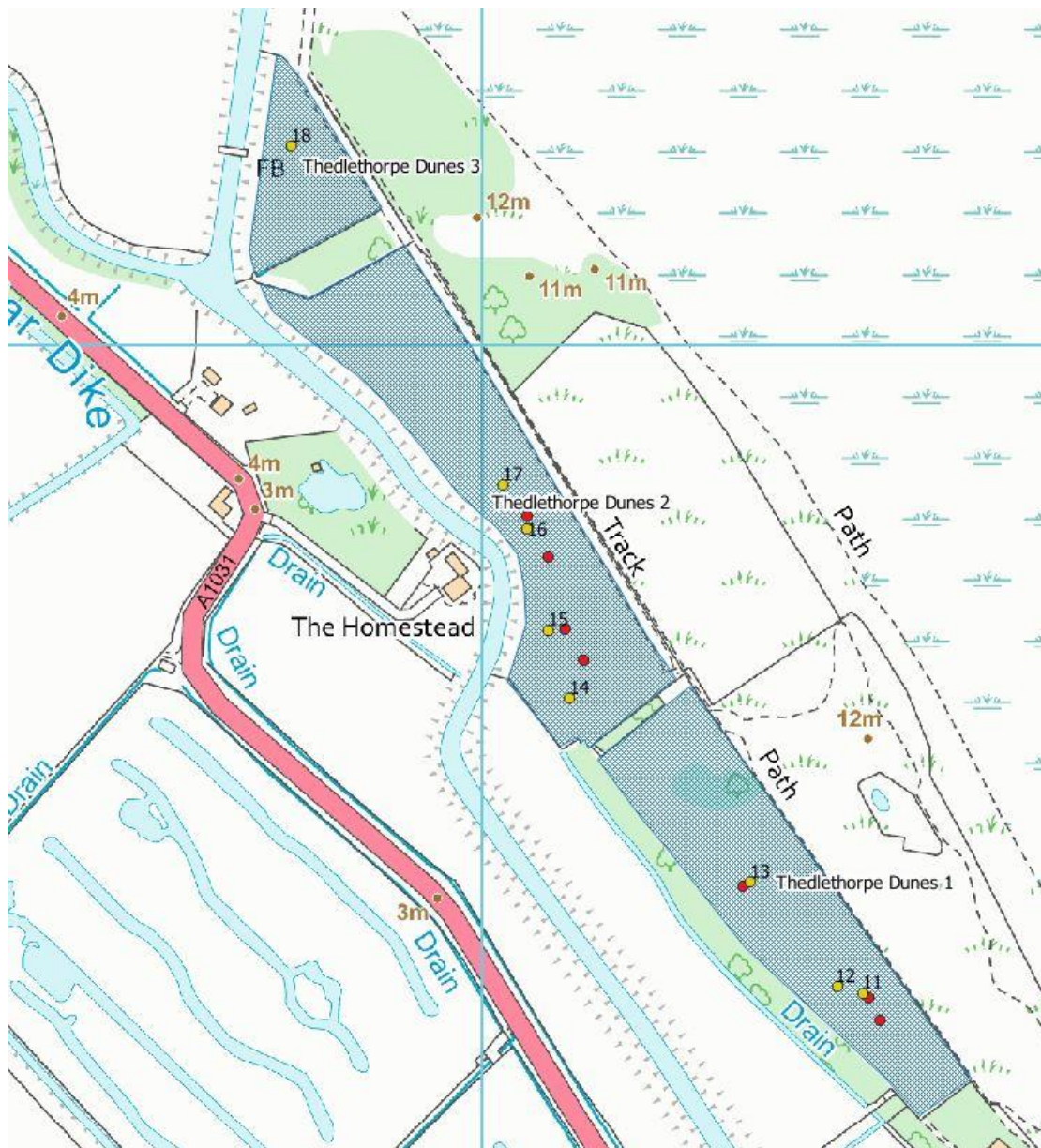


Site Visit Assessment Form – Thedlethorpe Dunes, Lincolnshire

Update following re-visit in 2022



Yellow dots are quadrat locations visited in 2022.

Red dots are those visited in 2017.

