Site Name: Canford Heath

Author: Eleanor Carlton

Description of location:

Canford Heath is the largest dry and wet heathlands in Dorset, spanning 850 acres, additionally it is the largest lowland heath in the United Kingdom. Much of it is designated as a Site of Special Scientific Interest (SSSI) and part of the Dorset Heathlands Special Protection Area. The heath lies between Broadstone to the west and Knighton Heath to the east. Canford heath is home to many rare species, including the sand lizard, Dartford warbler and smooth snake.

Heathland characteristics:

Canford heath contains a mix of wet and dry lowland heather. The heather itself was examined to be on average mostly mature and degenerate heath, however, heather at all stages of its lifecycle were found in fairly even ratios. When the heather was measured, there was large variation between the maximum and minimum heights, on average the shortest heather in each plot was 6cm and the maximum 91cm, averaging in at 38cm. This ratio of heather found in all parts of its lifecycle are testimony to the success of the heather management plan put in place for Canford heath, achieved through herbivore rotation and scheduled systematic heath burning.

Figure 1: Heathland plot showing the vegetation composition of mainly heather

When the vegetation composition was examined on average Canford heath was found to compose of 46% heather, 32% gorse, 15% grass, 7% tracks, 5% ground litter, 2% trees, 0.5%

bracken and 0.5% bramble. This ratio also reflects how well managed this heathland is, maintaining a healthy ratio of vegetation that is fundamental to the survival of many rare heathland flora and flora, as well as a decent amount of vegetation that provides beneficial protection to archaeological structures, specifically heather's erosion prevention properties for barrows.

Grazing Pressure / Animal Pressure:

Light grazing from cattle and ponies has been introduced as a management tool to help keep the heath open and uneven in age for insects, reptiles and ground nesting birds.

Wild and domesticated animals are allowed onto Canford heath, the presence of these animals influences the landscape of the heathland. Physical signs of their presence include browsed vegetation, tracks and dung, all of which can be used to estimate a herbivory score of the heath. When a study was undertaken in Canford heath, the most prominent form of animal presence evidence was through identification of their tracks; cattle, horse and dog tracks were found in many study sites. However, only a small amount of cattle dung was found.

Although cattle, horses and deer are present in this heathland, the grazing pressure appeared to be light, made evident from the very small presence of browsed seedlings, saplings and trees. The small amount of grazing evidence indicates that the heathland has been well managed, rotating the presence of herbivorous animals to ensure that the heath is not over-browsed, maintaining an open and uneven heathland environment for wildlife to thrive within. Canford heath was given an average herbivory score of 1.94, this is a very low herbivory score that reflects the success of the grazing management scheme put in place on the Canford heathland.

People Pressure:

Canford heath is a popular destination for local people and visitors, coming to walk their dogs, ride bicycles, go hiking, or simply to enjoy the unique wildlife that this habitat provides. There are many paths through the heathland that visitors are aske to stick to, reducing the disturbance to wildlife, such as rare ground-nesting birds, reptiles and amphibians. Motorbikes are not allowed on the heathland and it is illegal to ride them within the nature reserve, however, bicycles are permitted within the heathland.

The law requires visitors to keep dogs on short leads during the breeding bird season (1st March – 31st July), or whenever livestock are present. This law helps to protect vulnerable ground nesting birds, such as the Dartford Warbler and the Nightjar.

Human footprints, bicycle tracks and dog tracks were present in study areas on Canford heath, indicating that whilst the majority of visitors do stick to the designated pathways through the heathland, some visitors are obviously straying off these paths and into the heath itself.

Archaeology:

Bronze Age burial mounds, barrows, can be seen on Canford Heath. These barrows are from the Bronze Age settlers that cleared the Oak and Bird woodland that covered South East Dorset 3,500 years ago. The heathland provided the local inhabitants with bedding, thatching materials, livestock grazing, and turf for fuel or a source for gravel, sand or clay. There are visible boundary lines from 19th century enclosures. These enclosures were mostly planted up as pine plantations, Scots and Maritime pine trees are still present in the heathland. There are tracks through the heathland that have been used since the Saxon times. South Walk was an important route between Christchurch and Wimborne in the 1700s.

Figure 2: Bronze Age barrow at Canford heath.

In our study five barrows were investigated, these barrows were all from the Bronze Age and all had experienced noticeable damage. On average the barrows were 42% damaged. These Bronze Age barrows had a reasonable amount of vegetation covering them, most prominently gorse, bracken and heather, with gorse covering an average of 32% of the barrows themselves. Trees were also present in all five Bronze Age barrows examined, an average of 27 deciduous trees and 12 coniferous trees in each study site. Trees are particularly damaging to archeological remains, as their roots travel deep and wide into the soil, breaking apart and moving sediments, causing significant damage to the feature itself. The heather present on these archeological features is a much less cause for concern, as they have a very shallow root system, causing far less damage to the barrows than trees or other vegetation have. In fact, heather often acts as protection to the barrow, helping to

prevent erosion of sediment on the barrow, by trapping it within its shallow route system.

Figure 3: Evidence of trampling on the barrow with coniferous trees present.

Trampling also has contributed to the damage found on these barrows. People and animals walking on top of these barrows compacts the earth beneath and over time would have changed the shape of these archeological structures. Tracks from people, wild animals and domesticated animals were found on these Bronze Age barrows, contributing to their damaged state. Although no tracks from vehicles or bikes were found, which have the potential to cause much more significant damage, as their mass is heavier, resulting in larger compressional forces to the barrows.

Site Name: Upton Heath

Author: Eleanor Carlton

Description of location:

Upton heath is located within the Poole basin, lying between Broadstone to the northeast, Creekmoor to the east, Upton to the south and Beacon Hill to the southwest. Upton heath measures 205 hectares and consists of a rich mosaic of dry and wet heath, bogs, acid grassland and woodland. The heathland has been designated as a Site of Special Scientific Interest (SSSI).

Heathland characteristics:

The heather itself was examined to be on average mostly degenerate and mature heath, although heather in all phases of its lifecycle were found in abundance. When we measured the heights of the heather there was great variation in heights, on average the shortest heather height in each plot measured 8cm and the maximum measured 96cm, on average the heather measured 38cm. The presence of heather in all stages of its lifecycle is due to the management technique used in this heathland, cattle and other herbivorous animals rotationally graze the heather to maintain an uneven and open landscape in which vulnerable wildlife to thrive.

Figure 1: Heathland plot on Upton heath showing the dominance of grassland.

During the study we examined the vegetation composition in many plots, on average Upton heath was found to compose of 38% grass, 31% gorse, 21% heather, 7% bramble, 7%

bracken, 6% ground litter, 6% tracks and 0.5% trees. As this ratio shows, heather is not the most prominent vegetation found in the heathland, instead grass and gorse are found in more abundance. The high abundance of grass and gorse may indicate that this heathland requires more intensive management to help encourage the heather to become the dominant species.

However, acid grasslands are becoming a much rarer habitat, this type of grassland is often associated with lowland heaths, hence why it is found in abundance within Upton heath. The tussocky grass allows a wide variety of invertebrates to thrive within, including butterflies, grasshoppers and solitary wasps. The species found in these acid grasslands are often specialists to their environment and therefore are seldom found elsewhere, such as the field cricket (UK BAP priority species).

Grazing Pressure / Animal Pressure:

Grazing animals are used in Upton heath to help keep vegetation growth in check. Cattle are used because they wrap their tongues around vegetation and pull up tufts, resulting in tussocky vegetation that many vulnerable wild species can take full advantage of. Cattle are able to consume longer, courser grasses and are able to move through scrub and bracken with ease, opening up the landscape.

Physical signs of animal presence were recorded and are used to estimate a herbivory score of the heathland, the physical signs used to measure the level of herbivory include browsed vegetation, tracks and dung. Once again, the presence of tracks proved to be the most obvious way to identify the presence of animals, as tracks from cattle, horses, deer, dogs and humans were found on this heathland. There was very little animal dung found in Upton heath, with only 2 of the 12 study sites containing rabbit dung. None of the trees studied in the plots showed any sign of browsing, this may indicate low levels of grazing in the heathland, or a vegetation preference amongst the herbivorous grazer for something other than trees. Combining these factors together, we were able to estimate an average herbivory score for Upton heath of 1.58. A herbivory score of 1.58 is very low, the low score may be due to a small number of grazing animals present during the study period, resulting in a low level of grazing on the vegetation and lack of animal dung, as these signs quickly disappear when the animals are not present.

People Pressure:

Upton heath's proximity to the surrounding towns has resulted in the heathland becoming popular for hikers, cyclists and dog walkers. However, motorbikes are strictly banned from the site, as it is illegal to ride motorcycles in Upton heath. There are many circular paths that guide visitors all around the heathland and it is recommended that visitors stick to paths to avoid trampling or disturbing ground-nesting birds and to avoid injury or accidents in precarious wet heath and bog.

