Department of the Air Force

Overseas Integrated Natural Resources Management Plan

Mildenhall

U. S. AIR FORCE
INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
Overseas Installations on Host Nation Lands
RAF Mildenhall, United Kingdom
Approved: May 2021

Annual Review Completed: July 2022

ABOUT THIS PLAN

This installation-specific Environmental Management Plan (EMP) is based on the United States Air Force's (USAF) standardized Integrated Natural Resources Management Plan (INRMP) template for installations located outside the United States[1]. This INRMP has been developed in accordance with (IAW) applicable international agreements and Department of Defense (DoD) policy, which includes country-specific environmental Final Governing Standards (FGS). The INRMP documents how natural resources are managed and the roles and responsibilities of various organizations and personnel in implementing the INRMP. Overseas installations will comply with applicable FGSs. External resources, including Air Force Instructions (AFIs), USAF Playbooks, and DoD policy are referenced, where applicable.

Certain sections of this INRMP begin with standardized, USAF-wide "common text" language that addressees USAF and DoD policy, FGSs, and applicable United States laws. This common text language is restricted from editing to ensure it remains standard throughout all plans. Immediately following the USAF-wide common text sections are installation content sections that address installation-specific requirements. Installation sections are unrestricted and are maintained and updated by USAF environmental Sections and/or installation personnel.

NOTE: The terms "Natural Resources Manager," "NRM," and "NRM/POC" are used throughout this document to refer to the installation person responsible for the natural resources program, regardless of whether this person meets the qualifications within the definition of a natural resources management professional in Department of Defense Instruction (DoDI) 4715.03, Natural Resources Conservation Program.

---

[1] "United States" is defined in AFI 32-7091, *Environmental Management Outside the United States*, as "The several States, District of Columbia, Commonwealths of Puerto Rico and Northern Mariana Islands, American Samoa, Guam, Midway and Wake Islands, United States Virgin Islands, any other territory or possession of the United States, and associated navigable waters, contiguous zones, and ocean waters of which the natural resources are under the exclusive management authority of the United States." "Overseas" is used interchangeably with "outside the United States" in this document.

DOCUMENT CONTROL

Standardized INRMP Template

IAW the Air Force Civil Engineer Center (AFCEC) Environmental Directorate (CZ) Business Rule (BR) 08, *EMP Review, Update, and Maintenance*, the standard content in this INRMP template is reviewed periodically, updated as appropriate, and approved by the Natural Resources and Environmental Overseas Subject Matter Experts (SME).

This version of the template is current as of 6/26/2020 and supersedes the 2018 version.

NOTE: Installations are not required to update their INRMPs every time this template is updated. When it is time for installations to update their INRMPs, they should refer to the eDASH EMP Repository to ensure they have the most current version.

Installation INRMP

Record of Review – The INRMP is updated not less than annually, or as changes to natural resource management and conservation practices occur, including those driven by changes in applicable regulations. IAW AFMAN 32-7003, *Environmental Conservation*, and AFI 32-7091, *Environmental Management Outside the United States*, the INRMP is required to be reviewed for operation and effect not less than every five years. Annual reviews and updates are accomplished by the installation Natural Resources Manager (NRM), and/or the AFCEC Facility Engineering Directorate (AFCEC/CF) or AFCEC/CZ Section Natural Resources Media Manager. At a minimum, the installation NRM conducts an annual review of the INRMP and accomplishes pertinent updates. Installations will document the findings of the annual review in an Annual INRMP Review Summary. By signature to the Annual INRMP Review Summary, the Civil Engineering Squadron Commander asserts concurrence with the findings. Any agreed updates are then made to the document, at a minimum updating the work plans.

INRMP APPROVAL/SIGNATURE PAGE

INRMP Memorandum May 2021 CUI_Signed (003).jpg

[SIGNATURE]

EXECUTIVE SUMMARY

The INRMP is a mechanism by which United States Air Force in Europe (USAFE) installations can maintain sustainable land us,e through ecosystem management and biodiversity protection in the context of the installation's operational mission. The plan is reviewed annually and changes are made as appropriate.

USAFE and the host nation operations comply with relevant UK and US legislation concerning wildlife protection. The base works closely through the host nation agencies to obtain planning consent for base building construction and demolition. This includes a search by the host nation of its Site of Special Scientific Interest (SSSI) register which is then coordinated with the Environmental Element (100 CES/CEIE).

RAF Mildenhall became famous just before its opening as an RAF station when, in October 1934, it was used for the start of the MacRobertson Race to Melbourne, Australia. It was then an important airfield during the Second World War.
The diverse mission of aerial refueling, special operations, air mobility, reconnaissance and intelligence makes RAF Mildenhall a unique Air Base within USAFE. The 100th Air Refueling Wing, assigned to the USAFE, is the host unit at RAF Mildenhall. The 352nd Special Operations Wing is also stationed at the base.

RAF Mildenhall is located in the Forest Heath District of Suffolk County, 20 miles northeast of Cambridge. It covers approximately 1,121 acres and has a 9,240-foot runway. The base is in the southwest corner of the Breckland Natural Character Area, which has a distinctive large-scale landscape of pale-colored arable fields supporting intensive vegetable production and open heath contrasting with vertical elements of pine tree lines, belts or forest.

Nationally important sites in the vicinity of RAF Mildenhall include the Breckland Special Protection Area (SPA) and the Breckland Special Area of Conservation (SAC), both extend North East outside of the base. Non-statutory local sites include Aspal Close Local Nature Reserve (LNR), located 0.3 miles north of the base. Within the base, there is one non-statutory County Wildlife Site and a small forested area known as Heritage Park. Breckland Forest SSSI is located east of the runway (outside the base perimeter) and hosts landing lights for the base.

RAF Mildenhall is situated on solid deposits of Gault clay overlain by chalk with drift deposits of boulder clay and Quaternary sands. The chalk deposits are designated a major aquifer and 239 abstraction wells lie within 12.4 miles of the site. The chalk has low matrix conductivity, which restricts ground water flow, but fractures and fissures in the chalk allow water to pass through. Prior to 1934, when the base first opened, the landscape would have been ancient farmland, enclosed in the 19th Century. Historically the Base vegetation would be typical of the Breckland Character Area with lowland heath and acid grassland on the sandy soils, calcareous grassland on the chalky soils and fen wetlands on the lower ground.

Current habitats on base include species rich and species poor calcareous grassland, a small section of the Catchwater Drain, plantation woodland and semi-improved neutral grassland with scattered pine trees.

Developed areas on base are typically landscaped with a variety of turf grasses, ground covers, shrubs and tree species. Most of these vegetative types are non- native horticultural species that are used for ornamental purposes.

Threatened and endangered flora recorded on RAF Mildenhall include Spanish catchfly (Silene otites) and maiden pink (Dianthus deltoides). Other notable plant species present include sand catchfly, bearded fescue, tower mustard, sickle medick and bur medick within the base perimeter, plus historical records of other notable species such as fine-leaved fumitory and hoary rock-rose. Spanish catchfly is a nationally threatened/ endangered species located in the Breckland area, it is listed in the Red Data Book. Mistletoe (Viscum album) is in decline in England, however it thrives on a number of fruit and poplar trees around base. In 2019 nesting black redstarts (Phoenicurus ochruros) were observed raising 3 chicks on base, these are a rare Schedule 1 bird with less than 50 breeding pairs in the UK. A lone male barbastelle bat (Barbastella barbastellus) was found in the same year at the entrance to a hanger, it is a rare species with wild populations estimated to stand at 5000 individuals. The base has at least 3 buildings which are used by bats. Due to their declining numbers all bat species and their roosts are protected by law.

During 1998 and 1999 the Suffolk Wildlife Trust undertook a base-wide survey on RAF Mildenhall to determine the invertebrate fauna of the grasslands and associated habitats of the airfield. The most notable species was a rare spider Meioneta fuscipalpa, a species never before recorded in Britain.

Birds are not encouraged on the base as they would conflict with the activities of an active airfield.
The operation of the Base Mission has few impacts on the local environment and based on existing environmental conditions, there are relatively few constraints to either the mission or development at RAF Mildenhall. The Environmental Element currently uses Geographic Information System (GIS) resources at RAF Mildenhall and Colorado based Center for Environmental Management of Military Lands (CEMML), to produce maps and log data from previous special-status plant and invertebrate surveys.
RAF Mildenhall complies with various agency requirements for the protection of watersheds on the base from surface water runoff. The base addresses non-point source pollution and control measures provide for erosion control water management, runoff disposal, landscaping, and special soil problems in all feasibility and development studies.

The intensity, frequency, and type of grounds maintenance practices for the base depend on the classification of the land area. Grounds maintenance is designed to assist in the protection of the rare plants on the base.

RAF Mildenhall has a Pest Management Plan (PMP) that is implemented by contractors. The Bird/Aircraft Strike Hazard (BASH) program focuses on the reduction of birds in the vicinity of aircraft runways on the base to enhance safety of aircraft operations.

The Morale, Welfare, and Recreation (MWR) facility manages recreational activities on base.
Future management goals and objectives will ensure the minimum disturbance of important plant and invertebrate species when planning new developments and update records of threatened and endangered species on RAF Mildenhall.

1 OVERVIEW AND SCOPE

This INRMP was developed to provide for effective management and protection of natural resources. It summarizes the natural resources present on the installation and outlines strategies to adequately manage those resources. Natural resources are valuable assets of the USAF. They provide the natural infrastructure needed for testing weapons and technology, as well as for training military personnel for deployment. Sound management of natural resources increases the effectiveness of USAF adaptability in all environments. The USAF has stewardship responsibility for the physical lands on which installations are located to ensure all natural resources are properly conserved, protected, and used in sustainable ways. The primary objective of the USAF natural resources program is to sustain, restore, and modernize natural infrastructure to ensure operational capability and no net loss in the capability of the lands host nations make available for USAF use to support the military mission of the installation. The plan outlines and assigns responsibilities for the management of natural resources, discusses related concerns, and provides program management elements that will help to maintain or improve the natural resources within the context of the installation's mission. The INRMP is intended for use by all installation personnel. The FGS, supported by AFI 32-7091, is the driver for the INRMP.

1.1 Purpose and Scope

Most actions at Air Force installations impact natural resources and therefore the inherent value of these resources must be considered in all installation plans, decisions, actions and programs. The purpose of the INRMP is to inform those undertaking these actions and protect all the known natural resources and any possible endangered species at RAF Mildenhall.
Objectives of the plan include the following:

- Ensure compliance with the Final Governing Standards – United Kingdom (FGS – UK) for the natural resources and endangered species at RAF Mildenhall;
- Ensure all INRMP reviews are documented;
- Survey, monitor and coordinate the management and/or protection of natural resources, to be carried out in partnership with the host nation regulatory authorities and in accordance with the INRMP;
- Assess all ground works base wide for natural resource impacts at the preliminary planning stage of any project;
- Establish measures sufficient to ensure protection of known natural resources within RAF Mildenhall, until appropriate mitigation or preservation recommendations can be completed; and
- Update the Natural Resources Geo-database referred to as the Natural Resources Register in the previous plan.

1.2 Management Philosophy

Ecosystem management provides a means for the United States Air Force in Europe (USAFE) to protect habitats and biodiversity. The Integrated Natural Resources Management Plan (INRMP) is a mechanism by which USAFE installations can maintain a sustainable land use through ecosystem management and biodiversity protection in the context of the installation's operational mission.

This INRMP was prepared to integrate all aspects of the Royal Air Force (RAF) Mildenhall natural resources management program and describe how an interdisciplinary approach to ecosystem management will protect all known natural resources and any possible endangered species at RAF Mildenhall.

USAFE complies with the FGS. The base works closely through the host nation agencies to obtain planning consent for base building construction and demolition. This includes a search by the host nation of its Site of Special Scientific Interest register which is then coordinated with the Environmental Element.

All base development projects are reviewed under the Environmental Impact Assessment Process (EIAP) prior to coordination through the host nation authorities. Natural resource investigations are conducted by the host nation on an individual basis for base development projects during the planning application review required under the Town and County Planning Act (1990). Investigative reports are held by the host nation with courtesy copies available to the base. Improvement, monitoring, and surveying of natural resources are only undertaken with the support and guidance of the host nation statutory authorities.

1.3 Authority

The DoD Publication 4715.5-G, *Overseas Environmental Baseline Guidance Document (OEBGD)* 2020, requires the implementation of uniform conservation standards for natural resources at DoD installations and facilities in foreign countries. The OEBGD provides criteria, standards, and management practices to be used by DoD environmental Lead Environmental Components in determining FGS in accordance with DoDI 4715.05, *Management of Environmental Compliance at Overseas Installations* (2013).

FGS for each HN requires preparation of integrated natural resource management plans in Chapter 13 for "Installations with significant land or water areas…"

AFMAN 32-7003 *Environmental Conservation* provides guidance and procedures for cultural resource and natural resource programs at Air Force installations.

AFI 32-7001 *Environmental Management* requires installations to identify processes or activities that include reducing pollution, reducing the use of natural resources, and conserving water.

AF Policy Directive (AFPD) 32-70, Environmental Quality, identifies general USAFE requirements for a natural resources management program.

The table below lists Installation-Specific Policies (including HN and/or Local Laws and Regulations):

U.S. Policies:	**Description:**
DoD Publication 4715.5-G	Overseas Environmental Baseline Guidance Document (OEBGD) 2007
DoDI 4715.05	Management of Environmental Compliance at Overseas Installations (2013)
AFI 32-7001	Environmental Management
AFMAN 32-7003	Environmental Conservation
UK Policies:	**Description:**
Final Governing Standards – United Kingdom (FGS-UK)	The FGS-UK contain criteria for required plans and programs needed to ensure proper protection, enhancement, and management of natural resources and any biological species declared endangered or threatened by either of the United States or host nation's government. Biological species include all plants and animals existing on properties under US Department of Defense (DoD) / United Kingdom Ministry of Defense (MOD) control. Requirements in the FGS-UK cover experts, inventories, planning and protective action.

1.4 Integration with Other Plans

- The INRMP is consulted and referenced in the following programs at RAF Mildenhall:
    - All refurbishment and demolition of existing facilities at RAF Mildenhall are coordinated through 100CES/CEIE. When necessary an Environmental Impact Analysis Process (EIAP) is completed - the EIAP considers all environmental impacts.

- Generally, the Air Installation Compatible Use Zone (AICUZ) program is not of relevance to the INRMP, but where it is of relevance, such as with regard to the Bird/Wildlife Aircraft Strike Hazard (BASH) Plan, the requirements of the EIAP and the BASH plan are considered alongside one another to ensure that any conflicts are satisfactorily resolved.
- The interests of the INRMP and the Integrated Pest Management Plan (IPMP) are of relevance to one another in the areas of the base which are set aside conserve rare plants and fauna (e.g. the County Wildlife Site).

2 INSTALLATION PROFILE

Office of Primary Responsibility	100 CES/CEIE has overall responsibility for implementing the Natural Resources Management program and is the lead organization for monitoring compliance with applicable federal, state and local regulations.
Natural Resources Manager/POC	100 CES/CEIE Bradley Clements Contact: DSN 2384281
HN POCs	DIO - Barry Stevens & Lisa Hall
Total acreage managed by installation	1,121
Total acreage of wetlands	N/A
Total acreage of forested land	3
NR Program Applicability (Place a checkmark next to each program that must be implemented at the installation. Document applicability and current management practices in Section 7.0)	☐ Invasive species ☐ Wetlands Protection Program ☒ Grounds Maintenance Contract/SOW ☒ Forest Management Program ☐ Wildland Fire Management Program ☐ Agricultural Outleasing Program ☒ Integrated Pest Management Program ☒ Bird/Wildlife Aircraft Strike Hazard (BASH) Program ☐ Coastal Zones/Marine Resources Management Program ☒ Cultural Resources Management Program

2.1 Installation Overview

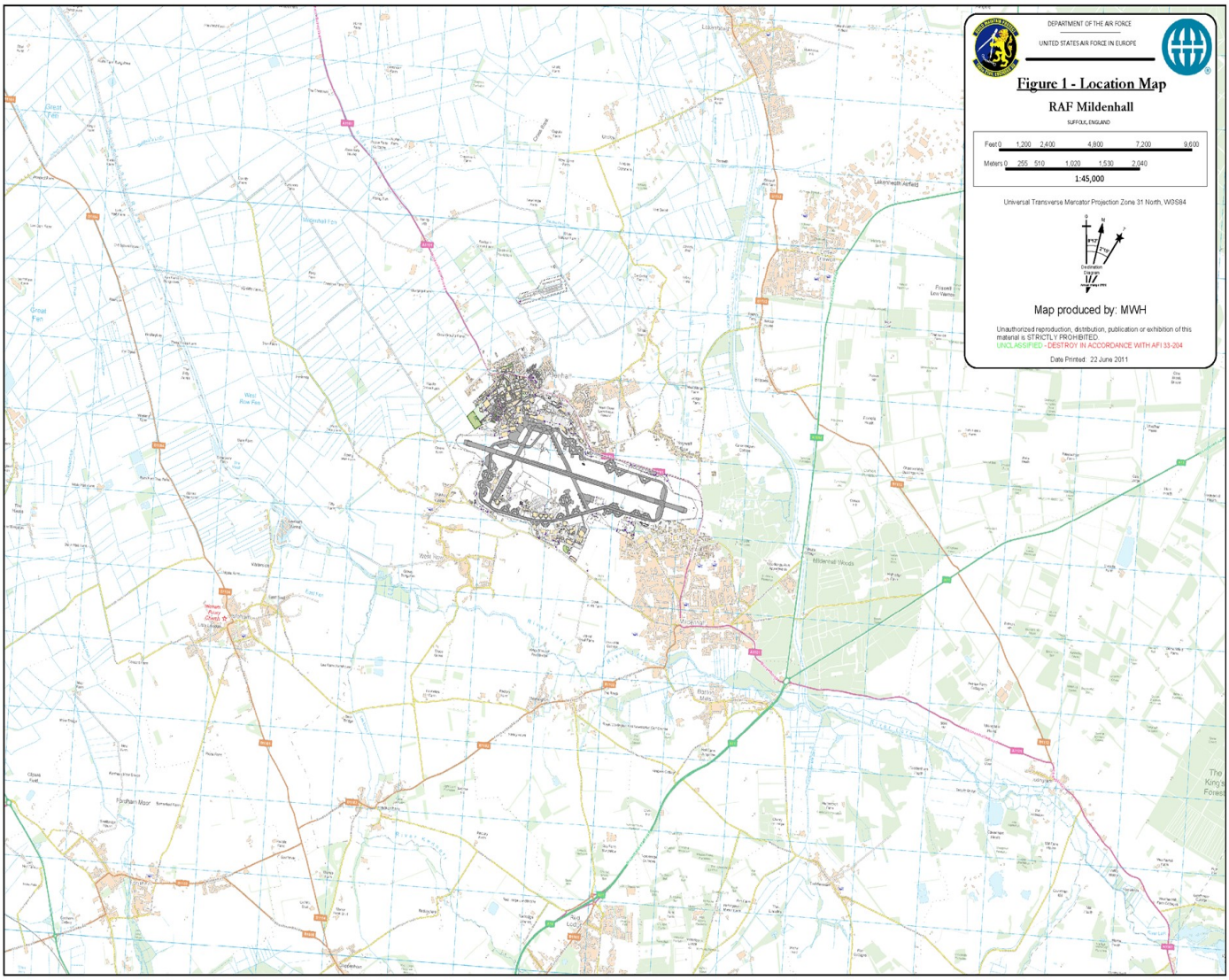
2.1.1 Location and Area

RAF Mildenhall is located in East Anglia. The base is situated in the Forest Heath District of Suffolk County, 20 miles northeast of Cambridge, 15 miles northwest of Bury St. Edmunds and 13 miles north of Newmarket (see Location Map).

