>Arenaria serpyllifolia</i>	Thyme-leaved Sandwort		X							
<i>ssp.serpyllifolia</i>										
<i>Armeria maritima ssp.maritima</i>	Thrift	X								
<i>Armoracia rusticana</i>	Horse-radish	X	X		X		X			X
<i>Arrhenatherum elatius</i>	False Oat-grass	X	X	X	X	X	X	X	X	X
<i>Artemisia vulgaris</i>	Mugwort	X	X	X	X		X	X	X	X
<i>Aster novi-belgii</i>	Confused Michaelmas-daisy	X	X		X					
<i>Aster tripolium</i>	Sea Aster	X	X							
<i>Astragalus danicus</i>	Purple Milk-vetch	X	X	X						
<i>Athyrium filix-femina</i>	Lady-fern								X	
<i>Atriplex laciniata</i>	Frosted Orache	X	X		X		X			
<i>Atriplex littoralis</i>	Grass-leaved Orache	X								
<i>Atriplex patula</i>	Common Orache	X			X	X			X	
<i>Atriplex portulacoides</i>	Sea-purslane	X								
<i>Atriplex prostrata</i>	Spear-leaved Orache	X	X		X		X	X		X
<i>Avena fatua</i>	Wild-oat				X			X		
<i>Avena sativa</i>	Oat						X			
<i>Ballota nigra ssp. foetida</i>	Black Horehound		X							
<i>Bellis perennis</i>	Daisy	X	X	X	X	X	X	X	X	X
<i>Bergenia crassifolia</i>	Elephant-ears	X								
<i>Beta vulgaris ssp.maritima</i>	Sea Beet	X		X			X			
<i>Betula pendula</i>	Silver Birch								X	
<i>Blackstonia perfoliata</i>	Yellow-wort	X	X				X	X		
<i>Blysmus compressus</i>	Flat-sedge		X							
<i>Bolboschoenus maritimus</i>	Sea Club-rush	X	X	X	X					
<i>Botrychium lunaria</i>	Moonwort	X								
<i>Brachypodium sylvaticum</i>	False Brome			X			X	X		
<i>Brassica napus ssp.oleifera</i>	Oil-seed Rape				X		X		X	X
<i>Brassica oleracea</i>	Cabbage									X
<i>Briza media</i>	Quaking-grass	X			X	X		X		
<i>Bromopsis inermis</i>	Hungarian Brome		X	X	X					
<i>Bromus hordaceus</i>	Soft-brome	X	X	X		X	X		X	X
<i>ssp.hordeaceus</i>										
<i>Buddleja davidii</i>	Butterfly-bush	X								
<i>Cakile maritima</i>	Sea Rocket	X	X		X					
<i>Calamagrostis epigejos</i>	Wood Small-reed						X			
<i>Calendula officinalis</i>	Pot Marigold						X			
<i>Calendula officinalis</i>	Pot Marigold				X					
<i>Calluna vulgaris</i>	Heather								X	
<i>Caltha palustris</i>	Marsh-marigold				X					
<i>Calystegia sepium ssp.sepium</i>	Hedge Bindweed		X							
<i>Calystegia silvatica</i>	Large Bindweed	X		X	X					
<i>Campanula rotundifolia</i>	Harebell	X		X	X		X		X	
<i>Capsella bursa-pastoris</i>	Shepherd's-purse	X		X	X		X	X	X	X
<i>Cardamine flexuosa</i>	Wavy Bitter-cress	X								

		1	2	3	4	5	6	7	8	9
<i>Cardamine pratensis</i>	Cuckooflower	X					X			
<i>Carduus crispus ssp.multiflorus</i>	Wetted Thistle									X
<i>Carduus nutans</i>	Musk Thistle	X			X	X	X			
<i>Carduus tenuiflorus</i>	Slender Thistle		X			X	X	X		X
<i>Carex acutiformis</i>	Lesser Pond-sedge				X					
<i>Carex arenaria</i>	Sand Sedge	X	X	X	X					
<i>Carex caryophyllea</i>	Spring Sedge							X		
<i>Carex distans</i>	Distant Sedge		X		X					
<i>Carex extensa</i>	Long-bracted Sedge	X	X							
<i>Carex flacca</i>	Glaucous Sedge		X		X			X		
<i>Carex hirta</i>	Hairy Sedge		X	X						
<i>Carex nigra</i>	Common Sedge		X				X			
<i>Carex otrubae</i>	False Fox-sedge	X	X		X					
<i>Carex panicea</i>	Carnation Sedge				X		X	X		
<i>Carlina vulgaris</i>	Carlina Thistle	X			X		X	X	X	
<i>Carum carvi</i>	Caraway						X			
