



Preliminary Ecological Appraisal

Pont Adam Crescent, Ruabon, Wrexham, LL14 6EH.

for:

Castlemead Group Ltd

CRM.1106.001



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PEA of Land adjacent to Pont Adam Crescent, Ruabon.

Project:	Preliminary Ecological Appraisal
For:	Castlemead Group
Status:	v1.1
Date:	06 th April 2014
Author:	Kirsty Rogers – Consultant Ecologist
Reviewer:	Chris Formaggia – Director of Ecology

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Executive Summary

- i. A Preliminary Ecological Appraisal was carried out for a proposed development of a ~1.5ha plot adjacent to Pont Adam Crescent, Ruabon.
- ii. The site consists of acid grassland, well developed scrub, and a number of mature trees. It is bounded by fences with one side open access.
- iii. A Phase 1 habitat survey was carried out to identify habitats and species present. An extended Phase 1 survey was conducted to assess the potential for protected species.
- iv. Potential for bats, reptiles and breeding birds was found in and around the site. In addition it was determined that there was 1 surface water feature within 500m radius of the site boundary.
- v. Recommendations for further Phase 2 surveys for bats, reptiles and breeding birds are made. A veteran tree was observed within the centre of the site and classified as holding high bat potential (Category 1*), will need to be examined for bat roosts.

1.0 Introduction

1.1. Commission

- 1.1.1. Enzygo Ltd was commissioned by Castlemead Group Ltd, to conduct a preliminary ecological appraisal of proposed development upon a plot of land adjacent to Pont Adam Crescent, Ruabon.
- 1.1.2. The purpose of the survey was to identify and map the habitats present in and around the proposed development site, and to assess their potential to support protected species including reviewing ecological records from MAGIC and to provide an extended Phase 1 Habitat map with target notes and descriptions and provide recommendations for further work in relation to protected species.

1.2. Site Details

- 1.2.1. The site is approximately centred on the National Grid Reference SJ 29624 43643 and runs parallel to Pont Adam Crescent, LL14 6EH. The site is approximately 1.5ha in size. The site's red-line boundary is shown on **Figure 1.1**.
- 1.2.2. Detailed habitat descriptions are given in Section 3.

Figure 1.1: The red-line boundary of the proposed site at Pont Adam Crescent.



- 1.2.3. The site comprises of an expanse of unmanaged grassland with patches of scrub around the peripheries and a number of trees (of varying maturity) forming the sites borders (see **Figure1.2** and *photographs 1 and 2*).

Figure 1.2: Aerial photograph of the site (within the red-lined boundary) and the wider habitat.



- 1.2.4. The site is boarded by domestic properties, and housing estates on two sides, with an area of recreational amenity grassland and play area at the top north eastern corner. The south eastern border is bounded by the busy Cardiff to Manchester railway line. The southernmost border of the site is created by the A539, running west from Ruabon to Llangollen.
- 1.2.5. Beyond the site is a large expanse of agricultural fields towards the North West and south, with further urban development and domestic estates towards the north east and south west. The rail line bordering the site creates a wildlife corridor connecting the site to the wider environment.

Photograph 1: View of the site looking east towards the rail line.



Photograph 2: View of the site looking west.



- 1.2.6. A 1:7176 scale habitat map based upon the conventions of the JNCC Phase 1 Habitat Survey, is attached in *Appendix 1* of this report.
- 1.2.7. The site was assessed within the normal timing window that would be considered optimal for the conduct of this type of evaluation.

2.0 METHODOLOGY

2.1 Survey Details

- 2.1.1 The site was surveyed on 14th March 2014. The site was visited and the vegetation was mapped onto an Ordnance Survey Mastermap (scale 1:7176) using standard colour codes for the ninety plus specified habitat types as defined in the JNCC guidelines. The surrounding land was similarly mapped but third-party land was only accessed where open and is assessed on the basis of what could be viewed from publically accessible areas.
- 2.1.2 Target notes were made for particular areas of interest and annotated.
- 2.1.3 An ecological walkover survey of the site was also conducted. The survey looks for direct and indirect evidenced (through sightings or field signs) of protected species and speculates on likely presence based upon habitat type and quality.