To protect sensitive ground nesting birds, such as the Nightjar and the Dartford Warbler, visitors are required by law to keep dogs on short leads from 1st March – 31st July (during

the breeding bird season).

Human footprints were found in 8 of the 12 sites studied in Upton heath, indicating a high level of human presence in this heathland, not only on paths but within the heather itself too.

Archaeology:

There are three archeological features that were studied in Upton heath, all three were incidental studies, consisting of a possible Bronze Age barrow, a Roman road and a modern concrete structure.

Figure 2: Roman road at Upton heath.

When these three features were studied, all three of them were shown to have noticeable damage, on average these archaeological features are 55% damaged. These archaeological features are reasonable covered with vegetation growth, most from heather. On average these features were covered 54% by ground litter, 13% by heather, 10% by gorse, 8% by brambles, 8% by trees and 7% by grass. There were nine deciduous trees and 1 coniferous tree found on the archaeological plots. The presence of these trees (though few) is cause for concern, as trees have deep reaching root systems that can cause damage to archaeological remains. However, the large percentage of heather and ground litter is reassuring from an archaeological preservation perspective, as heather has shallow roots and often traps and secures sediment, helping to preserve archaeological features.

Figure 3: A concrete structure found at Upton heath.

There does not seem to be much damage caused by trampling to the features, only one structure (possible Bronze Age barrow) recorded any presence of tracks. These tracks resulted from people, wild animals and domesticated animals, as the barrow was in close proximity to a path (5 meters).

Site Name: Tadnoll Heath

Author: Eleanor Carlton

Description of location:

Tadnoll heath is located immediately to the west of and adjacent to Winfrith heath, divided by the Tadnoll Brook, a chalk stream tributary from the River Frome. The heathland borders Moreton to the north, East Burton to the east, Winfrith Newburgh to the south and Crossways to the west. The site contains dry heathland, wet heathland and acid grassland, which are managed traditionally by the Dorset Wildlife Trust, using cattle, sheep and horses to graze the vegetation.

Heathland characteristics:

When Tadnoll heath was examined it was found to consist of mainly mature heather, however heather at all phases of its lifecycle were found in fairly even ratios. When the vegetation's height was measured there was great variation, with the shortest height measuring at 3cm, the highest at 89cm, averaging in at 35cm. The even ratio of heather at different stages of its lifecycle reflects how well this heathland has been managed. Rotating the herbivorous livestock that graze on the heather ensures that the heath remains uneven, open, and varying in heather ages, which all helps to support vulnerable heathland species.

Figure 1: Ecological plot at Tadnoll heath showing the large amount of grass and heather.

When the vegetation composition was examined on average Tadnoll heath was found to compose of 57% heather, 36% grass, 9% ground litter, 9% tracks, 6% gorse, 1% bramble, 0.7% bracken and 0.3% trees. This ratio reflects how well this heathland has been maintained, keeping a healthy ratio of vegetation that supports vulnerable heathland species and helps to conserve archaeology.

Grazing Pressure / Animal Pressure:

When the heathland plots were studied, only one sapling tree was found to have been browsed, no seedlings or mature trees had any signs of browsing. Tracks from many different animals were found in our study sites, from cattle, horses, deer and dogs. The majority of tracks found in Tadnoll heath were from cattle with ten out of the fifteen plots had cattle tracks through them. The high number of cattle tracks present in the heathland are evidence of the grazing management scheme in place, cattle and other herbivores are used to keep the heather open and uneven. Small amounts of animal dung were found in the study sites, including deer, horse, cattle and rabbit dung. The most common dung found was that of cattle, a result of the cattle grazing management scheme used on this heathland. Combining these factors of grazing pressure gives us a score of herbivory, on average Tadnoll heath received a herbivory score of 2.6. A herbivory score of 2.6 is still relatively low, this is a fairly average score of herbivory when compared to the other heathlands investigated.

People Pressure:

Tadnoll heath is popular amongst walkers, the main footpaths are quite easy going and there are spectacular views from the top of the Bronze Age barrows. Footprints were found in ten of the fifteen ecological surveys and in all three Bronze Age bowl barrows in Tadnoll heath. Tadnoll heath also receives many dog walkers, made evident by the large amount of dog tracks found in the heathland and on the barrows themselves.

Archaeology:

In our study three bowl barrows were investigated, these bowl barrows were all from the Bronze Age and had experienced noticeable damage, averaging at 52% damaged. These bowl barrows had a large amount of vegetation covering them, most prominently bracken. On average these bowl barrows were covered 43% by bracken, 29% by grass, 22% by heather, 12% by ground litter, 3% by bramble, 3% by trees, and no gorse. The amount of trees present on the bowl barrows is concerning, as tree roots can cause significant damage to archaeological features. In total 46 deciduous trees and 4 coniferous trees were found on the three bowl barrows. The relatively small amount of heather is also concerning from an archaeological conservation perspective, because heather is important in preventing erosion on Bronze Age bowl barrows.

Figure 2: Bronze Age barrow with a large amount of bracken present.

Trampling has also contributed to the noticeable damage to the barrows, on average 18% of the barrows are covered by tracks. Trampling from humans, wild animals and domestic animals has contributed to the damage experienced on these three Bronze Age bowl barrows. Luckily, no tracks from vehicles or bicycles were found on these barrows, which would cause much more significant damage to these archaeological remains.

Figure 3: Bronze Age bowl barrow showing the high degree of erosion present.

Site Name: Winfrith Heath

Author: Eleanor Carlton

Description of location:

Winfrith heath is located near the western limit of the Dorset Heaths natural area, bordering Moreton to the north, East Burton to the east, Winfrith Newburgh to the south and Crossways to the west. Winfrith heath measures 103 hectares of dry, humid and wet heath; the heathland has been designated as a Site of Special Scientific Interest (SSSI).

Heathland characteristics:

In the free-draining soils of the dry heath found in Winfrith, ling heather (*Calluna vulgaris*), bell heather (*Erica cinerea*) and dwarf gorse (*Ulex tetralix*) dominates the vegetation. Winfrith heath is low in biodiversity, but what vegetation it does have is incredibly important, as it supports many rare birds, reptiles, invertebrates and lichens. In the wet heathland, cross-leaved heather (*Erica tetralix*), purple moor-grass (*Molinia caerulea*) and dwarf gorse are the most common species. Bog mosses are also prominent in wet heathland, particularly compact bog moss (*Sphagnum compactum*) and soft bog moss (*Sphagnum tellenum*).

When the heather was examined, it was found to mostly consist of pioneer and building heath, but heather in all phases of its lifecycle were found. The height of the heather varied, on average the shortest measured 4cm and the tallest at 85cm, averaging in at 29cm. The low average height of the heather reflects the fact that it mostly consists of pioneer and building heath in the early stages of its lifecycle.

Figure 1: Ecological plot on Winfrith heath with building and pioneer heather dominant.

When the vegetation composition was examined on average Winfrith heath was found to compose of 53% heather, 31% grass, 8% tracks, 7% gorse, 6% ground litter, 3% bracken, 1%

bramble and 0.6% trees. This ratio reflects how well managed this heathland is, maintaining a healthy ratio of vegetation that supports many rare species that depend on this environment.

Figure 2: High frequency of grass within the heathland.

Grazing Pressure / Animal Pressure:

Wild and domesticated animals are permitted onto Winfrith heath, including cattle, deer, dogs, and rabbits. We measured the physical signs including tracks, dung and browsing of trees. At this heathland no trees were found to have signs of browsing. Tracks were present from deer and dogs. Dung was found from deer and rabbits. Combining these factors gave an average herbivory score of 2.5, which indicates a relatively low level of grazing and animal pressure on the heathland.

People Pressure:

Winfrith heath is a quiet location, this may be due to the fact that there are no visitor facilities, limited parking on site and the paths are not well-defined, potentially discouraging visitors from visiting the heathland. However, human footprints were found in fourteen out of the seventeen study plots, indicating that people often stray off the paths, which may be due to the paths not being well defined. There were no other signs of recreation found on the heathland.

Archaeology:

In the study, five archaeological barrows were investigated, one of which was an incidental study and the rest scheduled. All five barrows originate from the Bronze Age period, two of which being bowl barrows and the other three being traditional barrows. All five of these Bronze Age barrows have experienced noticeable damage, on average being 73% damaged. The Bronze Age barrows are largely covered by vegetation, mostly by heather and gorse. The barrows are covered 50% by heather, 42% by gorse, 9% by grass, 4% by bracken, 4% by ground litter, 0.2% by bramble and 0.2% by trees. On the five barrows studied, only three trees were found, one deciduous and 2 coniferous. The very small number of trees is promising on an archaeological conservation front, as tree roots can be particularly damaging to archaeology, because they can break up the ground and separate the features themselves. The large proportion of heather growing on these Bronze Age barrows can be beneficial for the features themselves, as the root system of heather is shallow, allowing sediment to become trapped and secured, preventing erosion of the barrows.