RAF Mildenhall covers approximately 1,121 acres and has a 9,240-foot runway.

Installation/GSU Location and Area Descriptions

Base/GSU Name	Main Use/Mission	Acreage	Addressed in INRMP?	Describe NR Implications
RAF Mildenhall	100th Air Refueling Wing	1121	*Yes*	See INRMP



Location Map

(https://usaf.dps.mil/teams/10626/Mildenhall/Shared+Documents/Natural+and+Cultural+Resources/Location+Map.jpg)

2.1.2 Installation History

Mildenhall became famous just before its opening as an RAF station when, in October 1934, it was used for the start of the MacRobertson Race to Melbourne, Australia, still regarded as the world's greatest air race. RAF Mildenhall was established within the RAF Bomber Command, becoming the Headquarters of 3 Group with Heyfords as the first aircraft.

The history of the 100th wing began June 1, 1942, with the activation of the 100th Bombardment Group (heavy) which flew B-17G Flying Fortresses. The 100th was part of the Mighty Eight Air Force, which stormed the skies above the European continent during World War II.

The group participated in combat missions to bomb airfields in France and naval facilities and industrial sites in both France and Germany. For its action in seriously disrupting German fighter plane production during an attack on Regensburg on August 17, 1943, the unit received its first Distinguished Unit Citation (DUC). Between January and May 1944, the unit participated in air raids against airfields, industrial complexes, marshalling yards and missile sites in Western Europe. A second DUC was earned for combat missions flown over Berlin in March 1944.

By the summer of 1944, petroleum production facilities became the primary targets of the 100th aircraft. In support of the Normandy invasion of June 1944, the group flew missions to destroy bridges and gun emplacements.

The 100th's English base of operations was the Norfolk airfield of Thorpe Abbots. The group used the airfield from its arrival in the UK in June 1943 until the end of wartime operations and its inactivation at Camp Kilmer, New Jersey, in December 1945.

The USAF arrived in 1950. Initially, Mildenhall was again a bomber base, operating B-50 and B-29 Superfortresses. Then, in 1953, KC-97 in-flight refueling aircraft arrived to support Strategic Air Command activities in Britain. Another role came in 1959 when the airfield became the "Gateway to the UK" for American forces. This task continues today with C-5 Galaxies, C-141B Starlifters, C-130 Hercules and now the new C-17 Globemaster III, transporting cargo, and chartered civilian airliners flying in service personnel and their families. In June 1966, the wing was re-designated as the 100th Strategic Reconnaissance Wing and moved to Davis-Monthan AFB, Arizona.

Ten years later, in September 1976, the 100th relocated to Beale AFB, California with a new mission as the 100th Air Refueling Wing. In July 1990, the 100th became the 100th Air Division at Whiteman AFB, Missouri. With the closure of air divisions throughout the Air Force, the unit was again inactivated. However, it was reactivated in 1992 as the host unit at RAF Mildenhall and became the 100th Air Refueling Wing flying the KC-135R Stratotanker for the USAF's European Tanker Task Force.

2.1.3 Military Missions

Between 1972 - 2005, the Headquarters of the United States Third Air Force was located at RAF Mildenhall, controlling all units permanently stationed in Britain as part of the United States Air Forces, Europe command (it is now based in Ramsten). There are approximately 3100 permanent military personnel, 600 transient personnel, 800 DoD U.S. civilians and 650 Local Nationals currently assigned to RAF Mildenhall.

The diverse mission of aerial refueling, special operations, air mobility, reconnaissance and intelligence makes RAF Mildenhall a unique Air Base within USAFE. The 100th Air Refueling Wing, assigned to the USAFE, is the host unit at RAF Mildenhall. The wing is responsible for the operation of the base and the mission readiness of KC 135 aircraft. In addition, the wing supports the majority of the tactical airlift refueling operations in Europe. The wing is committed to conducting air refueling, force reception, force deployment and support operations for U.S. and NATO anytime, anywhere.

The 352nd Special Operations Wing is based at Mildenhall – this is an operational unit of the USAF Special Operations Command and is an air commando unit which dates back to 1944.

Listing of Tenants and NR Responsibility

Tenant Organization	**NR Responsibility**
352 SOW	100CES/CEIE

2.1.4 Natural Resources Needed to Support the Military Mission

There are no natural resources needed to support the Military Mission, so this is non-applicable to RAF Mildenhall.

2.1.5 Surrounding Communities

The town of Mildenhall is the largest community in the immediate vicinity of the base. Other sizeable communities in the region include Thetford, Brandon, Newmarket, Bury St. Edmunds, and Ely. The base has close ties with RAF Lakenheath, located 5 miles to the north.

Smaller villages directly adjacent to the installation include Beck Row to the north and West Row to the south. Land use directly adjacent to the base is small arable on three sides and plantation woodland to the east.

2.1.6 Local and Regional Natural Areas

The typical black peat soils bordering Cambridgeshire, northwest of the base, support fenlands with numerous drainage channels dividing the land into large fields and the rolling chalklands between the fenlands and Mildenhall supports intensive vegetable production. Around Newmarket there is a thriving number of horse racing stables and a racecourse. East of Mildenhall and as far north as Brandon the free draining, sandy soils, supports heathland and woodland used for game shooting and commercial forestry. The woodland of Thetford Chase is one of Britain's largest man-made forests. The valleys of the Little Ouse and the Lark are predominantly small fields traditionally grazed by cattle.

RAF Mildenhall has two managed areas, the County Wildlife Site and Heritage Park.

County Wildlife Site (CWS)

The CWS Site (RAF Mildenhall Grassland County Wildlife Site - Forest Heath 60) covers a total land area of 389,654 ft^2 with 177,605 ft^2 falling within the base perimeter and the rest managed by Anglian Water. The Boundary was re-deliniated in 2019 to reflect the historic decision to change the road position at North Piccadilly Circle. The CWS contains a number of rare plants associated with Breckland mosaic soils. The site is subject to a special maintenance regime with limited mowing and no spraying along the fence lines.

Heritage Park.

Heritage Park is located just north of the CWS. It is densely planted with coniferous trees, a winding nature train runs throughout the site. There is limited ground level biodiversity due to low light levels and dry layers of leaf litter. The area is close to a recently discovered large maternity colony of common pipistrelle bats (*Pipistrellus pipistrellus*), but without surveys it is unknown if bats use the area.

Local and Regional Natural Areas

England has been divided into 120 Natural Character Areas with distinctive landscapes and communities. RAF Mildenhall is located in the Breckland Natural Character Area. Suffolk County has also undertaken a Landscape Character Assessment (Suffolk County Council, 2008) that divides the area into polygons with relatively homogeneous character based on physiography, ground type, land cover and cultural pattern.

Land supporting internationally important habitats or species has been protected under the European Habitats Directive, The European Birds Directive and the Ramsar Convention. These include Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar wetland sites.

Nationally important sites, such as Sites of Special Scientific Interest are protected under Section 28 of the Wildlife and Countryside Act (1981).

The UK signed up to the Biodiversity Convention and has areas of land which are locally important, including local nature reserves, village greens, green belts, and wildlife corridors that are integrated into the Local Development Framework. Biodiversity protection is targeted to specific species and habitats and managed via Habitat Action Plans (HAP) and Species Action Plans (SAP) Also, general Biodiversity Action Plans (BAP) have been written for many areas.

Breckland Natural Character Area

Mildenhall is located in the southwest corner of the Breckland Natural Character Area. It is a unique combination of underlying rocks, soils and semi-continental climate, with slightly undulating dry terrain contrasting with shallow, wooded river valleys. It has a distinctive large-scale landscape of pale-colored arable fields and open heath contrasting with vertical elements of pine tree lines, belts or forest. Vast commercial conifer plantations form a forest landscape, unique in lowland England. The large regular fields are clearly defined by rows of pines or neat hawthorn hedges and long straight undulating roads. There is a long history of settlement in the area, but it is now very sparsely populated, with nucleated villages in river valleys and post-war London overspill developments including Thetford, Brandon and Mildenhall. Farm buildings and churches have considerable impact, although the churches are often in a state of disrepair. Building materials are knapped flint, clunch and yellow brick. There are strong color contrasts but very little textural change, except within the heathland.

Suffolk Landscape Character Assessment

RAF Mildenhall is on the western edge of the Settled Chalkland landscape character area with key characteristics including low chalk and gravel outcrops, small farms, regular field patterns, tree belts of pine and poplar and scattered plantations with recent settlement expansion. The area is dominated by the airbase but retains pockets of small scale farming and quiet countryside along isolated tree lined droves. To the northwest are the settled Fenlands which are flat plains of deep peat, at or below sea level, with rectilinear drainage dykes used to irrigate fields of vegetables and large-scale management for wildlife. The area has a busy populated air and there are development pressures encroaching into the adjacent isolated fenland. South of the Valley Meadows and Fens of the River Lark are the rolling Estate Chalklands with gently rolling landscape of chalky freely draining loam soils dominate by large scale arable production and stud farms. Clustered villages with flint and thatch vernacular houses have been enlarged with many new large prestige homes. To the east of the base are the Wooded Fens and the Estate Sandlands that is divided into two by the Lark Valley. The Wooded Fens in the Hurst Fen area north of Mildenhall are in excellent condition. The area is bounded on the east by the Cut-off Channel, constructed in 1960-64 from the River Lark at Barton Mills in the south to Denver in the north and is important for nature conservation. The Estate Sandlands form a flat or gently rolling landscape of freely draining soils with a lack of watercourses and a mosaic of heathland, acid grassland and commercial forestry. The area was historically used for sheep grazing and rabbit warrens. The warrens were owned by ecclesiastical landlords, for example the Bishop of Ely had a warren at Brandon since 1252, the Prior of Ely had a warren at Lakenheath since 1300 and Bury Abbey had a warren at Mildenhall since 1328.

Special Protection Areas (off base)

Mildenhall Woodland to the east of the runway and east of the town of Mildenhall is part of the Breckland SPA, which supports 60.1% of the British breeding population of stone curlew (*Burhinus oedicnemus*), 12.2% of the British breeding population of nightjar (*Caprimulgus eurpaeus*) and 28.7% of the British breeding population of woodlark (*Lullula arborea*). Stone curlews usually nest on arable land and are vulnerable to disturbance. Woodlarks require a mosaic of bare ground or short vegetation for feeding, and tussocks of vegetation with disturbed ground for nest sites. Lowland heathland and young forestry plantations are now the most important habitats for nightjar. Woodlark and nightjar benefit from clear- fell forestry rotation management which creates woodland edge habitat important for feeding birds.

Special Area of Conservation (SAC) (off base)

The Breckland SAC spans 812,466,417 ft^2 across the Norfolk / Suffolk border and is situated within the Brecks National Character Area. The area has been given special conservation status because of the unique makeup of the soil structures; highly variable soils generally consist of a very sandy free-draining mix of chalk, sand, silt, clay and flints, which show distinct pH variations within short distances. This has a profound influence on the natural vegetation and has resulted in mosaics of heather-dominated heathland, acidic grassland and calcareous grassland that are unlike those of any other site. Although the Breckland SAC lies outside of the base (the closest area is just east of Eriswell), the characterizations of the site are mirrored in the base County Wildlife Site.

Local Nature Reserves (LNR) (off base)

Aspal Close LNR, located 0.3 miles north of the base, was originally a small park that belonged to the 14th Century manor known as Aspalgate or Aspal Hall. In 1982 it was acquired by Forest Heath District Council, and established as a local nature reserve in 1991. The site is a medieval wood pasture with many veteran oaks that support a wide variety of insects, six species of bats and over 100 species of birds, including little owl, green woodpecker, blue tit and kestrel.

Sites of Special Scientific Interest (SSSI) (off base but has base landing lights)

Breckland Forest SSSI lies between Bury St. Edmunds in Suffolk and Swaffham in Norfolk and includes the woodland around the landing lights, east of the runway. The majority of the site is within Thetford Forest Park, the largest commercial forest in lowland England. The forest was planted on Breckland heath, unstable sand dunes and marginal agricultural land in 1922. The dominant species planted was Corsican pine (*Pinus nigra* subsp *laricio*) which account for over 70% of the trees planted. Scots pine (*Pinus sylvestris*), Douglas fir (*Psuedotsuga menziesii*) and larch (*Larix* sp.) also feature in the forest. Ten percent of the trees planted are broadleaved. Continuous rotations of clear felling and planting have created a good age structure with suitable breeding sites for woodlark and nightjar, which occur in internationally important numbers. The SSSI regularly supports small numbers (less than 1% of the British population) of goshawk (*Accipiter gentilis*). The forest supports five vascular plants listed on Schedule 8 of the Wildlife and Countryside Act, including perennial knawel (*Scleranthus perennis* subsp. *prostrates*), red-tipped cudweed (*Filago lutescens)* maiden pink, Breckland mugwort (*Artemisia campestris)* and spiked speedwell (*Veronica spicata* subsp. *spicata)*. The forest supports a small population of red squirrel and has an exceptionally rich invertebrate fauna with 37 Red Data Book and 129 nationally scarce species.

2.2 Physical Environment

2.2.1 Climate

A summary of Mildenhall, UK Climate Data: Figures pooled by the Met office (1991-2020) and USAF ICAO EGUN weather station (1935-2020) can be seen in the table below:

Mildenhall area climate data:	
Average annual rainfall	626.91mm
Average number of days each year in which there was at least 1mm of rainfall	118.4 days
Average annual maximum temperature recorded	14.9^{O}C
Average minimum temperature	6.6^{O}C
Annual average for hours of sunshine	1615.61 hours
Annual average of days with air frost	42.15 days

2.2.2 Landforms

RAF Mildenhall is located on a chalk platform surrounded by peat fenlands, with an elevation slightly above sea level. To the west the fenland is deep peat also at or below sea level dissected by numerous un-named small channels used to irrigate the adjacent farmland. The roads have been constructed on causeways a few meters above the surrounding land. The easternmost portion of RAF Mildenhall is located approximately 1 mile from the Cut-off Channel which forms the boundary between the wooded fens and the gently rolling plateau of heaths, acid grassland and commercial woodland to the east. Approximately 1 mile south of RAF Mildenhall is the flat narrow river valley of the River Lark, which flows in a westerly direction then northwesterly to join the River Great Ouse approximately 10 miles northwest of RAF Mildenhall.

2.2.3 Geology and Soils

The formations encountered in the Ely and Bury St. Edmunds Districts where RAF Mildenhall is situated are solid deposits of Jurassic and Cretaceous marine sediments and Quaternary drift deposits. Drift deposits are made up of Pleistocene glacial and interglacial deposits and recent marine and freshwater deposits. The older solid deposits were laid down around 100 million years ago in a shallow sea close to East Anglia. Subsequently, earth movements raised the Cretaceous rock above sea level. Later, glacial advance and retreat produced the suite of glacial sediments that now cover most of the area.

RAF Mildenhall is underlain by Quaternary Head Deposits to the southeast and by First and Second River Terrace deposits to the northwest. Head and River Terrace deposits are underlain by the Lower Chalk of the Lower Cretaceous. The central area of the site is directly underlain by the Lower Chalk. Quaternary Head deposits are heterogeneous deposits that cover the lower parts of slopes and fill valley bottoms under periglacial conditions where summer melting caused the surface material to slide downslope on the surface of the permafrost. These deposits of sand and gravely sands are generally 2 to 3 m thick and are the youngest Pleistocene deposits in the area. They have extensive outcrops around Mildenhall where the thicker deposits have been classified as Head.

First and Second River Terrace deposits were laid 24,000 to 26,000 years ago (Devensian) and are composed of upward fining sequences of flint-dominated sand and gravel.

The thickness of the Lower Chalk ranges from 40 to 54 m and is best known from site investigation boreholes between Mildenhall and Kentford, approximately 4 miles to the south of Mildenhall. Its base, known as Chalk Marl, comprises rhythms of grey clayey chalks and harder white chalks. The Tottenhoe Stone, a bed of tough, gritty chalk, separates the Chalk Marl from the more uniform pale grey chalks of its upper part. The Lower Chalk forms a prominent escarpment marking the eastern limit of Fenland between Methwold and Mildenhall, although in the Mildenhall area the escarpment is subdued due to the presence of the overlaying drift deposits. Well-preserved fossils, such as bivalve, brachiopods, ammonites are common at certain levels in the Lower Chalk.

2.2.4 Hydrology

The Cut-Off Channel, approximately 1 mile east of the base, was constructed in 1960-64 and flows in a northerly direction for 27 miles from the River Lark at Barton Mills to Denver. It intercepts the water from the Little Ouse at Brandon and Wissey and carries them directly to the Denver sluices. The Cut-Off channel separates the dry ground, with an absence of water courses, to the east from the wet fenland, with numerous controlled irrigation channels, to the west.

The chalk deposits are designated a major aquifer and 239 abstraction wells lie within 12.4 miles of the site. The chalk is overlain by an incomplete layer of Quaternary Sands and patches of boulder clay. Below the chalk is an impermeable layer of Gault Clay. The chalk has low matrix conductivity which restricts groundwater flow, but fractures and fissures in the chalk allow water to pass through.

2.3 Ecosystems and the Biotic Environment

2.3.1 Ecosystem Classification

The British ecosystem classification is the Phase 1 Habitat Classification and associated field survey technique (Nature Conservancy Council, 2010) and will be used in this Management Plan. Habitats present on base include coniferous plantation, acid/ calcareous unimproved grassland (Breckland grassland supports an unusual combination of acid and calcareous species, flowing water, introduced shrubs and amenity grassland. The latter two habitats are described under the turf and landscaped areas. No areas are under agricultural cultivation.

2.3.2 Vegetation

2.3.2.1 Historic Vegetation Cover

Prior to 1934, when the base first opened, the landscape would have been ancient farmland, enclosed in the 19th Century. A cattle drovers road, known as the 'Old Way', that led from Mildenhall through the fields to the fenland edge, runs parallel to main runway. Aspal Hall (early 14th century) and most of its medieval moat have been lost to the expansion of Beck Row north of the base, but the small park or 'home close' of the manor is now a local nature reserve with numerous veteran oak trees. The area was attractive to early settlers, having better soils, between the dry sandy soils to the east and the wet peaty soils to the west.

Historically the base vegetation would be typical of the Breckland Character Area, with lowland heath and acid grassland on the sandy soils, calcareous grassland on the chalky soils and fen wetlands on the lower ground. Large areas to the east were planted with coniferous plantations in the 20th century.