<i>Catapodium marinum</i>	Sea Fern-grass	X					X			
<i>Catapodium rigidum</i>	Fern-grass		X							
<i>Centaurea montana</i>	Perennial Cornflower				X					
<i>Centaurea nigra</i>	Common Knapweed	X		X	X	X	X	X	X	
<i>Centaurea scabiosa</i>	Greater Knapweed	X					X			
<i>Centaureum erythraea</i>	Common Centaury	X	X		X		X			
<i>Centaureum pulchellum</i>	Lesser Centaury	X								
<i>Cerastium arvense</i>	Field Mouse-ear		X							
<i>Cerastium diffusum</i>	Sea Mouse-ear	X	X		X					
<i>Cerastium fontanum</i>	Common Mouse-ear	X	X	X		X	X	X	X	X
<i>ssp.holosteoides</i>										
<i>Cerastium glomeratum</i>	Sticky Mouse-ear									X
<i>Cerastium semidecandrum</i>	Little Mouse-ear	X	X	X	X		X	X		X
<i>Cerastium tomentosum</i>	Snow-in-summer	X	X	X	X		X			X
<i>Chaerophyllum temulum</i>	Rough Chervil					X	X			X
<i>Chamerion angustifolium</i>	Rosebay Willowherb	X		X	X		X	X	X	
<i>Chenopodium album</i>	Fat-hen	X	X	X	X	X	X	X	X	X
<i>Chenopodium glaucum</i>	Oak-leaved Goosefoot	X								
<i>Chenopodium rubrum</i>	Red Goosefoot	X								
<i>Cichorium intybus</i>	Chicory		X							
<i>Cirsium arvense</i>	Creeping Thistle	X	X	X	X	X	X	X	X	X
<i>Cirsium palustre</i>	Marsh Thistle				X		X	X	X	
<i>Cirsium vulgare</i>	Spear Thistle	X	X	X	X	X	X	X	X	X
<i>Cochlearia danica</i>	Danish Scurvygrass						X			
<i>Cochlearia officinalis</i>	Common Scurvygrass	X	X				X	X		X
<i>Cochlearia officinalis x C.danica</i>	Scurvygrass Hybrid						X			
<i>Colutea arborescens</i>	Bladder-senna	X								
<i>Conium maculatum</i>	Hemlock	X	X	X		X	X			X
<i>Conopodium majus</i>	Pignut		X		X		X	X	X	X
<i>Convolvulus arvensis</i>	Field Bindweed	X	X		X	X		X		X
<i>Conyza canadensis</i>	Canadian Fleabane	X								
<i>Coronopus squamatus</i>	Swine-cress	X			X			X		
<i>Cotoneaster sp.</i>	Cotoneaster	X								
<i>Crataegus monogyna</i>	Hawthorn	X			X		X	X	X	X
<i>ssp.nordica</i>										
<i>Crepis capillaris</i>	Smooth Hawk's-beard	X	X				X	X		X
<i>Crepis vesicaria ssp.taraxacifolia</i>	Beaked Hawk's-beard		X							
<i>Crococsmia x crocosmiiflora</i>	Montbretia	X			X					
<i>Cruciata laevipes</i>	Crosswort				X		X	X		X
<i>Cymbalaria muralis</i>	Ivy-leaved Toadflax	X								
<i>Cynosurus cristatus</i>	Crested Dog's-tail						X	X	X	X
<i>Cytisus scoparius ssp.scoparius</i>	Broom							X		
<i>Dactylis glomerata</i>	Cock's-foot	X	X	X	X	X	X	X	X	X
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid	X			X		X	X	X	X

		1	2	3	4	5	6	7	8	9
<i>Dactylorhiza maculata</i>	Heath Spotted-orchid				X		X			
<i>ssp.ericetorum</i>										
<i>Dactylorhiza purpurella</i>	Northern Marsh-orchid	X	X		X		X			
<i>Daucus carota ssp.carota</i>	Wild Carrot	X	X	X	X	X	X	X		X
<i>Deschampsia flexuosa</i>	Wavy Hair-grass							X	X	
<i>Diplotaxis muralis</i>	Annual Wall-rocket	X	X							
<i>Diplotaxis tenuifolia</i>	Perennial Wall-rocket	X	X							
<i>Dipsacus fullonum</i>	Wild Teasel						X			
<i>Dryopteris dilatata</i>	Broad Buckler-fern						X		X	
<i>Dryopteris filix-mas</i>	Male-fern	X					X	X	X	
<i>Echinops bannaticus</i>	Blue Globe-thistle				X					
<i>Echium vulgare</i>	Viper's-bugloss	X			X		X			