Figure 3: Large amount of heather and gorse present on a Winfrith barrow.

There is little damage from trampling to these Bronze Age barrows, with tracks covering on average only 8% of the barrows themselves. Wild animal tracks were found on all of the barrows studied and human tracks were found on only three of the barrows studied. The small amount of tracks found on these barrows may be due to the fact that they were located a reasonable distance from paths, on average being 52 meters from the closest path. The lack of trampling is beneficial for the archaeology, as it reduces the amount of compressional force put upon the remains and therefore reduces the degree of damage to the barrows.

Site Name: Arne Heath

Author: Eleanor Carlton

Description of location:

Arne overlooks Poole harbour and the nearest town is Wareham. Arne is an RSPB reserve and became a Site of Special Scientific Interest (SSSI) in 1986. The reserve mainly contains lowland heath and has many rare species, including the rare heather Dorset heath (*Erica ciliaris*).

Heathland characteristics:

The majority of the heathland at Arne is lowland heath, containing the rare Dorset heath (*Erica ciliaris*). The heather was examined to be mainly building heath (shown in figure 1), however heather in all phases of its lifecycle were found in relatively even ratios. When the heather was measured on average the minimum height was 4cm, the maximum height was 67cm and the average height was 28cm. This ratio of heather at different ages is testimony to the well-managed grazing program in place in Arne, achieved through sika deer rotation and scheduled systematic heather burning.

Figure 1: Building heather is dominant

When the vegetation composition was examined, on average Arne was found to compose of 79% heather, 8% grass, 8% tracks, 7% ground litter, 5% trees, 4% bracken, 2% gorse and 0.06% bracken. This ratio of vegetation also reflects how well the heathland of Arne has

been managed. The high composition of heather is beneficial for the wildlife and beneficial for the conservation of archaeology on the site.

Grazing Pressure / Animal Pressure:

Dogs are allowed onto the heathland, but are asked to remain on leads. During the breeding season, dogs must be kept on short leads of less than 2 meters. Keeping dogs on leads helps to protect the vulnerable ground-nesting birds and the safety of livestock that live on the heathland. Unfortunately there are no dog waste bins present at the site, visitors are asked to take it away with them. The reserve has a large herd of sika deer (*Cervus nippon*), a species that originates in East Asia and have now become naturalised, living on the heath and oak woodland at the site.

No seedlings, saplings or mature trees were found to have signs of browsing in any of the plots studied. Tracks from cattle, deer and dogs were found on the heathland. There was plenty of deer dung found on the heathland and one cowpat. Combining these signs of grazing gives an average herbivory score of 2.5. A herbivory score of 2.5 is relatively low compared to the other heathlands, reflecting the success of the grazing management scheme using deer on the heathland.

Figure 2: Evidence of tracks trampled by deer.

People Pressure:

Arne has a large amount of facilities that encourage many visitors to the heathland.
Visitor car park, toilets, information hut, seasonal nest cameras, viewing points, nature trails, guided walks, events, shop, café, picnic area, binocular hire, wheelchair access.
Dogs are welcome in Arne, but are asked to be kept on leads at all times. Dogs are asked to be kept on short leads during the breeding bird season and when farm animals are nearby.

Human footprints and dog tracks were present in most of the heathland plots, indicating whilst the majority of visitors may stick to the designated paths, many obviously stray off these paths and into the heath itself.

Archaeology:

Arne has the largest amount of scheduled ancient monuments than any other RSPB reserve. Humans have used the heathland of Arne for 4,000 years. Arne nature reserve preserves an important collect of barrows, however all of these barrows have been raided by 'gentlemen diggers' in the 19th century. Arne Hill contains the remains of a heavy anti-aircraft position, which defended the cordite works in nearby Holton Heath. Due to the sparsely-populated nature of the heathland, Arne was used a night-time 'starfish' bombing decoy. Fires were lit to give the impression that the cordite works had been hit, drawing in waves of Luftwaffe bombers to the open countryside instead of more highly-populated areas, saving many lives. There are many bomb craters that can still be seen today and are now used as wildlife ponds, home to dragonflies, raft spiders and grass snakes.

Figure 3: Potential field boundary in Arne.

During the study we investigated a possible field boundary on the heathland (shown in picture). This incidental earthwork originated from the Modern age and shows notable damage. The degree of damage was estimated to be 30%. The possible field boundary is largely covered by vegetation, most prominently by heather, with heather covering 80% of the boundary. Other vegetation was also present with bracken covering 40%, trees covering 25%, tracks 10% and ground litter covering 5% of the field boundary. The fact that trees cover a quarter of the field boundary is worrying from a conservation perspective, as deep-reaching roots can cause significant damage to archaeological remains. There is also evidence of damage from trampling, this is due to humans, wild animals and domestic animals walking over the boundary line, in one point wearing it down to ground level. The trampling damage may be due to the fact that it is within very close proximity to a path, being 4 meters away from the closest path.

Site Name: Stoborough Heath

Author: Eleanor Carlton

Description of location:

Stoborough heath national nature reserve borders Arne Reedbeds National Nature Reserve to the north, Hartland Moor National Nature Reserve to the southeast, the village of Stoborough Green to the west and the village of Ridge to the northwest. The closest town is Wareham to the northwest. The heathland has been designated as a Site of Special Scientific Interest (SSSI).

Heathland characteristics:

Stoborough National Nature Reserve contains woodland, bog, acid grassland, wet and dry heathland, which supports a variety of specialist species, such as Dartford warblers, skylarks and nightjars. The most common age of heather in Stoborough heath was mature heather, followed closely behind with building heath. However, heather in all stages of its lifecycle were found. When the heather was measured, on average the shortest measured 3cm, the tallest 102cm, but on average the heather measured 33cm, this highlights the dominance of mature heather present in Stoborough heath.

Figure 1: Mature heather is dominant in this plot, with frequent building heather present also.

When the composition of vegetation was studied at Stoborough heath, on average the vegetation was found to be 44% grass, 31% heather, 13% gorse, 9% ground litter, 9% tracks, 5% bracken, 2% bramble and 0.13% trees. This ratio of vegetation is worrying, as the high amount of grass in the heathland detracts from the heather, indicating that this heathland may be less well managed than other heathlands studied. However, only 2 trees were found out of 15 heathland plots, which is beneficial for the heathland and the preservation of archeological features.

Grazing Pressure / Animal Pressure:

Cattle, ponies and deer graze Stoborough heath to help maintain the unique environment and preventing succession. Grazing by livestock also helps to keep the heathland open and uneven, maintaining a variety of heather at different phases of its lifecycle.

When the heathland was investigated only 1 browsed sapling and 1 browsed mature tree was found in the fifteen plots investigated. Faeces from cattle, horses, deer and rabbits were found on the heathland, evidence of the heathland management scheme that is in place on Stoborough heath. Tracks were found in abundance from cattle, horses, deer and dogs, indicating the regular presence of these animals amongst the heath. When combining these factors, an average herbivory score of 2.3 was awarded. A herbivory score of 2.3 is relatively low, evidence that the grazing management scheme on Stoborough heath has been well managed, maintaining open and uneven heathland, whilst not becoming over-grazed.

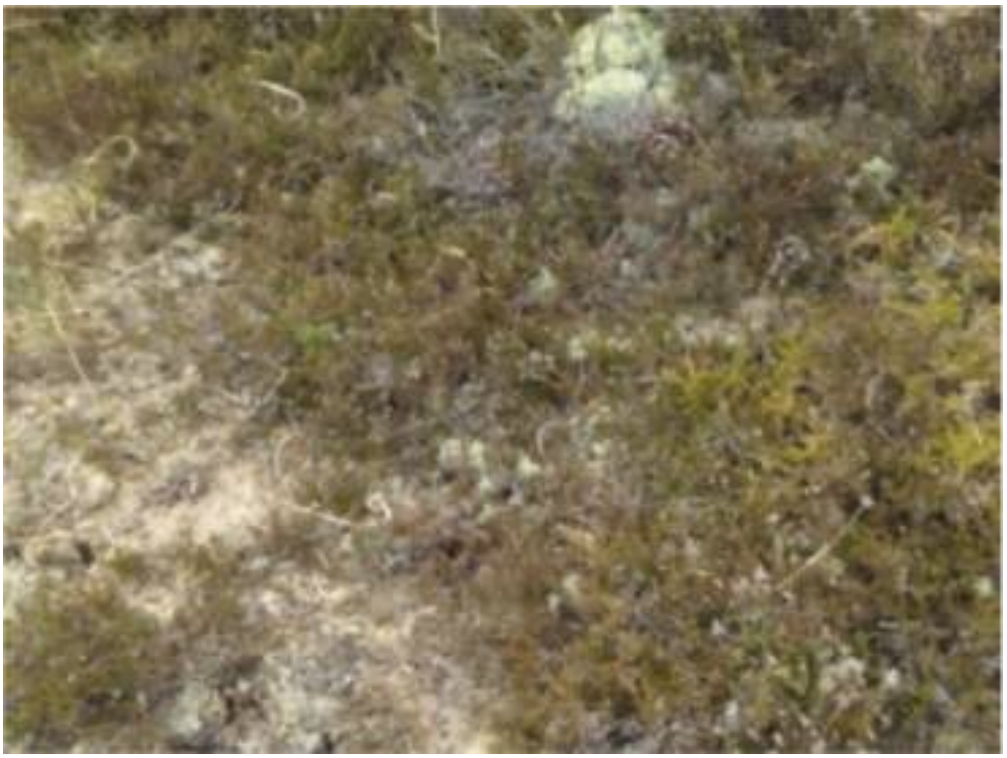

Figure 2: Stoborough heather with mild grazing, horse faeces, and tracks worn down from trampling.

