ENTOMOLOGICAL SURVEY AND MONITORING AT CASTLE COVE, ISLE OF WIGHT, 2011.

INTRODUCTION.

Following coastal protection works in 1996, which included the clearing of vegetation from the coastal slope to the North of Castle Cove, Isle of Wight, this soft rock slope was allowed to regenerate naturally. The resultant habitat is rough coastal grassland with a bare ground element. The site is split into two sections which are separated by a tarmac path. The western section is considerably larger than the eastern section.

A baseline survey was carried out in 2003, and further survey and monitoring was undertaken in 2004, 2005, 2006, 2007 and 2010. The Castle Cove site was again surveyed during 2011, and changes in vegetation composition and the amounts of available bare ground were monitored. As in previous surveys, counts were made of certain target insect species in order to assess changes in population densities, and the number of nesting holes for certain species of ground nesting Hymenoptera were counted in order to monitor any changes.

METHODS.

Survey methods were confined to visual searching, the use of a hand net or pooter to capture individual species, sweeping vegetation, beating foliage and grubbing. The site was visited throughout the main insect flight period of 2011, commencing on 2nd March and with the final visit on 15th September. All visits were made in suitable weather.

RESULTS.

CHANGES IN VEGETATION.

During survey in 2006 and 2007 dominant plant species included Common Bird's - foot Trefoil *Lotus corniculatus*, Common Fleabane *Pulicaria dysenterica*, Ox - eye Daisy *Leucanthemum vulgare*, Teasel *Dipsacus fullonum*, Wild carrot *Daucus carota* and Ribwort Plantain *Plantago lanceolata*. The northern margin of the site is comprised of scrub and scrubby woodland with some Bramble *Rubus* sp. and Buddleja *Buddleja davidii* . The main tree species is Sycamore *Acer pseudoplatanus*.

In 2010, a number of changes were noted, both in the dominant plant species and amount of bare ground present, as follows:

Eastern Section.

The upper part of this area is now becoming very rank, with Bracken *Pteridium aquilinum* and Giant Horsetail *Equisetum telmetela* increasing significantly and becoming dominant over much of the plateau. Bramble *Rubus fruticosus* agg. scrub is also increasing near the northern boundary of the site. The top plateau still contains fair amounts of Common Bird's – foot Trefoil *Lotus corniculatus*, with some Tufted Vetch *Vicia cracca* and Ox – eye Daisy *Leucanthemum vulgare* also present. Hawkbits *Leontodon* spp. have increased considerably. Teasel *Dipsacus fullonum* and Rock Rose *Helianthemum* spp. are also increasing. Common Fleabane *Pulicaria dysenterica* is no longer present on this part of the site. The amount of bare ground available here has decreased significantly since the last survey. Bramble and Privet *Ligustrum vulgare* are increasing, particularly around the gabions. On the lower parts of this section coarse rank grass is also increasing, although *L. corniculatus* and Yellow – wort *Blackstonia perfoliata* are still present. Bramble scrub is encroaching here and bare ground is decreasing. Five Bee Orchids *Ophrys apifera* were noted.

Western Section.

Much of this section (almost 40%) is now dominated by rank coarse grasses, with Giant Horsetail also increasing in frequency, along with Teasel and Bramble. Good areas of *Lotus corniculatus* remain, but are now largely restricted to the eastern and central lower slopes of this section. Rock Rose is now well established in some areas, and Tufted Vetch and Hawkbits continue to increase in abundance. Ox – eye Daisy has decreased, as has Wild Carrot *Daucus carota*. Common Fleabane is no longer present in any quantity. Stinking Iris *Iris foetidissima* is well established in places. Ribwort Plantain *Plantago lanceolata* remains reasonably abundant. Bare ground is largely confined to the footpath traversing the site, which remains well used and relatively unchanged. Sparsely vegetated ground is still present on the lower slopes and central section of the site. Rock Samphire *Crithmum maritimum* is increasing at the bottom of the slope close to the gabions. The northern boundary of the site, above the top footpath, is increasingly heavily scrubbed.

In 2011, the following changes were recorded:

Eastern Section.

Giant Horsetail, Bracken, Bramble and Privet continue to encroach further into the site, as does the rank grassland element. Common Bird's – foot Trefoil is still present in some quantity on the plateau and on the lower part of the site, and Ox – eye Daisy is also present. Hawkbits continue to flourish, and Prickly Sow – thistle *Sonchus aspe*r is increasing. Black Medick *Medicago lupulina* is increasing in the short sward areas. Wood Sage *Teucrium scorodonia* is becoming well established near the gabions. Wild Carrot appears to be increasing slightly, as does Common Fleabane. Yarrow *Achillea millefolium* and Ragwort *Senecio jacobaea* are now well established. A new area of bare ground has been formed by the northern end of the gabions. This has been created by people regularly taking a short cut through the site, resulting in the formation of a new path.