2.2 Enzygo Ltd Ecology Experience

- 2.2.1 This study and the site survey was conducted by Christopher Formaggia BSc (Joint Hons) CBiol CEnv MBS MIEEM MBPR (aquatic) – Director of Ecology. The Director of Ecology has been a professional ecologist for 22 years both as a regulator and consultant. He has held senior positions in environmental protection and management and is an experienced field ecologist. A CV describing his experience is provided in *Appendix 2*.
- 2.2.2 The survey was assisted by Kirsty Rogers, (MZOO) - Consultant Ecologist.

2.3 Survey Objectives

- 2.3.1 On the basis of the brief provided by the client Enzygo Ltd has conducted an ecological study:
 - To determine the baseline ecological value of the site.
 - To determine the baseline ecological constraints that might require further evaluation with respect to any site development.
 - Advice on further ecological evaluation that might be necessary.

2.4 Survey Area

- 2.4.1 The appraisal has considered the whole of the site and its immediate peripheries where visible/accessible.

3.0 RESULTS

3.1 Phase 1 Habitat Mapping

- 3.1.1 The completed Phase 1 Habitat map is presented in *Appendix 1*. Target notes are shown as red circles and described in further detail in Paragraph 3.3.
- 3.1.2 The vast majority of the site comprises of semi-improved acid grassland (**B1.2**) [~60%] with the remainder being tall ruderal (**C3.1**) dominated by bramble and willowherb [~30%]; and the remainder scattered scrub (**A2.2**) dominated by thorn species.
- 3.1.3 The site is bordered in places by hedges containing trees (**J3.2**) which are species poor and dominated by beech.

3.2 Habitat Quality Assessment

- 3.2.1 Approximately 60% of the site has been classified as semi-improved grassland. The grassland is somewhat tussocky and the sward is patchy.

3.3 Target Notes

- 3.3.1 T1. Mature specimen oak (Category 1* for bat roosting by visual inspection) [T32 in BS Tree Survey]
- 3.3.2 T2 Semi –improved acid-grassland – warm south facing and with patches of tussocks. Possible reptile habitat
- 3.3.3 T3 mixed tree-line (off site) with some Category 2 bat roost potential in beech trees especially T16, T10 and lime T9
- 3.3.4 T4 mature sycamores and beech with Category 2 bat roost potential (T17, T18 and T19).

3.4 Desk Study

- 3.4.1 A 2km interrogation of the DEFRA Magic database reveals the following three statutory nature designations:
 - The River Dee is designated as a Local Nature reserve (**LNR**), and cuts into the 2km boundary. At its closest point the River runs ~1562m to the south of the site.
 - Johnstown Newt Sites is located at approximately 1901m to the north of the site and is also designated as a Special Area of Conservation (**SAC**), due to the large population of great crested newts (**GCN**) (*Triturus cristatus*) which is breeding there, The site is also designated as an LNR.
 - Stryt las a'r hafod (Las Street Park) is on the boundary of the database buffer at 2000m to the north of the site, and falls under Johnstown's SAC designation due to the prime amphibian habitat and population of GCN found there. The site is further designated as a Site of Special Scientific Interest (**SSSI**) and as a LNR.
- 3.4.2 The complete map from the DEFRA MAGIC database can be found in *Appendix 2*.

3.5 Protected Species Audit

3.5.1 Bats

Due to the relatively open nature of the site; with a lack of buildings and only a few mature trees, there is limited potential for bat roosts within the site itself. Located at the south western corner of the site there is a small number of mature beech, lime and sycamore trees which are classified as having medium bat potential (Category 2) (*Photograph 3*). The trees have a good covering of ivy (*Hedera helix*) which is desirable for crawling species such as the pipistrelle species (*pipistrellus sp.*), and may potentially conceal a number of cracks or crevices which may be appropriate for other species of bat. The trees are mainly off-site and will be retained in the scheme (refer BS tree survey)

Photograph 3: View of the mature trees at the south western corner of the site.