People Pressure:

There are many visitors to Stoborough heath, the majority of visitors come to walk their dogs, hike, cycle, or enjoy the wildlife. There are paths running through the heathland, which visitors are advised to stick to. This is to ensure that ground-nesting birds are not harmed. Human footprints were found in the majority of heathland plots, with ten of the fifteen plots having footprints in them, indicating that people do venture off paths and into the heath itself.

Archaeology:

We studied one archaeological feature on Stoborough heath, an abandoned tramway that used to take horse-drawn loads of clay to the shore of Poole harbor to load onto boats. The tramway tracks is now bordered on both sides by hedgerows, which makes an easy walkway through the centre of the reserve, from which bog and myre can be safely surveyed. The tramway had noticeable damage of 50% and has vegetation covering it. The tracks were covered 70% by grass, 50% by ground litter, 40% by gorse, 30% by trees, 10% by bramble, 5% by heather and 5% by bracken.

Trampling has contributed significantly to the damage this earthwork has experienced. Tracks from people, animals, vehicles and bicycles were found on this archaeological feature. Vehicles cause the most damage to archaeological remains, as their mass is heavier, resulting in larger compressional and erosional forces to the tramway.

Figure 3: tramway track remains from the northwest.

Site Name: Black Bush Plain Heath

Author: Jodilea Carr

Description of location:

Black Bush Plain Heath is located within New Forest National Park, and contains a mixture of both wet and dry heathland. The New Forest National park spans *566 km^2*, and much of the New Forest is designated as a Site of Special Scientific Interest (SSSI) covering a total of *300 km^2*. Black Bush Plain Heath is home to many rare species, this includes the sand lizard (*Lacerta agilis*), the Dartford warbler (*Sylvia undata*) and the smooth snake (*Coronella austriaca)*.

Heathland characteristics:

Black Bush Plain heath contains a mix of wet and dry lowland heather. The heather itself was examined to be on average mostly building and pioneer heath, however, mature and degenerate were also present, only much less frequent, but no dead heath was recorded. When the heather was measured, there was large variation between the maximum and minimum heights, on average the shortest heather in each plot was 3cm and the maximum 51cm, averaging in at 13cm.

The ratio of heather lifecycles found at this heath show that is was largely degenerate but also regenerating with the presence of pioneer and building heather. Almost no saplings or seedlings were recorded from the points surveyed; showing success of using livestock to graze and prevent woodland progression on the heath was achieved. Other methods to help maintain the condition of the heath include herbivore rotation, to prevent overgrazing and improve consistency of management, and scheduled systematic heath burning, to restore the heath when it reaches the end of its lifecycle, or when particular species such as gorse may become completely dominant.

The vegetation composition at Black Bush Plain Heath was examined, and was discovered to compose of 63% grass, 28% heather, 0.7% gorse, 1.5% bracken, 0.6% bramble, 0.5% trees, 8% ground / litter, and 15% tracks. These percentages show that the grass here has become highly abundant, and potentially dominant, at this site. Whilst this is beneficial for many species found in this habitat, such as ground nesting birds, this is also disadvantageous to many other species, such as pollinators that are reliant on the flowering heather. Showing the importance of heath management, that is beneficial to a even coverage of species, as well as to the local archaeology found throughout this heathland. Heather can be important to preserving barrows, by helping to reduce erosion. Therefore perhaps further management on restoring more heather, over grass might benefit this heath.

Figure 1: Heather was the most abundant at this site, the heather was mostly building heath. Evidence of trampling can be seen near the centre of the image where bare ground is present.

Figure 2: Grass was dominant at this site, the photograph shows that the area was heavily grazed with 5 on the herbivory index.

Grazing Pressure / Animal Pressure:

As part of the heath management plan, livestock such as cattle and horses and ponies are used as management tools. They are permitted to graze freely throughout the heath.

The presence of grazing domestic animals, along with wild animals such as deer, can be seen throughout the heathland. They are responsible for helping to prevent the heathland progressing into woodland, by grazing on the seedlings of trees, and also help maintain grass to prevent it from dominating over the heath. As a result they help to keep the heath open and uneven, which is beneficial to a range of species including invertebrates, reptiles and ground nesting birds. Physical signs of the presence these animals in seen with evidence of grazing (browsed vegetation), tracks throughout the heath, and faeces. Examining these signs is helpful in determining the herbivory score and condition of the heath.

Overall Black Bush Plain Heath was found to have an overall herbivory score of 4.8 out 5, shows a very heavy grazing throughout the heath. This high herbivory score, suggests that some modifications to the grazing management scheme could be investigated to improve the heathland condition to prevent further over-grazing.

People Pressure:

Black Bush Plain Heath, being located within the New Forest is a popular location for local people, visitors and tourists, visiting for leisurely walks, hikes, dog walking, and cycling. Paths and bicycle tracks are maintained throughout the heath; however some pedestrians still deviate from the paths, contributing to trampling and disturbing wildlife such as rare amphibians, reptiles and ground-nesting birds. Motorbikes are not permitted within the nature reserve.

To reduce the impact on wildlife, the law requires visitors to ensure that their dogs are kept on short leads when livestock are present, and between 1st March and 31st July, which is the bird breeding season. This helps to protect vulnerable ground nesting birds such as the Dartford warbler (*Sylvia undata*) and the Nightjar (*Caprimulgus europaeus*).

During the study, the team observed that most pedestrians did stick to the paths, however human and dog footprints, along with bicycle tracks suggest that some visitors do deviate from the designated paths.

Archaeology:

Around Black Bush Plain heath many burial mounds from the Bronze Age could be seen. These barrows would have been from the Bronze Age settlers that cleared much of the woodland that that covered South East Dorset 3,500 years ago. The inhabitants would have relied on the heathland for turf and fuel, sources of sand, gravel or clay, food sources for their grazing livestock, and bedding.

In total five barrows were investigates at this site. Four of these were scheduled, and one was incidental. All of the barrows were from the Bronze Age, all with noticeable damage

present. The barrows were on average damaged by 67%. Although no trees were present, a large percentage of tracks were discovered on several of the barrows, averaging at 18%, but up to 30% on two of the barrows. Heather was the most abundant species found at the barrows at 61%, this is quite beneficial to the barrows as the heather itself causes minimal damage and provides some protection against erosion, as the shallow route system of the heather traps the sediment. Grass covered 19%, bracken 10%, ground / litter 9% and tracks 18%.

Humans and livestock walking over the barrows contributed to the presence of tracks and trampling, as a result of soil compaction which over time influenced the shape of the archaeological features. No damage from vehicles was present, however on one of the barrows bicycle tracks were found, and with a heavier mass, vehicles and bicycles increase earth compaction much more than pedestrians walking.

Figure 3: Noticeable damage to a Bronze Age barrow, heather was dominant at this site, with frequent bracken and grass. Tracks covered a large percentage of ground at 30%.

Figure 4: Bronze Age bowl barrow, heather was dominant at this site, with frequent grass, and occasional bracken.

Site Name: Whitten Bottom Heath

Author: Jodilea Carr

Description of location:

Whitten Bottom Heath is located within New Forest National Park, and contains a mixture of both wet and dry heathland. The New Forest National park spans *566 km^2*, and much of the New Forest is designated as a Site of Special Scientific Interest (SSSI) covering a total of *300 km^2*. Whitten Bottom Heath is located in Hampshire, between Thorney Hill and Burley. Whitten Bottom Heath is home to many rare species; this includes sand lizards (*Lacerta agilis*), Dartford warblers (*Sylvia undata*) and smooth snakes (*Coronella austriaca*).

Heathland characteristics:

Whitten Bottom Heath contains a mix of wet and dry lowland heather. The heather itself was examined to be on average mostly building and pioneer heath, however, mature and degenerate were also present, only much less frequent, and very little dead heath was recorded. When the heather was measured, there was large variation between the maximum and minimum heights, on average the shortest heather in each plot was 1.9cm and the maximum 207cm, averaging in at 47cm.