Western Section.

Prickly Sow – thistle is increasing on site, as is Ragwort. Tufted Vetch and Red Clover *Trifolium pratense* are increasing on the upper slopes. Bramble and Dog Rose *Rosa canina* are encroaching further at the western end of this section. Ox – eye Daisy and Wild Carrot appear to be increasing in abundance. Good areas of Common Bird's – foot Trefoil are still present on the lower slopes. Alexanders *Smyrnium olusatrum* is established in small quantities in two areas.

INVERTEBRATE SURVEY.

A full list of all insect species recorded during the course of survey in 2011 is appended as **Appendix 1**. A number of the species encountered are considered to be Nationally Scarce or Red Data Book species. These are marked as such within **Appendix 1** and are discussed in more detail below. The status category definitions and criteria for individual species are those devised by the JNCC and are as follows:

STATUS CATEGORY DEFINITIONS AND CRITERIA.

RDB 1 - Endangered.

Taxa in danger of extinction and whose survival is unlikely if causal factors continue operating.

Species which are known or believed to occur as only a single population within one 10km square of the National Grid.
Species which only occur in habitats known to be particularly vulnerable
Species which have shown a rapid or continuous decline over the last twenty years and are now estimated to exist in five or fewer 10km squares.
Species which are possibly extinct but have been recorded in the 20th century and if rediscovered would need protection.

RDB 2 - Vulnerable.

Taxa believed likely to move into the endangered category in the near future if the causal factors continue operating.

Species declining throughout their range.
Species in vulnerable habitats.

RDB 3 - Rare.

Taxa with small populations that are not at present Endangered or Vulnerable, but are at risk

Species which are estimated to exist in only fifteen or fewer post 1970 10km squares. This criterion may be relaxed where populations are likely to exist in over fifteen 10km squares but occupy small areas of especially vulnerable habitat.

Nationally Scarce (Na).

Taxa which do not fall within the RDB categories but which are none - the - less uncommon in Great Britain and thought to occur in 30 or fewer 10km squares of the National Grid.

Nationally Scarce (Nb).

Taxa which do not fall within the RDB categories but which are none - the - less uncommon and thought to occur in between 31 and 100 10km squares of the national Grid.

Nationally Scarce (N).
Species which are estimated to occur within the range of 16 to 100 10km squares.

Additionally, some of the species found are included in either the National or Isle of Wight Biodiversity Action Plan (BAP) species listings. Again, these are clearly marked in **Appendix 1**.

LEPIDOPTERA.
The Dingy Skipper *Erynnis tages* **UK BAP.**
Two specimens were recorded on 20th May, one on each section of the site. This species has previously been noted here in 2004, 2005, and 2006. Larvae feed on Common Bird's – foot Trefoil. The Dingy Skipper has never been recorded in significant numbers during the course of the Castle Cove surveys, and it remains unclear whether or not the species breeds on the site. The Dingy Skipper is found in a variety of habitats, but shows a preference for areas which contain both a bare ground element and some rank grassland. Although widespread in England, strongholds for this species are in Southern and South – eastern counties.

The Wall *Lasiommata megera* **UK BAP.**
A single specimen was noted in the Western section of the site on 12th May. This species has previously been recorded in the 2005 and 2007 surveys. The Wall requires warm bare ground for basking. Larvae feed on Annual Meadow Grass *Poa annua* and Cock's - foot *Dactylis glomerata*. Although this butterfly remains widespread on the Island, numbers are decreasing. The Wall is in serious national decline and has recently been added to the national BAP listings.

The Chalkhill Blue *Lysandra coridon* **IOW BAP.**
A single specimen of this butterfly was seen on 2nd August. The Chalkhill Blue was also recorded in July 2006, again as a singletion. This species has a larval requirement for Horseshoe Vetch *Hippocrepis comosa*, which is absent from the site. The Chalkhill Blue occurs on the Downs above Ventnor, and specimens recorded at Castle Cove must be regarded as strays.

The Glanville Fritillary *Melitaea cinxia* **RDB 3. UK BAP.**
The Glanville Fritillary has been recorded from the site in every year of the survey. This rare butterfly whose natural breeding populations are confined to the South coast of the Island, was again present on both sections of the site. The highest number recorded in 2011 was of 23 adults on 12th May, which is roughly half the 2010 maximum count. This may indicate the start of a decline in the Glanville Fritillary population here, since at most other sites where it is well established, numbers seen were about the same as they were in 2010. Ribwort Plantain is still present in some quantity on site, despite the rank grassland encroachment. Recent trends in Isle of Wight populations of this butterfly suggest that the Glanville Fritillary is changing it's favoured egg laying locations to areas with a ranker sward, as opposed to the short sward grassland preferred until recent years, so theoretically Castle Cove should still be in a satisfactory state to support this species. Previous maxima were 42 in 2010, 96 in 2007 (an exceptional year for Glanville Fritillary), 13 in 2006, 9 in 2005, 8 in 2004 and 6 in 2003.