<i>Eleocharis palustris ssp.palustris</i>	Common Spike-rush	X	X		X	X				
<i>Eleocharis quinqueflora</i>	Few-flowered Spike-rush				X					
<i>Eleocharis uniglumis</i>	Slender Spike-rush				X					
<i>Elytrigia atherica</i>	Sea Couch	X								
<i>Elytrigia juncea</i>	Sand Couch	X	X	X	X		X			
<i>ssp.boreoatlantica</i>										
<i>Elytrigia repens spp.repens</i>	Common Couch	X	X	X	X		X			
<i>Epilobium ciliatum</i>	American Willowherb				X					X
<i>Epilobium hirsutum</i>	Great Willowherb	X	X	X	X	X	X	X	X	
<i>Epilobium palustre</i>	Marsh Willowherb						X			
<i>Epilobium parviflorum</i>	Hoary Willowherb			X					X	
<i>Equisetum arvense</i>	Field Horsetail	X	X	X	X	X	X	X	X	X
<i>Equisetum palustre</i>	Marsh Horsetail		X							
<i>Equisetum telmateia</i>	Great Horsetail						X	X	X	
<i>Erica cinerea</i>	Bell Heather								X	
<i>Erica tetralix</i>	Cross-leaved Heath								X	
<i>Erigeron acer</i>	Blue Fleabane	X	X							
<i>Erodium cicutarium</i>	Common Stork's-bill	X	X	X	X					
<i>Erodium lebelii</i>	Sticky Stork's-bill			X	X					
<i>Erophila verna</i>	Common Whitlowgrass	X	X	X						
<i>Erysimum cheiri</i>	Wall-flower									X
<i>Eupatorium cannabinum</i>	Hemp-agrimony	X			X	X	X	X	X	
<i>Euphorbia cyparissias</i>	Cypress Spurge	X								
<i>Euphorbia exigua</i>	Dwarf Spurge						X			
<i>Euphorbia helioscopia</i>	Sun Spurge	X		X	X		X			
<i>Euphorbia peplis</i>	Purple Spurge	X								
<i>Euphrasia nemorosa</i>	Eyebright	X			X					
<i>Euphrasia tetraquetra</i>	Eyebright	X			X					
<i>Fallopia baldschuanica</i>	Russian-vine				X					
<i>Fallopia convolvulus</i>	Black Bindweed		X							
<i>Fallopia japonica</i>	Japanese Knotweed			X			X		X	X
<i>Festuca arenaria</i>	Rush-leaved Fescue	X	X				X		X	X
<i>Festuca arundinacea</i>	Tall Fescue		X		X	X			X	
<i>Festuca ovina ssp.ovina</i>	Sheep's-fescue						X		X	
<i>Festuca pratensis</i>	Meadow Fescue				X			X		X
<i>Festuca rubra ssp.juncea</i>	Red Fescue		X							
<i>Festuca rubra ssp.rubra</i>	Red Fescue	X	X	X	X	X	X	X	X	X
<i>Filipendula ulmaria</i>	Meadowsweet			X		X	X	X		
<i>Fragaria vesca</i>	Wild Strawberry						X			
<i>Fumaria capreolata</i>	White Ramping-fumitory		X				X			
<i>ssp.capreolata</i>										
<i>Fumaria muralis ssp.boraei</i>	Common Ramping-fumitory		X		X				X	
<i>Fumaria officinalis ssp.officinalis</i>	Common Fumitory	X	X		X		X	X		X
<i>Galium aparine</i>	Cleavers	X		X	X	X	X	X	X	X
<i>Galium palustre ssp.palustre</i>	Common Marsh-bedstraw		X							
<i>Galium saxatile</i>	Heath Bedstraw						X		X	

		1	2	3	4	5	6	7	8	9
<i>Galium verum</i>	Lady's Bedstraw	X	X	X	X		X	X		X
<i>Genista tinctoria ssp.tinctoria</i>	Dyer's Greenweed					X	X	X	X	
<i>Gentianella amarella ssp.amarella</i>	Autumn Gentian				X					
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill		X		X		X	X		
<i>Geranium lucidum</i>	Shining Crane's-bill	X								
<i>Geranium molle</i>	Dove's Foot Crane's-bill	X	X	X	X	X				X
<i>Geranium pratense</i>	Meadow Crane's-bill						X	X		
<i>Geranium robertianum</i>	Herb-Robert						X			
<i>Geranium sanguineum</i>	Bloody Crane's-bill	X								
<i>Gladiolus communis ssp.byzantinus</i>	Eastern Gladiolus		X							
<i>Glaux maritima</i>	Sea-milkwort	X	X		X		X			
