Habitat Evaluation of 'The Pound', Thornton Steward, Richmondshire, North Yorkshire.

10th June 2014.

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‘THE POUND’ - SPRING-FED LAND AT THORNTON STEWARD, NORTH YORKSHIRE SE176869 ETC

CURRENT STATE

SOLID GEOLOGY/DRIFT GEOLOGY
(ex British Geological Survey on-line mapping -
http://mapapps.bgs.ac.uk/geologyofbritain/home.html

Solid Geology
Complex underlying solid geology. On *Stainmore Formation of mudstone, siltstone and sandstone immediately below (& south of) fault-line at junction of Red Scar Grit** and unnamed Arnsbergian (lower Carboniferous) sandstone (in millstone grit group). Presence of faultline may *possibly* be reason for existence of spring.

*Stainmore Formation – a yclical repetition of mid Carboniferous sandstones, siltstones, mudstones, thin limestones and some coals

**Red Scar Grit – Lower Carboniferous aged coarse-grained feldspathic sandstone ["grit"], usually coloured red on weathered surfaces.

Drift Geology
On *Devensian Diamicton Till at junction with **Flandrian Alluvium

*Devensian diamicton till . Glacial (from most recent glaciation) sediment that consists of a wide range of nonsorted to poorly sorted terrigenous sediment, i.e. sand or larger size particles that are suspended in a mud matrix. Generic description

**Flandrian Alluvium. Post glacial, normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present. [Generic description].

HYDROLOGY
Spring-fed waterlogged soil fed by cool, clear water spring originating on northern margin of site. Draining into surface drain at southern margin of site.

NUTRIENT STATUS
Vegetation indicates some (though by no means extreme) eutrophication (enrichment) with nitrogen/phosphorous, presumably from fertilizer application on pasture land upslope of site. Dumping of grass mowings over the boundary in two areas will also be adding to eutrophication. Evidence from abundance of nettles and presence of elder, goose-grass, and possibly greater willow-herb and meadowsweet, though these two are typical wetland species.

VEGETATION (see appendix for species list)
Currently comprising mainly recent secondary wet woodland over a species-poor marsh community, with recently planted two species of willow currently managed as coppard (low cut pollard/high cut coppice) with evidence of no, or only a single cut, since insertion of willow pole lengths to establish trees.

Very mature hawthorn/blackthorn hedge on north margin with singleton large, formerly coppiced hazel. Elm (possibly ?Huntindon Elm – *Ulmus x hollandica*, resistant to Dutch elm disease) ash and grey poplar planted along eastern and southern margins. Bounded

by stone wall to south and west and with a ?4m wide strip of mown, very wet lawn-like grassland amongst planted trees along southern margin.

Recent vegetation history
Aerial photos on Google Earth are from 2002 and 2009 and show considerable changes. In 2002 the site had very open, sunny conditions, open to the south and east with almost no trees other than the mature hawthorns of the old, northern boundary hedge. The photograph is insufficiently detailed to indicate vegetation type, but appears to be taller and greener than the surrounding land with heterogeneity in the vegetation surface, possibly indicating a tall unmanaged/ungrazed marsh community.

By 2009 this had changed to very shady conditions, almost totally covered with trees and shrubs, which is likely to have led to considerable changes in the flora with loss of some or many species.

2002 2009

SIGNIFICANT SPECIES (National/Regional scarce species)

None noted, probably unlikely in such a small site.

POTENTIAL/OPTIONS

1 Fairly dry Mature Willow Carr. Do nothing/accept status quo – allow site to develop as mature willow car over a rather drier swamp vegetation, surrounded by very large mature trees and hence be very shaded. This will be of a little bird interest, though botanical interest will decline further.

2 Shaded Willow Coppice. Manage central area as a coppard/coppiced willow carr – divide the site into 2 or 3 (max) units and coppice in a rotation set by objectives set by site's owners/managers. It will, however, remain eventually surrounded by very large mature trees and hence the coppice plots will still be pretty shaded. This will encourage some more insect life and have probably slightly greater bird interest and a somewhat greater botanical interest.

3 Open Willow Coppice. Remove all/almost all recently planted large trees along southern and eastern margins (all grey poplars & sycamore) - one or two might be managed as low pollards, ideally ash or elm as being of greater wildlife value. Manage central area as a coppard/coppiced willow carr – divide the site into 2 or 3 (max) units and coppice in a rotation set by objectives set by site's owners/managers (below). This will encourage a much greater diversity and abundance of insect life and hence have significantly greater bird interest and somewhat more greater botanical diversity.

4 Very Open Willow Coppice. Remove all/almost all recently planted large trees along southern and eastern margins (all grey poplars & sycamore) - one or two might be managed as low pollards, ideally ash or elm as being of greater wildlife value. Manage central area as a coppard/coppiced willow carr in single very short rotation. This will encourage a much greater diversity and abundance of insect life and hence have significantly greater bird interest and a greater botanical diversity. Possible potential to restore an aesthetically attractive wetland with diverse wildflower and bird interest, though possibly a rather more risky option as it is difficult to judge what vegetation type may develop after willows and trees are removed, dependent on soil/water nutrient status. This is the option with greatest ongoing resource requirements.

5 Open Wetland. Restore to open marshland conditions by removing all planted willows in heart of site and all mature trees along southern and eastern margins of site (one or two might be managed as low pollards – ideally ash or elm as being of greater wildlife value). Possible potential to restore an aesthetically attractive wetland with diverse wildflower interest, though is the riskiest option as it is difficult to judge what vegetation type may develop after willows and trees are removed, dependent on soil/water nutrient status. This is the option with greatest initial resource requirements and would require monitoring of vegetation to determine its ideal management.

Option 4 might be converted to option 5 or 3, depending on how marshland vegetation develops for a few years after initial management commences.