DIPTERA.
The Dotted Beefly *Bombylius discolor* **N. UK BAP.**
A specimen was noted on 8th April 2011 in the Western section of the site, for the first time since 2006. *B. discolor* was also recorded at Castle Cove in 2004 and 2005, but it has never been present in significant numbers. Larvae of *B. discolor* are ectoparasitic on the larvae of the mining bee *Andrena flavipes*. Although *B. discolor* remains a reasonably common species on the Isle of Wight in areas where it's host may be found (especially soft rock cliffs), Stubbs & Drake (2001) state that the species has declined nationally to the stage where it is regarded as a rarity. It is classed as a national BAP Priority species.

A Picture – winged fly *Campiglossa malaris* **RDB 1.**
A specimen was taken whilst sweeping Ragwort in the Eastern section of the site on 2nd August. The larval stage of *C. malaris* is believed to be associated with Ragwort, which is increasing at Castle Cove. The first British record of *C. malaris* was from Kent in 1974; by 2008 it had been recorded from a total of 20 10Km. squares in Britain. This rapid expansion has continued, and in 2011 *C. malaris* has proved abundant and widespread as far North as Warwickshire. During 2011, the author has recorded this species from every site he has visited where significant amounts of Ragwort are present. It is clear that the status of *C. malaris*

requires downgrading. Locally, this would appear to be the second Isle of Wight record for *C. malaris*, which was also recorded at a site in the centre of the Island in 2011.

HYMENOPTERA.

A Mining bee *Andrena alfkenella* **RDB 3.**

A specimen of this small bee was taken during general sweeping on 2nd August. *A. alfkenella* has previously been recorded at Castle Cove in 2004. In the field, it is similar in appearance to several other small species of *Andrena*, including the abundant *Andrena minutula*, and is probably regularly overlooked. *A. alfkenella* is a rare southern species favouring dry, bare or sparsely vegetated ground in warm, sunny situations. Records relate to coastal eroding cliffs, heathland and calcareous grassland. *A. alfkanella* is thought to nest solitarily rather than in nesting aggregations, and is usually present on a site only in low numbers.

A Mining bee *Andrena pilipes* **Nb. IOW BAP.**

Andrena pilipes was first recorded from Castle Cove in 2004, when a single individual was found on the eastern section of the site. In 2006, three individuals were seen visiting Bramble flowers on 7th August, and in 2007 the maximum count was of 10 individuals on 24th July. Good numbers were again found in 2010, with 7 specimens noted visiting the flowers of Bramble on 11th August. In 2011, the maximum number recorded was a rather disappointing 4 specimens on 13th July. Both the Spring and Summer broods were recorded at Castle Cove in 2011. This species is primarily associated with coastal cliffs and rough coastal grassland, but is occasionally found inland on downland and heathland. Falk (1991) notes a considerable decline for this southern species, particularly at inland sites. Locally, the author has recorded *A. pilipes* at six other Island sites.

A Mining bee *Andrena trimmerana* **Nb.**

The Spring brood of this species was recorded during the 2011 survey, with 2 individuals noted on 11th April and a further specimen recorded on 20th April. *A.trimmerana* has previously been found at Castle Cove in 2003, 2006 and 2007. Numbers of individuals seen are normally low at this site, with the 2011 totals being typical. *A. trimmerana* is a predominantly southern species, particularly associated with warm coastal grassland, although other habitats including woodland edge are also utilised. Falk (1991) notes a considerable decline at inland sites. Locally, *A. trimmerana* is recorded quite regularly both inland and on the coast.

A mining bee *Lasioglossum malachurum* **Nb.**

This small mining bee was again found nesting in both compartments of the site as in every survey year, where it formed nesting aggregations on the paths or in areas of bare or sparsely vegetated ground. As in previous years, counts of the number of nests in these aggregations were undertaken in 2011, and are discussed in detail later in this report. *L. malachurum* is polylectic, collecting pollen from a wide variety of plants. It has been recorded from a range of habitats, where there is warm disturbed ground. Typical breeding sites are in bare clayey soil on coastal cliffs and landslips, but it also occurs inland, in quarries, chalk grassland and heaths. Nationally, this species is restricted to southern England. Previously a very local and scarce species, *L. malachurum* has become far more frequent and is extending its British range currently (Edwards, R. & Broad, 2005). If this expansion continues, it is likely that the status of *L. malachurum* will require review. The Isle of Wight remains a national stronghold for *L. malachurum*, which is typical of the fauna of the soft rock systems on the South coast of the Island.