Lowland dry acid grassland is a Habitat of Principle Importance (HPI) listed under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006 due to its rapid decline during the 20th century. It typically occurs on nutrient poor, free draining soil overlying sand and gravel deposits, generally below 300 m above OD. Indicator plant species present include sheep's fescue (*Festuca ovina*), common bent (*Agrostis capillaris*), sheep's sorrel (*Rumex acetosella*), wavy hair grass (*Deschampsia flexuosa*) and tormentil (*Potentilla erecta*). Parched acid grassland contains a number of rare and scarce vascular plants, including mossy stonecrop (*Crassula tillaea*), smooth rupturewort (*Herniaria glabra*), slender bird's-foot trefoil (*Lotus angustissimus*), bur medic (*Medicago minima*), clustered clover (*Trifolium glomeratum*), spring speedwell, (*Veronica verna*), sticky catchfly (*Lychnis viscaria*) and shaggy mouse-ear hawkweed (*Pilosella peleteriana*). Many invertebrates that occur in these parched grasslands are specialist species and a number of them, such as the field cricket (*Gryllus campestris*), are rare or scarce.

Lowland calcareous grassland is also a NERC Act S41 HPI, and it develops on shallow lime rich soils generally overlying chalk or limestone rocks, and is generally found on steep escarpments, dry valleys or earthworks, but is also found in Breckland and on Salisbury Plain. The cover of lowland calcareous grassland declined during the 20th Century and current estimates put the amount remaining in the UK around 33,000 to 41,000 ha, with major concentrations in Wiltshire, Dorset and the South Downs. Lowland calcareous grasslands support a very rich flora including many nationally rare and scarce species such as monkey orchid (*Orchis simia*), hoary rockrose (*Helianthemum canum*) and pasque flower (*Pulsatilla vulgaris*). The invertebrate fauna is also diverse and includes scarce species like the adonis blue (*Lysandra bellargus*), the silver-spotted skipper (*Hesperia comma*), the Duke of Burgundy fritillary (*Hamearis lucina*) and the wart-biter cricket (*Decticus verrucivorus*). These grasslands also provide feeding or breeding habitat for a number of scarce or declining birds including stone curlew (*Burhinus oedicnemus*) and skylark (*Alauda arvensis*).

Bird species of conservation concern that utilize lowland grasslands for breeding or overwintering include woodlark, stone-curlew, nightjar, lapwing (*Vanellus vanellus*), skylark (*Alauda arvensis*), chough (*Pyrrhocorax pyrrhocorax*), green woodpecker (*Picus viridis*), hen harrier (*Circus cyaneus*) and merlin (*Falco columbarius*).

2.3.2.2 Current Vegetation Cover

The figure Constraints Map (2.3.2.4) shows the location of the distinguished natural areas on base as well as the locations of notable fauna. Most of the vegetation on the base mainly comprises of relatively species-poor neutral grassland, but there are a couple of areas of species-rich Breckland grassland (i.e. high-quality acid/ calcareous grassland) containing populations of numerous rare/ notable plants such as Spanish catchfly. The County Wildlife Site is the only official wildlife site on base, which is specially managed to promote Breckland grassland.

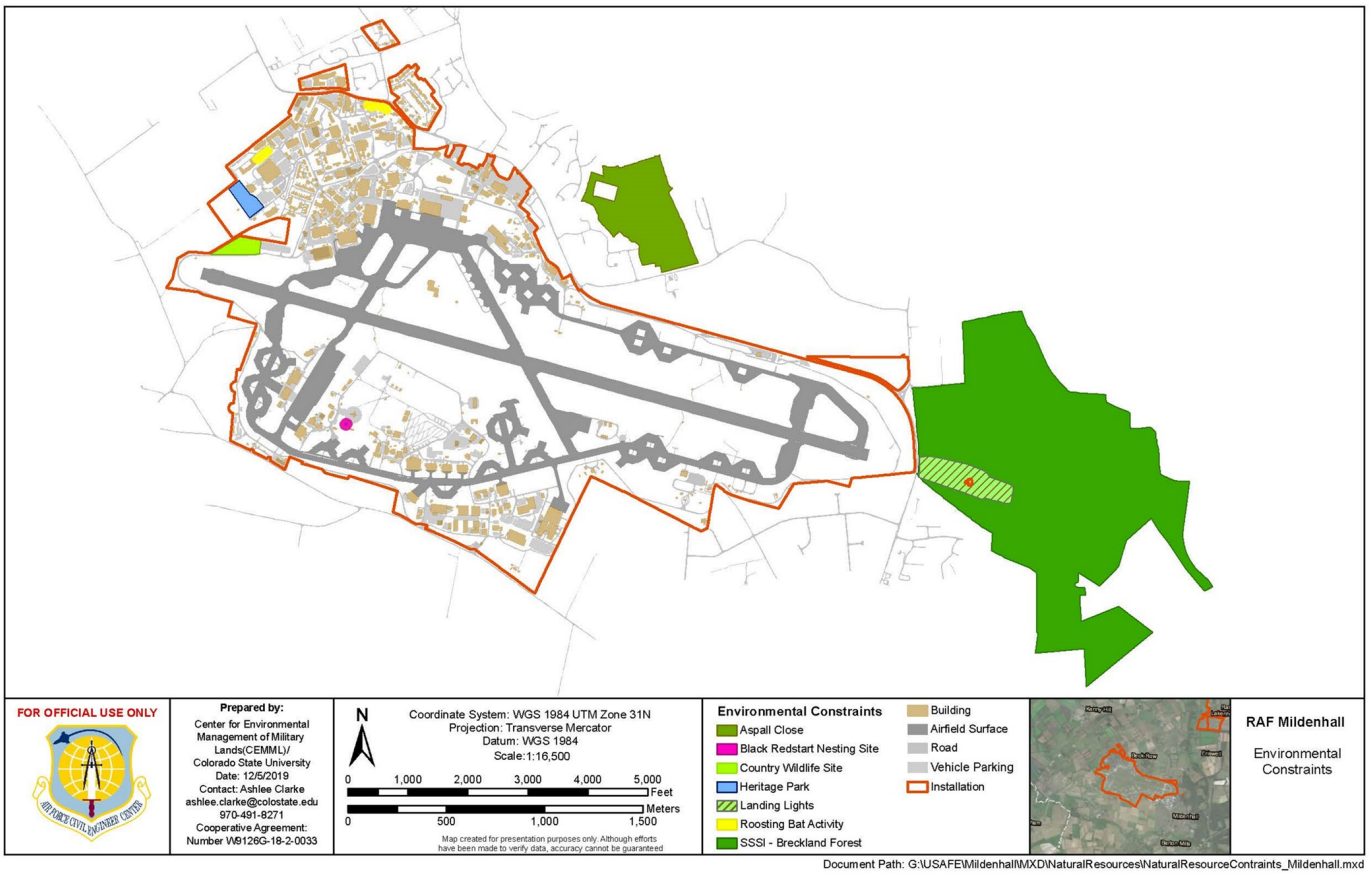
Heritage Park is a wooded area with mature pine and a sparse under-storey of elder (*Sambucus nigra*) and hawthorn (*Crataegus monogyna*). The ground flora is species poor and not typical of woodland. There is however an abundance of common nettle, brambles and snowdrops beside the paths.

2.3.2.3 Future Vegetation Cover

2.3.2.4 Turf and Landscaped Areas

Developed areas on base are typically landscaped with a variety of turf grasses, ground covers, shrubs and tree species. Most of these vegetative types are non- native horticultural species that are used for ornamental purposes. Picnic benches and tables are provided for recreational activities. A significant amount of the surface area on base is turfed with low diversity grasses.

Constraints Map



(https://usaf.dps.mil/:i:/t/10626/Mildenhall/EfDgq4UatT9ClqhYirxuSvsBeBvVswjNu0svUPQszfEttw)

2.3.3 Fish and Wildlife

Birds are not encouraged on the base as they would conflict with the activities of an active airfield.

Species-specific surveys for mammals, birds, reptiles and amphibians have not been conducted at RAF Mildenhall. Historical records of special status flora and fauna within 1 km of the boundary of the base where obtained from Suffolk Records Centre and are listed in Appendices A and B respectively.

Common mammalian species observed on base include brown hares (*Lepus europaeus*), rabbits (*Oryctolagus cuniculus*), moles (*Talpa europaea*), hedgehogs (*Erinaceus europaeus*), grey squirrels (*Sciurus carolinensis*) and occasionally muntjac deer (*Muntiacus reevesi)* and red foxes (*Vulpes vulpes*). In the evenings, various bat species (*Chiropterans*) can also be spotted.

2.3.4 Threatened, Endangered, and Host Nation-Protected Species

A specialist botanical survey in the autumn of 1997 and spring 1998 recorded Spanish catchfly, sand catchfly, bearded fescue, fine leaved fumitory, bur medick and maiden pink within the base. A subsequent botanical survey undertaken in July 2018 (Jacobs/CH2M, 2018) also recorded a range of uncommon and notable plant species which are characteristic of the local area.

Spanish catchfly is a nationally rare species listed in the Red Data Book and Suffolk Rare Plant Register, and is listed as a Species of Principal Importance under Section 41 of the NERC Act 2006 due to its marked decline in the UK. The distribution is restricted to the East Anglian Breckland; where it is considered to be widespread but declining, with casual introductions in a few other locations. The Spanish catchfly population on base is however thought to be expanding and thriving in its present locations, and also possibly spreading beyond its known locations. It was reported in the 2011 INRMP that the flowering spikes in the colony at the western edge of the base (close to the fence line adjacent to the Anglian Water compound) were too numerous to count; with approximately 45 per square meter, which had had increased from a total of 102 flowering spikes in the 1997/98 survey. In June 2018 the Breckland Flora Group surveyed this species' distribution and numbers within the CWS, and estimated the presence of 20,000 clumps here covering an area of 123m^2 (out of a total CWS area 3500m^2). The group also reported that this species extended beyond the southwest edge of the CWS, and also in the mown area along the running track. Maiden pink and Spanish catchfly plants were seen in the area under the Mildenhall Airfield lights beyond the perimeter fence at the western edge of the base on the first occasion but not on subsequent visits, indicating it is still there in small numbers. The Spanish catchfly, located adjacent to the south side of the runway and adjacent to Taxiway "Charlie", was also thriving. The Spanish catchfly is the food plant of the larvae of the Viper's bugloss moth (*Hadena irregularis*), a moth not recorded in Britain outside of the Breckland area and unfortunately with no substantiated sightings since the early 1960s. Seven of the eight nationally scarce plants including; sand catchfly (*Silene conica*), fine-leaved fumitory (*Fumaria parviflora*) smooth cat's-ear (*Hypochaeris glabr*a), bur medick (*Medicago minima*), sickle medick (*Medicago sativa ssp. falcata*), bearded fescue (*Vulpia ciliata ssp. ambigua*), hoary cinquefoil (*Potentilla argentea*), and three locally scarce species including; common rock-rose (*Helianthenum nummularium*), golden dock (*Rumex maritimus*) and lesser meadow rue (*Thalictrum minus*), were found in the 1997/98 survey. A few maiden pink were located in the area around the runway lights outside the base at the eastern end of the site in the SSSI.

The 2018 survey recorded the majority of the above notable species, plus a further Suffolk Rare Plant Register species tower mustard *Turritis glabra,* and also identified an additional small area of species-rich Breck grassland with abundant bur medick and other species adjacent to Location 1671 (centered at TL6917576250).

In July 2019 the Breckland Flora Group returned, they noted that the Spanish catchfly was 'booming' throughout the CWS and said it was one of the best examples of the species in the Brecks – the only location where the plant can be found. They stressed that the current management practice must be upheld. Two distinct clumps of the lesser abundant sand catchfly were also identified containing 155 individual plants, notably these plants were seen in conjunction with loose surface sand and visible dug-outs from either hare or rabbit activity. The site as a whole showed a huge variety and abundance of plant life. Within the SSSI many individual tower mustard plants were observed but there were no sightings of maiden pink.

Due to Covid-19 the Breckland Flora Group were unable to survey RAFM in summer 2020.

Mistletoe is abundant across base, with some trees laden with multiple bunches. In 2020 DIO confirmed a 50% reduction in trees heavily laden with mistletoe was permitted, provided an even cull of male and female plants was targeted.

During 1998 and 1999 the Suffolk Wildlife Trust undertook a base-wide survey on RAF Mildenhall to determine the invertebrate fauna of the grasslands and associated habitats of the airfield. A total of 122 species of spider were recorded including four nationally scarce species, including *Agroeca cuprea*, *Philodromus collinus*, *Philodromus preadatus*, and *Trachyzelotes pedestris*. The most notable spider identified during the survey was *Meioneta fuscipalpa*, a species never before recorded in Britain. This species was previously collected and misidentified during the initial survey in 1998, and re-collected in 1999 from the grassland habitat at the eastern end of the airfield. A total of 267 species of beetle were identified including three ground beetles listed in the Red Data Book as vulnerable, including *Harpalus froelichii*, *Psylliodes sophiae*, and *Bruchela rufipes*. A total of 93 moths were identified including six Notable and two Red Data Book species, including the tawny wave (*Scopula rubiginata*) and the marbled clover (*Heliothis viriplaca*). Two Red Data Book (five-banded tailed digger wasp (*Cerceris quinquefasciata*) and a spider hunting wasp (*Arachnospila consobrina*) and one nationally scarce species (bumblebee (*Bombus subterraneus*)) were identified out of a total of 41 species of bees, wasps, and ants. A total of thirty species of snail were identified including *Helicella itala*, which has undergone a declined in Suffolk to such an extent that there are only two large colonies left in the county.

The invertebrate survey has not yet been repeated.

Mammals and birds

In 2019 a preliminary roost assessment was carried out in Building 108 with an ecologist, a significant maternity roost of common pipistrelle (*Pipistrellus pipistrellus*) was discovered spanning throughout the 8 loft sections. Other buildings in the vicinity have also been identified as showing positive signs of bat activity, namely piles of droppings. Bats and their roosts are protected by law, consequently any building or maintenance activities which are likely to disturb bats will need to be coordinated with Defence Infrastructure Organization (DIO).

In 2019 nesting black redstarts *(Phoenicurus ochruros*) were observed raising 3 chicks in an exposed pipe on base, these are a rare Schedule 1 bird with less than 50 breeding pairs in the UK.

Brown hare are frequently observed on base. Brown Hare (*Lepus europaeus*) are listed as a Biodiversity Action Plan (BAP) species, and are covered under section 41 of the Natural Environment and Rural Communities (NERC) Act as a species "of principal importance for the purpose of conserving biodiversity".

2.3.5 Wetlands and Floodplains

The plant community present in a small area near the off-base runway lights at the eastern end of the runway are indicative regular flooding. Plant species included common reed (*Phragmites australis*) and creeping bent (*Agrostis stolonifera*).

2.3.6 Other Natural Resource Information

Past biological inventories and surveys conducted on the installation include the Bird Survey, Rare Plant Survey 1997/98, Invertebrate Survey 1998/99, Botanical Survey 2018 (see Jacobs/CH2M, 2018), and the Natural and Cultural Resources Baseline Survey 1996. The first three are summarized in the section Threatened and Endangered Species (above), and the fourth is summarized below:

Natural and Cultural Resources Baseline Survey 1996

The last natural and cultural resources baseline survey was conducted in 1996. No endangered or threatened species were identified in this survey. A total of 13 Phase 1 habitat types as described in the habitats handbook (JNCC, 2010), including coniferous plantation, scattered trees, unimproved and semi-improved calcareous grassland, neutral grassland, amenity grassland, ephemeral/short perennial habitat, flowing water, standing water, hedgerows and introduced shrubs, were located and delineated at RAF Mildenhall and the off-base landing lights area. Heritage Park, located in the northwest section of the base was identified as being of interest -this woodland was planted with Corsican pine (*Pinus nigra maritima*) in 1970. There has been considerable felling in this area in recent years but the remaining trees were well established with good structure and health.

Other grassland habitats identified include unimproved and semi-improved calcareous, neutral and amenity (improved) grasses and ephemeral/short perennial vegetation. The survey identified a total of 18 grasses, 5 shrubs, 75 herbaceous flowering plants, and four herbaceous non-flowering plants. The outdoor recreational area consists of improved land and semi-improved forested picnic area.

2.4 Mission Impacts on Natural Resources

2.4.1 Natural Resource Constraints to Mission and Mission Planning

Results of in-depth biological surveys, together with existing data, will form the basis of a comprehensive base plan that would enable future planning to go ahead quickly, with less likelihood of impacting natural resources. Planners and project managers could identify potential areas of conflict at the preliminary planning stages of any project, avoiding costly delays and safeguarding natural resources.

Based on existing environmental conditions, there are relatively few constraints to either the mission or development at RAF Mildenhall. A composite map of natural resources constraints such as critical habitat and sensitive species communities has been developed for RAF Mildenhall and is shown in the Constraints Map (2.3.2.4).

2.4.2 Land Use

RAF Mildenhall covers approximately 1,121 acres and has a 9,240-foot runway.

Note: An off-base area referred to as the "300 Area" has been returned to the MOD.

Land use is divided into areas of improved ground, semi-improved ground and unimproved ground.

- Improved grounds are the developed areas that are intensively maintained. These include the athletic areas, cantonment and housing areas which are equivalent to the UK amenity grassland habitat.
- Semi-improved ground includes areas that have periodic maintenance for operational or recreational reasons including grounds adjacent to runways, taxiways aprons, runway clear zones, lateral safety zones, rifle ranges, picnic areas, ammunitions storage areas, antenna facilities and golf course roughs. This is equivalent to the UK species poor or moderately species rich grasslands.
- Unimproved ground includes areas not classified as improved or semi- improved. It is not usually mowed more than once a year and includes weapon ranges, forested lands, croplands, grazing lands, lakes, ponds, wetlands and airfield areas beyond safety zones. These areas are equivalent to the UK species rich grasslands and are usually classed as NERC Act S41 Habitats of Principle Importance.

2.4.3 Current Major Impacts

The operation of the Base Mission has few impacts on the local environment. These impacts are described below and include permitted air and water pollution point sources, Air Installation Compatibility Use Zone (AICUZ) or other noise problems associated with airfield operations, ongoing problems with hazardous waste and groundwater contamination, including Environmental Repair (ERP) sites.

Air and Water Pollution Point Sources

Aircraft and other vehicle emissions issues are addressed in an Air Emissions Survey in 2011.

There are no known water pollution problems at RAF Mildenhall. The base has several "Consented Discharge points" that are regulated by the Environment Agency. These areas include secondary treated sewage effluent discharged to ground soak-a-ways (i.e. a pit, typically filled with stony material, into which waste water is piped so that it drains slowly out into the surrounding soil), trade effluent from runways discharged to drainage channels and culverts and surface water drainage to soak-a-ways.

AICUZ or Other Noise Problems

Noise issues are addressed through the AICUZ program. The last survey was performed in 2007 by AFCEE. There are no ranges or problems associated with low flying on the base.

Contaminated Sites and Hazardous Waste

There are no known problems with hazardous waste. There are two active Monitored Natural Attenuation clean-up sites at the present time; PSI3 and PSI4.

Groundwater Contamination

Groundwater is protected under the European Water Framework Directive (WFD), administered by the Environment Agency under their Groundwater Protection Policy (GP3).

RAF Mildenhall is located on a principal bedrock aquifer that is susceptible to groundwater contamination. The layers of rock have high inter-granular and/or fracture permeability which provides a high level of water storage. It supports water supply and river base flow on a strategic scale. Groundwater provides all of our drinking water, and therefore it is import to protect it from pollution. The most sensitive areas are located around the Water Treatment Works at the western end of the airfield and a smaller area located around the road east of the entrance to the base.

The groundwater aquifer is currently monitored.

2.4.4 Potential Future Impacts

At the time of updating this document the decision to close RAFM in 2027 has been reversed and could kick-start new development projects.