<i>Glechoma hederacea</i>	Ground-ivy					X		X		
<i>Groenlandia densa</i>	Opposite-leaved Pondweed		X							
<i>Gymnadenia conopsea ssp.conopsea</i>	Fragrant Orchid	X			X		X			
<i>Hedera helix</i>	Ivy	X			X	X	X	X		X
<i>Heracleum sphondylium ssp.sphondylium</i>	Hogweed	X	X	X	X	X	X			
<i>Hieracium vagum</i>	Shrubby Hieracium	X	X				X		X	
<i>Hieracium vulgatum</i>	Common Hawkweed	X							X	
<i>Holcus lanatus</i>	Yorkshire-fog		X	X	X	X	X	X	X	X
<i>Holcus mollis</i>	Creeping Soft-grass								X	
<i>Honckenya peploides</i>	Sea Sandwort	X	X	X	X		X	X		
<i>Hordeum murinum ssp.murinum</i>	Wall Barley	X	X	X	X	X	X	X	X	X
<i>Hippophae rhamnoides</i>	Sea-buckthorn	X								
<i>Hyacinthoides hispanica</i>	Spanish Bluebell	X	X	X	X	X				
<i>Hyacinthoides non-scripta</i>	Bluebell				X			X	X	X
<i>Hydrocotyle vulgaris</i>	Marsh Pennywort		X							
<i>Hypericum hirsutum</i>	Hairy St John's-wort						X	X		
<i>Hypericum perforatum</i>	Perforate St John's-wort							X		
<i>Hypericum pulchrum</i>	Slender St John's-wort						X	X		
<i>Hypericum tetrapterum</i>	Square-stemmed St' John's-wort				X			X		
<i>Hypochaeris radicata</i>	Cat's-ear	X	X	X	X	X	X	X	X	X
<i>Impatiens glandulifera</i>	Indian Balsam			X						
<i>Iris germanica</i>	Bearded Iris	X								
<i>Iris pseudacorus</i>	Yellow Iris				X					
<i>Iris versicolor</i>	Purple Iris		X							
<i>Juncus ambiguus</i>	Frog Rush	X								
<i>Juncus articulatus</i>	Jointed Rush	X	X	X	X		X	X		
<i>Juncus bufonius</i>	Toad Rush	X			X					
<i>Juncus conglomeratus</i>	Compact Rush								X	
<i>Juncus effusus</i>	Soft-rush							X	X	X
<i>Juncus gerardii</i>	Saltmarsh Rush	X	X		X					
<i>Juncus inflexus</i>	Hard Rush						X			
<i>Knautia arvensis</i>	Field Scabious		X							
<i>Kniphofia uvaria</i>	Red-hot-poker	X								
<i>Koeleria macrantha</i>	Crested Hair-grass		X				X		X	
<i>Lactuca virosa</i>	Great Lettuce	X	X				X			
<i>Lamium album</i>	White Dead-nettle	X	X		X					X
<i>Lamium hybridum</i>	Cut-leaved Dead-nettle	X							X	
<i>Lamium purpureum</i>	Red Dead-nettle	X		X	X		X	X	X	X
<i>Lapsana communis ssp.communis</i>	Nipplewort				X	X	X			X
<i>Lathyrus latifolius</i>	Broad-leaved Everlasting-pea						X			
<i>Lathyrus linifolius</i>	Bitter-vetch								X	X

		1	2	3	4	5	6	7	8	9
<i>Lathyrus pratensis</i>	Meadow Vetchling	X		X	X		X	X	X	X
<i>Leontodon autumnalis</i> <i>ssp.autumnalis</i>	Autumn Hawkbit	X	X		X					
<i>Leontodon hispidus</i>	Rough Hawkbit		X	X	X		X	X	X	X
<i>Leontodon saxatilis</i>	Lesser Hawkbit	X	X		X	X	X			
<i>Lepidium draba ssp.draba</i>	Hoary Cress		X					X		
<i>Lepidium draba ssp.draba</i>	Hoary Cress		X					X		
<i>Leucanthemum vulgare</i>	Oxeye Daisy	X	X						X	X
<i>Leucanthemum x superbum</i>	Shasta Daisy			X	X					
<i>Leymus arenarius</i>	Lyme-grass	X	X	X	X		X			
<i>Ligustrum ovalifolium</i>	Garden Privet		X			X				
<i>Ligustrum vulgare</i>	Wild Privet					X	X			
<i>Limonium vulgare</i>	Common Sea-lavender	X								
<i>Linaria purpurea</i>	Purple Toadflax	X								
<i>Linaria vulgaris</i>	Common Toadflax	X	X	X			X			
<i>Linum catharticum</i>	Fairy Flax	X	X		X		X	X	X	
<i>Linum usitatissimum</i>	Flax						X			