A mining bee *Lasioglossum puncticolle* **Nb.**

A single specimen of this species was found on 9th June in the Western section of the site. This constituted the first record for *L. puncticolle* at Castle Cove since 2003. In 2003, it was found to be nesting in small numbers on the site, but no nests have been seen since. It is not yet clear whether *L. puncticolle* is attempting to re – establish at Castle Cove, or whether the specimen found in 2011 is merely a stray. This species requires warm, light, disturbed soils in which to nest, and is primarily associated with the southern coastal counties of England. *L. puncticolle* appears to have suffered recent population declines, particularly at inland sites. (Falk, 1991). This species is reasonably common locally, especially in coastal situations, and the Island may be considered one of it's strongholds.

A cuckoo bee *Sphecodes niger* **RDB 3.**

A single specimen of this rare bee was found in the Eastern compartment at SZ55317700 on 20th April 2011. This is the first record of *S. niger* from Castle Cove. It is a cleptoparasite of the common mining bee *Lasioglossum morio*. A new colony of the host was found in 2011 to the North of the gabions in the Eastern compartment. The colony was in bare ground caused by people using this area as a short cut. The specimen

of *S. niger* was captured as it investigated the nesting area of *L. morio*. Until recently, *S. niger* was considered a great rarity of South – east England, but since the mid 1990's it has increased in frequency and is currently expanding it's range. The author has recorded *S. niger* from 6 other Isle of Wight sites, and the Island is considered to be one of the strongholds for this species.

A nomad bee *Nomada conjungens* **RDB 2 IOW BAP.**
Two specimens of this rare bee were found towards the top of the slope on the Western section of the site at SZ 55157696 on 5th May 2011. These constitute the first records of *N. conjungens* at Castle Cove. This species is a cleptoparasite of the rare (RDB 3) mining bee *Andrena proxima*. Although *A. proxima* has not yet been recorded at Castle Cove, several specimens of this bee were seen visiting Alexanders just outside the Eastern and Western boundaries of the survey area. A little further away at Flowersbrook at least 10 specimens of *A. proxima* were seen on 12th May, so there is clearly a colony of *A. proxima* in the area. Alexanders is currently only present in small quantities at Castle Cove, it is likely that if the amounts of this plant increase on site, *A. proxima* will be found. *N. conjungens* is a very rare bee in Britain, and Edwards & Roy (2009) show only 11 British records for this species, all from Southern England. The current author has previously recorded *N. conjungens* from Castle Haven on the Isle of Wight.

A nomad bee *Nomada fucata* **Na.**
The homeless bee *Nomada fucata* was recorded from both compartments as in previous years. This species is a cleptoparasite of the mining bee *Andrena flavipes*. In 2006 and 2007, *N. fucata* was only found in low numbers - a considerable contrast to 2004 and 2005 when it was regularly seen in double figures. In 2010 the highest count for *N. fucata* at Castle Cove was of 5 individuals, a higher count than in the previous two survey years. During 2011 numbers of *N. fucata* increased again, and a maximum count of 10 noted on 8th April. Numbers of the host bee *Andrena flavipes* also increased in 2011, and a new nesting aggregation was found. Nationally, *N. fucata* is, like it's host, confined to southern England, but it is considerably scarcer than the host and absent from some areas where *A. flavipes* is well established. Locally, *A. flavipes* forms huge nesting aggregations at many landslip or soft rock cliff sites and the *Nomada* remains a relatively frequent insect. Although Falk (1991) listed this species as Nationally Scarce (Na) following a period of extreme scarcity in the 1970's, *N. fucata* populations recovered during the 1990's and Edwards & Telfer (2002) suggested that it's status should be downgraded.

A nomad bee *Nomada lathburiana* **RDB 3.**
A single specimen of this bee was recorded from the Western section of the site on 20th April. This is the first record of *N. lathburiana* at Castle Cove since survey commenced. It is a cleptoparasite of the mining bee *Andrena cineraria*. In the past, *A. cineraria* was predominantly Northern in it's distribution, but over the last few decades it has spread southwards, and is now commonly seen on the Island in Spring. Although *A. cineraria* has yet to be recorded from Castle Cove, the author has noted it nearby. The range of *N. lathburiana* has also extended with the host bee, and it is now known from several sites on the Island. Due to the national increase in the frequency of *N. lathburiana*, Edwards & Telfer (2002) suggest that the status of this species requires downgrading.

COLEOPTERA.
A Weevil *Mononychus punctum –album* **Na.**
The Nationally Scarce (Na) weevil *Mononychus punctum - album* was first recorded at Castle Cove when a single specimen was swept from the leaves of Stinking Iris *Iris foetidissima* on the western section of the site in 2005. Larvae of this weevil develop in the seed pods of this plant. In June 2006 14 specimens were recorded. During 2007 numbers of *M. punctum - album* continued to increase, particularly at the western end of the site, with a maximum count of 37. During 2010, far fewer specimens were found, with a maximum count of only nine on 7th June. In 2011 the maximum count for this weevil had again decreased, to a mere 5 specimens. Stinking Iris continues to be present on site in some quantity, although the number of flowers, and consequently seed heads, varies from year to year. *M. punctum - album* is associated with coastal cliffs and has a very restricted distribution in southern England. Hyman and Parsons (1992) cite post 1970 UK records for just 4 Vice Counties, which include the Isle of Wight. They consider coastal stabilisation, and activities that change the rate of erosion to be major threats to this species.