3 ENVIRONMENTAL MANAGEMENT SYSTEM

The USAF environmental program adheres to the Environmental Management System (EMS) framework and its Plan, Do, Check, Act cycle for ensuring mission success. Executive Order (EO) 13834, *Planning for Federal Sustainability in the Next Decade*; DoDI 4715.17, *Environmental Management Systems*; AFI 32-7001, *Environmental Management*; and International Organization for Standardization (ISO) 14001 standard, *Environmental Management Systems – Requirements with guidance for use*, provide guidance on how environmental programs should be established, implemented, and maintained to operate under the EMS framework.

The natural resources program employs EMS-based processes to achieve compliance with all legal obligations and current policy drivers, effectively manage associated risks, and instill a culture of continual improvement. The INRMP serves as an administrative operational control that defines compliance-related activities and processes.

4 GENERAL ROLES AND RESPONSIBILITIES

General roles and responsibilities that are necessary to implement and support the natural resources program are listed in the table below. Specific natural resources management-related roles and responsibilities are described in appropriate sections of this plan.

Office/Organization/Job Title (Listing is not in order of hierarchical responsibility)	**Installation Role/Responsibility Description**
Installation Commander (or designee)	Approver of the INRMP
AFCEC Natural Resources Media Manager/Subject Matter Expert (SME)/ Subject Matter Specialist (SMS)	Provides guidance and technical support on NR matters, advises on funding, training and NR best practice
Installation Natural Resources Manager/POC - 100CES/CEIE	Prepares, sustains, reviews and implements the installation INRMP
Installation Security Forces – 100SFS	Supports the INRMP. Key facilitator of the BASH program (fence patrol etc.). Communicates SFS wildlife incidents to NR Manager.
Installation Unit Environmental Coordinators (UECs)	POCs between units and SME's. UECs are required to circulate environmental information to their unit and notify CEIE of any environmental incidences – including notable wildlife interactions and nesting bird activity
Installation Wildland Fire Program Manager	N/A

Pest Manager	100 CES Contract Officer Representative; manages the pest control contractor
Commanders of Assigned and Tenant Units	Required to be familiar with the content of the INRMP and comply with its provisions.
Environmental Element (100 CES/CEIE)	Preparation of the INRMP in close coordination with the community planner. The Environmental Element provides technical advice on natural resources matters to base units, boards, and the ESOHC.
The Base Civil Engineer (BCE)	The preparation, maintenance, and day-to-day implementation of the INRMP and is the focal point for all INRMP actions and issues.
The Environmental, Safety and Occupational Health Council (ESOHC)	Ensures the installation's compliance with the plan.

5 TRAINING

USAF installation NRMs/POCs and other natural resources support personnel require specific education, training and work experience to adequately perform their jobs. Chapter 13 of the FGS requires that trained personnel perform the tasks necessary to update and carry out certain actions required within this INRMP. Specific training and certification may be necessary to maintain a level of competence in relevant areas as installation needs change, or to fulfill a permitting requirement.

Natural Resource Manager(s) specific training

AF installation NRMs/POCs and other natural resources support personnel require specific education, training and work experience to adequately perform their jobs. Chapter 13.3.8 of the FGS states that: *Installations shall ensure that personnel performing Natural Resource functions have the requisite expertise in the management of their discipline (i.e., endangered or threatened species, UK Protected Species, wetlands, soil stabilization).*

NRM training should therefore be tailored to the specific environmental disciplines evident on the base.

The Environmental Conservation AFMAN states the following information applicable to the base:

The NRM should take the course, DoD Natural Resources Compliance, endorsed by the DoD Interservice Environmental Education Review Board and offered for all DoD Components by the Naval School, Civil Engineer Corps Officers School (CECOS).

18.1.1. Encourage natural resource management personnel to attain professional registration, certification, or licensing for their related fields, and allow them to attend appropriate national, regional, and state conferences and training courses, when feasible.

18.1.3. Individuals participating in the capture and handling of sick, injured, or nuisance wildlife should receive appropriate training, to include training that is mandatory to attain any required permits.

18.1.4. Personnel supporting the BASH program should receive flight line drivers training, training in identification of bird species occurring on airfields, and specialized training in the use of firearms and pyrotechnics as appropriate for their expected level of involvement.

Training for all base personnel

RAF Mildenhall currently implements environmental training (which incorporates Natural Resources) via the following channels:

- Newcomers Briefings
- Unit Environmental Coordinator (UEC) training
- MyLearning/ ADLS Environmental Awareness

6 RECORDKEEPING AND REPORTING

6.1 Recordkeeping

The installation maintains required records IAW applicable FGS, AFI 32-7091, and Air Force Manual 33-363, *Management of Records*. It disposes of records IAW applicable FGS, AFI 32-7091, and the Air Force Records Management System (AFRIMS) records disposition schedule (RDS). Numerous types of records must be maintained to support implementation of the natural resources program. Specific records are identified in applicable sections of this plan, in the Natural Resources Playbook, and in referenced documents.

6.2 Reporting

The installation NRM is responsible for responding to natural resources-related data calls and reporting requirements. The NRM should refer to the Environmental Reporting Playbook for guidance on execution of data gathering, quality control/quality assurance, and report development.

7 NATURAL RESOURCES PROGRAM MANAGEMENT

This section describes the current status of the installation's natural resources management program and program areas of interest. Current management practices, including common day-to-day management practices and ongoing special initiatives, are described for each applicable program area used to manage existing resources. Program elements in this outline that do not exist on the installation are identified as not applicable and include a justification, as necessary.

7.1 Fish and Wildlife Management

This section applies to AF installations that manage fish or wildlife on AF property. This section is not applicable on RAF Mildenhall.

Native Wildlife on Base

Current fish and wildlife management on the base consists primarily of an Integrated Pest Management Program and Bird Aircraft Strike Hazard (BASH) management. Hunting and fishing are not permitted on base and are subject to local restrictions.

7.2 Outdoor Recreation and Access to Natural Resources

This section applies to AF installations that provide outdoor recreation activities and/or provide off-site personnel with access to natural resources on AF property. This section is not applicable on RAF Mildenhall.

The Morale, Welfare, and Recreation (MWR) facility manages recreational activities on base. Heritage Park is currently used as an outdoor recreational and picnic area. Other recreational areas include two ball fields and two running tracks. A new running track has been laid alongside the perimeter road.

7.3 Conservation and Protection Standards Enforcement

This section applies to AF installations that provide law enforcement in support of natural resources protection activities. This section is not applicable to RAF Mildenhall.

7.4 Management of Threatened, Endangered, and Host Nation-Protected Species

Status of the Plants

The CWS is one of the most important areas of the base for special-status plants. One Red Data Book and eight nationally scarce species have been recorded here, including sand catchfly *(Silene conica),* fine-leaved fumitory (*Fumaria parviflora*) smooth cat's-ear (*Hypochaeris glabr*a), bur medick (*Medicago minima*), sickle medick (*Medicago sativa ssp. falcata*), bearded fescue (*Vulpia ciliate ssp. ambigua*) and hoary cinquefoil (*Potentilla argentea*) and the three locally scarce species, including (common rock-rose (*Helianthenum nummularium*), golden dock (*Rumex maritimus*) and lesser meadow rue (*Thalictrum minus*). The Spanish catchfly has continued to thrive in 2018 and 2019. In 2018 Maiden pink was present in the SSSI area under the off-base runway lights but the other plant species were not found. Maiden pink was not seen in 2019 but was observed in abundance by the NR Manager in late spring 2020.

- To maintain the current populations of special-status plants, the following recommendations are given for the CWS:
- The special plant protection areas maintenance (mowing) schedules should allow for cutting to occur after plants have set and shed seeds - October is recommended. All grass cuttings are to be raked and removed on the same day.
- Heavy vehicles should not be allowed to drive through the grasslands to minimize compaction of the soil and tire ruts.
- Any groundwork activities in the grassland should be reviewed by the Environmental Element (100 CES/CEIE) to determine potential impacts to plant populations.

Status of the Animals

Species-specific surveys for mammals, birds, reptiles and amphibians have not been conducted at RAF Mildenhall. Ideally, efforts should be initiated to identify common and special-status vertebrate species on base. These begin with hare and bat surveys due to be undertaken in 2022. Historical records of special status flora and fauna within 1 km of the boundary of the base are listed in Appendices Historical Record of Special Flora Species within 3km of the Centre of RAF Mildenhall, and Historical Record of Special Fauna Species within 3 km of the Centre of RAF Mildenhall, respectively.

The invertebrate species were surveyed in 1998 and 1999 and four nationally scarce species of spider (*Agroeca cuprea*, *Philodromus collinus*, *Philodromus preadatus*, and *Trachyzelotes pedestris)*, three Red Data Book beetles (*Harpalus froelichii*, *Psylliodes sophiae*, and *Bruchela rufipes*) six notable and two Red Data Book moths (tawny wave and the marbled clover), two Red Data Book wasps (five-banded tailed digger wasp, a spider hunting wasp), one nationally scarce bumblebee (*Bombus subterraneus*) and one locally important snail (*Helicella itala*)were identified. These categories are equivalent to the US Endangered category. The habitats in which they were found remain suitable to support these species and should be resurveyed to determine the population status of these species.

7.5 Water Resource Protection

Applicability Statement

This section applies to AF installations that have water resources. This section is applicable to RAF Mildenhall.

Watershed Protection

RAF Mildenhall complies with various agency requirements for the protection of watersheds on the base from surface water runoff. These requirements include restrictions on the quality of the discharge, mandating that it be free of contamination from sewage, trade effluent, oil, or grease.

Wastewater or Storm water Management Issues

Non-point source pollution results from the uncontrolled releases of hazardous wastes or materials, misapplication of pesticides, storm-water runoff from streets and paved surfaces, and other activities that wash pollutants into surface waters. Sources can include industrial, commercial, or residential facilities or activities.

The base addresses non-point source pollution control measures and provides for erosion control water management, runoff disposal, landscaping, and special soil problems in all feasibility and development studies. Non-point source pollution is likewise a consideration in project planning, design, and construction. Implementation is accomplished by these measures:

- Funds are included as required for landscape and conservation work in project proposals, construction contracts and specification.
- Erosion at construction sites is minimized by applying a combination of special erosion and sedimentation control practices.
- Best Management Practices (BMPs) are voluntary for agencies that are in compliance with specific permit requirements. If permit requirements are exceeded, BMPs will then be implemented.

7.6 Wetland Protection

This section applies to AF installations that have existing wetlands on AF property. This section is not applicable on RAF Mildenhall.

7.7 Grounds Maintenance

This section applies to AF installations that perform ground maintenance activities that could impact natural resources. This section is applicable to RAF Mildenhall.

The CWS is the only significant wildlife area within the base perimeter which falls under the grounds maintenance contract to manage. The current mowing practices for that area are designed to favor Spanish catchfly.

In 2019 the Grounds Maintenance Contract was handed over from DIO to 100 CE to manage, the contractor is Ground Control. The contract and the Base Standards describe how each vegetative cover type is maintained. It includes the minimum requirements for soil preparation, seeding, fertilizing, airfield grounds maintenance, storm and surface drainage, frequency of policing grounds, and ammunition storage area ground maintenance.

The intensity, frequency, and type of grounds maintenance practices for the base generally depend on the classification of the land area. Grounds are categorized as improved, semi-improved, and unimproved.

Improved Grounds

Improved grounds are the developed areas that have lawns and landscape plantings that require intensive maintenance. These include areas such as the athletic areas, cantonment, and housing areas, and the area around Washington Square which has been landscaped.

The grassland around the buildings and housing areas are cut regularly throughout the spring, summer and fall seasons. Landscaped areas are regularly maintained.

Semi-Improved Grounds

Semi-improved grounds are areas where periodic maintenance is performed primarily for operational and aesthetic reasons, such as erosion and dust control, bird control, and maintaining visual clear zones. These usually include grounds adjacent to runways, taxiways, and aprons; runway clear zones; lateral safety zones; rifle and pistol ranges; picnic areas; ammunition storage areas; antenna facilities; and golf course roughs.

The grassland is cut less frequently in these areas.

Unimproved Grounds

Unimproved lands usually include weapons ranges, crop and grazing lands or other outlying grasslands, ponds, wetlands, and areas in airfields beyond the safety zones.

Maintenance in the unimproved areas is solely to prevent the waste of natural resources through erosion. Mowing at RAF Mildenhall is done routinely throughout the year as well as policing the grounds to prevent damage to Air Force property.

The unimproved areas, specifically those Breck grassland areas with populations of Spanish and sand catchfly, are the most important resource assets of the base. A range of management practices is recommended; some are ongoing measures (such as mowing) and others are one-time or occasional activities (such as surveys of species).

The management practices in these unimproved areas emphasize protection of natural resources.

- Grounds maintenance should be programmed to take into account the recommendations outlined in Section Management of Threatened and Endangered Species, Species of Concern and Habitats, above - i.e. special plant protection areas maintenance (mowing) schedules should allow for cutting to occur after plants have set and shed seeds - October is recommended.
- Harvesting/collection of cut vegetation is required in the special plant protection areas to prevent any build-up of soil nutrients, as the rare plant population thrives on poor, sandy, nutrient-deficient soils.

7.8 Forest Management

This section applies to AF installations that maintain forested land on AF property. This section is applicable to RAF Mildenhall.

The small area of woodland on RAF Mildenhall known as Heritage Park should be regularly monitored for health and structural damage.

Tree Removal

If trees need to be harvested at Heritage Park, DIO will be notified of the action.

Trees should only be considered for removal if they impede mission critical activities, are diseased or pose a significant risk to human health. New trees may need to be planted upon removal.

Tree Replacement and Replanting

There has historically been an informal, verbal agreement with the RAF commander to replant 2 trees for every 1 which was removed on base. This is not a binding policy, and stems from working practices which were aligned and shared with neighboring RAF Lakenheath. The replanted tree(s) can be planted in an alternative location from where the tree was removed.

Trees replanted on base:

- Should be of native and non-fruiting varieties
- Should be of a hardy species with consideration given to species with low maintenance and watering requirements
- Should be planted away from the airfield with the location and replanting densities considerate of BASH risks.

7.9 Wildland Fire Management

This section applies to AF installations with unimproved lands that present a wildfire hazard and/or installations that utilize prescribed burns as a land management tool. This section is not applicable to RAF Mildenhall.

7.10 Agricultural Outleasing

This section applies to AF installations that lease eligible AF land for agricultural purposes. This section is not applicable to RAF Mildenhall.

7.11 Integrated Pest Management Program

This section applies to AF installations that perform pest management activities in support of natural resources management, e.g. invasive species, forest pests, etc. This section is applicable to RAF Mildenhall.

RAF Mildenhall has a current integrated pest management plan (IPMP) (Appendix, Nov 2017) that is implemented by contractors. It is designed to maximize the use of integrated pest management techniques such as biological control, pest surveys and proper sanitation, enhance environmental protection and be used as a tool to reduce the use of pesticides. When chemicals are necessary, the most effective and least toxic pesticides will be used.

The pest manager supervises and puts measures into effect to control pests that transmit diseases, annoy personnel, destroy or degrade the quality of real property, attack trees and ornamental plants, crowd our beneficial plants, and attract and provide cover for animal pests. Pests include numerous insects and related lower animals, terrestrial and aquatic plants (weeds), domestic and feral rodents, birds, local predatory animals, nematodes, snails, algae, fungal plant diseases, and other organisms, other than domestic animals that are not desirable.

The structural pest control contract deals with problems or conditions associated with insects, rats and mice around buildings. It is managed by 100 CES Pest Management Coordinator/ QAE and the contractor is Pestokill. The grounds maintenance pest control contract deals with pest problems associated with weeds, moles and rabbits. The AMC Aircraft Pest control Contract is managed by 727th Air Mobility Squadron, Air Terminal Operations Centre and the contract is handled through Pestokill or NGEC Contractor. It is initiated when a problem arises, for example, when pests are brought in on aircraft landing on the airfield.

The chemicals used in pest control are listed in the plan and the records of applications of pesticides are maintained in building 680. All pesticides used on RAF Mildenhall by contractors must be approved by the Department of the Environment, Food and Rural Affairs (DEFRA), Health and Safety Executive (HSE) or the Pesticide Safety Directorate (PSD) and through the Installation HAZMAT Management Program. All personnel applying pesticides must be certified in accordance with DoD Directive 4151.07 or under the authority of UK DEFRA and the FGS-UK Chapter 11 and provide a copy of their certification to 100 CES / CEOSS. Appropriate personal protective equipment (PPE) will be worn during pesticide application.

Careless handling and application of herbicides or insecticides could potentially result in contamination of the principal, or class "1" aquifer underneath the base and unintentional poisoning of domestic animals and special-status plants or animal species found on the base. The Grounds Maintenance contractor (Ground Control) has been advised not to spray the fence line by the Anglian Water site, unless they have the express permission of the RAF Mildenhall Contract Manager.

Other considerations within the pest management plan include:

- The notification of the Station Warden or CES Pest Management Personnel prior to application in order to protect Child Development Centers, medical facilities, base housing and food preparation or consumption facilities;
- The Base Exchange Manager will maintain a current pesticide inventory, co- ordinate disposals and make Material Safety Data Sheets (MSDS's available to employees, the Fire Department and Bioenvironmental Engineering;
- Pesticide storage;
- Public Health must be notified of fumigation work, which must be coordinated with fire, medical, security forces and safety personnel;
- Disposal of the pesticide waste should be at approved disposal sites and comply with British Law; and
- All personnel applying pesticides or herbicides should have regular health checks.

7.12 Bird/Wildlife Aircraft Strike Hazard (BASH)

This section applies to AF installations that maintain a BASH program to prevent and reduce wildlife-related hazards to aircraft operations. This section is applicable to RAF Mildenhall, and the contractor is SafeSkys Ltd.

Some wildlife is detrimental to the base mission or to resource management objectives when the animals occur in undesirable locations. The wildlife species vary among different habitats, but the most critical ones for the Base Mission are birds that present aircraft strike hazards in the "airdrome" (i.e., air space above the Base). The base controls such birds through the BASH program.

The BASH program focuses on the reduction of birds in the vicinity of aircraft runways on the base to enhance safety of aircraft operations. The primary management techniques focus on the elimination or reduction of environmental conditions that attract birds to the airfields. Techniques include:

- Falconry is used to scare birds from the airfield.
- Control of vegetation and growth, including mowing and removal of perching vegetation;
- Control of water such as ditches or ponds;

- Control of bird habitat through the use of repellents or electronic or sound deterrents to roosting; and
- Prevention of bare areas, as birds frequently use them as resting sites on the airfield.

Outside runway areas, the landscape guidelines recommend minimizing use of fruit-bearing trees, which attract birds for feeding.

In accordance with the BASH Plan the contractor shall carry out depredation of birds and/or wildlife as required in the event that birds and/or wildlife do not respond to other control methods. It is a requirement of the C12 Class License '*Birds: license to kill or take them for air safety purposes*' that legal including non-lethal measures should be explored first before birds and/or wildlife is killed.

Deer and hare on base are not depredated at the request of DIO, hare are a BAP species and management practices should therefore be considerate of options that would not exacerbate population decline. DIO should be consulted if these species endanger the mission or pose risks to safety. In February 2022, the DIO permitted a 25% cull of the base hare population resulting in twenty-one hares being depredated.