<i>Listera ovata</i>	Common Twayblade				X		X			
<i>Lobularia maritima</i>	Sweet Alison	X			X					
<i>Lolium perenne</i>	Perennial Rye-grass	X	X	X	X	X	X	X	X	X
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	X	X	X	X	X	X	X	X	X
<i>Lotus pedunculatus</i>	Greater Bird's-foot-trefoil							X		
<i>Lunaria annua</i>	Honesty	X								
<i>Luzula campestris</i>	Field Wood-rush	X						X	X	
<i>Lycium barbarum</i>	Duke of Argyll's Teaplant		X	X	X	X	X			X
<i>Malus sylvestris</i>	Crab Apple	X						X	X	
<i>Malva neglecta</i>	Dwarf Mallow		X			X				
<i>Malva sylvestris</i>	Common Mallow	X	X	X	X					X
<i>Mathiola incana</i>	Hoary Stock									X
<i>Matricaria discoidea</i>	Pineapple-weed	X	X		X		X	X	X	X
<i>Matricaria recutita</i>	Scented Mayweed		X							
<i>Medicago lupulina</i>	Black Medick	X	X	X	X		X			X
<i>Medicago sativa ssp.sativa</i>	Lucerne	X			X					
<i>Melilotus albus</i>	White Melilot	X	X							
<i>Melilotus altissimus</i>	Tall Melilot		X				X			
<i>Mentha aquatica</i>	Water Mint	X	X		X					
<i>Mentha spicata</i>	Spear Mint		X							
<i>Myosotis arvensis</i>	Field Forget-me-not						X	X	X	X
<i>Narcissus sp.</i>	Daffodil species	X								
<i>Odontites vernus</i>	Red Bartsia		X							
<i>Oenanthe crocata</i>	Hemlock Water-dropwort	X			X					
<i>Oenanthe lachenalii</i>	Parsley Water-dropwort	X								
<i>Onobrychis viciifolia</i>	Sainfoin		X				X			
<i>Ononis repens ssp.repens</i>	Common Restharrow	X	X	X	X	X	X	X		X
<i>Ophrys apifera</i>	Bee Orchid	X	X		X					
<i>Orchis mascula</i>	Early-purple Orchid				X			X		
<i>Orchis morio</i>	Green-winged Orchid				X					
<i>Origanum vulgare</i>	Wild Marjoram						X			
<i>Oxalis articulata</i>	Pink-sorrel	X	X	X						
<i>Papaver dubium ssp.dubium</i>	Long-headed Poppy		X		X					
<i>Papaver dubium ssp.lecoqii</i>	Long-headed Poppy						X			
<i>Papaver rhoeas</i>	Common Poppy	X	X		X	X	X			
<i>Papaver somniferum</i> <i>ssp.somniferum</i>	Opium Poppy		X		X				X	X
<i>Parapholis strigosa</i>	Hard-grass	X								
<i>Parnassia palustris</i>	Grass-of-Parnassus				X			X		
<i>Pastinaca sativa</i>	Wild Parsnip	X			X					
<i>Pedicularis sylvatica</i> <i>ssp.sylvatica</i>	Lousewort	X								

		1	2	3	4	5	6	7	8	9
<i>Persicaria bistorta</i>	Common Bistort		X							
<i>Persicaria lapathifolium</i>	Pale Persicaria								X	
<i>Persicaria maculosa</i>	Redshank		X						X	
<i>Petroselinum crispum</i>	Garden Parsley		X							X
<i>Phalaris arundinacea</i>	Reed Canary-grass	X	X						X	
<i>Phleum arenarium</i>	Sand Cat's-tail	X	X							
<i>Phleum pratense</i>	Timothy	X		X	X		X			
<i>Phragmites australis</i>	Reed	X								
<i>Pilosella</i> sp.	Mouse-ear-hawkweed	X	X		X		X	X	X	
<i>Pimpinella saxifraga</i>	Burnet-saxifrage						X			
<i>Plantago coronopus</i>	Buck's-horn Plantain	X	X	X	X	X	X			X
<i>Plantago lanceolata</i>	Ribwort Plantain	X	X	X		X	X	X	X	X
<i>Plantago major</i> ssp. <i>major</i>	Greater Plantain	X		X	X	X	X	X		X
<i>Plantago maritima</i>	Sea Plantain	X		X	X	X	X	X	X	X
<i>Plantago media</i>	Hoary Plantain			X	X		X	X		X
<i>Poa annua</i>	Annual Meadow Grass	X	X	X	X	X	X	X	X	X
<i>Poa pratensis</i>	Smooth Meadow-grass		X	X	X		X	X		