NESTING AGGREGATION COUNTS.

Andrena flavipes.
A small nesting aggregation of this species was found during the 2011 survey, in the eastern sector near the gabions, and numbers of *A. flavipes* on the site appeared to have increased somewhat compared to

numbers in 2010. Similarly, numbers of the cleptoparasite *Nomada fucata* had also increased from the previous year.

***Lasioglossum morio*.**
Nest holes in the top path of the western sector were not found in any quantity during 2011, in contrast to 2010 when 71 nest holes for this species were recorded here. However, in 2011 a new colony of around 30 nests of *L. morio* was found in the eastern sector of Castle Cove, to the North of the gabions. It was here that the rare cleptoparasite *Sphecodes niger* was recorded for the first time at Castle Cove.

Lasioglossum malachurum.
The favoured nesting areas for the mining bee *Lasioglossum malachurum* are areas of gently sloping bare ground, including the compacted soils of the footpaths across the site. Detailed counts of the number of nest holes within these nesting aggregations were made in 2004, 2005, 2006, 2007 and 2010.; this process was repeated in 2011.

Eastern Compartment.
In 2004, a large loose nesting aggregation was located around SZ 55295 77001, containing 311 *L. malachurum* nests.

In 2005, a nesting aggregation on the same terrace and slopes occurred, in roughly the same area, being centred around SZ 55291 76997 where 109 nests were counted. A second, small nesting aggregation was found lower down the slope, centred around SZ 55292 76981; however this contained only 27 nest holes. Even with these additional nest sites, the total number of *L. malachurum* nests counted in this compartment in 2005 was 136 nests, less than 44% of the 2004 count for this section.

In 2006, 151 nests were counted around SZ 55306 76942, and a further 76 were counted around SZ 55293 76984, giving a total of 227 nests. Thus *L. malachurum* appears to be making a recovery from the poor results in 2005 with a 67% increase in the number of nests compared to last season. However, the 2006 count is still 27% less than in 2004.

The counts in 2007 were as follows : the nesting aggregation on the upper slope around SZ 55292 76998 was no longer present, and the amount of bare ground here had decreased. The nesting aggregation on the lower slope, around SZ 55296 76986 was found to support 72 nest holes, roughly the same as in 2006. The total of 72 *L. malachurum* nest holes for this section was the lowest number recorded to date, being only 23% of the 2004 count. This continues the trend for this *L. malachurum* to be nesting less successfully as succession continues and the amount of available bare ground decreases.

During 2010, 2 *L. malachurum* nests were found on the upper slope on 27th April. On 28th May, 48 *L. malachurum* nests were found on the bare ground at the base of the slope at SZ 55307693. This area had been very wet earlier in the season and this may account for the relatively late establishment of the nests here. The total of 50 nests recorded for this section of the site continues the downward trend of nesting abundance of *L. malachurum* on this section of the site. The upper slope here is now almost devoid of bare ground and the vegetation continues to become increasingly rank.

In 2011, 102 nests were noted in an aggregation at the base of the slope around SZ 55297698 on 20th April. This is the largest number of nests recorded in this location since survey began. However, the nesting aggregation which used to occur on the plateau higher up the slope has been lost due to continued loss of bare ground in this area.

Western Compartment.
In 2004, the *L. malachurum* nesting aggregations on the paths totalled 278 nest holes, with a further 209 nests further down the paths at SZ 55246 76978. This gave a 2004 total of 487 nest holes for this compartment.

In 2005, nests along the upper footpath around SZ 55167 76969 totalled only 40 nests, with a further 26 nests around SZ 55256 76977. This gives a 2005 total for this compartment of only 66 nests - less than 14% of the previous year's total.

In 2006 , 72 nests were counted around SZ 55215 76977 on the lower path, and a further 231 were nest holes were located widely spread along the upper path, giving a total of 303 nests. This represents a huge increase on the previous year's total and also represents some 62% of the 2004 total.

In 2007, 134 *L. malachurum* nest holes were counted along the top path, with the largest concentration of nest holes around SZ 55169 76972. A further aggregation of 25 nests was situated further East on the path around SZ 55239 76975. Some 13 nests were found in a patch of sparsely vegetated soil on the main body of the site around SZ 55205 76977. Thus the total *L. malachurum* nest count for this sector in 2007 was 172. This is only 35% of the 2004 count, and only 57% of the 2006 count. However, it is a significant increase on the 2005 total.

During 2010, a total of 464 *L. malachurum* nests were counted in the bare ground of the upper path or immediately to the South of this path in sparsely vegetated soil. This represents a significant increase in the number of nests here in comparison to 2007, and shows a recovery almost back to the maximum levels recorded in 2004.