7.13 Coastal Zone and Marine Resources Management

This section applies to AF installations that are located along coasts and/or within coastal management zones. This section is not applicable to RAF Mildenhall.

7.14 Cultural Resources Protection

This section applies to AF installations that have cultural resources that may be impacted by natural resource management activities. This section is applicable to RAF Mildenhall, but details of this can be found in the separate ICRMP.

7.15 Climate Change Vulnerabilities

7.16 Public Outreach

RAF Mildenhall performs the following "Public Outreach" activities:

- Earth Day – annually
- Newcomer's briefings – on a weekly basis.
- Facebook page for public involvement
- America Recycles Day- annually

The CWS had two information signs detailing the local plant life installed on-site in 2020. Further outreach materials include leaflets and pull-up banners covering all environmental topics, including Natural Resources on base.

7.17 Geographic Information Systems (GIS)

This section applies to all AF installations that maintain geospatial information must within a GeoBase system. The section is applicable to RAF Mildenhall.

The Environmental Element currently uses Geographic Information System (GIS) resources on RAF Mildenhall, which includes data on the special-status plant and invertebrate surveys. CEMML is consulted if new data layers are needed.

8 MANAGEMENT GOALS AND OBJECTIVES

The installation establishes long term, expansive goals and supporting objectives to manage and protect natural resources while supporting the military mission. Goals express a vision for a desired condition for the installation's natural resources and are the primary focal points for INRMP implementation. Objectives indicate a management initiative or strategy for specific long or medium range outcomes and are supported by projects. Projects are specific actions that can be accomplished within a single year. Also, in cases where off-installation land uses may jeopardize USAF missions, this section may list specific goals and objectives aimed at eliminating, reducing, or mitigating the effects of encroachment on military missions. These natural resources management goals for the future have been formulated by the preparers of the INRMP from an assessment of the natural resources, current condition of those resources, mission requirements, and management issues previously identified. Below are the integrated goals for the entire natural resources program.

The installation goals and objectives are displayed in the "Installation Supplement" section below in a format that facilitates an integrated approach to natural resource management. By using this approach, measurable objectives can be used to assess the attainment of goals. Individual work tasks support INRMP objectives. The projects are key elements of the annual work plans and are programmed into the conservation budget, as applicable.

GOAL 1: EXTEND MANAGEMENT OF THE SPECIAL PLANT PROTECTION AREAS TO INCLUDE ENTIRE COUNTY WILDLIFE SITE AREA AND OTHER BOTANICALLY RICH AREAS WITH THE BASE

- OBJECTIVE 1: Extend scope of grounds management operations to include all known areas supporting species-rich Breckland grassland flora within the base. The current management regime of a single annual cut of the vegetation with collection of cut material in October within the County Wildlife Site appears to be having a positive influence on the conservation status of rare plants occurring on site – notably the numbers of Spanish catchfly plants has risen significantly here in recent years (see Jacobs/CH2M 2018). It is proposed that this management prescription is extended to include all other known locations supporting botanically-rich Breckland grassland/ plant species (providing that over-riding constraints associated with the running of the base such as minimizing bird strike hazard). Ideally this should also be extended to include the airfield lights area, which is outside the perimeter fence, but still within the land ownership boundary of the installation. It appears that management of this area is currently being overseen by DIO and/or the Forestry Commission (FC contact Neal Armour-Chelu), and the tall dense vegetation present in this area when surveyed in 2018 suggests that management inputs should be increased to increase botanical diversity - liaison should be made with F.C. to devise a way of achieving this.

GOAL 2: UPDATE THE THREATENED AND ENDANGERED SPECIES RECORDS

- OBJECTIVE 1: Undertake specialist flora and fauna surveys:
    - PROJECT 1.1: ***Bat survey***
      Identify any buildings, structures, green spaces and wooded areas being used by bats for roosting, feeding and hibernating. ***This survey is a top priority survey and will take place in 2022, following the unexpected discovery of a roost in 2019 that significantly delayed an expensive dorm renovation project.***
    - PROJECT 1.2: ***Hare survey***
      Population study on base, noting boom and bust cycles, predator interactions and management options (including catch and release). ***Following the recent cull of twenty-one hares, a base-wide hare survey will be undertaken in 2022.***
    - PROJECT 1.3: ***Heritage Park survey***
      Biodiversity study to indicate species richness and management options to better enhance the site for wildlife and/ or recreational purposes. To also assess the impact and implications should the area be cleared for new buildings.
    - PROJECT 1.4: ***Tree survey***
      To build upon the 2015 tree survey database, to include the tagging of all non-tagged trees on base, and a review of pre-identified trees in need of specialist management/ felling advice. ***Ground Control are due to commence a base-wide tree survey in the Summer of 2022.***
    - PROJECT 1.5: ***Bird Survey***
      Identify prime bird nesting locations on base, and identify any further rare bird species in addition to the Black Redstarts first discovered nesting on base in Summer 2019.
    - PROJECT 1.6: ***Invertebrate Survey***

Update the previous invertebrate survey to determine the current status of any threatened and endangered species listed in the previous survey.

- PROJECT 1.7: **Amphibian and reptile survey**
  To identify species present on base.

GOAL 3: PRODUCE A TREE MANAGEMENT PLAN FOR RAFM

- OBJECTIVE 1: Draft a Tree Management Plan to cover all information and management practices of trees on base at RAFM. To include reference to actions regarding re-planting, ongoing surveying and special measures applicable to trees on base i.e. ash dieback disease. NB –This plan will need to incorporate a detailed tree survey similar to the one stated in project 1.4 above.

9 INRMP IMPLEMENTATION, UPDATE, AND REVIEW PROCESS

9.1 Natural Resources Management Staffing and Implementation

Implementation of this INRMP will help to ensure that the RAFM mission is not impaired while implementing measures to maintain (and enhance when appropriate) natural resources.

Natural Resources Management Staffing – 100CES/CEIE will appoint a Natural Resources Manager. The Natural Resources Manager will undertake appropriate training tailored to both the Natural Resource requirements of the base and to remain current with DOD Programs and Policy.

Implementation – 100 ARW is responsible for implementation of the INRMP, 100CES/CEIE will conduct the annual review of the INRMP.

9.2 Monitoring INRMP Implementation

100CES/CEIE are responsible for monitoring the INRMP and to ensure the plan is regularly updated and serves as a functioning live document.

9.3 Annual INRMP Review and Update Requirements

The INRMP requires annual review, in accordance with AFMAN 32-7003, to ensure the achievement of mission goals, verify the implementation of projects, and establish any necessary new management requirements. This process involves the NRM reviewing the INRMP to assess status of meeting INRMP goals/objectives, updating the work plans, ensuring that projects are programmed, budgeted and executed in accordance with established PPBE processes and determining internal USAF or tenant units that may be affected and coordinating reviews of any updates to the INRMP. An Annual INRMP Review Report will be produced and posted to the Installation Natural Resources E-Dash webpage.

10 ANNUAL WORK PLANS

The INRMP Annual Work Plans are included in this section. These projects are listed by fiscal year, including the current year and a minimum of four succeeding years. For each project and activity, a specific timeframe for implementation is provided (as applicable), as well as the appropriate funding source and priority for implementation. The work plans provide all the necessary information for building a budget within the USAF framework. Priorities are defined as follows:

- High: The INRMP signatories assert that if the project is not funded the INRMP is not being implemented and the USAF is non-compliant with an applicable FGS requirement.
- Medium: Project supports a specific INRMP goal and objective and is deemed by INRMP signatories to be important for preventing non-compliance with a specific FGS requirement. However, the INRMP signatories would not contend that the INRMP is not being implemented if not accomplished within the programmed year due to other priorities.
- Low: Project supports a specific INRMP goal and objective, enhances conservation resources or the integrity of the installation mission, and/or supports long-term compliance with specific requirements within the applicable FGS natural resources law, but is not directly tied to specific compliance within the proposed year of execution.

No resources are allocated at RAF Mildenhall to support the annual work plan. No additional financial resources are needed to manage the CWS, as the special mowing schedule is maintained within the existing grounds maintenance contract. The Tree Management Plan will be drafted in house by the Natural Resource Manager at no additional cost but the associated tree surveys will need funding. The 2020 bat survey in Building 108 has provided further justification for the base-wide bat survey due to occur.

Annual Work Plans (Include Year)	**OPR**	**Funding Source**	**Priority Level**
Hare Survey (2022-2026)	100 CES/CEIE	AFCEC	Low
Bat Survey (2022-2026)	100 CES/CEIE	AFCEC	Medium
Tree Survey (2022-2026)	100 CES/CEIE	AFCEC	Low

11 REFERENCES

Standard References *(Applicable to all USAF installations)*

- AFMAN 32-7003, E*nvironmental Conservation*
- AFI 32-7091, *Environmental Management Outside the United States*
- AFI 32-7001, *Environmental Management*
- DoDI 4715.05, *Environmental Compliance at Installations Outside the United States*
- DoD 4715.05-G, *Overseas Environmental Baseline Guidance Document* (OEBGD)
- eDASH Natural Resources Program Page
- Natural Resources Playbook

Wildlife Legislation adhered to on base:

- The main piece of legislation relating to nature conservation in Great Britain is the Wildlife and Countryside Act 1981 (as amended). This Act is supplemented, *inter alia*, by provision in the Countryside and Rights of Way (CRoW) Act 2000. Schedules 5 of the Wildlife and Countryside Act lists UK protected wild animals, Schedule 8 protected plants and Schedule 9 non-native invasive species. The CRoW Act ensures that the biodiversity is conserved and lists the species and habitats for which conservation steps should be taken.)

12 ACRONYMS

Standard Acronyms *(Applicable to all USAF installations)*

- eDASH Acronym Library
- Natural Resources Playbook – Acronym Section

•	100 CES/CEIE		Environmental Element
•	BAP		Biodiversity Action Plan
•	CRoW		Countryside and Rights of Way (CRoW) Act 2000
•	CWS		County Wildlife Site
•	DEFRA		Department of the Environment, Food and Rural Affairs
•	DIO		Defense Infrastructure Organization (formerly Defense Estates)
•	DUC		Distinguished Unit Citation
•	EEA		Environmental Executive Agents
•	ERP		Environmental Repair
•	FGS-UK		Final Governing Standards – United Kingdom
•	HAP		Habitat Action Plan
•	HSE		Health and Safety Executive
•	LNR		Local Nature Reserve
•	MOD		United Kingdom Ministry of Defense
•	NERC		Natural Environment Research Council
•	OEBGD		Overseas Environmental Baseline Guidance Document
•	PSD		Pesticide Safety Directorate
•	RAF		Royal Air Force
•	SAC		Special Areas of Conservation
•	SAP		Species Action Plan
•	SPA		Special Protection Area
•	SSSI		Site of Special Scientific Interest
•	USAFE		United States Air Force in Europe
•	WFD		European Water Framework Directive

13 DEFINITIONS

Standard Definitions *(Applicable to all USAF installations)*

- Natural Resources Playbook – Definitions Section

A ANNOTATED SUMMARY OF KEY LEGISLATION RELATED TO DESIGN AND IMPLEMENTATION OF THE INRMP

DoD Policy, Directives, and Instructions	
32 CFR Part 187, *Environmental Effects Abroad of Major Department of Defense Actions*	Provides the exclusive and complete requirement for taking account of considerations with respect to actions that do significant harm to the environment of places outside the United States
32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*	Implements the USAF EIAP and provides procedures for environmental impact analysis both within the United States and abroad.
DoDI 4150.07, *DoD Pest Management Program*	Implements policy, assigns responsibilities, and prescribes procedures for the DoD Integrated Pest Management Program.
DoDI 4715.05, *Environmental Compliance at Installations Outside the United States*	This instruction reissues DoD Instruction (DoDI) 4715.5 (Reference (c)) to update established policy and assigned responsibilities for managing environmental compliance to protect human health and safety outside the United States on installations under DoD control.
DoDI 4715.05-G, *Overseas Environmental Baseline Guidance Document (OEBGD)*	This Guide provides criteria, standards, and management practices for environmental compliance at DoD installations overseas.
Environmental Final Governing Standards (FGS)	A comprehensive set of country-specific substantive environmental provisions; typically technical limitations on effluent, discharges, etc., or a specific management practice, developed in accordance with DoDI 4715.05.
USAF Instructions and Directives	
AFI 32-7001, *Environmental Management*	Establishes the framework for an Environmental Management System (EMS) at Headquarters, United States Air Force (HQ USAF), major commands (MAJCOMs), and at installations
AFI 32-1015, *Integrated Installation Planning*	Provides guidance and responsibilities related to the USAF comprehensive planning process on all USAF-controlled lands.
AFI 32-7003, *Environmental Conservation*	Implements AFPD 32-70, Environmental Quality; DODI 4715.03, Natural Resources Conservation Program; and DODI 7310.5, Accounting for Sale of Forest Products. It

	explains how to manage natural resources on USAF property in compliance with Federal, state, territorial, and local standards.
AFI 32-7091, *Environmental Management Outside the United States*	This Air Force Instruction (AFI) provides information, guidance, and requirements to ensure Air Force environmental programs at enduring locations outside the United States (also referred to as "overseas") achieve and maintain environmental quality as prescribed in AFPD 32-70.
AFPD 32-70, *Environmental Quality*	Outlines the USAF mission to achieve and maintain environmental quality on all USAF lands by cleaning up environmental damage resulting from past activities, meeting all environmental standards applicable to present operations, planning its future activities to minimize environmental impacts, managing responsibly the irreplaceable natural and cultural resources it holds in public trust and eliminating pollution from its activities wherever possible. AFPD 32-70 also establishes policies to carry out these objectives.

B WILDLAND FIRE MANAGEMENT PLAN

C BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD (BASH) PLAN

D GOLF ENVIRONMENTAL MANAGEMENT (GEM) PLAN

E INTEGRATED CULTURAL RESOURCES MANAGEMENT PLAN (ICRMP)

F INTEGRATED PEST MANAGEMENT PLAN (IPMP)

Integrated Pest Management Plan
November 2017

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 100TH AIR REFUELING WING (USAFE)
ROYAL AIR FORCE MILDENHALL, UNITED KINGDOM

28 October 2020

MEMORANDUM FOR 100 ARW

FROM: 100 ARW/CC

SUBJECT: 100th Air Refueling Wing Plan 32-1053, *Pest Management Plan*

1. Attached is 100 ARW Plan 32-1053, *Pest Management Plan (PMP)*. This plan is designed to maximize the use of integrated pest management techniques such as biological control, pest surveys, and proper sanitation; enhance environmental protection; and as a tool to reduce the use of pesticides. Request for changes in distribution should be sent to 100 CES/CEOES.

2. This plan is written in support of DODI 4150.7, *DoD Pest Management Program*, AFI 32-1053, Pest Management Program and the Final Governing Standard-United Kingdom (FGS-UK). It has been prepared by the 100th Civil Engineer Squadron Commander and has been coordinated with all tasked agencies. It has been reviewed and approved by the appropriate members IAW AFI 32-1053.

3. This plan is effective for implementation upon receipt. This plan will be disposed of IAW DoD 5200.1R *Information Security Program* /AFI 31-401 *Information Security Program Management* when superseded or rescinded.

Thomas D Torkelson, Colonel, USAF
Commander

Attachment:
100 ARW Plan 32-1053, *Pest Management Plan (PMP)*

"Square-D Away"

The 100 ARW installation pest management supervisor/coordinator (i.e. Pest Management Shop Supervisor), and the Command Entomologist/MAJCOM Pest Management Consultant at HQ USAFE/A7AVQ, will review this plan annually and update as necessary. The plan will be completely revised and formally staffed every five years with the following individuals:

- Installation natural resources manager and/or pest management coordinator
- Installation Environmental coordinator
- Public Health Officer
- Bioenvironmental Engineer Officer
- Base Civil Engineer
- Mission Support Group commander
- Wing commander

This plan was formally staffed in CY10 and is due for formal staffing in CY15. A hardcopy of the coordination of the formal staffing can be found in CE Service Contracts, building 680, room F33.

Coordination

_____//signed//_____
Darren Jeffery, Civ, USF- UK
Pest Management Coordinator

_____//signed//_____
Rachel Doyle, Civ, USAF-UK
100 CES Quality Assurance Evaluator

_____//signed//_____
Mark Miller, Civ, MoD
DIO

_____//signed//_____
Jeanne Dye-Porto, Civ, USAF
100 CES Environmental Element Chief

_____//signed//_____
Kym Stevenson, Civ, MoD
727 Air Mobility Squadron

_____
Leeann Racz, Lt Col, USAF, BSC
Bioenvironmental Engineering Flight Commander

_____
Chris M. Costello, Capt, USAF, BSC
Public Health Flight Commander

_____
Brandon H Sokora, Lt Col, USAF
Base Civil Engineer

_____
Thomas D Torkelson, Col, USAF
Commander, 100th Air Refueling Wing

_____
Earl E Thomas, Maj, USAF, BSC
Command Entomologist
USAFE/ AFAFRICA

Table of Contents

PEST MANAGEMENT PLAN

SCOPE: The scope of this plan is to ensure effective pest management for 100th Air Refueling Wing within full compliance of AFI 32-1053, Final Governing Standards - United Kingdom (FGS-UK), and the Overseas Environmental Baseline Guidance Document. All references to pesticides in this plan applies as well to: insecticides, herbicides, fungicides, nematocides, acaracides, algicides, rodenticides, slimicides or any similar items to include growth regulators.

PURPOSE: This plan is a framework through which pest management control is defined and accomplished on the installation. It is designed to maximize the use of Integrated Pest Management (IPM) techniques to include pest surveys, emphasizing proper sanitation, biological control when applicable, and chemical applications. All efforts will be made to enhance environmental protection and the use of IPM as a tool to reduce the use of pesticides. When chemicals are necessary, the most effective and least toxic pesticides will be used.

1. Facility Managers/Building Occupants: Responsible for performing those pest control measures normally expected of any homeowner. IAW AFI 32-1053 Pest Management Program, facility managers will:

1.1. Maintain and enforce good housekeeping practices by inspecting buildings, ensuring proper sanitation and food storage to keep pests under control without using pesticides.

1.2. CE Self Help Store can provide self-help rat/mice snap traps and fly swatters to facility managers or base housing residents. It is the responsibility of the persons using the traps to dispose of any pest caught. If there are any questions on how to place mice/rat snap traps, please contact the CE Pest Management Coordinator/ QAE, DSN 238-2900/ 2093.

1.3. Notify CE Pest Management Coordinator/ QAE, DSN 238-2900/ 2093 to report any dead animals which require removal from contractor treatment. CE will contact the contractor for removal. Animals inside facilities will only be removed if they are located near the site of treatment and as long as they are accessible without the removal of panels, tiles in ceilings, and floors by the contractor.

1.4. Dead animals and birds within 50ft of facilities will be removed by facility managers. Personal Protective Equipment (PPE) such as disposable neoprene or nitrile gloves and dust masks should be used. Place animal carcass in plastic bags and disposed of in the installation refuse dumpsters. Contact 100 CES Customer Service, DSN 238- 5625/ 5626 for dead animal removal located further than 50ft from buildings.

1.5. Notify CE Pest Management Coordinator/ QAE, DSN 238-2900/ 2093 to report any stray animals requiring removal. CE will contact the contractor for removal. (CURRENTLY NO CONTRACT IN PLACE)

1.6. Notify CE Pest Management Coordinator/ QAE, DSN 238-2900/2093 to report problems with bees, wasps or nests only if they are posing significant health hazards to facility occupants. The nests will be removed.