<i>Poa trivialis</i>	Rough Meadow-grass			X	X		X	X		X
<i>Polygala serpyllifolia</i>	Heath Milkwort								X	
<i>Polygala vulgaris</i> ssp. <i>vulgaris</i>	Common Milkwort				X		X	X		
<i>Polygonum aviculare</i>	Knotgrass	X	X		X		X	X	X	
<i>Polypodium vulgare</i>	Polypody						X			
<i>Potentilla anglica</i>	Trailing Tormentil							X		
<i>Potentilla anserina</i>	Silverweed	X	X	X	X	X	X	X	X	X
<i>Potentilla erecta</i> ssp. <i>erecta</i>	Tormentil								X	
<i>Potentilla reptans</i>	Creeping Cinquefoil	X	X	X	X	X	X	X	X	X
<i>Potentilla sterilis</i>	Barren Strawberry	X					X	X		
<i>Potentilla x mixta</i>	Hybrid Cinquefoil								X	
<i>Primula veris</i>	Cowslip	X			X		X	X		
<i>Primula vulgaris</i>	Primrose				X		X	X		
<i>Primula x polyantha</i>	False Oxlip				X		X	X		
<i>Prunella vulgaris</i>	Selfheal				X	X	X	X	X	
<i>Prunus spinosa</i>	Blackthorn					X	X	X		X
<i>Pteridium aquilinum</i>	Bracken	X					X	X	X	
<i>Puccinellia distans</i>	Reflexed Saltmarsh-grass	X					X			
<i>Puccinellia maritima</i>	Common Saltmarsh-grass	X					X			
<i>Pulicaria dysenterica</i>	Common Fleabane		X		X		X	X		X
<i>Pyrus communis</i>	Pear	X								
<i>Ranunculus acris</i>	Meadow Buttercup	X	X	X	X		X			X
<i>Ranunculus baudotii</i>	Brackish Water-crowfoot		X							
<i>Ranunculus bulbosus</i>	Bulbous Buttercup		X	X	X		X	X		X
<i>Ranunculus ficaria</i> ssp. <i>ficaria</i>	Lesser Celandine			X	X	X		X		X
<i>Ranunculus flammula</i> ssp. <i>flammula</i>	Lesser Spearwort		X							
<i>Ranunculus repens</i>	Creeping Buttercup	X	X	X	X		X	X		X
<i>Ranunculus scleratus</i>	Celery-leaved Crowfoot	X	X							
<i>Ranunculus trichophyllus</i>	Thread-leaved Water-crowfoot		X							
<i>Raphanus raphanistrum</i> ssp. <i>raphanistrum</i>	Wild Radish		X				X		X	
<i>Reseda lutea</i>	Wild Mignonette	X				X	X			
<i>Reseda luteola</i>	Weld	X					X			X
<i>Rhinanthus minor</i> ssp. <i>minor</i>	Yellow Rattle	X	X	X	X		X			
<i>Rorippa nasturtium-aquaticum</i>	Water-cress				X	X				
<i>Rosa caesia</i> ssp. <i>glauca</i>	Glaucous Dog-rose						X			
<i>Rosa canina</i>	Dog-rose	X	X	X	X	X	X	X	X	X
<i>Rosa pimpinellifolia</i>	Burnet Rose				X		X			
<i>Rosa rugosa</i>	Japanese Rose	X								

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<i>Rubus fruticosus</i> agg.	Bramble	X		X	X	X	X	X	X	X
<i>Rubus idaeus</i>	Raspberry								X	
<i>Rumex acetosa</i> ssp. <i>acetosa</i>	Common Sorrel	X	X		X	X	X	X	X	X
<i>Rumex acetosella</i> ssp. <i>acetosella</i>	Sheep's Sorrel	X		X			X	X	X	X
<i>Rumex crispus</i> ssp. <i>crispus</i>	Curled Dock	X	X	X	X	X	X	X	X	X
<i>Rumex obtusifolius</i>	Broad-leaved Dock	X	X	X	X	X	X	X	X	X
<i>Rumex sanguineus</i>	Wood Dock					X	X			X
<i>Sagina maritima</i>	Sea Pearlwort						X		X	
<i>Sagina nodosa</i>	Knotted Pearlwort	X	X							
<i>Sagina procumbens</i>	Procumbent Pearlwort							X	X	
<i>Salicornia europaea</i>	Common Glasswort	X								
<i>Salicornia ramosissima</i>	Purple Glasswort	X								
<i>Salix caprea</i> ssp. <i>caprea</i>	Goat Willow	X	X		X		X		X	
<i>Salsola kali</i> ssp. <i>kali</i>	Prickly Saltwort	X			X					
<i>Sambucus nigra</i>	Elder	X			X	X	X	X	X	X
<i>Samolus valerandi</i>	Brookweed						X			