In 2011, the maximum number of nests recorded around the bare ground of the upper path was 263, on 20th April. Whilst this is significantly lower than the 2010 maximum, it appears that the number of *L. malachurum* nest holes on this part of the site seems to vary considerably from year to year, although the amount of bare ground provided by the footpaths has remained almost constant throughout the survey period. Very small numbers of scattered nests thought to be those of *L. malachurum* were found in areas of bare ground on the lower slopes, but these were as individual, scattered nests rather than an aggregation.

DISCUSSION.

The amount of available bare ground is continuing to decrease. For some species this has resulted in a considerable loss of suitable nest sites, with a resultant decrease in this species' numbers. Other species, such as *Lasioglossum malachurum*, which can satisfactorily nest in the hard packed soils of the footpaths, are apparently holding their own.

The coarse, rank grassland element of the site is increasing, causing sparsely vegetated ground to become scarcer, although currently it is still in reasonably plentiful supply. As the amounts of sparsely vegetated ground diminish further it is anticipated that this will start to affect the success of a number of ground nesting insect species.

A number of scarce species recorded during 2010 were not seen in 2011; these are discussed below :

For the first time since survey began in 2003, no specimens of the Six - belted clearwing moth *Bembecia scopigera* were recorded at Castle Cove in 2011. Previous maximum counts are as follows : 2004 – 17 individuals, 2005 – 33, 2006 – 34, 2007 – 17 and 2010 – 3 specimens. The significant downturn in numbers since 2006 must raise concerns as to whether this species can continue to survive at Castle Cove. It would appear that the increase in rank vegetation may have had a deleterious effect on the population of *B. scopigera* here, although the larval foodplant Common Bird's – foot Trefoil remains abundant on the short sward areas of the site. *B. scopigera* is included in the Isle of Wight BAP listings.

The Black-headed mason wasp *Odynerus melanocephalus* was recorded in 2010 as a single specimen, for the first time since 2003. As stated in the 2010 report, it was deemed unlikely that suitable nesting habitat for this species (light, level, bare clayey substrate with water nearby) still occurred on the site. No specimens of *O. melanocephalus* were noted in 2011, suggesting that the species has failed to re – establish on site.

Similarly, it seems likely that the Bee - wolf *Philanthus triangulum* **,** which was recorded in 2010, 2006 and 2004 has failed to colonise the site due to the lack of suitable sandy substrate. No specimens were noted in 2011.

The mining bee *Andrena fulvago* was recorded for the first time at Castle Cove in 2010, when a single specimen was found. Most of the pollen collected by this bee is taken from small yellow composites such as Hawkbits. It was hoped that the significant increase in numbers of these plants at Castle Cove would lead to *A. fulvago* becoming established here, but this has not yet happened and no specimens were found during the 2011 survey.

The colourful leaf beetle *Cryptocephalus aureolus* was found for the first time at Castle Cove in 2010. This Nationally Scarce (Nb) species is largely restricted to lightly grazed grassland, although it also occurs on

sand dunes. It is associated with herbs, especially Hawkweeds *Hieraceum spp.*, Hawkbits *Leontodon* spp. and Rock Roses *Helianthemum* spp. Both Rock Rose and Hawkbits have increased in frequency on the site since 2007, but no specimens of *C. aureolus* were recorded in 2011, suggesting successful colonisation has yet to occur.

The wasp spider *Argiope bruennichi* was recorded from Castle Cove for the first time in 2006, and again in 2007 and 2010. As the vegetation becomes increasingly rank, it was anticipated that the frequency with which it is found at Castle Cove would increase, and the author was surprised not to record *A. bruennichi* at Castle Cove in 2011. However, to date numbers of *A. bruennichi* on site have always been low, and it is possible that this species is not yet fully established at Castle Cove. It is included in the Isle of Wight BAP listings.

Numbers of the mining bee *Andrena pilipes* declined for the second consecutive year, with a maximum count of only 4 individuals in 2011, compared to counts of 7 in 2010 and 10 in 2007. Reasons why this decline has occurred are unclear as yet, particularly since the favoured plant of the Summer generation, Bramble, is increasing on site. *A. pilipes* nests in warm bare ground, and it is possible that as this resource decreases on site this is affecting the ability of this species to successfully nest here. The decrease in numbers of *A. pilipes* appears to have additionally affected the population of it's associated cleptoparasite *Nomada fulvicornis*. The latter species was first recorded as a single specimen in 2007, but several were present in 2010, with a maximum count of 3 specimens. None were found at Castle Cove in 2011.

Other scarce species which were recorded in 2011, but are apparently in decline include the Glanville Fritillary, the mining bee *Andrena pilipes* and the weevil *Mononychus punctum – album*. These species are discussed in detail within the results section of this report.