2. Contracts

2.1. Structural Pest Control Contract: All pesticide application records are maintained in room F.33, Bldg.

680, by 100 CES Pest Management Coordinator/QAE. The current contractor is DRE Pest Control. Contract identifies procedures for preventing pest problems or conditions associated with house flies, cockroaches, ants, wasps, bees, hornets, fleas, silverfish, rats, and mice. The contractor may only use pesticides as listed in the table below. Deviation from this list must be approved by the Pest Management Coordinator.

Trade Name	Active Ingredient	MAPP/ HSE #	Pest
COOPEX INSECT POWDER	0.53% Permethrin	5052	Ants, Cockroaches, Etc.
K-OTHERINE	0.99% Deltamethrin	5097	Ants, Cockroaches, Etc.
SOREX , BRODIFACOUM	0.002% Brodifacoum	6706	Rats, Mice
KILLGERM, SAKARAT BROMABAIT	0..005% Bromadiolone	7902	Rats, Mice
BAYER, CRAWLING INSECT	0.1% Imiprothrin	8756	Cockroaches, Etc.
BAYER, FLYING INSECT	0.15% D-Tetramethrin	8771	Flies
SOREX, SUPER FLY SPRAY	0.10% Tetramethrin	6297	Flies
BAYER, PYBUTHRIN 33	0.38% Pyrethrins	5106	Bed Bugs
BAYER, MAXFORCE QUANTUM	0.03% Imidacloprid	8888	Ants
SORSEC, WASP NEST DESTROYER	0.23% Tetramethrin W/W 0.093% D-Phenothrin W/W	9294	Wasps
KILLGERM, ULV 500	2.14% Tetramethrin W/W 4.46% D-Phenothrin W/W	4647	Mosquitoes

2.2. Grounds Maintenance Pest Control Contract: Managed by DIO (Mr. Mark Miller), DSN 238-5833. Pesticide and herbicide application records are maintained in Bldg 680. Current contractor is Ground Control. Contract identifies procedures for preventing pest problems associated with weeds, moles and rabbits. The contractor uses pesticides and herbicides as listed in table below:

Note: Aluminum Phosphide (Phostoxin) is not to be used within 3 meters (10 ft) of a building and must be only used as a LAST RESORT. Use of any other fumigants is strictly prohibited.

Trade Name	Active Ingredient	MAPP#	Pest
CHIKARA	Flazasulfuron	14189	Rabbits and moles
ROSATE GREENS		15122	Weeds
HEADLAND STAFF 500		13196	Weeds
GLYPHOSATE 360		15227	Weeds
PHOSTOXIN	Aluminum Phosphide	09315	Rabbits and Moles
ROUND-UP	Potassium salt of Glyphosate	10330	Plants, Non-Select
STAMEN	Isopropylamine salt of Glyphosate	14895	Weeds

2.3. AMC Aircraft Pest Control Contract: Managed by 727th Air Mobility Squadron, Air Terminal Operations center 238-2227. Contract handles insect problems and removal of dead animals to control and prevent pest and disease vectors from adversely impacting military operations by affecting health of personnel or damaging aircraft. The contractor will maximize the use of the least toxic and most effective product approved for the aircraft. The contract is handled through Iceni Pest Control, Tel: 01842 879598 and is

initiated adhoc when the problem exists. The 727 AMS utilizes a government price list and Government purchase card (GPC) for payment. The length of the services depends on the severity of the insect problem. Iceni Pest Control also provides one off services to the 727 AMS to remove any dead animal that might be transported in on the wheel arches etc. of the aircraft. The contractor uses pesticides as listed in the table below:

Trade Name	Active Ingredient	MAPP#	Pest
BRIMPEX ULV 1500	Tetramethrin 2.0% D-phenothrin 4.0% Piperonyl butoxide 8.0%	4942	Flying Insects, Etc

3. Permissible Pesticides: All pesticides used on RAF Mildenhall by the contractor must be approved by DEFRA (Department of the Environment, Food and Rural Affairs), Health and Safety Executive (HSE) or the Pesticide Safety Directorate (PSD) to include approval/registration numbers. Prior to acquisition by base personnel or to contractors bringing them on base, all pesticides must be approved through the Installation HAZMAT Management Program authorization process and be licensed for use on an AF Form 3952, IAW AFI 32-7086, *Hazardous Materials Management Program*.

4. Certification of Applicators: All pesticide applicators will be certified in accordance with DoD Directive 4150.07, "DoD Pest Management Program and the DoD Plan for Certification of Applicators of Restricted-Use Pesticides" or under the authority of the United Kingdom's DEFRA and the FGS-UK, Chapter 11. All personnel certified will provide a copy of their certification to 100 CES/CEOES.

4.1. Quality Assurance Evaluation: Pest Management Coordinator/QAE from 100 CES will perform quality assurance evaluations of the contractors. Pest Management Coordinator/QAE will review performed work at random locations ensuring all proper IPM guidelines are followed to the highest degree. In addition, all DOD policy, Environmental Final Governing Standards UK, and all applicable British laws will be followed in accordance with the NATO Status of Forces Agreement and other international agreements.

4.2. Discrepancy Reports: In the event discrepancies are noted, actions will be taken. The contractor will first be given verbal notice, followed by written notification before more stringent penalties are given. Contractor failure of compliance could result in contract default action.

5. Personal Protective Equipment: Contractors must supply their own personal protective equipment (PPE) required to perform safe pesticide applications. Aircraft takeoff procedures have been adjusted to accommodate the use of pesticides; this includes precautions for aircrew and possible passengers. All 100 ARW personnel applying pesticides will be supplied PPE by their unit. This may include coveralls, respirators, goggles, nitrile or chemical and oil-resistant rubber gloves, rubber boots, safety shoes, and special fumigation safety equipment. PPE should comply, at a minimum, with requirements on pesticide label. Bioenvironmental Engineering will provide PPE selection consultation during routine occupational health assessments or upon request, IAW AF 32-1053, para 4.4, FGS-UK para 11.3.5, and para 11.3.6. All personnel must receive training on proper wear, use and limitations of the PPE prior to conducting pesticide applications.

6. Special Environmental Considerations: RAF Mildenhall is located over a class "1" aquifer and is home of known endangered and protected flora and fauna species. All domestic animals and those birds/animals protected by law are not to be endangered by the treatment. The contractor must coordinate with 100 CES/CEIE on the location of endangered and protected species prior to application.

7. Other Considerations:

7.1. The Child Development Centers, all medical facilities, all Family Home Daycares within base housing, and all food preparation or consumption facilities are subject to strict pesticide regulations. IAW AFI 32-1053, para 3.7.9.4, pesticide applicators are required to notify the 100 CES Pest Management personnel before conducting treatment on these facilities. 100 CES Pest Management personnel will then notify the offices of Public Health and Bioenvironmental Engineering prior to any pesticide applications in the above stated facilities.

7.2. Base Exchange Manager will maintain current pesticide inventory, coordinate disposals IAW Section 10 below, and make SDSs available to employees, Fire Department and Bioenvironmental Engineering. Only pesticides not requiring mixing by the user should be sold.

7.3. Storage: The design of pesticide storage facilities shall comply with standards described in MIL-HDBK-1028/8A, "Military Handbook, and Design of Pest Management Facilities." No pesticides, herbicides or fumigants will be stored on the installation overnight by a contractor.

7.4. Fumigation: Public Health must be notified prior to any fumigation work. Fumigation must be coordinated with fire, medical, security forces and safety personnel.

8. Reporting: 100 CES pest management personnel will provide the Fire Department and Bioenvironmental Engineering Annual reports of all pesticide storage to include inventories and SDSs. The contractor will provide the following pesticide information on a daily basis to the QAE IAW AFI 32-1053, section 4.7.7.3. Reporting by contractors will be accomplished using DIO form DE USF31 (06/06) or DOD Form DD1532-1, Pest Management Maintenance Record. Contract managers and/or DIO personnel will submit all pesticide usage information to 100 CES Pest Management Coordinator/QAE. The Pest Management Personnel must report base pesticide usage to AFMC HQ USAFE/AFIMSC DET 4, 48 AMDS/SGPM, and 48 AMDS/SGPB by the 10th of every month (email reporting to organizational email boxes is the preferred method of reporting). The report will include all contracts, and any other pesticides in regards to inventory, applicator certification, and pesticide application, formatted as follows:

Date of Performed Application
Specific Location
Target Pest Name: (example: Rabbits)
Common/Commercial Name of the Pesticide being used: (example: Phostoxin)
Active Ingredient Name: (example: Aluminum Phosphide)
Concentration of Active Ingredient: (example: 25 g/L or 5%)
Percent of Active Ingredient per Mixture: (example: 3%)
Amount of Pesticide Used: (example: 3 g or 3 L)
Name, Certification Number, and Signature of Applicator

9. Disposal: Contractors are responsible for disposal of their pesticide waste in accordance with all applicable British laws outside the boundaries of RAF Mildenhall at approved disposal sites. Unit personnel will turn in any waste pesticides to Bldg 820 the Hazardous Waste Storage Area IAW local requirements.

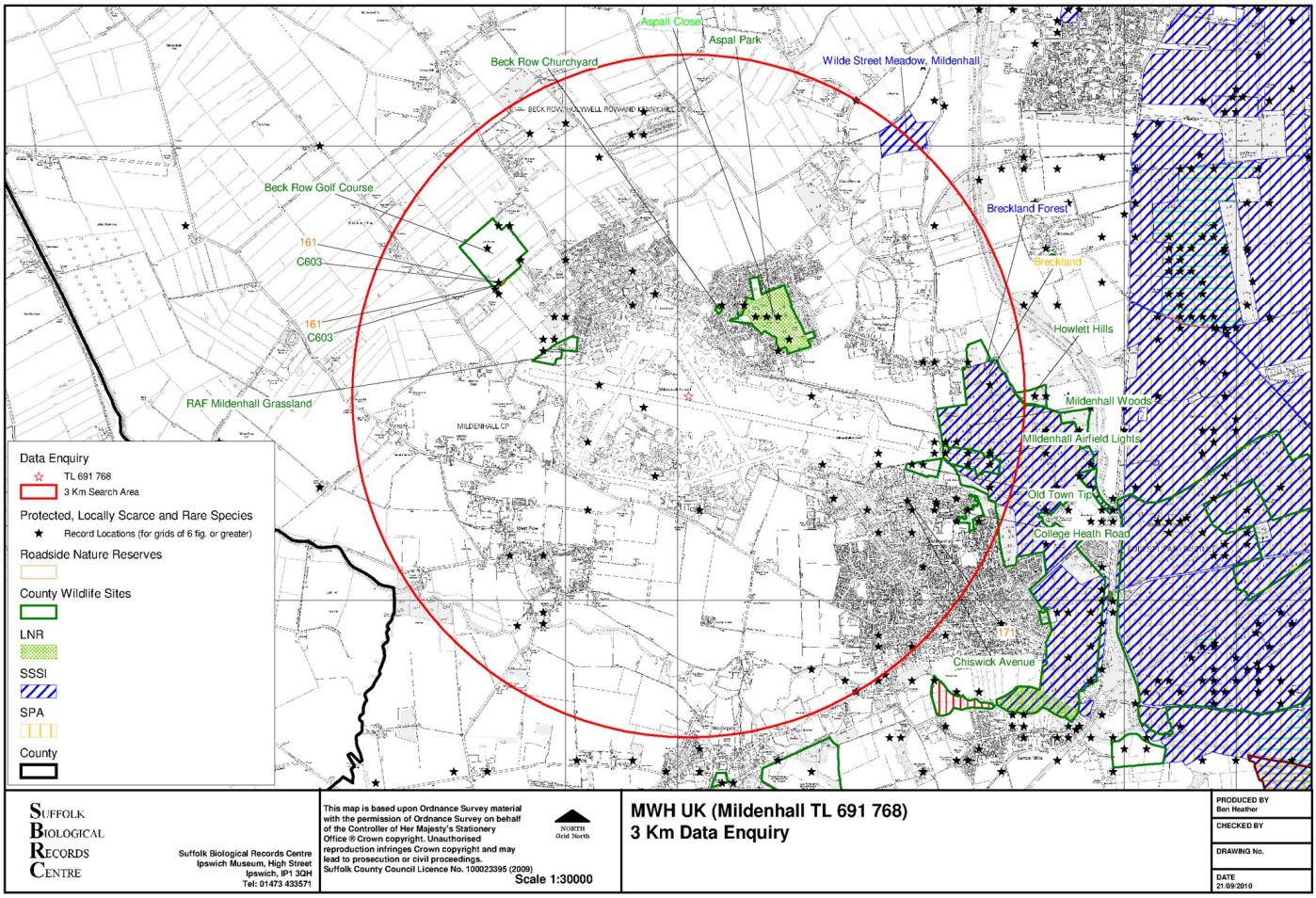
10. Medical Surveillance: All personnel applying pesticides or herbicides working for the contractor will comply with UK legislation to safeguard employee health and safety. All military and DoD employees will be under medical surveillance programs operated by US Government to include respirator fit testing and cholinesterase monitoring. Note: Pesticide applicators working regularly with organophosphate or carbamate pesticides should receive physical examinations at a frequency determined by the 48 MDG Occupational and

Environmental Health Working Group.

11. Phone Numbers:

On-Base Emergency:	911/ 999
Off-Base Emergency:	999
CE Service Call Desk:	238-5625/5626
DIO (Mr. Mark Miller):	238-5833
CE Environmental Element:	238-5831
CE Pest Management Coordinator/ QAE:	238-2900/2093
48 MDG Bioenvironmental Engineering Flight:	226-8047
48 MDG Public Health Flight:	226-8777

H HISTORICAL RECORD OF SPECIAL FLORA SPECIES WITHIN 3 KM OF THE CENTRE OF RAF MILDENHALL (N.B. NOT UPDATED FOR 2018 VERSION OF INRMP AS RECORDS ADEQUATELY RECENT)



(https://usaf.dps.mil/teams/10626/Mildenhall/Shared%20Documents/Natural%20and%20Cultural%20Resources/Historical%20Record%2

Suffolk Biological Records Data: Species Records – Plants

Common_Name	*Latin_Name*	Location	Site_Detail	Grid_Ref	Longitude	Latitude	Sample Year	Status
Annual Knawel	*Scleranthus annuus*	Beck Row		TL67Y	0.467217	52.3559	2005	
Annual Knawel	*Scleranthus annuus*	Aspal Close, Beck Row	Aspal Close	TL700773	0.497217	52.367	1997	
Barberry	*Berberis vulgaris*	Old Town Tip		TL712762	0.514265	52.3567	1994	
Barberry	*Berberis vulgaris*	Old Town Tip		TL713763	0.515783	52.3576	1992	
Basil Thyme	*Clinopodium acinos*	R.A.F. Mildenhall		TL683769	0.472069	52.3639	1998	
Basil Thyme	*Clinopodium acinos*	Mildenhall	RAF	TL688761	0.479004	52.3565	1997	
Black Poplar	*Populus nigra subsp.*							

	betulifolia	Mildenhall	entrance to USAF airbase	TL686776	0.476823	52.3701	1995	
Black Poplar	*Populus nigra subsp. betulifolia*	Mildenhall	Beck Row, USAF airbase	TL686779	0.476974	52.3728	1995	
Black Poplar	*Populus nigra subsp. betulifolia*	Mildenhall	Wilde Street	TL706794	0.50709	52.3856	1991	
Black Poplar	*Populus nigra subsp. betulifolia*	Mildenhall	Holywell Row /TL711771	TL712771	0.514724	52.3648	1991	
Breckland Thyme	*Thymus serpyllum*	Mildenhall	Quaker's Walk	TL7074	0.495546	52.3373	2005	
Brookweed	*Samolus valerandi*	Beck Row Golf Course	CWS, 7th fairway	TL673781	0.457994	52.375	1996	
Cat-Mint	*Nepeta cataria*	Mildenhall		TL67X	0.466216	52.3379	2000	
Common Rock-Rose	*Helianthemum nummularium*	Beck Row		TL67Y	0.467217	52.3559	2005	
Common Rock-Rose	*Helianthemum nummularium*	Aspal Close, Beck Row		TL6977	0.482391	52.3646	2002	
Common Rock-Rose	*Helianthemum nummularium*	Aspal Close, Beck Row	Aspal Close	TL700773	0.497217	52.367	1997	
Common Rock-Rose	*Helianthemum nummularium*	Mildenhall Airfield Lights		TL716762	0.520133	52.3566	1994	
Common Rock-Rose	*Helianthemum nummularium*	Mildenhall Airfield Lights		TL716763	0.520184	52.3575	1996	
Corn Spurrey	*Spergula arvensis*	Mildenhall		TL77C	0.495546	52.3373	2000	
Corn Spurrey	*Spergula arvensis*	Eriswell		TL77E	0.497572	52.3732	2000	
Corn Spurrey	*Spergula arvensis*	Eriswell	Eriswell	TL77I	0.525899	52.3547	2000	
Dittander	*Lepidium latifolium*	Kenny Hill		TL67U	0.438864	52.3745	2001	
Drooping Brome	*Anisantha tectorum*	Barton Mills		TL706742	0.504446	52.3389	2007	
Dropwort	*Filipendula vulgaris*	Mildenhall		TL6678	0.438864	52.3745	1995	
Dropwort	*Filipendula vulgaris*	Beck Row		TL67Y	0.467217	52.3559	2005	

	vulgaris	Aspal Close, Beck Row		TL6977	0.482391	52.3646	2002	
Dropwort	*Filipendula vulgaris*	Aspal Close, Beck Row	Aspal Close	TL700773	0.497217	52.367	1997	
Dwarf Spurge	*Euphorbia exigua*	Mildenhall		TL67X	0.466216	52.3379	2000	
Early Marsh-Orchid	*Dactylorhiza incarnata*	Mildenhall		TL77C	0.495546	52.3373	2000	
English Stonecrop	*Sedum anglicum*	West Row Churchyard		TL675754	0.459582	52.3507	1992	
English Stonecrop	*Sedum anglicum*	Beck Row Churchyard		TL694776	0.488564	52.3698	1994	
English Stonecrop	*Sedum anglicum*	Aspal Close, Beck Row		TL700773	0.497217	52.367	1999	
English Stonecrop	*Sedum anglicum*	Mildenhall U6042		TL715759	0.518513	52.3539	1994	
Field Gromwell	*Lithospermum arvense*	Beck Row C603		TL67377774	0.458842	52.3717	1995	
Field Gromwell	*Lithospermum arvense*	Beck Row Golf Course		TL674777	0.459262	52.3713	1998	
Field Gromwell	*Lithospermum arvense*	Kenny Hill		TL67U	0.438864	52.3745	2001	
Fine-Leaved Fumitory	*Fumaria parviflora*	Mildenhall		TL67X	0.466216	52.3379	2000	
Fine-Leaved Fumitory	*Fumaria parviflora*	R.A.F. Mildenhall		TL708763	0.508447	52.3577	1998	
Fine-Leaved Sandwort	*Minuartia hybrida*	Mildenhall	Wamil Way	TL708747	0.507633	52.3434	1997	
Fine-Leaved Sandwort	*Minuartia hybrida*	Mildenhall		TL71327587	0.515857	52.3537	2003	
Fine-Leaved Sandwort	*Minuartia hybrida*	Mildenhall	Crossbills Field Rd.	TL713758	0.515528	52.3531	1996	
Fine-Leaved Water-Dropwort	*Oenanthe aquatica*	Beck Row		TL67Z	0.468218	52.3739	2000	
Golden Dock	*Rumex maritimus*	Mildenhall	RAF	TL688761	0.479004	52.3565	1997	
Good King Henry	*Chenopodium bonus-henricus*	Mildenhall		TL67X	0.466216	52.3379	2000	
Grape-Hyacinth	*Muscari neglectum*	Aspal Close, Beck Row		TL700773	0.497217	52.367	1999	