2022 amendments to the form are in red text

Site Name Saltfleetby-Thedlethorpe Dunes	Grid Ref 1=TF 461 926 2= TF 460 929 3=TF 458930	County Lincolnshire	
River Great Eau	Ownership Lincolnshire Wildlife Trust	Designation Nature Reserve	Size (ha) 1=1.76 2=2.1

			3=0.55
Date 13/07/2017 21/06/2022	Meeting with LWT staff	Managed by Lincolnshire Wildlife Trust	
Management and History			
<p>Field-1 (SSSI) "Caravan field" used to be a caravan site. It was a hay meadow until late 90s. Then used for silage. It has been undergoing a restoration programme through changed management therefore as it has been cut for hay for 10 years following caravan site management. Hay cutting continued here into the 2000s probably finishing about 2005. Currently grazed with cattle from Sept to Dec followed by sheep (Jan-Feb).</p>			
<p>Fields 2 and 3 were bought as arable in 2000. Field 2 "Clover field". Seeded with Commercial Seed Mixture from 'Growing Wild' in July 2001. The mixture contained grasses: crested dog'-tail, meadow, red and sheep fescue, smooth and rough-stalked meadow grass, small-leaved timothy, common bent and sweet vernal-grass. Field naturalised very quickly and had a reasonable flora by 2006 and a good flora by 2010 without resorting the spreading green hay. Some seed may have been inadvertently spread from the SSSI on the drum mower and in the baling process (red clover- agricultural hybrid). Grazed every year from late summer-early September. Animals moved in and out, sheep after cows. Cut for hay until 2013 as the ground conditions have become much wetter causing increasing volume of horsetail making hay unattractive to the contractor/grazier. Currently grazed with cattle from Sept to Dec followed by sheep (Jan-Feb). Weed control was done from a quadbike which caused a lot of damage to surrounding plants. This has now stopped, and instead, every year a bit of back-pack spraying is carefully undertaken. Ragwort is pulled out manually every year for PR purposes rather than to meet regulations.</p>			
<p>Field 3. Most distant smallest field TF4593 8910 Was arable, left to restore naturally. Arable flowers were sown for 1 year, but after that it has been managed similar to field 2 (grazed with cattle from Sept to Dec followed by sheep (Jan-Feb). Hay cut occasionally. HKS requires hay cut after 15th July.</p>			
<p>HLS requirements for each field are: Field 1 – maintenance of species-rich, semi-natural grassland (SSSI Meadow) – no ploughing, sub-surface cultivation and reseeded is permitted. Grazing in spring, or aftermath grazing in autumn, after hay cut after 15th July. Always leave a minimum of 5% tussocks or longer grass. Field 2 – restoration of species-rich, semi-natural grassland. Maintaining existing drains in working order. Others, the same as for Field 1. Field 3 – restoration of grassland for target features. No hay cut before 30 June. Leave 10% uncut. No grazing between 30 November and 28 February. From 2019 all three fields are in the Countryside Stewardship Mid Tier (it allows cutting after 30th of June and grazing any time of the year if not cut).</p>			
Restoration			

Technique used/Dates	
<p>Field 1 = Reverted to hay meadow naturally. Field 2 = arable spread with commercial seed mixture and natural regeneration. Field 3 = arable spread with commercial seed for arable weeds, then natural regeneration after that.</p>	
Hydrology	Site does not flood every year. River was built several hundred years ago to flush the water from the port. On the day of survey, water in the ditch was approximately 3 m lower than ground level.
Flooding regime Water management Soil-water levels (indicated by auger hole/any other data)	
Historical information	
Current site interest	Attached excel spreadsheet for botanical data
<p>Field 1 has uneven vegetation cover. There is a large depression in the middle of the field containing large sedges like greater pond sedge <i>Carex riparia</i> and slender tufted sedge <i>C. acuta</i>, which dominate here. Silverweed <i>Potentilla anserina</i> and creeping buttercup <i>Ranunculus repens</i> reach 30-80% cover. Species richness is 11 species/m² in this depression, compared to the areas dominated by small sedges (glaucous sedge <i>Carex flacca</i> and sand sedge <i>C. arenaria</i>), where 28 species/m² were recorded. Sandy but nutrient-rich soil and the groundwater table at 60 cm depth during the dry season make very suitable conditions for MG4 Typical <i>Alopecurus pratensis</i>-<i>Sanguisorba officinalis</i> to develop in the field.</p> <p>In 2022, a botanical survey was done on three 1 x 1 m quadrats, there were no quadrats taken in the depression in the field. The vegetation in the field is more uniform compared to 2017, it is also declining in similarity to the target NVC grassland type MG4b, which scored only 56% in 2022 compared to 64% in 2017.</p> <p>Orchids and small forbs like fairyflax <i>Linum catharticum</i> are however still present in the field. There is a high abundance of yellow rattle which should help with reducing grasses in the field, however, the has cover increased since 2017.</p> <p>The Ellenberg indicator values suggest that the field is wetter but less nutrient-rich than it was in 2017 (Table 1). The functional diversity is variable between individual quadrats, but on average it is well balanced across the field.</p> <p>Field 2 "Clover field". Big areas of almost a monoculture of marsh horsetail <i>Equisetum palustre</i> and false oat-grass <i>Arrhenatherum elatius</i> are present on this field but it is very patchy. A lot of black medick <i>Medicago lupulina</i>, false oat-grass <i>Arrhenatherum</i>, marsh horsetail <i>Equisetum</i>, hogweed <i>Heracleum sphondylium</i> and soft brome <i>Bromus hordaceus</i> were also present, including around quadrat 245 where a dense stand of <i>Equisetum</i> was recorded. A variable topographical mosaic helps to maintain a relatively high species diversity on the field (17.2 species/m² on average). In the elevated areas, species like common cat's-ear <i>Hypochaeris radicata</i>,</p>	