Several scarce species were found for the first time at Castle Cove in 2011. These are the Picture – winged fly *Campiglossa malaris*, the Cuckoo bee *Sphecodes niger*, and the nomad bees *Nomada conjungens* and *Nomada lathburiana*. Again, these species are discussed in detail wiithin the results section of this report.

Although the above four species were recorded for the first time at Castle Cove in 2011, most of the previously established species have had a poor year in terms of numbers , with losses or declines of several species which were previously well established. Contrastingly, the mining bee *Andrena flavipes* and it's cleptoparasitic nomad bee *Nomada fucata* have enjoyed a successful season.

It is clear that the Castle Cove habitats and associated insect communities are still changing quite rapidly, and the point at which these changes start to slow down has not yet been reached.

REFERENCES.

Edwards, R. & Broad, G. (Eds.) 2005. *'Provisional atlas of the aculeate Hymenoptera of Britain and Ireland part 5."* Centre for Ecology and Hydrology, Huntingdon.

Edwards, R. and Roy, H. (Eds.). 2009. "*Provisional atlas of the aculeate Hymenoptera of Britain and Ireland part 7* ". Biological Records Centre, Huntingdon.

Edwards, R. and Telfer, M. (Eds.). 2002. "*Provisional atlas of the aculeate Hymenoptera of Britain and Ireland part 4* ". Biological Records Centre, Huntingdon.

Falk, S. J. 1991. "*A review of the scarce and threatened bees, wasps and ants of Great Britain* ". Research & survey in Nature Conservation No. 35. Nature Conservancy Council Peterborough.

Hyman, P. S. and Parsons, M. S. 1992. " *A review of the scarce and threatened Coleoptera of Great Britain part 1*' ". JNCC, Peterborough.

Stubbs, A. E. and Drake, M. 2001. " *British Soldierflies and their allies* ". British Entomological and Natural History Society, Reading.

APPENDIX 1. Insect species recorded during Castle Cove survey 2011.

Species marked with an asterisk * have not been recorded on previous Castle Cove surveys.

		SCIENTIFIC NAME		ENGLISH NAME		STATUS
ORTHOPTERA				**Grasshoppers**	**& Crickets**	
		Conocephalus	dorsalis	Short-winged	Conehead	Common, Widespread
		Pholidoptera	griseoaptera	Dark Bush	Cricket	Common, Widespread
DERMAPTERA				**Earwigs**		
		Forficula	auricularia			Common, Widespread
HEMIPTERA				**True bugs**		
	Coreidae			**Squash Bugs**		
		Coreus	marginatus	Squash Bug		Common, Widespread
LEPIDOPTERA				**Butterflies &**	**moths**	
		Aglais	urticae	Small tortoisehell		Common, Widespread
		Anthocharis	cardamines	Orange Tip		Common, Widespread
*		Aricia	agestis	Brown Argus		Common, Widespread
		Celastrina	argiolus	Holly Blue		Common, Widespread
		Erynnis	tages	Dingy	Skipper	**UK BAP**
		Inachis	io	Peacock		Common, Widespread
		Lasiommata	megera	Wall		**UK BAP**
		Lycaena	phlaeas	Small Copper		Common, Widespread
		Lysandra	coridon	Chalk - hill Meadow	Blue	**IOW BAP**
		Maniola	jurtina	Brown		Common, Widespread
		Melanargia	galathea	Marbled White		Common, Widespread
		Melitaea	cinxia	Glanville Fritillary		**RDB3 UK BAP**
		Pieris	brassicae	Large White		Common, Widespread
		Pieris	rapae	Small White		Common, Widespread
		Polyommatus	icarus	Common Blue		Common, Widespread
		Pyronia	tithonus	Gatekeeper		Common, Widespread
		Vanessa	atalanta	Painted Lady		Common, Widespread
DIPTERA				**True Flies**		
	Bibionidae			**Fever Flies**		
		Bibio	marci			Common, Widespread
*		Dilophus	febrilis			Common, Widespread
	Stratiomyidae			**Soldier Flies**		
		Chloromyia	formosa			Common, Widespread