With the largest ratios of heather cycle present consisting of pioneer and building, is it likely that the heath here is young and recovering from previous planned burning as a form of heath management, which is done in order to destroy dead heath allowing new heath to grow in its place. A smaller percentage of mature heath was found, showing that the heather is continuing to grow and grazing from livestock is not preventing it from reaching mature heights. Degenerate heath was also found, however this was also in small quantities and may be the result of trampling by livestock or pedestrians.

There were no saplings or seedlings recorded at the points surveyed at Whitten Bottom Heath, this shows success in using livestock to graze and prevent heathland progressing into woodland. Herbivory rotation was another management method used to help prevent overgrazing and spread out the impact of livestock on the heath.

The vegetation composition at Whitten Bottom Heath was examined, and was discovered to compose of 57% grass, 25% heather, 7% gorse, 4% bracken, 0.9% bramble, 9% ground / litter, and 21% tracks. These percentages show that the grass here has become quite dominant at this site. Whilst this is beneficial for many species that rely on grasses in this habitat such as ground nesting birds. Species that rely on flowering heather and gorse, in particular invertebrates, and indirectly birds that prey upon those species will be negatively affected. An example of species that would be greatly affected by the decline in invertebrate species is the Dartford Warbler ***Sylvia undata,*** which remains in the UK during the winter, depending on invertebrates as prey in order to survive, a decline in insects may result in fewer Dartford Warblers in these areas. This highlights the importance of heath management, to maintain an equal or even coverage of species in these habitats to maintain biodiversity.

Figure 1: This image shows the abundance of grass at the site, it was moderately grazed, this can seen in the short length on much of the grass.

Maintaining the heathland is also essential for maintaining the local archaeology found throughout these sites, and preventing further degradation. For example tress are very damaging to archaeological remains, which without appropriate management such as using livestock to graze seedlings, the heath would progress into woodland increasing damage to the archaeological monuments. Successful management of the heath ensures that the percentages of heather are also abundant, which also benefits the archaeology as the root systems of the heather are shallow, and bind the earth together reducing erosion.

Grazing Pressure / Animal Pressure:

Livestock are present at Whitten Bottom Heath as part of a heath management plan. Allowing them to graze throughout the heath helps to prevent the heathland progressing into woodland by grazing tree seedlings. Livestock also help to keep the heath uneven, proving beneficial for a larger variety of species. Physical evidence of these animals, along with grazing wildlife, can be seen in the amount of browsed vegetation, faeces, and tracks found throughout the heath. Examining the presence of livestock can help to access the condition of the heath and give it a more accurate herbivory score.

Overall Whitten Bottom Heath was found to have an overall herbivory score of 3.7 out 5, shows a very moderately heavy grazing throughout the heath. The lack of trees show that they are successful in preventing woodland progression, however if they are the cause of the degenerate heath through trampling, a small reduction in the quantity of livestock present, or further monitoring might prove beneficial.

Figure 2: Moss was largely abundant on this heath, due to the site being located in bog.

People Pressure:

Whitten Bottom Heath, being located within the New Forest is a popular location for local people, visitors and tourists, visiting for leisurely walks, cycling, hikes, and dog walking. Pathways are maintained around the heath however some pedestrians still deviate from the paths, contributing to trampling and disturbing wildlife such as rare amphibians, reptiles and ground-nesting birds. Motorbikes are not permitted within the nature reserve.

To reduce the impact on wildlife, the law requires visitors to ensure that their dogs are kept on short leads between 1st March and 31st July, which is the bird breeding season. This helps to protect vulnerable ground nesting birds such as the Dartford warbler and the Nightjar. Although the majority of pedestrians use the pathways provided, some human and dog footprints, along with bicycle tracks found away from pathways suggest that some visitors do deviate from the designated paths.

Archaeology:

All of the archaeological monuments investigated at Whitten Bottom Heath were incidental; there were four in total, two of which were Modern Age earthworks. Another earthwork and ditch were also discovered, and another monument which remains unknown. The archaeological remains were on average damaged by 22%. Grass was the most abundant species found at the archaeological sites at 42%. Heather covered 40%, which with its shallow roots helps to protect the monuments, bracken 9%, trees 5%, ground litter 4% and

tracks 27%. Tracks were found around and across the earthworks, created by humans, dogs, and livestock. This would have contributed to soil compaction, resulting in changes to the terrain and affecting the archaeology. No damage from vehicles was present.

Figure 3: Incidental earthwork from the Modern Age. There was noticeable damage to the feature, the conditions of archaeological remains degraded by 20%. A nearby path can be seen, making it more likely that dogs would walk across the site.

Figure 4: Incidental earthwork and ditch, this photograph shows the abundance of bracken at this site. A high amount of deciduous seedlings were found at this site, as it is starting to progress into woodland, which will increase the damage to the archaeological remains.

Figure 5: On this incidental monument, tracks covered quite a large percentage of ground (25%), which were caused by humans and livestock.

Site Name: Hilltop Heath

Author: Jodilea Carr

Description of location:

Hilltop Heath is located within New Forest National Park, and contains a mixture of both wet and dry heathland. The New Forest National park spans *566 km^2*, and much of the New Forest is designated as a Site of Special Scientific Interest (SSSI) covering a total of *300 km^2*. Hilltop Heath is located in Hampshire, between Beaulieu and Hardley. Hilltop Heath is home to many rare species, this includes sand lizards***,** Dartford warblers and smooth snakes.

Heathland characteristics:

Hilltop Heath contains a mix of wet and dry lowland heather. The heather itself was examined to be on average mostly building and pioneer heath however, heather at all lifecycles also present, such as mature heath, and degenerate heath. Dead heath was recorded, only much less frequent. When the heather was measured, there was little variation between the maximum and minimum heights, on average the shortest heather in each plot was 51cm and the maximum 56cm, averaging in at 23cm.

The ratio of heather lifecycles found at this heath show that is was largely healthy with abundant pioneer, building and mature heath, with little degenerate and minimal dead. Very little saplings and seedlings were recorded from the points surveyed; showing success of using livestock to graze and prevent woodland progression on the heath was achieved. Herbivore rotation is another method used to prevent overgrazing and improve consistency of management, and scheduled systematic heath burning, to restore the heath when it becomes too degenerate and dead, or when particular species such as gorse become completely dominant.

When the vegetation composition at Hilltop Heath was examined it was discovered to compose of 37% grass, 43% heather, 8% gorse, 1% trees, 9% ground / litter, and 10% tracks. These percentages reflect the success of heathland management at this site; heather was abundant heather with healthy percentages of grass and gorse. This provides for a variety of species that are dependant on heather and grasses for survival, such as ground nesting birds, reptiles and invertebrates. Heather is also important in the preservation of barrows, by helping to reduce earth erosion.

Figure 1: Pioneer heather was most abundant at this site with building heath also being frequent. The high abundance of grass has been very heavily grazed.

Grazing Pressure / Animal Pressure:

As part of the heath management plan, livestock such as cattle and horses and ponies are used as management tools, and are permitted to graze freely throughout the heath.

The presence of grazing domestic animals, along with wild animals such as deer, can be seen throughout the heathland. They are responsible in helping to prevent the heathland progressing into woodland, by grazing the seedlings of trees, and helping to maintain gorse and grass to prevent these species from dominating over the heather. This shows the importance of grazing livestock as part of the heathland management, as without these species the heather can quickly be out competed. Livestock help to keep the heathland open and uneven, providing suitable habitat for a larger range of species including invertebrates, reptiles and ground nesting birds. Physical signs of these animals include browsed vegetation, tracks throughout the heath, and faeces. Examining these signs is helpful in determining the herbivory score and condition of the heath.

Overall Hilltop Heath was found to have an overall herbivory score of 3.8 out 5, showing moderately heavy grazing throughout the heath. Although core is relatively high, it appears to have been successful in maintaining the heath, however for the future perhaps some changes may need to be made to reduce the risk of over-grazing.

People Pressure:

Hilltop Heath, being located within the New Forest is a popular location for locals, visiting people including tourists, who visit for leisurely walks, hikes, dog walking, and cycling. Paths and bicycle tracks are maintained throughout the heathland; however some pedestrians still deviate from the paths, contributing to trampling and disturbing wildlife such as rare amphibians, reptiles and ground-nesting birds. Motorbikes are not permitted within the nature reserve.

To reduce the impact on wildlife, the law requires visitors to ensure that their dogs are kept on short leads between 1st March and 31st July, which is the bird breeding season. This helps to protect vulnerable ground nesting birds such as the Dartford warbler and the Nightjar.

During the study the team observed that majority of the pedestrians did stick to the paths, however human and dog footprints, along with bicycle tracks suggest that some visitors do deviate from the designated paths.

Archaeology:

Around Hilltop Heath there were some burial mounds from the Bronze Age present. These barrows would have been from the Bronze Age settlers that cleared much of the woodland that that covered South East Dorset 3,500 years ago. The inhabitants would have relied on the heathland for turf and fuel, and also for food sources for their grazing livestock, and along with bedding for the livestock.