<i>Sanguisorba minor</i> ssp. <i>minor</i>	Salad Burnet		X	X	X	X	X	X		
<i>Sanguisorba officinalis</i>	Great Burnet						X	X		
<i>Saponaria officinalis</i>	Soapwort		X							
<i>Scabiosa columbaria</i>	Small Scabious				X					
<i>Schoenoplectus lacustris</i>	Common Club-rush	X								
<i>Schoenoplectus tabernaemontani</i>	Grey Club-rush	X	X							
<i>Securigera varia</i>	Crown Vetch		X							
<i>Sedum acre</i>	Biting Stonecrop	X	X	X	X		X			X
<i>Sedum album</i>	White Stonecrop	X	X		X				X	X
<i>Senecio cambrensis</i>	Welsh Groundsel				X					
<i>Senecio cineraria</i>	Silver Ragwort									X
<i>Senecio erucifolius</i>	Hoary Ragwort	X					X	X		
<i>Senecio jacobaea</i>	Common Ragwort	X	X	X	X	X	X	X	X	X
<i>Senecio squalidus</i>	Oxford Ragwort	X	X	X	X	X			X	X
<i>Senecio sylvaticus</i>	Heath Groundsel						X	X	X	
<i>Senecio vulgaris</i>	Groundsel	X	X	X	X	X	X	X	X	X
<i>Seriphidium maritimum</i>	Sea Wormwood	X								
<i>Serratula tinctoria</i>	Saw-wort						X			
<i>Silaum silaus</i>	Pepper-saxifrage						X			
<i>Silene dioica</i>	Red Campion	X			X		X	X	X	X
<i>Silene latifolia</i> ssp. <i>alba</i>	White Campion	X			X					X
<i>Silene vulgaris</i> ssp. <i>vulgaris</i>	Bladder Campion	X								
<i>Silene x hampeana</i>	Campion hybrid	X			X					
<i>Sinapis arvensis</i>	Charlock	X	X	X	X		X	X		X
<i>Sisymbrium altissimum</i>	Tall Rocket	X	X							
<i>Sisymbrium officinale</i>	Hedge Mustard	X	X	X	X	X	X	X	X	X
<i>Sisymbrium orientale</i>	Eastern Rocket	X	X	X						
<i>Smyrniolum olusatrum</i>	Alexanders	X					X			
<i>Solanum dulcamara</i>	Bittersweet	X								
<i>Solidago canadensis</i>	Canadian Goldenrod	X								
<i>Solidago gigantea</i> ssp. <i>serotina</i>	Early Goldenrod		X							
<i>Sonchus arvensis</i>	Perennial Sow-thistle	X		X	X	X	X	X		X
<i>Sonchus asper</i>	Prickly Sow-thistle	X	X	X		X	X	X	X	X
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	X	X	X	X	X	X	X	X	X
<i>Spartium junceum</i>	Spanish Broom		X							
<i>Spergula arvensis</i>	Corn Spurrey		X						X	
<i>Spergularia marina</i>	Lesser Sea-spurrey	X								
<i>Spergularia media</i>	Greater Sea-spurrey	X								
<i>Stachys officinalis</i>	Betony					X				
<i>Stachys sylvatica</i>	Hedge Woundwort						X			
<i>Stellaria holostea</i>	Greater Stitchwort	X		X			X	X	X	X
<i>Stellaria media</i>	Common Chickweed	X	X	X	X	X	X	X	X	X
<i>Stellaria pallida</i>	Lesser Chickweed	X	X	X						

		1	2	3	4	5	6	7	8	9
<i>Suaeda maritima</i>	Annual Sea-blite	X								
<i>Suaeda vera</i>	Shrubby Sea-blite	X								
<i>Succisa pratensis</i>	Devil's-bit Scabious	X			X		X	X		
<i>Symphytum x uplandicum</i>	Russian Comfrey								X	
<i>Syringa vulgaris</i>	Lilac	X								
<i>Tamus communis</i>	Black Bryony					X	X		X	
<i>Tanacetum parthenium</i>	Feverfew						X			X
<i>Tanacetum vulgare</i>	Tansy	X					X			
<i>Taraxacum arenastrum</i>	Dandelion sp.		X							
<i>Taraxacum duplidentifrons</i>	Dandelion sp.				X					
<i>Taraxacum expalidiforme</i>	Dandelion sp.				X					
<i>Taraxacum hamatiforme</i>	Dandelion sp.		X							
<i>Taraxacum hamatum</i>	Dandelion sp.				X					
<i>Taraxacum lacistophyllum</i>	Dandelion sp.		X							