*		Pachygaster	atra		Common, Widespread
	Bombyliidae			Bee Flies	
		Bombylius	discolor		N UK BAP
		Bombylius	major		Common, Widespread
	Dolichopodidae			Long-headed Flies	
		Dolichopus	griseipennis		Common, Widespread
	Syrphidae			Hoverflies	
		Cheilosia	impressa		Common, Widespread
*		Cheilosia	pagana		Common, Widespread
		Cheilosia	proxima		Common, Widespread
		Dasysyrphus	albostriatus		Common, Widespread
		Epistrophe	eligans		Common, Widespread
		Episyrphus	balteatus		Common, Widespread
		Eristalis	pertinax		Common, Widespread
		Eristalis	tenax		Common, Widespread
		Eupeodes	corollae		Common, Widespread
		Eupeodes	luniger		Common, Widespread
		Melanostoma	mellinum		Common, Widespread
		Merodon	equestris		Common, Widespread
		Myathropa	florea		Common, Widespread
		Paragus	haemorrhous		Common, Widespread
		Pipiza	noctiluca		Common, Widespread
		Pipizella	viduata		Common, Widespread
		Platycheirus	albimanus		Common, Widespread
		Scaeva	pyrastri		Common, Widespread
		Sphaerophoria	scripta		Common, Widespread
		Syritta	pipiens		Common, Widespread
		Syrphus	ribesii		Common, Widespread
		Syrphus	vitripennis		Common, Widespread
*		Volucella	bombylans		Common, Widespread
		Volucella	zonaria		Local, Widespread
		Xanthogramma	citrofasciatum		Common, Widespread
		Xanthogramma	pedisequum		Common, Widespread
*		Xylota	sylvarum		Common, Widespread
	Conopidae			Thick-headed Flies	

		Sicus	ferrugineus			Common, Widespread
		Thecophora	atra			Local, Widespread
	Tephritidae			Picture-winged	Flies	
*		Campiglossa	malaris			RDB 1
		Sphenella	marginata			Common, Widespread
*		Xyphosia	miliaria			Common, Widespread
	Ulidiidae			Picture - winged	Flies	
		Herina	longistylata			Common, Widespread
	Sciomyzidae			Snail-killing	Flies	
		Pherbellia	cinerella			Common, Widespread
	Tachinidae			Tachinid Flies		
		Eriothrix	rufomaculata			Common, Widespread
HYMENOPTERA				Bees,Wasps	Ants & relatives	
	Vespidae			Social Wasps		
		Vespula	vulgaris			Common, Widespread
	Crabronidae			Digger Wasps		
		Pemphredon	lethifera			Common, Widespread
	Apoidea			Bees		
	Colletidae			Mining & Yellow-	faced Bees	
		Hylaeus	communis			Common, Widespread
		Hylaeus	confusus			Common, Widespread
	Andrenidae			Mining Bees		
		Andrena	alfkenella			RDB 3
		Andrena	bicolor			Common, Widespread
		Andrena	chrysosceles			Common, Widespread
		Andrena	dorsata			Common, Widespread
		Andrena	flavipes			Common, Widespread
		Andrena	minutula			Common, Widespread
		Andrena	nigroaenea			Common, Widespread
		Andrena	nitida			Common, Widespread
		Andrena	ovatula			Common, Widespread
		Andrena	pilipes			Nb IOW BAP
		Andrena	trimmerana			Nb
	Halictidae			Mining & Cuckoo	Bees	
		Halictus	tumulorum			Common, Widespread
		Lasioglossum	calceatum			Common, Widespread
		Lasioglossum	malachurum			Nb

		Lasioglossum	morio			Common, Widespread
		Lasioglossum	puncticolle			Nb
		Sphecodes	monilicornis			Common, Widespread
*		Sphecodes	niger			RDB 3
	Megachilidae			Solitary Bees		
		Hoplitis	claviventris			Common, Widespread
		Hoplitis	spinulosa			Common, Widespread
		Megachile	willughbiella			Common, Widespread
		Osmia	aurulenta			Local, Widespread
		Osmia	rufa			Common, Widespread
	Anthophoridae			Flower & Nomad	Bees	
*		Nomada	conjungens			RDB 2 IOW BAP
*		Nomada	flava			Common, Widespread
		Nomada	flava / panzeri male			Common, Widespread
		Nomada	flavoguttata			Common, Widespread
		Nomada	fucata			Na
		Nomada	goodeniana			Common, Widespread
*		Nomada	lathburiana			RDB 3
		Nomada	marshamella			Common, Widespread
		Nomada	ruficornis			Common, Widespread
	Apidae			Social & Cuckoo	Bees	
		Apis	mellifera	Honey Bee		Common, Widespread
		Bombus	lapidarius	a red-tailed	Bumblebee	Common, Widespread
		Bombus	lucorum	a white-tailed	Bumblebee	Common, Widespread
		Bombus	pascuorum	Common	Carder Bee	Common, Widespread
		Bombus	pratorum	Early	Bumblebee	Common, Widespread
		Bombus	terrestris	a buff-tailed	Bumblebee	Common, Widespread
COLEOPTERA				Beetles		
	Cantharidae			Soldier Beetles		
		Rhagonycha	fulva			Common, Widespread
	Cerambycidae			Longhorn Beetles		
*		Leptura	melanura			Common, Widespread
	Coccinellidae			Ladybirds		
		Coccinella	7- punctata	Seven Spot	Ladybird	Common, Widespread
		Harmonia	axyridis	Harlequin	Ladybird	Common, Widespread
	Curculionid			Weevils	Beetles	

ae					
	Mononychus	punctum - album			Na
Oedemerid ae			Oedemerid	Beetles	
	Oedemera	nobilis			Common, Widespread