In total two barrows were investigated at this site. Both of them were scheduled, with another scheduled archaeological feature, which was unnamed, and the Archaeological Time Period was also unknown. The barrows were from the Bronze Age, with noticeable damage present. On average the archaeological features were damaged by 20%.

No trees were present; however tracks covered a relatively large percentage of the barrows averaging at 20%. Grass was the most abundant species covering 43%of the barrows, this is fairly beneficial to the barrows as the grass causes less damage than trees, and provides a small amount of protection against erosion, as the shallow root system of the grass traps the sediment. Heather covered 13%, gorse 10%, bracken 6%, bramble 8%, and tracks 18%.

Humans and livestock walking over the barrows contributed to the presence of tracks and trampling, as a result of soil compaction which over time influenced the shape of the archaeological features. No damage from vehicles or bicycles was present.

Figure 2: Bronze Age barrow, the shape of the barrow remained intact, although it was heavily trampled.

Figure 3: The shape of barrow was intact although trampled at the top, and horse and cattle faeces found on site.

Site Name: Higher Hyde Heath

Author: Jodilea Carr

Description of location:

Higher Hyde Heath is located 4km North of Wool, between Bovington & Wareham. It is a designated as a Site of Special Scientific Interest (SSSI) covering a total of 133 acres. Hilltop Heath is home to many rare species, such as all of the UK reptiles including the rare sand lizard**,** and smooth snake. Dartford warblers are also found here.

Heathland characteristics:

Higher Hyde contains a mix of wet and dry lowland heath, along with surrounding woodland, and a lake located on site. The heather itself was examined to be on average mostly degenerate heath, however pioneer and building heath were relatively high, showing signs of regeneration. Dead heath and mature heath were also infrequent, showing that the condition of the heath may be declining but is not yet dead or dying. When the heather was measured, there was a large amount of variation between the maximum and minimum heights, on average the shortest heather in each plot was 1.25cm and the maximum was 94cm, averaging in at 16cm. This variation between heights shows that heather at different life stages are present, and the heather management plan in place at Higher Hyde Heath have been successful.

Very few saplings and seedlings were present this site; showing success of using livestock to graze and prevent heathland progressing into woodland. Herbivore rotation was a management technique used in order to help prevent overgrazing from livestock. Scheduled systematic heath burning was another management technique used to restore the heath when it becomes too degenerate and dead, or when particular species such as gorse become completely dominant.

When the vegetation composition at Hilltop Heath was examined it was discovered to compose of 40% grass, 31% heather, 8% gorse, 15% bracken, 0.5% trees, 19% ground / litter, and 24% tracks. These percentages reflect success of preventing woodland progressing with the use of livestock, and although grass is the most abundant this is beneficial for a variety of wildlife species such as ground-nesting birds. A good proportion of heather was present, showing that grass had not become overly dominant.

A large percentage of the heather was degenerate, however the presence of pioneer and building heath are signs of the heather recovering. Heather is also relatively beneficial for the preservation of archaeological monuments such as the barrows located on site. The shallow root system of the heather helps to bind the earth and reduce soil compaction, therefore reducing degradation of the monuments.

Figure 1: The majority of the heather was degenerate and dead patches were found occasionally. However there were also high amounts of pioneer heath growing around the degenerate patches. Grass was occasional and bare ground and tracks were plentiful as a result of trampling by deer and horses.

Grazing Pressure / Animal Pressure:

Livestock such as cattle and horses and ponies are used as management tools on Higher Hyde Heath, and are permitted to graze freely throughout the heathland. The presence of these animals and grazing wildlife can be seen through the level of browsed vegetation (herbivory score), tracks found throughout the heath, and faeces. Examining the presence of livestock can help determine the condition of the heathland.

Livestock help to prevent the heathland progressing into woodland, by consuming the seedlings of trees. Livestock are also responsible for helping to prevent some species from dominating over the rest, for example grass and gorse. Through livestock grazing the heathland becomes open and uneven, providing suitable habitat for a larger range of species, including invertebrates, reptiles and ground nesting birds. Overall, Higher Hyde Heath was found to have an overall herbivory score of 2.8 out 5, showing a healthy level of grazing throughout the heath, reflecting the success of the grazing management method.

People Pressure:

Hilltop Heath is a popular location for local people visiting for leisurely walks, hikes, dog walking, and cycling. There are a number of paths and bicycle tracks maintained throughout

the heathland; however some pedestrians still deviate from the paths, contributing to trampling and disturbing wildlife such as rare and ground-nesting birds and reptiles. Motorbikes are not permitted within the nature reserve.

To reduce the impact on wildlife, the law requires visitors to ensure that their dogs are kept on short leads between 1st March and 31st August, which is the bird breeding season. This helps to protect vulnerable ground nesting birds such as the Dartford warbler ***Sylvia undata*** and the Nightjar ***Caprimulgus europaeus***.

It was observed during the study that the majority of pedestrians did indeed stick to the maintained pathways, however human and dog footprints, along with bicycle tracks suggest that some visitors do deviate from the designated paths.

Archaeology:

At Higher Hyde there were some burial mounds from the Bronze Age present. These barrows would have been from the Bronze Age settlers that cleared much of the woodland that that covered South East Dorset 3,500 years ago. The inhabitants would have relied on the heathland for a variety of purposes including turf and fuel, and also for food sources for their grazing livestock, along with bedding for the livestock.

In total two archaeological monuments were investigated at this site. Both of them were scheduled, although the Archaeological Time Period for one of the monuments was unknown. The barrows found on site were from the Bronze Age, with noticeable damage present. Overall the archaeological features were damaged by 30%.

A relatively large percentage of trees were present at 15%, all of which were coniferous trees. Compared to other vegetation, trees cause a larger amount of damage to the archeological remains, as the tree roots travel deep and wide into the soil. This disrupts the earth, inflicting more damage to the shape of the monument. Bracken was the most abundant species covering 35% of the barrows. Grass and heather were found in equal amounts at 37%, gorse 5% and tracks 22%.

Trampling was present on the artifacts, contributed by humans and livestock walking over the barrows causing soil compaction, which over time influences the shape of the archaeological features. Despite this there appeared to be no bicycle or vehicle tracks present, which would have inflicted greater damage on the remains of the archaeological features.

Site Name: Whitefield Heath

Author: Sophie Hughes

Description of location:

Whitefield Heath is situated in the centre of the New Forest in Dorset and it is along Rhinefield Ornamental Drive, just outside of the town of Brockenhurst. A Road ran through both parts of this Heathland.

Heathland characteristics:

There was very little heather at Whitefield Heath. The only stage of heathland that was present was pioneer heath, which averaged a little less than 2 as a whole, which means that pioneer heath was occasional at Whitefield Heath based from the plots that were surveyed. Moss and bryophytes and lichen were only found in two plots. The corners averaged at 5 centimetres as the highest and at 3 centimetres as the lowest corner. The minimum height average was less than 1% and the maximum height average was 14%. Grass covered on average just under 92%. Heathers covered just fewer than 4% as an average and bracken and trees covered between 0-1% of all plots on average. Ground litter covered just fewer than 6% of all plots on average and tracks covered just fewer than 5% of all plots on average.

Figure 1: Heavily grazed heathland plot with a 5 on the Herbivory index. Horse faeces and hoof-prints were also found, which is evidence of trampling.

Grazing Pressure / Animal Pressure:

When you arrive at Whitefield Heathland it is apparent that this part of the New Forest is

greatly dominated by New Forest Ponies and Livestock. Grass covered on average just under 92%. This explained why there was a great amount of cattle and New Forest ponies at this location. The only footprints that were present were Horse footprints at this Heathland and there was horse dung present in all but one heathland plot. The herbivory index was 5 and this is because the grass is heavily grazed due to their being such a great amount of New Forest ponies and cattle at this location of the New Forest.

People Pressure:

This location was relatively quiet however cars drove through on the road frequently. The car part was almost empty however we saw several Dog walkers at this Heathland. There were not many couples or families etc. At this Heathland considering it was Easter Break however it was a very cold and windy day on the day we visited which could have affected visitor numbers.

Archaeology:

A 5th of the archeological feature found at Whitefield was noticeably damaged. The highest corner was 1200 centimeters and that being the maximum height and the lowest corner was 20 centimeters, with the minimum height being 5 centimeters. Grass covered 10%, heather covered 65%, gorse covered 25% and bramble covered 10%. It is a worry that gorse covers a 4th of this archeological feature as its roots run deep and it is challenging to get rid of. Ground litter covered 10% and tracks covered 5% of the archeological feature, which is a clear sign of trampling damage, and shows that more work needs to be done by the site manager in order to protect the archeological feature. There were also tracks from people and domestic animals present and the archeological feature was 5 meters away from a path.

Figure 2: Livestock and people caused tracks and trampling.