Green-Winged Orchid	*Orchis morio*	Eriswell		TL77E	0.497572	52.3732	2000	
Henbane	*Hyoscyamus niger*	Mildenhall	Field Road	TL71327587	0.515857	52.3537	2005	
Hoary Cinquefoil	*Potentilla argentea*	Beck Row Golf Course		TL673781	0.457994	52.375	1997	
Hoary Cinquefoil	*Potentilla argentea*	Mildenhall	RAF	TL688761	0.479004	52.3565	1997	
Hoary Cinquefoil	*Potentilla argentea*	Aspal Close, Beck Row		TL696776	0.491499	52.3698	1997	
Hoary Cinquefoil	*Potentilla argentea*	Aspal Close, Beck Row	Aspal Close	TL700773	0.497217	52.367	1997	
Hoary Cinquefoil	*Potentilla argentea*	Mildenhall	Field Road	TL71327587	0.515857	52.3537	2005	
Hound's-Tongue	*Cynoglossum officinale*	Mildenhall		TL67X	0.466216	52.3379	2000	
Hound's-Tongue	*Cynoglossum officinale*	Beck Row		TL67Y	0.467217	52.3559	2005	
Hound's-Tongue	*Cynoglossum officinale*	Aspal Close, Beck Row	Aspal Close	TL700773	0.497217	52.367	1990	
Hound's-Tongue	*Cynoglossum officinale*	Mildenhall	Holywell Row	TL7077	0.497065	52.3643	1995	
Hound's-Tongue	*Cynoglossum officinale*	Old Town Tip		TL712762	0.514265	52.3567	1994	
Hound's-Tongue	*Cynoglossum officinale*	Mildenhall		TL77C	0.495546	52.3373	2000	
Hound's-Tongue	*Cynoglossum officinale*	Eriswell		TL77E	0.497572	52.3732	2000	
Lesser Meadow- Rue	*Thalictrum minus*	Mildenhall	RAF	TL688761	0.479004	52.3565	1997	
Loose Silky-Bent	*Apera spica-venti*	Beck Row Golf Course		TL675783	0.46103	52.3767	1990	
Loose Silky-Bent	*Apera spica-venti*	Beck Row		TL67Z	0.468218	52.3739	2000	
Loose Silky-Bent	*Apera spica-venti*	Beck Row		TL683789	0.473073	52.3819	1999	
Loose Silky-Bent	*Apera spica-venti*	Barton Mills		TL705743	0.50303	52.3399	2004	

Loose Silky-Bent	*Apera spica-venti*	Mildenhall	Crossbills Field Rd.	TL713758	0.515528	52.3531	1996	
Maiden Pink	*Dianthus deltoides*	Mildenhall	Tollgate cottage	TL7074	0.495546	52.3373	2005	
Maiden Pink	*Dianthus deltoides*	Mildenhall Airfield Lights		TL716762	0.520133	52.3566	2008	
Maiden Pink	*Dianthus deltoides*	Mildenhall Airfield Lights		TL716763	0.520184	52.3575	1997	
Milk Parsley	*Peucedanum palustre*	Mildenhall		TL708762	0.508396	52.3568	2000	
Night-Flowering Catchfly	*Silene noctiflora*	Mildenhall		TL67X	0.466216	52.3379	2000	
Night-Flowering Catchfly	*Silene noctiflora*	Mildenhall	Field Rd.	TL712753	0.513806	52.3486	1994	
Prickly Poppy	*Papaver argemone*	Mildenhall		TL67X	0.466216	52.3379	2000	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	Mildenhall	Airfield	TL679773	0.4664	52.3676	1996	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	Beck Row		TL67Z	0.468218	52.3739	2000	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	Beck Row		TL683789	0.473073	52.3819	1999	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	Mildenhall	RAF	TL688761	0.479004	52.3565	1997	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	Mildenhall	Gregory Rd	TL704759	0.502376	52.3543	1997	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	Mildenhall	Wamil Way	TL708746	0.507583	52.3425	1997	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	Mildenhall	Finchley Ave	TL708756	0.508091	52.3514	1997	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	Chiswick Avenue (Mildenhall)		TL71067588	0.512048	52.3539	1999	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	Old Town Tip		TL712762	0.514265	52.3567	1995	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	Mildenhall	Crossbills Field Rd.	TL713758	0.515528	52.3531	1996	

Purple Fescue	*Vulpia ciliata subsp. ambigua*	College Heath Road		TL715757	0.518411	52.3521	1994	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	Mildenhall Airfield Lights		TL716762	0.520133	52.3566	1994	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	College Heath Road		TL717757	0.521344	52.3521	1995	
Purple Fescue	*Vulpia ciliata subsp. ambigua*	Mildenhall Airfield Lights		TL718763	0.523118	52.3574	1997	
Rough Poppy	*Papaver hybridum*	Kenny Hill		TL67U	0.438864	52.3745	2001	
Rough Poppy	*Papaver hybridum*	Mildenhall		TL67X	0.466216	52.3379	2000	
Rough Poppy	*Papaver hybridum*	West Row		TL682758	0.470051	52.354	2005	
Rough Poppy	*Papaver hybridum*	Mildenhall		TL77C	0.495546	52.3373	2000	
Sand Catchfly	*Silene conica*	Beck Row C603		TL67377774	0.458842	52.3717	1995	
Sand Catchfly	*Silene conica*	Beck Row Golf Course	CWS, 7th fairway	TL673781	0.457994	52.375	1996	
Sand Catchfly	*Silene conica*	Beck Row C603		TL674778	0.459312	52.3722	1995	
Sand Catchfly	*Silene conica*	Beck Row Golf Course		TL675783	0.46103	52.3767	1994	
Sand Catchfly	*Silene conica*	Beck Row Golf Course		TL676780	0.462348	52.374	1998	
Sand Catchfly	*Silene conica*	R.A.F. Mildenhall		TL678772	0.464883	52.3667	1998	
Sand Catchfly	*Silene conica*	R.A.F. Mildenhall Grassland		TL678773	0.464933	52.3676	1998	
Sand Catchfly	*Silene conica*	R.A.F. Mildenhall		TL6976	0.481888	52.3556	2005	
Sand Catchfly	*Silene conica*	Mildenhall	Gregory Road	TL703762	0.501061	52.357	1998	
Sand Catchfly	*Silene conica*	Mildenhall	Leyton Avenue	TL7074	0.495546	52.3373	2005	
Sand Catchfly	*Silene conica*	Mildenhall	Leyton					

			Avenue	TL707758	0.506726	52.3533	1998	
Sand Catchfly	*Silene conica*	Chiswick Avenue (Mildenhall)		TL71067588	0.512048	52.3539	1999	
Sand Catchfly	*Silene conica*	Chiswick Avenue (Mildenhall)		TL711758	0.512594	52.3531	1998	
Sand Catchfly	*Silene conica*	Old Town Tip		TL711762	0.512798	52.3567	1993	
Sand Catchfly	*Silene conica*	Old Town Tip		TL712762	0.514265	52.3567	1994	
Sand Catchfly	*Silene conica*	Mildenhall	Crossbills Field Rd.	TL713758	0.515528	52.3531	1996	
Sand Catchfly	*Silene conica*	College Heath Road		TL715757	0.518411	52.3521	1994	
Sand Catchfly	*Silene conica*	Mildenhall U6042		TL715759	0.518513	52.3539	1994	
Sand Catchfly	*Silene conica*	Mildenhall	St Catherine's Close	TL716758	0.519929	52.353	1998	
Sand Catchfly	*Silene conica*	Mildenhall	St Catherines Close	TL7175	0.510719	52.346	1991	
Sand Catchfly	*Silene conica*	College Heath Road		TL717757	0.521344	52.3521	1995	
Sand Catchfly	*Silene conica*	College Heath Road		TL718760	0.522965	52.3547	1998	
Sand Catchfly	*Silene conica*	Mildenhall Airfield Lights		TL718762	0.523067	52.3565	1991	
Shepherd's Cress	*Teesdalia nudicaulis*	Aspal Close, Beck Row		TL700773	0.497217	52.367	1999	
Shepherd's Cress	*Teesdalia nudicaulis*	Mildenhall U6042		TL715759	0.518513	52.3539	1994	
Shepherd's Cress	*Teesdalia nudicaulis*	Eriswell	Eriswell	TL77I	0.525899	52.3547	2000	
Sickle Medick	*Medicago sativa subsp. falcata*	Mildenhall	Airfield	TL679773	0.4664	52.3676	1996	
Sickle Medick	*Medicago sativa subsp. falcata*	Mildenhall		TL67X	0.466216	52.3379	2000	

Sickle Medick	*Medicago sativa subsp. falcata*	Beck Row		TL67Z	0.468218	52.3739	2000	
Sickle Medick	*Medicago sativa subsp. falcata*	Beck Row		TL680780	0.468218	52.3739	1992	
Sickle Medick	*Medicago sativa subsp. falcata*	Mildenhall		TL688777	0.479809	52.3709	1996	
Sickle Medick	*Medicago sativa subsp. falcata*	Aspal Close, Beck Row	Aspal Close	TL700773	0.497217	52.367	1997	
Sickle Medick	*Medicago sativa subsp. falcata*	Mildenhall		TL711756	0.512492	52.3513	1992	
Sickle Medick	*Medicago sativa subsp. falcata*	Mildenhall		TL712762	0.514265	52.3567	1992	
Sickle Medick	*Medicago sativa subsp. falcata*	Beck Row	Holly well Row	TL713771	0.516191	52.3648	1992	
Sickle Medick	*Medicago sativa subsp. falcata*	Eriswell		TL713783	0.516804	52.3755	1992	
Sickle Medick	*Medicago sativa subsp. falcata*	Mildenhall		TL714763	0.51725	52.3575	1992	
Sickle Medick	*Medicago sativa subsp. falcata*	College Heath Road		TL715757	0.518411	52.3521	1994	
Sickle Medick	*Medicago sativa subsp. falcata*	Mildenhall Airfield Lights		TL716762	0.520133	52.3566	1994	
Slender Tufted- Sedge	*Carex acuta*	West Suffolk	West Suffolk	TL702744	0.498681	52.3408	1990	
Small Scabious	*Scabiosa columbaria*	Beck Row Golf Course	CWS, 7th fairway	TL673781	0.457994	52.375	1996	
Small Scabious	*Scabiosa columbaria*	Beck Row		TL67Z	0.468218	52.3739	2000	
Small Scabious	*Scabiosa columbaria*	Beck Row Churchyard		TL694776	0.488564	52.3698	1994	
Small Scabious	*Scabiosa columbaria*	Aspal Close, Beck Row		TL6977	0.482391	52.3646	2002	
Small Scabious	*Scabiosa columbaria*	Aspal Close, Beck Row		TL700773	0.497217	52.367	1996	
Small Scabious	*Scabiosa columbaria*	Mildenhall Woods		TL714764	0.517301	52.3584	1997	
Small Scabious	*Scabiosa columbaria*	Eriswell		TL77E	0.497572	52.3732	2000	
Smooth Cat's-								

Ear	*Hypochaeris glabra*	Beck Row Golf Course		TL674783	0.459562	52.3767	1998	
Smooth Cat's-Ear	*Hypochaeris glabra*	R.A.F. Mildenhall		TL678772	0.464883	52.3667	1998	
Smooth Cat's-Ear	*Hypochaeris glabra*	R.A.F. Mildenhall Grassland		TL678773	0.464933	52.3676	1998	
Smooth Cat's-Ear	*Hypochaeris glabra*	Beck Row		TL687793	0.479147	52.3853	2001	
Smooth Rupture- Wort	*Herniaria glabra*	Beck Row Golf Course		TL675783	0.46103	52.3767	1990	
Smooth Rupture- Wort	*Herniaria glabra*	Beck Row Golf Course		TL676780	0.462348	52.374	1998	
Spanish Catchfly	*Silene otites*	R.A.F. Mildenhall		TL678772	0.464883	52.3667	1998	
Spanish Catchfly	*Silene otites*	R.A.F. Mildenhall Grassland		TL678773	0.464933	52.3676	1998	
Spanish Catchfly	*Silene otites*	Beck Row	Anglian Waterworks	TL679775	0.4665	52.3694	1998	
Spanish Catchfly	*Silene otites*	Mildenhall	Anglian Water	TL680775	0.467968	52.3694	1998	
Spanish Catchfly	*Silene otites*	Beck Row		TL68597910	0.477431	52.3836	2000	
Spanish Catchfly	*Silene otites*	Mildenhall	RAF	TL688761	0.479004	52.3565	1997	
Spanish Catchfly	*Silene otites*	Aspal Close, Beck Row		TL696776	0.491499	52.3698	1998	
Spanish Catchfly	*Silene otites*	R.A.F. Mildenhall	Area 303	TL6976	0.481888	52.3556	2005	
Spanish Catchfly	*Silene otites*	Beck Row	Anglian Waterworks	TL6977	0.482391	52.3646	2005	
Spanish Catchfly	*Silene otites*	Aspal Close, Beck Row	Aspal Close	TL700773	0.497217	52.367	1997	
Spanish Catchfly	*Silene otites*	Mildenhall	RAF	TL713764	0.515834	52.3585	1997	
Tower Mustard	*Arabis glabra*	Mildenhall Airfield Lights		TL718763	0.523118	52.3574	2008	
Wall Bedstraw	*Galium*							

	parisiense	Mildenhall		TL7074	0.495546	52.3373	2002	
Wall Bedstraw	*Galium parisiense*	Mildenhall	Wamil Way	TL708746	0.507583	52.3425	1997	
Wall Bedstraw	*Galium parisiense*	Mildenhall		TL7174	0.51021	52.337	1991	
Wild Pansy	*Viola tricolor*	Beck Row		TL67Y	0.467217	52.3559	2005	
Wild Pansy	*Viola tricolor*	Aspal Close, Beck Row	Aspal Close	TL700773	0.497217	52.367	1990	
Wild Service-Tree	*Sorbus torminalis*	Aspal Close, Beck Row	Aspal Close	TL700773	0.497217	52.367	1990	

I HISTORICAL RECORD OF SPECIAL FAUNA SPECIES WITHIN 3KM OF THE CENTRE OF RAF MILDENHALL

Suffolk Biological Records Data: Species Records - Invertebrates

Common_Name	Latin_Name	Location	Site_Detail	Grid_Ref	Longitude	Latitude	Sample Year	Status
Bees								
Red-tailed Carder Bee	*Bombus (Thoracombus) ruderarius*	Beck Row	Beck Row	TL687791	0.479046	52.3835	2001	
Butterflies								
Grayling	*Hipparchia semele*	Aspal Close, Beck Row		TL6876	0.467217	52.3559	1999	
Grayling	*Hipparchia semele*	Mildenhall		TL715764	0.518768	52.3584	1995	
Small Heath	*Coenonympha pamphilus*	Aspal Close, Beck Row	Aspal Close	TL700773	0.497217	52.367	1997	
White Admiral	*Ladoga camilla*	Mildenhall Woods		TL7276	0.525899	52.3547	1997	
Moths								
Centre-barred Sallow	*Atethmia centrago*	Aspal Close, Beck Row		TL697775	0.492916	52.3688	2004	
Centre-barred Sallow	*Atethmia centrago*	Aspal Close, Beck Row		TL698775	0.494383	52.3688	1998	

Cinnabar	*Tyria jacobaeae*	Aspal Close, Beck Row		TL698775	0.494383	52.3688	1998	
Cinnabar	*Tyria jacobaeae*	Aspal Close, Beck Row		TL699775	0.495851	52.3688	2000	
Dark-barred Twin- spot Carpet	*Xanthorhoe ferrugata*	R.A.F. Mildenhall	RAF Mildenhall	TL678772	0.464883	52.3667	1999	
Dark-barred Twin- spot Carpet	*Xanthorhoe ferrugata*	Aspal Close, Beck Row		TL698775	0.494383	52.3688	2001	
Dot Moth	*Melanchra persicariae*	R.A.F. Mildenhall	RAF Mildenhall	TL678772	0.464883	52.3667	1999	
Dot Moth	*Melanchra persicariae*	Aspal Close, Beck Row		TL698775	0.494383	52.3688	1998	
Feathered Gothic	*Tholera decimalis*	R.A.F. Mildenhall	RAF Mildenhall	TL692758	0.484721	52.3537	1999	
Feathered Gothic	*Tholera decimalis*	Aspal Close, Beck Row		TL697775	0.492916	52.3688	2004	
Feathered Gothic	*Tholera decimalis*	Aspal Close, Beck Row		TL698775	0.494383	52.3688	1998	
Forester	*Adscita statices*	Mildenhall Woods		TL714763	0.51725	52.3575	2000	
Goat Moth	*Cossus cossus*	R.A.F. Mildenhall	RAF Mildenhall	TL6777	0.453043	52.3652	2001	
Grey Carpet	*Lithostege griseata*	Aspal Close, Beck Row		TL699775	0.495851	52.3688	2000	
Grey Dagger	*Acronicta psi*	Aspal Close, Beck Row		TL698775	0.494383	52.3688	1998	
Grey Dagger	*Acronicta psi*	Aspal Close, Beck Row		TL699775	0.495851	52.3688	2000	
Hedge Rustic	*Tholera cespitis*	Aspal Close, Beck Row		TL698775	0.494383	52.3688	1998	
Latticed Heath	*Chiasmia clathrata*	R.A.F. Mildenhall	RAF Mildenhall	TL678772	0.464883	52.3667	1999	
Latticed Heath	*Chiasmia clathrata*	Aspal Close, Beck Row		TL697775	0.492916	52.3688	2004	
Latticed Heath	*Chiasmia clathrata*	Aspal Close, Beck Row		TL698775	0.494383	52.3688	2001	
Latticed Heath	*Chiasmia clathrata*	Aspal Close, Beck Row		TL699775	0.495851	52.3688	2000	