<i>Taraxacum marklandii</i>	Dandelion sp.				X					
<i>Taraxacum officinale agg.</i>	Dandelion	X	X	X	X	X	X	X	X	X
<i>Taraxacum oxoniense</i>	Dandelion sp.	X			X					
<i>Taraxacum pseudolarssonii</i>	Dandelion sp.		X		X					
<i>Taraxacum rhampodes</i>	Dandelion sp.									X
<i>Taraxacum sahalinianum</i>	Dandelion sp.		X							
<i>Taraxacum subhamatum</i>	Dandelion sp.				X					
<i>Taraxacum unguilobum</i>	Dandelion sp.	X								
<i>Teucrium scorodonia</i>	Wood Sage						X		X	
<i>Thalictrum minus</i>	Lesser Meadow-rue	X	X	X	X					
<i>Thlaspi arvense</i>	Field Penny-cress				X					
<i>Thymus polytrichus</i>	Wild Thyme			X			X			
<i>ssp.britanicus</i>										
<i>Torilis japonica</i>	Upright Hedge-parsley						X			
<i>Tragopogon porrifolius</i>	Salsify									X
<i>Tragopogon pratensis</i>	Goat's-beard	X	X	X	X		X	X		X
<i>ssp.pratensis</i>										
<i>Trifolium arvense</i>	Hare's-foot Clover	X	X							
<i>Trifolium campestre</i>	Hop Trefoil	X	X				X			
<i>Trifolium dubium</i>	Lesser Yellow Trefoil	X	X		X		X		X	
<i>Trifolium hybridum ssp.hybridum</i>	Alsike Clover		X		X					
<i>Trifolium incarnatum</i>	Crimson Clover						X			
<i>ssp.incarnatum</i>										
<i>Trifolium medium</i>	Zigzag Clover	X			X		X	X		X
<i>Trifolium pratense</i>	Red Clover	X	X	X	X	X	X	X	X	X
<i>Trifolium repens</i>	White Clover		X	X	X	X	X	X	X	X
<i>Triglochin maritima</i>	Sea Arrowgrass	X								
<i>Triglochin palustris</i>	Marsh Arrowgrass	X	X		X		X	X		
<i>Tripleurospermum inodorum</i>	Scentless Mayweed	X	X				X	X		
<i>Tripleurospermum maritimum</i>	Sea Mayweed	X				X	X			
<i>Trisetum flavescens</i>	Yellow Oat-grass							X	X	
<i>Tussilago farfara</i>	Colt's-foot	X		X	X	X	X	X	X	X
<i>Typha latifolia</i>	Bulrush	X	X							
<i>Ulex europaeus</i>	Gorse			X	X	X	X	X	X	
<i>Urtica dioica</i>	Common Nettle	X		X	X	X	X	X	X	X
<i>Urtica urens</i>	Small Nettle	X	X		X					
<i>Vaccinium myrtillus</i>	Bilberry							X	X	
<i>Valeriana officinalis</i>	Common Valerian								X	
<i>Veronica arvensis</i>	Wall Speedwell	X							X	
<i>Veronica beccabunga</i>	Brooklime					X				
<i>Veronica catenata</i>	Pink Water-speedwell		X							
<i>Veronica chamaedrys</i>	Germander Speedwell	X			X		X		X	
<i>Veronica hederifolia</i>	Ivy-leaved Speedwell	X		X	X					
<i>ssp.hederifolia</i>										
<i>Veronica longifolia</i>	Garden Speedwell	X								
<i>Veronica officinalis</i>	Heath Speedwell								X	

		1	2	3	4	5	6	7	8	9
<i>Veronica persica</i>	Common Field-speedwell			X			X	X		
<i>Veronica polita</i>	Grey Field-speedwell	X								
<i>Vicia cracca</i>	Tufted Vetch		X		X		X	X	X	X
<i>Vicia hirsuta</i>	Hairy Tare									X
<i>Vicia sativa ssp.sativa</i>	Common Vetch		X		X					X
<i>Vicia sepium</i>	Bush Vetch		X	X	X		X	X	X	X
<i>Vinca major</i>	Greater Periwinkle					X				
<i>Viola arvensis</i>	Field Pansy		X				X		X	
<i>Viola canina ssp.canina</i>	Heath Dog-violet	X			X			X		
<i>Viola hirta</i>	Hairy Violet	X								
<i>Viola reichenbachiana</i>	Early Dog-violet									X
<i>Viola riviniana</i>	Common Dog-violet			X	X		X	X	X	X
<i>Viola x bavarica</i>	Hybrid Dog-violet	X								
<i>Zannichellia palustris</i>	Horned Pondweed	X								