Site Name: Woolsbarrow Hill Fort

Author: Sophie Hughes

Description of location:

Woolsbarrow Hill Fort is located at Bloxworth Heath in Wareham Forrest in Dorset. The Hill Fort is an Iron Age Hill Fort and is classed as an ancient monument.

Heathland characteristics:

Heathland was not very apparent on the Hill Fort and in two plots that were surveyed; no heathland was present at all. Pioneer stage, building stage and dead heath on average was less than 1 and mature heath on average was 1. Therefore no heathland stages exceeded rare on the DAFOR scale. No lichen was present on the Hill Fort at all and mosses and bryophytes were present as 2 on average.

All corners on average ranged in the 20's with the corners being on average 27cm, 26cm, 23cm and 20cm. The highest corner surveyed was 163cm and the minimum was 1cm. On average the highest corners were 106cm and the minimum height on average was 3cm. On average the vegetation height as a whole was 44cm.

On average the most dominant vegetation that resides on Woolsbarrow Hill Fort is grass that made up 39% of all the plots that were surveyed. Heathers made up 32%, gorse 24%, bracken 14% and bramble 2% on average based from the results of all the plots that were surveyed. On average ground litter dominated 5% of the Hill Fort based from the plots we surveyed and tracks dominated 16%.

On average deciduous seedlings dominated 2% of the Hill Fort based from the survey and 10 individual seedlings were found in plot WI3 and 18 deciduous seedlings in total resided within the plots we surveyed. Only one coniferous seedling was found and that was in plot WI7. Only the deciduous seedlings in WI1 were browsed. One deciduous sapling was found in plot WI8 however it was not browsed. No mature trees were present in any plot we surveyed. No footprints were in any plots that we surveyed however footprints under the name 'other' were found in plot WI5.

Figure 1: The majority of the heather was mature with frequent large patches of degenerate heather. Building heath was present growing in-between gaps in the degenerate heather.

Figure 2: A variety of heather species were abundant. However the majority of this was degenerate heather. Pioneer and building heath was present growing in gaps in the degenerate heather, and frequent amounts of grasses and gorse were also heavily present particularly near the path.

Grazing Pressure / Animal Pressure:
On average the herbivory index score was 2 out of 5. This shows that grazing does occur but the Hill Fort isn't overgrazed. There were also no faeces present which means that animal pressure is not a problem for managers here.
People Pressure:
There were several hikers and Dog walkers on the hill fort and walking around Wareham Forrest. Very apparent tracks also covered the Hill Fort in several places which means that management needs to be improved to make sure that less damage occurs by people on the Hill Fort. Restricting access may correct this or fencing off the tracks for a while to allow grass growth to recover there may help.
Archaeology:
Three archaeological features had no noticeable damage however one did. The condition of noticeable damage was 35% in WOLB3 and 30% in the remaining 3 parts surveyed. Corner height on average ranged from 148cm-832cm and the minimum height on average was 18cm and the maximum height on average was 1900cm. Average height as a whole was 542 centimeters. Grass coverage on average was 18% with heather being 25%, 38% gorse, 11% bracken and bramble being 0.25% on average. On average 28 trees were in each plot and tracks covered three percent of the plots on average. Estimated vegetation height was 43cm and 150cm was the highest and 10 was the shortest estimated height. Tracks were found in every plot with two tracks in plot WOLB2 and 5 tracks in all the other surveyed plots. Human and wild animal tracks were present in every plot but no domestic animal tracks or tracks from vehicles or bikes were found which is good as these are factors that the management does not need to worry about regarding damage to the Hill Fort. A worry is that the Hill Fort has no distance from any tracks, which is something that will need to be considered by management.

Site Name: Matchams House Slope Heath

Author: Sophie Hughes

Description of location:

Matchams House Slope is located in Dorset in Christchurch and is owned by Amphibian and Reptile Conservation (ARC) and the land was purchased in 1998 by the ARC. The land consists of 3.5 hectares of deciduous woodland and dry heathland. The South-Eastern part of the slope is mostly dry heath with sandy patches of soil which makes it an ideal habitat for Sand Lizards and 5 out of 6 native reptile species reside at Matchams House Slope.

Heathland characteristics:

Of all the stages of heathland present at Matchams House Slope, only building heath in plot NH695 was dominant. No other plots had any dominant stages of heathland. On average, pioneer heathland was 1.8, building heath was 2.4, mature heath was 0.7, dead heath was 0.2 and degenerate heath was 0.8 on average. No stages of heathland exceeded occasional on the DAFOR scale. Mosses and bryophytes were frequent on average, with the average being 3 and lichens were 1.9 on average with the DAFOR scale being close to occasional.

On average the corners were 30cm, 22.4cm, 16.9cm and 25cm. The minimum corner height on average was 2cm and the maximum corner height on average was 99cm. The highest maximum measured was 300cm and the minimum corner measured was 1cm. On average the vegetation height of Matchams House Slope was 41.8cm based from the survey data from the observed plots at Matchams House Slope.

Grass on average was 22%, with heathers being 43%, gorse being 7.8%, bracken being 13.1% and bramble being 5.1% on average. Therefore based from the data, heather was the most dominant vegetation cover at Matchams House Slope. Ground litter covered 10.8% of ground on average based from the data gathered by observing the individual plots.

Trees were found in every plot but three. 50 deciduous seedlings were found in plot HN651, which means that this plot may have been bordering a forest and there were 151 deciduous seedlings in total and 60 coniferous seedlings in total. Compared to the high amount of seedlings, there was only a small presence of saplings. In total only 5 deciduous saplings were present and 22 coniferous saplings were present. No mature trees were present in any plots.

Figure 1: Cattle faeces, and dog and human footprints – evidence of trampling.

Figure 2: No heather was present, overtaken by bracken and bramble. Gorse was rare on the site, but can be seen in abundance in the background.

Grazing Pressure / Animal Pressure:

Of all 211 saplings in total, 81 of them were browsed which means that the grazing pressure at Matchams House Slope is quite high and of all the 27 saplings in total, 7 of them were browsed. The fact that there were many more seedlings than saplings is also a sign that the

area has high grazing pressure as the saplings are not given a chance to grow due to there not being many present compared to that of seedlings. Cattle, Horse and Dog footprints were present at Matchams House Slope and the Horse footprints were found in 1 plot, Cattle footprints were found in 8 plots and the Dog footprints were found in 10 plots. This is quite a high amount of footprints due to there being 15 observed plots in total. Deer dung was only found in plot HN700 and Cattle dung was found in every plot but three, which means that there is a large presence of Cattle at Matchams House Slope. Every plot had a herbivory score and no score exceeded below 2 and plot HN700 had the highest herbivory score of 5 and also was the only plot to contain Deer dung which is evidence of the huge impact Deer have on vegetation.

People Pressure:

Matchams House Slope was relatively quiet with the few occasional Dog walkers and several cars drove through the area whist we were there.

Archaeology:

There was one barrow surveyed at Matchams House Slope. The barrow is bronze age with a high level of damage, which is at 70%. The corners were 42cm, 14cm, 7cm and 44cm with the maximum height being 74cm and the minimum height being 1cm. The average height is 24cm. Only grass, bracken and bramble covered the barrow, with grass being 20%, bracken being 40% and gorse being 10%. No trees resided on the barrow and ground litter covered half of the barrow. Tracks from people, wild animals and domestic animals were present and no tracks from vehicles or bikes were present. Based from the extent of the damage of the barrow and the noticeable footprints from animals, more management needs to be done to control people and animals from going onto the barrow which will in turn prevent further damage and that's even considering that the barrow is 8 meters from the track.

Figure 3: The Bronze Age barrow had been degraded by 70%. Bracken was abundant, with

frequent grass and bramble. The bramble and nettles cause disturbance to the ground. Very degraded, barrow possibly disturbed by rabbits and dogs.

Figure 4: Orchids found near the barrow.

Site Name: Sopley Heath

Author: Sophie Hughes

Description of location:

Sopley Common Heath is located in Dorset and is a Nature Reserve belonging to the Dorset Wildlife Trust. The Avon Causeway road separates the North and South and Sopley Common is also close to Bournemouth Airport. The nearest town is Christchurch. There were several boggy parts of Sopley Heathland and Dartford Warblers were seen here which are a near threatened species on the IUCN Red List.

Heathland characteristics:

The most dominant stage of heathland at Sopley Heath was mature heath and the least dominant was degenerate and dead heath. The average heather coverage was 58%. Mosses and bryophytes were found in every 5 by 5 heathland plot and lichens were also found in every plot except one. On average the heathland height was 36-24 centimetres tall based from the plots that were surveyed. The highest corner was 70 of one plot was centimetres and the lowest corner of one plot was 1 centimetre in height.