Lunar Yellow Underwing	*Noctua orbona*	Aspal Close, Beck Row	Aspal Close, Beck Row	TL698775	0.494383	52.3688	1998	
Mouse Moth	*Amphipyra tragopoginis*	R.A.F. Mildenhall	RAF Mildenhall	TL678772	0.464883	52.3667	1999	
Mouse Moth	*Amphipyra tragopoginis*	Aspal Close, Beck Row		TL697775	0.492916	52.3688	2004	
Mouse Moth	*Amphipyra tragopoginis*	Aspal Close, Beck Row		TL698775	0.494383	52.3688	1998	
Oak Hook-tip	*Watsonalla binaria*	Aspal Close, Beck Row		TL697775	0.492916	52.3688	2004	
Oak Hook-tip	*Watsonalla binaria*	Aspal Close, Beck Row		TL698775	0.494383	52.3688	1998	
Pretty Chalk Carpet	*Melanthia procellata*	R.A.F. Mildenhall	RAF Mildenhall	TL678772	0.464883	52.3667	1999	
Rosy Minor	*Mesoligia literosa*	R.A.F. Mildenhall	RAF Mildenhall	TL678772	0.464883	52.3667	1999	
Rustic	*Hoplodrina blanda*	Aspal Close, Beck Row		TL698775	0.494383	52.3688	1998	
Shoulder-striped Wainscot	*Mythimna comma*	Aspal Close, Beck Row		TL698775	0.494383	52.3688	1998	
Shoulder-striped Wainscot	*Mythimna comma*	Aspal Close, Beck Row		TL699775	0.495851	52.3688	2000	
White Ermine	*Spilosoma lubricipeda*	Aspal Close, Beck Row		TL699775	0.495851	52.3688	2000	
Wasps								
5-Banded Tailed Digger Wasp	*Cerceris quinquefasciata*	Beck Row	Beck Row	TL6777	0.453043	52.3652	1999	
5-Banded Tailed Digger Wasp	*Cerceris quinquefasciata*	Aspal Close, Beck Row	Aspal Close	TL6977	0.482391	52.3646	2003	

Suffolk Biological Records Data: Species Records –Birds

Common_Name	Latin_Name	Location	Site_Detail	Grid_Ref	Longitude	Latitude	Sample Year	Status
Barn Owl	*Tyto alba*	Mildenhall	West Row	TL6675	0.43738	52.3475	1994	
Barn Owl	*Tyto alba*	Mildenhall	A11	TL7074	0.495546	52.3373	1994	

Bewick's Swan	*Cygnus columbianus*	Mildenhall	Sedge Fen (approx TL6182)	TL7074	0.495546	52.3373	1991	
Bullfinch	*Pyrrhula pyrrhula*	Suffolk		TL67S	0.436886	52.3385	1991	
Bullfinch	*Pyrrhula pyrrhula*	Suffolk		TL77E	0.497572	52.3732	1992	
Corn Bunting	*Emberiza calandra*	Mildenhall	West Row Fen	TL6674	0.436886	52.3385	1993	
Corn Bunting	*Emberiza calandra*	Mildenhall	Sedge Fen	TL7074	0.495546	52.3373	1995	
Cuckoo	*Cuculus canorus*	Suffolk		TL67S	0.436886	52.3385	1991	
Cuckoo	*Cuculus canorus*	Suffolk		TL67T	0.437874	52.3565	1991	
Cuckoo	*Cuculus canorus*	Suffolk		TL67U	0.438864	52.3745	1991	
Cuckoo	*Cuculus canorus*	Suffolk		TL67W	0.465217	52.32	1990	
Cuckoo	*Cuculus canorus*	Suffolk		TL67X	0.466216	52.3379	1990	
Cuckoo	*Cuculus canorus*	Suffolk		TL67Y	0.467217	52.3559	1990	
Cuckoo	*Cuculus canorus*	Suffolk		TL67Z	0.468218	52.3739	1990	
Cuckoo	*Cuculus canorus*	Worlington	Judes Ferry	TL6973	0.480378	52.3286	1992	
Cuckoo	*Cuculus canorus*	Mildenhall		TL7074	0.495546	52.3373	1994	
Cuckoo	*Cuculus canorus*	Suffolk		TL77D	0.496558	52.3553	1992	
Cuckoo	*Cuculus canorus*	Suffolk		TL77E	0.497572	52.3732	1992	
Curlew	*Numenius arquata*	Mildenhall	Butts Plantation	TL7074	0.495546	52.3373	1991	
Curlew	*Numenius arquata*	Suffolk		TL77I	0.525899	52.3547	1991	
Dunnock	*Prunella modularis*	Suffolk		TL67S	0.436886	52.3385	1991	
Dunnock	*Prunella modularis*	Suffolk		TL67T	0.437874	52.3565	1991	
Dunnock	*Prunella modularis*	Suffolk		TL67U	0.438864	52.3745	1991	
Dunnock	*Prunella modularis*	Suffolk		TL67W	0.465217	52.32	1990	
Dunnock	*Prunella modularis*	Suffolk		TL67Y	0.467217	52.3559	1990	
Dunnock	*Prunella modularis*	Suffolk		TL67Z	0.468218	52.3739	1990	

Dunnock	*Prunella modularis*	Suffolk		TL77D	0.496558	52.3553	1992	
Dunnock	*Prunella modularis*	Suffolk		TL77E	0.497572	52.3732	1992	
Grasshopper Warbler	*Locustella naevia*	Suffolk		TL77D	0.496558	52.3553	1992	
Grasshopper Warbler	*Locustella naevia*	Suffolk		TL77E	0.497572	52.3732	1992	
Grey Partridge	*Perdix perdix*	Suffolk		TL67T	0.437874	52.3565	1991	
Grey Partridge	*Perdix perdix*	Suffolk		TL77E	0.497572	52.3732	1992	
House Sparrow	*Passer domesticus*	Suffolk		TL67S	0.436886	52.3385	1991	
House Sparrow	*Passer domesticus*	Suffolk		TL67T	0.437874	52.3565	1991	
House Sparrow	*Passer domesticus*	Suffolk		TL67U	0.438864	52.3745	1991	
House Sparrow	*Passer domesticus*	Suffolk		TL67W	0.465217	52.32	1990	
House Sparrow	*Passer domesticus*	Suffolk		TL67X	0.466216	52.3379	1990	
House Sparrow	*Passer domesticus*	Suffolk		TL67Y	0.467217	52.3559	1990	
House Sparrow	*Passer domesticus*	Suffolk		TL67Z	0.468218	52.3739	1990	
House Sparrow	*Passer domesticus*	Suffolk		TL77D	0.496558	52.3553	1992	
House Sparrow	*Passer domesticus*	Suffolk		TL77E	0.497572	52.3732	1992	
Lapwing	*Vanellus vanellus*	Suffolk		TL67S	0.436886	52.3385	1991	
Lapwing	*Vanellus vanellus*	Suffolk		TL67T	0.437874	52.3565	1991	
Lapwing	*Vanellus vanellus*	Suffolk		TL67U	0.438864	52.3745	1991	
Lapwing	*Vanellus vanellus*	Suffolk		TL67X	0.466216	52.3379	1990	
Lapwing	*Vanellus vanellus*	Suffolk		TL67Z	0.468218	52.3739	1990	
Lapwing	*Vanellus vanellus*	Suffolk		TL77D	0.496558	52.3553	1992	
Lapwing	*Vanellus vanellus*	Suffolk		TL77E	0.497572	52.3732	1992	

Lesser Spotted Woodpecker	*Dendrocopos minor*	Suffolk		TL77E	0.497572	52.3732	1992	
Linnet	*Carduelis cannabina*	Mildenhall	West Row Fen	TL6674	0.436886	52.3385	1993	
Linnet	*Carduelis cannabina*	Suffolk		TL67T	0.437874	52.3565	1991	
Linnet	*Carduelis cannabina*	Suffolk		TL67U	0.438864	52.3745	1991	
Linnet	*Carduelis cannabina*	Suffolk		TL67Y	0.467217	52.3559	1990	
Linnet	*Carduelis cannabina*	Suffolk		TL67Z	0.468218	52.3739	1990	
Linnet	*Carduelis cannabina*	Suffolk		TL77D	0.496558	52.3553	1992	
Linnet	*Carduelis cannabina*	Suffolk		TL77E	0.497572	52.3732	1992	
Nightjar	*Caprimulgus europaeus*	Mildenhall	Mildenhall	TL7074	0.495546	52.3373	2004	
Reed Bunting	*Emberiza schoeniclus*	Mildenhall	West Row Fen	TL6674	0.436886	52.3385	1993	
Reed Bunting	*Emberiza schoeniclus*	Suffolk		TL67S	0.436886	52.3385	1991	
Reed Bunting	*Emberiza schoeniclus*	Suffolk		TL67X	0.466216	52.3379	1990	
Reed Bunting	*Emberiza schoeniclus*	Suffolk		TL77E	0.497572	52.3732	1992	
Skylark	*Alauda arvensis*	Suffolk		TL67S	0.436886	52.3385	1991	
Skylark	*Alauda arvensis*	Suffolk		TL67T	0.437874	52.3565	1991	
Skylark	*Alauda arvensis*	Suffolk		TL67U	0.438864	52.3745	1991	
Skylark	*Alauda arvensis*	Suffolk		TL67W	0.465217	52.32	1990	
Skylark	*Alauda arvensis*	Suffolk		TL67X	0.466216	52.3379	1990	
Skylark	*Alauda arvensis*	Suffolk		TL67Y	0.467217	52.3559	1990	
Skylark	*Alauda arvensis*	Suffolk		TL67Z	0.468218	52.3739	1990	
Skylark	*Alauda arvensis*	Suffolk		TL77D	0.496558	52.3553	1992	
Skylark	*Alauda arvensis*	Suffolk		TL77E	0.497572	52.3732	1992	

Song Thrush	*Turdus philomelos*	Suffolk		TL67T	0.437874	52.3565	1991	
Song Thrush	*Turdus philomelos*	Suffolk		TL67W	0.465217	52.32	1990	
Song Thrush	*Turdus philomelos*	Suffolk		TL67Y	0.467217	52.3559	1990	
Song Thrush	*Turdus philomelos*	Suffolk		TL67Z	0.468218	52.3739	1990	
Song Thrush	*Turdus philomelos*	Suffolk		TL77D	0.496558	52.3553	1992	
Song Thrush	*Turdus philomelos*	Suffolk		TL77E	0.497572	52.3732	1992	
Spotted Flycatcher	*Muscicapa striata*	Suffolk		TL67S	0.436886	52.3385	1991	
Spotted Flycatcher	*Muscicapa striata*	Suffolk		TL67Y	0.467217	52.3559	1990	
Spotted Flycatcher	*Muscicapa striata*	Worlington		TL6973	0.480378	52.3286	1991	
Spotted Flycatcher	*Muscicapa striata*	Suffolk		TL77E	0.497572	52.3732	1992	
Starling	*Sturnus vulgaris*	Suffolk		TL67S	0.436886	52.3385	1991	
Starling	*Sturnus vulgaris*	Suffolk		TL67T	0.437874	52.3565	1991	
Starling	*Sturnus vulgaris*	Suffolk		TL67U	0.438864	52.3745	1991	
Starling	*Sturnus vulgaris*	Suffolk		TL67W	0.465217	52.32	1990	
Starling	*Sturnus vulgaris*	Suffolk		TL67X	0.466216	52.3379	1990	
Starling	*Sturnus vulgaris*	Suffolk		TL67Y	0.467217	52.3559	1990	
Starling	*Sturnus vulgaris*	Suffolk		TL67Z	0.468218	52.3739	1990	
Starling	*Sturnus vulgaris*	Suffolk		TL77D	0.496558	52.3553	1992	
Starling	*Sturnus vulgaris*	Suffolk		TL77E	0.497572	52.3732	1992	
Stone-Curlew	*Burhinus oedicnemus*	Mildenhall	Butts Plantation	TL7074	0.495546	52.3373	1991	
Stone-Curlew	*Burhinus oedicnemus*	Lackford	Lackford Bridge	TL7178	0.512248	52.3729	2003	
Stone-Curlew	*Burhinus oedicnemus*	Suffolk		TL77I	0.525899	52.3547	1991	
Tree Pipit	*Anthus trivialis*	Mildenhall	Mildenhall Woods	TL7074	0.495546	52.3373	1991	

Tree Pipit	*Anthus trivialis*	Suffolk		TL77E	0.497572	52.3732	1992	
Tree Sparrow	*Passer montanus*	Mildenhall	West Row Fen	TL6674	0.436886	52.3385	1993	
Tree Sparrow	*Passer montanus*	Mildenhall	Sedge Fen	TL7074	0.495546	52.3373	1995	
Tree Sparrow	*Passer montanus*	Suffolk		TL77C	0.495546	52.3373	1990	
Turtle Dove	*Streptopelia turtur*	Suffolk		TL67S	0.436886	52.3385	1991	
Turtle Dove	*Streptopelia turtur*	Suffolk		TL67T	0.437874	52.3565	1991	
Turtle Dove	*Streptopelia turtur*	Suffolk		TL67U	0.438864	52.3745	1991	
Turtle Dove	*Streptopelia turtur*	Suffolk		TL67W	0.465217	52.32	1990	
Turtle Dove	*Streptopelia turtur*	Suffolk		TL67X	0.466216	52.3379	1990	
Turtle Dove	*Streptopelia turtur*	Suffolk		TL67Y	0.467217	52.3559	1990	
Turtle Dove	*Streptopelia turtur*	Suffolk		TL67Z	0.468218	52.3739	1990	
Turtle Dove	*Streptopelia turtur*	Aspal Close, Beck Row	Aspal Close	TL7077	0.497065	52.3643	2004	
Turtle Dove	*Streptopelia turtur*	Suffolk		TL77D	0.496558	52.3553	1992	
Turtle Dove	*Streptopelia turtur*	Suffolk		TL77E	0.497572	52.3732	1992	
Willow Tit	*Poecile montanus*	Suffolk		TL77E	0.497572	52.3732	1992	
Woodlark	*Lullula arborea*	Suffolk	THETFORD FOREST	TL716762	0.520133	52.3566	1997	
Woodlark	*Lullula arborea*	Suffolk	THETFORD FOREST	TL718769	0.523426	52.3628	1997	
Woodlark	*Lullula arborea*	Suffolk		TL77I	0.525899	52.3547	1992	
Wryneck	*Jynx torquilla*	Mildenhall	West Row Fen	TL6674	0.436886	52.3385	1993	
Yellowhammer	*Emberiza citrinella*	Suffolk		TL67S	0.436886	52.3385	1991	

Yellowhammer	*Emberiza citrinella*	Suffolk		TL67U	0.438864	52.3745	1991	
Yellowhammer	*Emberiza citrinella*	Suffolk		TL67W	0.465217	52.32	1990	
Yellowhammer	*Emberiza citrinella*	Suffolk		TL67X	0.466216	52.3379	1990	
Yellowhammer	*Emberiza citrinella*	Suffolk		TL67Z	0.468218	52.3739	1990	
Yellowhammer	*Emberiza citrinella*	Suffolk		TL77D	0.496558	52.3553	1992	
Yellowhammer	*Emberiza citrinella*	Suffolk		TL77E	0.497572	52.3732	1992	

Suffolk Biological Records Data: Species Records –Mammals

Common_Name	Latin_Name	Location	Site_Detail	Grid_Ref	Longitude	Latitude	Sample Year	Status
Badger	Meles meles	Mildenhall	Mildenhall	TL680792	0.46882	52.3846	1997	
Bat Brown Long-Eared	Plecotus auritus	Mildenhall	West Row	TL678749	0.463733	52.3461	1992	
Bat Noctule	Nyctalus noctula	Mildenhall Airfield Lights		TL716762	0.520133	52.3566	1990	
Bat Pipistrelle	Pipistrellus pipistrellus	Mildenhall	Stirling Close, West Row, Mildenhall, Suffolk, IP28 8QD	TL678754	0.463983	52.3506	2004	
Bat Pipistrelle	Pipistrellus pipistrellus	Aspal Close, Beck Row	Aspal Park	TL700773	0.497217	52.367	1997	
Bat Pipistrelle	Pipistrellus pipistrellus	Mildenhall	Woodland Park, Brandon Rd, Mildenhall	TL7074	0.495546	52.3373	2004	
Bat Pipistrelle	Pipistrellus pipistrellus	Mildenhall		TL711746	0.511982	52.3424	1993	
Bat Pipistrelle	Pipistrellus pipistrellus	Mildenhall Airfield Lights		TL716762	0.520133	52.3566	1990	
Bat Pipistrelle	Pipistrellus pipistrellus	Mildenhall	Parker's Mill, Mildenhall	TL7174	0.51021	52.337	2002	

		Lights		TL716762	0.520133	52.3566	1990	
Bats Unidentified	Chiroptera	Beck Row Churchyard	Beck Row Churchyard	TL699772	0.495699	52.3661	1993	
Bats Unidentified	Chiroptera	Mildenhall Churchyard	Mildenhall Churchyard	TL711746	0.511982	52.3424	1993	
Brown Hare	Lepus europaeus	Mildenhall		TL6675	0.43738	52.3475	1995	
Brown Hare	Lepus europaeus	Mildenhall		TL6676	0.437874	52.3565	1992	
Brown Hare	Lepus europaeus	Kenny Hill		TL67U	0.438864	52.3745	1996	
Brown Hare	Lepus europaeus	Mildenhall		TL682764	0.470351	52.3594	1991	
Brown Hare	Lepus europaeus	Mildenhall		TL687767	0.477838	52.362	1992	
Brown Hare	Lepus europaeus	Mildenhall		TL6879	0.46872	52.3828	1995	
Brown Hare	Lepus europaeus	Mildenhall		TL702768	0.499898	52.3624	1993	
Brown Hare	Lepus europaeus	Barton Mills		TL7073	0.49504	52.3283	1990	
Brown Hare	Lepus europaeus	Mildenhall Airfield Lights		TL716762	0.520133	52.3566	1999	
Hedgehog	Erinaceus europaeus	Mildenhall	Stock Corner Farm	TL6778	0.453541	52.3742	1994	
Hedgehog	Erinaceus europaeus	Worlington		TL6973	0.480378	52.3286	1994	
Hedgehog	Erinaceus europaeus	Beck Row	A1101	TL6977	0.482391	52.3646	1996	
Hedgehog	Erinaceus europaeus	Worlington		TL7073	0.49504	52.3283	1992	
Hedgehog	Erinaceus europaeus	Eriswell		TL7178	0.512248	52.3729	1995	
Otter	Lutra lutra	West Row	Judes Ferry Bridge, West Row	TL6756874784	0.460272	52.3451	2004	
Otter	Lutra lutra	West Row	Judes Ferry Bridge, Mildenhall	TL678748	0.463683	52.3452	1997	

J ANNUAL REVIEW SUMMARY

Summary of annual changes made to INRMP

Review Date	Review Participant(s)	Changes/ Updates
May 2022	Mr Bradley Clements CLEMENTS.BRAD LEY.1613238820	• Text update to establish revised Goals for Hares Bats and Trees, the status of CWS signage, and recent hare depredation. • Converting Metric measurements to Imperial. • Added Maps to eDash. • Added the BASH Plan and IPMP to the appendix. • Text update to correct Specie Names. • Text Update to revise Overseas Environmental Baseline Guidance Document (OEBGD) date to 2020.
May 2021	Miss Kayleigh Maguire	• Text change to cite the new AFMAN, review dates, procedure updates and clarification. • Change of signatory page. • Text change to correct the base history and reference Ramstein as UFAFE HQ. • Text change to state which notable wildlife areas are on and off base. • Text change to remove reference to base closure. • Updated the list of current environmental training channels. • Text change to reference the request of AFCEC funding for bat surveys. • Text change to state that a tree survey will be needed as part of goal 3, and therefore this requirement could be removed as a standalone project for goal 2. • Text change to include reasons why certain species cannot be removed on base. • Inclusion of written policy concerning tree removal processes and the base tree replanting policy. • Text inclusion regards the 2020 flora survey and planned mistletoe removal. • Text change to state the commander (or designee) signs off the INRMP and that ESOHC ensures plan compliance, also change security forces typo.