Also on site is a single mature Oak (*Quercus sp.*) which has high potential as a bat roost (Category 1*) (see *Photograph 1*) – T32 on the BS tree survey. There are a number of holes (woodpecker), fissures and cracks within the tree (see *Photograph 4*). A thorough search of the tree and the immediate surrounding area yielded no further secondary field signs of bat species (eg. staining or droppings), but due to its position within the site and the high quantity of potential entry sites the tree would be classed as having high bat potential. The tree will be retained in the scheme.

A search of the Confod (North Wales Environmental Information Service) revealed 5 records of unidentified pipistrelle species with the buffer area, the most recent was noted in 2000 at approximately 1232m from the centre of the site and the closest record was taken in 1995 at ~926m from the centre of the site. There are 5 further records of bat species (*Chiroptera sp.*)

which could not be identified to species level, the closest of which was approximately 425m from the centre of the site and the most recent recorded in 2008 at ~1048m from the centre of the site.

Photograph 4: View of the potential bat roosting sites within a single mature Oak (T32).



3.5.2 Nesting Birds

Within the site only one nest was witnessed and identified as a potential Jay's nest (*Garrulus glandarius*). However, the site offers a good range of habitats for nesting bird species, particularly the peripheries, in the form of hawthorn (*Crataegus monogyna*) towards the eastern border, shrubs and the encroaching bramble (*Rubus fruticosus*) and bracken (*Pteridium aquilinum*) scrub.

Photograph 5: View of a suspected old Jay nest within the site.



A small number of species were seen/heard on site during the survey period, such as; Eurasian magpie (*Pica pica*), European robin (*Erithacus rubecula*), great tit (*Parus major*), blue tit (*Cyanistes caeruleus*) and a jackdaw (*Corvus monedula*) flying overhead.

3.5.3 Badgers

The site itself offers few resources to support a badger (*Meles meles*) population. No setts were located on site. Further there was limited secondary evidence to suggest a badger population is utilising the site, such as no obvious scratching posts, signs of foraging, dung and latrines or badger hairs in caught in any of the boundary fences. There was evidence of animal tracks entering the site from the road to the south however it was not possible to identify them to species level.

At a number of points within the survey the scent marks of a fox was picked up and it is highly likely foxes are utilizing the site as a hunting ground.

There are 7 records of badgers within the 2km buffer zone of the site; the closest and most recent recording was in 2004 at 862m from the site centre. Four of the recordings were of badger setts.

3.5.4 Reptiles

The site offers areas of good quality reptile habitat (rough grassland and scrub habitat), with good connections to further suitable habitat, through the rail corridor.

The data search revealed a single grass snake (*Natrix natrix*) record taken in 2004 at 1151m from the site centre, and a slow worm record from 2008 at 839m.

3.5.5 Amphibians

The site itself contains no water-bodies, or habitats which are suitable to support breeding amphibians.

However, there is a single water-body within 500m of the site boundary (~324m from the site centre) which holds records of >100 GCNs taken in 1988. The water-body is isolated from the development site by 2 busy roads and the Cardiff to Manchester railway line. There is a further 14 records of GCN within the 2km buffer area, the most recent was taken in 2008 of 8 newts at approximately 1993m from the site. We understand that in discussions between the County Ecologist and Planning Agent that the need for a GCN survey on site has been scoped out.

4.0 RECOMMENDATIONS

4.1. General

- 4.1.1 The habitats on site consisted mainly of unmanaged acid semi improved grassland, encroaching scrub and range of trees species. The potential for protected species is medium. Surveys needed to assess the presence of protected species and habitats are outlined as follows.