Grass cover on average was 21%, gorse coverage 4% and bracken 3%. Bramble was only found in 3 plots and each plot where it was found had bramble coverage of 5%. Trees were found in every plot but 4 and there were 10 trees in one plot, which meant that the heather in this plot may have been bordering a forest. Mature heath was also abundant here which is a sign that the habitat is in the stage of potentially becoming woodland. On average ground litter was 13% on average and in other plots ground litter was 70%, 40% and 35% which shows that some plots were quite bare. Tracks covered 8% of the surveyed heathland plots on average.

There were 49 deciduous seedlings and 55 coniferous seedlings, 3% on average combined covered all the surveyed plots as a whole. Less than one percent deciduous and coniferous seedlings combined were present on average and there were 2 deciduous saplings and 4 coniferous saplings. No deciduous and coniferous trees were present in any heathland plots.

Figure 1: Heather was the most abundant at this site. The heather was building and pioneer heath.

Figure 2: Grass was dominant. Heather was frequent. The majority of heather was building and mature heath. Degenerate and dead heath was frequent, and pioneer was rare.

Grazing Pressure / Animal Pressure:

There were 49 deciduous seedlings and 55 coniferous seedlings and considering that several were present at Sopley heath, very little grazing evidence was present as less than 1% of coniferous and deciduous saplings were browsed combined. There were also no faeces found in any surveyed heathland plots, which is a very clear sign that there is little grazing

and animal pressure at Sopley Heath. However Dog, Deer and Cattle footprints were present, as well at unidentified footprints. On average the herbivory score was 1%, which is also a good sign, which shows that there is a low grazing impact at Sopley heath.

People Pressure:

Sopley Common was relatively quiet with a few occasional Dog walkers. The road that runs through had several cars that drove through every minute. There was not much sigh of recreation considering it being the Easter Half Term.

Archaeology:

One bronze age barrow was found at Sopley Common, which had noticeable damage, and the damage covered 30% of the barrow. The highest part of the barrow was 800 centimeters and the minimum height of the barrow was 10 centimeters. The average height was 240 centimeters. Heather covered 8%, gorse 5%, bramble 5%, trees 5% and a 5th of the barrow was ground litter. 14 coniferous and 7 deciduous trees of various sizes covered the barrow. No tracks from people or animals were on the barrow, which means that people and animals are not damaging it but vegetation is causing damage to some extent of the barrow due to it residing on it. The barrow is also one meter from the path which means that it is easily accessible which is good for tourism but not for the protection of the barrow.

Figure 3: The area was fenced off in order to help preserve the monument. Barrow from the Bronze Age. Photograph shows the fence that helps to protect against livestock, but not people, who could climb over.

Site Name: Studland & Godlingston Heath

Author: Loretta Earley

Description of location:

Studland & Godlingston nature reserve is a large area of heathland with Studland measuring 54.29Ha and Godlingston 7.39Ha. Studland & Godlingston heath is location behind Studland and between the Purbeck ridge and Poole harbour, they are listed as an Site of Special Scientific Interest (SSSI). Rare species present are brown beak-sedge, heath grasshopper, smooth snake, sand lizard, Dorset heath, marsh gentian, and the large marsh grasshopper.

Heathland characteristics:

Godlingston heath contains mainly dry heath with areas of wet heath. The heath contains a variety of habitats, which include sand dunes, woodland, dry and wet heath. The majority of the nature reserve is coastal dunes and dry heath, the wet heath is classed as a minority habitat.

Grass has an average percentage cover of 30%, heath has an average percentage cover of 50%, gorse has an average percentage cover of 19%, 4% average cover percentage of bracken, 0.8% bramble, 7.6% ground litter and 11% tracks.

Figure 1: This photo shows the high amount of gorse growing; this has contributed to the herbivory index being low at this site, as most livestock and wildlife do not eat gorse.

Figure 2: The heather in this photo is most degenerate with mature heather surrounding it. This could also influence the low herbivory index as heather that reaches degenerate or mature life stage is less likely to be browsed by wildlife and livestock, livestock would normally browse heather at earlier life stages.

Grazing Pressure / Animal Pressure:

There was grazing present however this was noted down as very light or no grazing only in one transect was grazing put as heavy grazing, there were obvious signs of ponies being present not just from dung count but also by visually seeing them. The average herbivory index is 2.2, which is low and shows that even though there are ponies around grazing and browsing that the damage is limited and does not have a major impact.

People Pressure:

There is a golf course that is present in and around the heath this means that it is relatively busy with golf members but it is popular walking routes and people running were also seen.

Archaeology:

There are three archaeology sites recorded from this site, there was a barrow, bunker and a stone monument, each had present damage but all had less than 50% degradation. The highest percentage of degradation was 40%, which was on the barrow, but the WW2 bunker was only degraded by 5% indicating that a lot of it was preserved rather well.

Site Name: Hartland Moor Heath

Author: Loretta Earley

Description of location:

An extensive area of wet heathland in the centre of Purbeck, it has a SSSI designation due to the biological features that occur there.

Heathland characteristics:

A significant amount of the heath is bog, dry heath, wet heath, and acid grassland. The highlights of the heath include dragonflies and damselflies, reptiles and amphibians and migrating birds.

The average percentage of grass cover is 20.3%, heather average percentage cover is 69.8%, gorse has an average percentage cover of 13.4%, bracken has an average cover percentage of 2%, bramble has 1% average percentage cover, trees have a percentage average cover 0.06%, ground litter has an average percentage cover of 8.6% and tracks have an average percentage cover of 7.4%. The average are based on 15 transects that were done at the site.

Figure 1: This photo shows that some areas are dominated by gorse and are of different life stages, but degenerate heath and building heath are also present.

Figure 2: This photos shows that grass is dominant on this heathland, building heath is also abundant.

Grazing Pressure / Animal Pressure:

There were evidence of deer, ponies and cows being present, this was observed through visual evidence and dung counts. The herbivory index has an average score of 2.2%, which is very low. The level of grazing varies from a 1, which is non-existing to 3, which is rather moderate and noticeable.

People Pressure:

There weren't many signs that there were a lot of people walking there, there were mainly animal tracks, which indicate there was more animals present than people.

Archaeology:

No archaeology recorded.

Site Name: Latchmore Bottom Heath

Author: Loretta Earley

Description of location:

In the new forest.

Heathland characteristics:

The average percentage cover of the different vegetation types are as follows: grass average percentage cover is 49.9%, heather is 29.8%, gorse is 7.5%, bracken is 12.5%, bramble is 0.4%, trees is 1.3%, ground litter is 6.8%, and tracks were 11.6%.

Figure 1: This photo shows how heather is more dominant than grass and gorse in this heathland, building heather was the most recorded life stage of heather followed by pioneering, this indicates that the grazing intensity was rather high for this area of the site.

Grazing Pressure / Animal Pressure:

The herbivory index average is 3.8, which is high, indicating that it has been heavily browsed, this could be because there are some areas of wet heath/bog that have tussocks of mainly grass, but can also have pioneering or building stages of heather in them. Cattle, ponies and sika deer were seen, causing some areas to be heavily browsed.

A European buzzard was spotted roosting in a tree, which could indicate high biodiversity on the site, as buzzards are opportunistic hunters and can take carrion, but will also actively hunt small birds, reptiles and amphibians. This would also indicate that the site has a good management plan in place in place.

People Pressure:
There were a few people taking a scenic walk, some people were dog walking, and others were going for a run. As the site is in the New Forest, it is a popular destination for many people to go to.
Archaeology:
There are a few archaeology points at this site, all with little degradation, this could be due to the fact it is difficult to get there and people do not attempt to go there. The archaeology data shows that there are two barrows, a landmark, hill and a round hollow earthwork. The highest percentage of degradation was 20%, which was on three of them, but two of them had 0% of degradation recorded.

Site Name: Matley heath

Author: Loretta Earley

Description of location:

Couple miles east of Lyndhurst and located on the road to Beaulieu

Heathland characteristics:

The average percentage cover for each of the vegetation types are as follows: Grass average 44.5%, heather: 41.6%, gorse: 0.25%, bracken: 0.08%, bramble: 0.08%, trees: 0.16%, Ground litter: 12.5%, Tracks: 16.4%.

Figure 1: This photo shows the low height of vegetation on the heathland, as it has been heavily grazed.

Grazing Pressure / Animal Pressure:

There were signs of livestock pressure through dung counts and visual sightings; the average herbivory index is 4.5 out of five, this shows high grazing pressure through deer, cows and ponies. With the average herbivory index being 4.5, it is clear that the stocking density of the livestock is unbalanced and needs to be re-evaluated; the stocking density being above the limit will lead to vegetation being browsed and grazed.

Figure 2: Evidence of livestock, from presence of faeces and grazed vegetation.

People Pressure:

There wasn't much evidence of foot pressure at the site; there were the casual dog walkers and people going for a run, but not in large numbers.

Archaeology:

There are two bowl barrows present at Matley heath, the highest level of damage was recorded at 50%, which means half the barrow was still recognisable, the lowest percentage of damage was 40%. The barrows were recorded to be from the Bronze Age time period.