POSSIBLE OBJECTIVES (not mutually exclusive)

To benefit wildlife

creation of habitat for wetland scrub birds & insects
creation of open wetland wildlflower area and rich insect life

To benefits people of Thornton Steward

place for peaceful relaxation
place for enjoying/studying wildlife
safe, wild place for children to explore

Vegetation trends

It is essentially unpredictable exactly how the vegetation would respond to the options above without an idea of the nutrient status of the site and whether this might be managed if necessary.

Roger Key
10th June 2014

APPENDIX – Species observed on visit – typical wetland species underlined

English	Scientific	Family	Frequency
Trees/shrubs/woody climbers			
Sycamore	*Acer pseudoplatanus*	Aceraceae	3 trees
Holly	*Ilex aquifolium*	Aquifoliaceae	2 seedlings
Ivy	*Hedera helix*	Araliaceae	abundant
Hazel	*Corylus avellana*	Betulaceae	2 bushes
Elder	*Sambucus nigra*	Caprifoliaceae	a few bushes
Ash	*Fraxinus excelsior*	Oleaceae	3 trees
Hawthorn	*Crataegus monogyna*	Rosaceae	large grown-out hedge
Blackthorn	*Prunus spinosa*	Rosaceae	frequent
Bramble	*Rubus fruticosus agg.*	Rosaceae	rare
Grey Poplar	*Populus x canescens*	Salicaceae	4 trees
a narrow-leaved willow	*Salix ??babylonica??*	Salicaceae	several coppice stools
Goat Willow	*Salix caprea*	Salicaceae	one bush
Osier	*Salix viminalis*	Salicaceae	many coppice stools
?Huntingdon Elm	*Ulmus ?x hollandica 'Vegeta'*	Ulmaceae	2 trees
Ferns			
Male Fern	*Dryopteris filix_mas agg*	Dryopteridaceae	occasional
Field Horsetail	*Equisetum arvense*	Equisetaceae	dominant in places
Herbs			
Cow parsley	*Anthriscus sylvestris*	Apiaceae	occasional
Rough Chervil	*Chaerophyllum temulum*	Apiaceae	occasional
Hogweed	*Heracleum sphondylium*	Apiaceae	occasional
Great Water-parsnip	*Sium latifolium*	Apiaceae	frequent
Lords-and-ladies	*Arum maculatum*	Araceae	frequent
Creeping Thistle	*Cirsium arvense*	Asteraceae	rare
Marsh Hawk's-beard	*Crepis paludosa*	Asteraceae	rare
Dandelion	*Taraxacum officinale agg*	Asteraceae	rare
Garlic Mustard	*Alliaria petiolata*	Brassicaceae	rare
Water cress	*Rorippa nasturtium-aquaticum*	Brassicaceae	rare
Common Mouse-ear	*Cerastium fontanum*	Caryophyllaceae	rare
Imperforate St. John	*Hypericum maculatum*	Clusiaceae	rare
Hedge Bindweed	*Calystegia sepium*	Convolvulaceae	occasional
a legume	*Vicia sp.*	Fabaceae	rare
Cut-leaved Crane's-bill	*Geranium dissectum*	Geraniaceae	rare
Herb-robert	*Geranium robertianum*	Geraniaceae	occasional
Ground-ivy	*Glechoma hederacea*	Lamiaceae	rare
White Dead-nettle	*Lamium album*	Lamiaceae	rare
Spear Mint	*Mentha spicata*	Lamiaceae	frequent
Hedge Woundwort	*Stachys sylvatica*	Lamiaceae	frequent
Great Willowherb	*Epilobium hirsutum*	Onagraceae	dominant in places
Curled Dock	*Rumex crispus*	Polygonaceae	frequent
Broad-leaved Dock	*Rumex obtusifolius*	Polygonaceae	rare
Marsh Marigold	*Caltha palustris*	Ranunculaceae	frequent

Creeping Buttercup	*Ranunculus repens*	Ranunculaceae	frequent
Meadowsweet	*Filipendula ulmaria*	Rosaceae	occasional
Herb Bennet	*Geum urbanum*	Rosaceae	rare
Creeping Cinquefoil	*Potentilla reptans*	Rosaceae	rare
Cleavers	*Galium aparine*	Rubiaceae	occasional
Common Nettle	*Urtica dioica*	Urticaceae	dominant in places
Graminoids			
Hard Rush	*Juncus inflexus*	Juncaceae	frequent
Common Bent	*Agrostis capillaris*	Poaceae	dominant in places
False Oat-grass	*Arrhenatherum elatius*	Poaceae	frequent
Yorkshire-fog	*Holcus lanatus*	Poaceae	rare

Additional species on land immediately adjacent to site that might colonise site

Lane - herbs

Dog's Mercury	*Mercurialis perennis*	Euphorbiaceae
Welsh Poppy	*Meconopsis cambrica*	Papaveraceae

Meadow

Herbs

Pignut	*Conopodium majus*	Apiaceae
Common Knapweed	*Centaurea nigra*	Asteraceae
a hawkweed	*Hieracium sp.*	Asteraceae
Red Clover	*Trifolium pratense*	Fabaceae
White Clover	*Trifolium repens*	Fabaceae
Meadow Buttercup	*Ranunculus acris*	Ranunculaceae
Crosswort bedstraw	*Cruciata laevipes*	Rubiaceae
Germander Speedwell	*Veronica chamaedrys*	Scrophulariaceae

Graminoids

Meadow Foxtail	*Alopecurus pratensis*	Poaceae
Crested Dog's-tail	*Cynosurus cristatus*	Poaceae
Cock's-foot	*Dactylis glomerata*	Poaceae
Perennial Rye-grass	*Lolium perenne*	Poaceae