4.2. Bats

- 4.2.1. As previously described, there are a small number number of trees within the site and close to the site that hold both medium and high bat potential for bat roosts. All bat species are protected by the Wildlife and Countryside Act 1981 as amended, the CROW Act 2000 and the Habitats Directive 1992. It is illegal to disturb, injure or kill a bat or disturb its resting place.
- 4.2.2. **It is recommended that trees T32, T17, T18 and T19 be retained within the scheme and be protected throughout construction according to BS standards.**

4.3. Birds

- 4.3.1 There is a high potential for breeding birds on the site as a number of bird species were observed during the survey. All wild birds are protected under the Wildlife and Countryside Act 1981 as amended. It is illegal to take, injure or kill a wild bird, damage or destroy a nest while it is in use or being built and/or to destroy the eggs of a wild bird.
- 4.3.2 **The area would need to be surveyed for breeding birds if the trees, hedgerows and scrub were to be removed during the breeding season (March to August inclusive).**

4.4. Reptiles

- 4.4.1 There is also potential for reptiles as the grassland and scrub present provide forage and suitable hibernation sites. It is advised that a reptile survey be carried out, to prevent any potential harm being done to any present individuals during the construction phase of any development.
- 4.4.2 All native reptile species are protected to some degree by the Wildlife and Countryside Act 1981 as amended, and the CROW Act 2000. If reptiles are found to be present on the site then suitable mitigation will need to be implemented to prevent killing or injuring.
- 4.4.3 **It is suggested that a reptile survey should be carried out in the optimum periods of April to May or September prior to any development to discover if reptiles are present. Seven sampling days (within the timing window) conducted under favourable weather conditions are needed to determine presence and abundance. This could be made a planning condition of a full planning application. If a presence is confirmed it will be necessary to design mitigation measures that prevent harm to reptiles during construction and it is anticipated that this would likely take the form of a deliberate removal of trapped animals from site in advance of construction.**

5.0 CONCLUSIONS

- i. The proposal site is surrounded by land of limited ecological value. The relative nature conservation value of the proposal site is low and the site is considered to contain habitats and flora that are at most of local nature conservation significance.
- ii. The actual proposals are not expected to generate any significant risk to important nature conservation areas or other ecological receptors beyond the site.
- iii. The site is expected to contain some protected faunal species- most particularly bat species. The site is also expected to contain breeding birds although the diversity of bird species is probably low and generally restricted to the peripheries.
- iv. The risks of ecological damage indirect or direct are considered to be low either without modification or through the incorporation of reasonable mitigation measures.
- v. It is recommended that:
 - a. That four mature trees with bat roosting potential are retained in the schem and protected to BS standards during construction.
 - b. The felling of any trees and clearance of vegetation avoid the bird breeding season of March to August or failing that be carried out under the direct supervision of an ecologist to ensure compliance with wildlife legislation.
 - c. The presence/likely absence of reptiles be determined by survey and if presence is confirmed that a mitigation plan is formed that adequately ensures that no killing or injury of reptile species occurs during construction.

6.0 APPENDIX 1 –PHASE 1 HABITAT AND KEY

7.0 APPENDIX 2 – DIRECTOR'S CV



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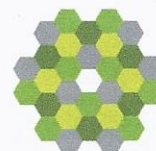
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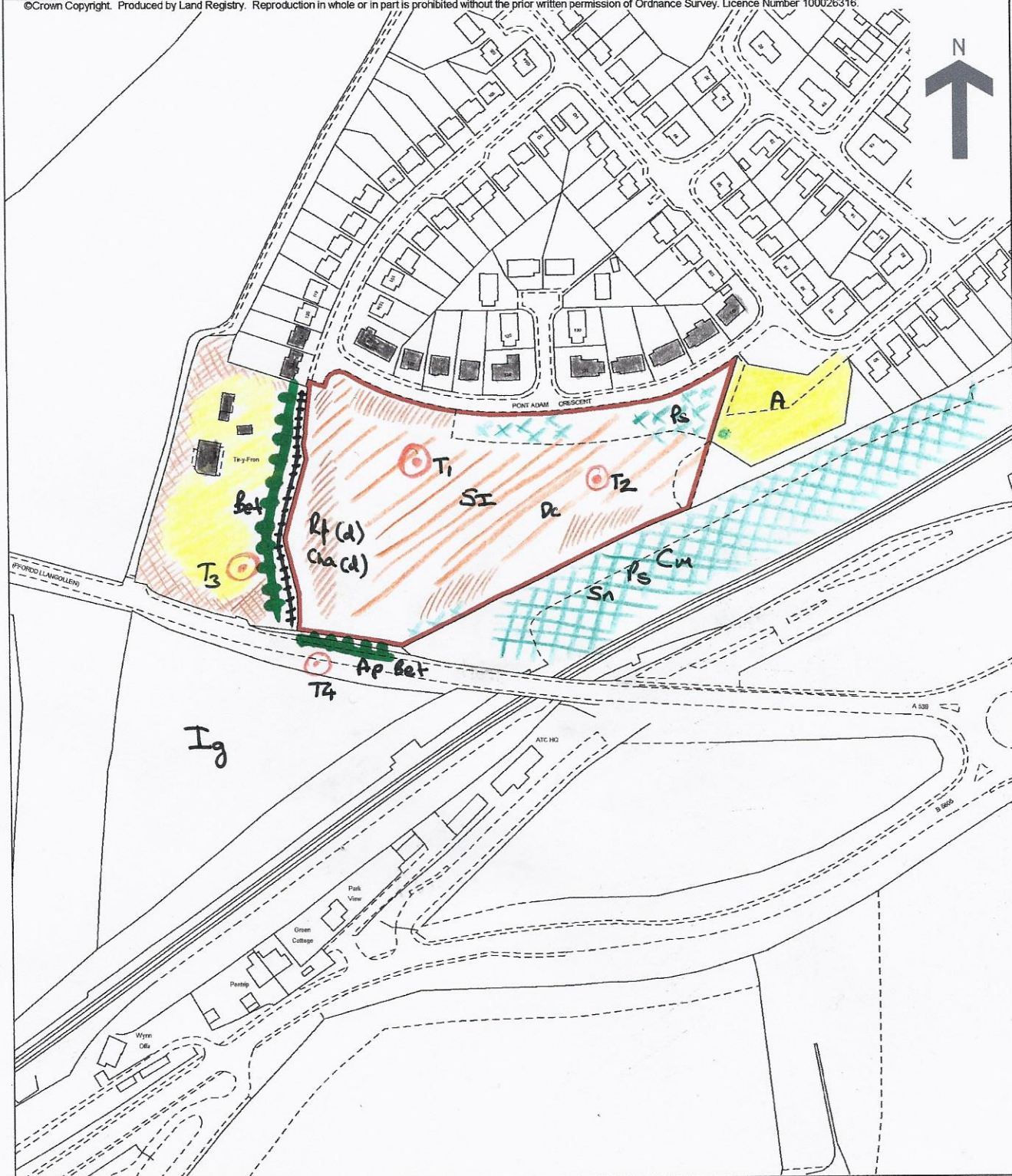
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APPENDIX 1 - PHASE 1 HABITAT MAP

This copy of the title plan is incomplete without the preceding notes page.

Mae'r copi hwn o'r cynllun teitl yn anghyflawn heb y dudalen nodiadau flaenorol.

Phase 1 habitat survey mapping colour codes

A - WOODLAND AND SCRUB			E - MIRE			I - ROCK EXPOSURE AND WASTE		
Green		Broad-leaved semi-natural woodland	Purple		Blanket bog	Scarlet red		Natural acid / neutral inland cliff
Green		Broad-leaved plantation woodland	Purple		Raised bog	Scarlet red		Natural basic inland cliff
True green		Coniferous semi-natural woodland	Purple		Wet modified bog	Scarlet red		Acid / neutral scree
True green		Coniferous plantation woodland	Purple		Dry modified bog	Scarlet red		Basic scree
Green over true green		Mixed semi-natural woodland	Magenta		Acid / neutral flush	Scarlet red		Natural limestone pavement
Green over true green		Mixed plantation woodland	Magenta		Basic flush	Scarlet red		Acid / neutral exposure
Green		Dense / continuous scrub	Magenta over purple		Fen	Scarlet red		Basic exposure
Green		Scattered scrub	Magenta over purple		Basic fen	Scarlet red		Cave
Green		Scattered broad-leaved tree	Magenta over purple		Valley mire	Scarlet red		Quarry
True green		Scattered coniferous tree	Magenta over purple		Basin mire	Scarlet red		Spoil
Green		Recently felled broad-leaved woodland	Magenta over purple		Flood-plain mire	Scarlet red		Mine
True green		Recently felled coniferous woodland	Magenta over purple		Bare peat	Scarlet red		Refuse-tip
Green / true green		Recently felled mixed woodland	Purple					
B - GRASSLAND AND MARSH			F - SWAMP, MARGINAL AND INUNDATION			J - MISCELLANEOUS		
Orange		Unimproved acid grassland	Sky blue		Swamp	No colour		Arable
Orange		Semi-improved acid grassland	Sky blue		Marginal vegetation	Canary yellow		Amenity grassland
Orange		Unimproved neutral grassland	Sky blue		Inundation vegetation	Black		Ephemeral / short perennial
Orange		Semi-improved neutral grassland				Terracotta		Introduced shrub
Orange		Unimproved calcareous grassland						
Orange		Semi-improved calcareous grassland						
No colour		Improved grassland	Indigo blue		Standing water	Green		Native species-rich intact hedge
Purple over orange		Marsh / marshy grassland	Indigo blue		Eutrophic	Green		Species-poor intact hedge
No colour		Semi-improved grassland	Indigo blue		Mesotrophic	Green		Species-rich defunct / gappy hedge
C - TALL HERB AND FERN			Indigo blue		Oligotrophic	Green		Species-poor defunct / gappy hedge
Terracotta		Continuous bracken	Indigo blue		Dysotrophic	Green		Species-rich hedge with trees
Terracotta		Scattered bracken	Indigo blue		Marl	Green		Species-poor hedge with trees
Terracotta		Upland species-rich ledge	Indigo blue		Brackish	Green		Species-poor defunct / gappy hedge with trees
Terracotta		Tall ruderal	Indigo blue		Running water	True green		Coniferous hedge
Terracotta		Non-ruderal				Black		Fence
D - HEATHLAND						Scarlet red		Wall
Yellow ochre		Acid dry dwarf shrub heath				Scarlet red		Derelict wall
Yellow ochre		Basic dry dwarf shrub heath				Indigo blue		Dry ditch
Purple over yellow ochre		Wet dwarf shrub heath						
Yellow ochre		Lichen / bryophyte heath						
Yellow ochre		Montane heath / dwarf herb						
Orange over yellow ochre		Dry heath / acid grassland mosaic						
Purple over yellow ochre		Wet heath / acid grassland mosaic						
			H - COASTLAND					
			Pink		Intertidal Zostera beds	Black		Boundary removed
			Pink		Intertidal green algal beds	Black		Habitat boundary
			Pink		Intertidal brown algal beds	Black		Earth bank
			Pink		Saltmarsh / dune interface	Black		Caravan site
			Pink		Scattered plants	Black		Sea wall
			Pink		Dense continuous saltmarsh	Black		Building
			Indigo blue over flesh		Dune slack	Black		Bare ground
			Orange over flesh		Dune grassland	Scarlet red		Botanical target note
			Yellow ochre over flesh		Dune heath	Bright blue		Animal / Badger target note
			Green over flesh		Dune scrub	Green		Invertebrate target note
			Flesh		Open dune			
			Scarlet red		Maritime hard cliff			
			Scarlet red		Maritime soft cliff			
			Orange		Coastal grassland			
			Yellow ochre		Coastal heathland			

CURRICULUM VITAE

Name: Christopher Formaggia

Position in Company: Director of Ecology

Qualifications / Memberships: BSc (Joint Hons) Zoology/ Environmental Studies
Postgraduate Certificate in Management
Royal Chartered Biologist CBiol
Chartered Environmentalist CEnv
Member of the Biological Society MBS
Member of Institute of Ecology and Environmental Management MIEEM
Associate Member of Emergency Planning Society
BASIS qualified (Aquatics)

Date of Birth: 03 December 1966

Areas of Expertise:

Chris Formaggia has 22 years of professional experience in the fields of ecology, outdoor recreation and education and navigation within the regulatory, public and private sectors. He has particular expertise in the areas of wetland biology, biodiversity planning, environmental impact assessment, countryside recreation planning, species and habitat surveying, and habitat creation and restoration.

He has expertise of working on problems associated with invasive/alien species in marine, freshwater and terrestrial environments. As an invasion ecologist he has worked on aquatic and terrestrial plants, invasive vertebrates and was involved in the production of a marine biosecurity plan. His invasives experience is both ecological and practical and he has worked on a number of control programmes.

Chris's Recreation and Navigation experience includes the following:

- Management of Environment Agency recreation sites which ranged from small fisheries up to a International white water venue
- Production of recreation strategies
- Management of recreation conflict



- Public Enquiries
- Recreation demand studies/DDA analysis.
- Angling/Fisheries management
- Facility creation
- Conflict Resolution

Work History

Chris Formaggia is currently Director of Ecology with Enzygo Ltd.

He was formerly owner and Director of Formaggia Environmental Limited (and Formaggia Research Limited) and was responsible for all activities of the companies. Before setting up Formaggia Environmental Limited (and Formaggia Research Limited), Chris was Principal Ecological Consultant for RPS Planning, Transport and Environment Ltd. At RPS, Chris managed an ecology team split between offices in Chepstow and Milford Haven covering terrestrial, freshwater and marine ecology.

Prior to joining RPS Chris worked in local authority as Senior County Ecologist managing a local authority ecology unit. He was responsible for the provision of all of the council's internal and external ecological advice, its biodiversity planning, site management and an environmental education programme.

Chris has 13 years of experience with the National Rivers Authority/Environment Agency working at an area/regional and national level. He worked at Environment Agency Wales's Headquarters as Conservation, Recreation and Navigation (CRN) Officer for Wales and was responsible for all internal environmental assessment of Agency operations in Wales and for the development and implementation of all CRN policy. Prior to his headquarters' role Chris spent 8 years as an Area officer and was extensively involved in the assessment of consents and planning applications and major development schemes, aquatic survey work and species and habitat enhancement projects. He has substantial experience of working with protected species licences.

He sat on a number of government-level policy groups including the England and Wales River SSSI steering Group and the Wales Biodiversity Group. He was co-ordinator for a number of Species Plans within the UK Biodiversity Action Plan and represented the Agency on a further suite of habitat and species plans.

Major projects he was involved with included the "Wetlands for Wales" project which, at the time, was the largest successful HLF project to be initiated in Wales; the Review of the Dee Navigation and the internal re-structuring of the Environment Agency Wales EIA capability.

He was involved in two major Public Enquiries relating to the Usk Barrage and the Wye Navigation and a number of court procedures and planning enquiries.

Other Professional Interests

In recent years he has become increasingly interested in the ecological aspects of emergency planning, disaster relief, and conflict. He has attended a number of Home Office/Counter Terrorist courses and is an Associate Member of the Emergency Planning Society. He is a serving member of HM Reserve Forces and holds a number of higher level security clearances.

Experience Includes:

- River Habitat Surveyor and River Corridor Surveyor
- Management of ecology on major infrastructure projects
- Accredited electric fishing surveyor
- BASIS qualified and registered to sell and advice on crop protection.
- Holder of PA1 and PA6 amenity sprayer licences
- Substantial experience in advising on invasive species control especially Japanese knotweed, giant hogweed, Himalayan balsam, and aquatic invasives
- Expert experience on advising on wildlife crime matters especially in relation to the water environment
- Wetland creation/restoration and mitigation/compensation design
- Impacts of recreation/navigation on wildlife
- Woodland and coppice management.
- Appropriate Assessments and Conservation Regulations advice
- Waste facility development
- Environmental Supervision of major infrastructure projects
- Rebuttals, expert witness services and committee work.

Protected Species Licences:

Currently holds licences for bats, great crested newts, otters, dormouse, badgers and barn owls for England and Wales.

Have previously held licences for water vole and crayfish.

Has 20 years of practical experience with protected species working on enforcement, mitigation and enhancement at scales from local to international.

Experienced in obtaining Development Licences from Natural England (formerly DEFRA) and Welsh Assembly Government. Services approximately 50-100 protected species applications per annum.