pyramidal orchid *Anacamptis pyramidalis* and bird's-foot trefoil *Lotus corniculatus* were found. Common mouse-ear *Cerastium fontanum*, meadow buttercup *Ranunculus acris*, common sorrel *Rumex acetosa* and rough-stalked meadow-grass *Poa trivialis* were spread across the field more or less evenly. Large but widely spread patches of dandelion *Taraxacum*, white clover *Trifolium repens* and red clover *T.pratense* are the most likely species to occupy the former bare ground.

In 2022, the botanical survey was carried out on four 1 x 1 m quadrats in Field 2. Dominance of marsh horsetail *Equisetum palustre* and false oat-grass *Arrhenatherum elatius* persists in large areas of the field. A large patch of tall fescue *Schedonorus arundinaceus* has developed in last five years. The population of bird's-foot-trefoil has expanded substantially, possibly stimulated by the very dry summer in 2022.

Ellenberg indicator values for soil moisture and nutrients haven't change much over five years, and the NVC vegetation type remains similar to 2017. Similarly to field 1, the functional diversity of the sward is very variable across this field, however on average it appears to be well balanced.

Field 3 is very grassy, with dominating false oat-grass *Arhenatherum elatius* and cock's-foot *Dactylis glomerata*. Another very dominant species is hogweed *Heracleum sphondylium*; it's very high abundance indicates a lack of a hay cut and general under-management on the site. The field was being grazed by cows on the day of the survey. As vegetation is so tall, it is trampled rather than eaten and the excess nutrients are not removed from the site. Instead nutrients are circulated within the same field. In total, 22 species were recorded in a walk-through the field. Small forbs and grasses like selfheal *Prunella vulgaris*, bird's-foot trefoil *Lotus corniculatus*, red fescue *Festuca rubra* and crested dog's-tail grass *Cynosurus cristatus* were very rare on the field.

In 2022, a single botanical quadrat was taken in the most species-rich part of the field. This quadrat recorded 17 sp/m². Oat-grass *Arhenatherum elatius* and Red fescue dominate the sward together with Yorkshire fog *Holcus lanatus*. Hogweed *Heracleum sphondylium* and cock's-foot *Dactylis glomarata* reduced their dominance in the field. Bird's-foot trefoil and Ribwort plantain *Plantago lanceolata* have up to 10-20% cover in some areas, but other small plants like crested dog's-tail grass were still very rare on the field.

Field 1 and Field 2 qualify as Priority Habitat Lowland Meadow, Condition B.

Phosphorus levels

Not known

Soil profiles


	<p>Soil profile at quadrat 239</p> <p><i>A horizon</i> 0 – 10 cm – very silty black coloured sandy loam</p> <p><i>B horizon</i> 10 – 25 cm – brown colour silty sand 25 – 100 cm – yellow sand saturated with water at 60 cm depth 100 - 120 cm – silty sand again</p> <p>Soil series 813g WALLASEA 2 seasonally wet deep clay. Marine alluvium. Deep stoneless clayey soils. Calcareous in places. Some deep calcareous silty soils. Flat land often with low ridges giving a complex soil pattern. Groundwater controlled by ditches and pumps. Winter cereals and some sugar beet, potatoes, cereals and field vegetables.</p>
<p>Site manager aspirations/objectives</p>	
<p>Restoration of a more 'natural' landscape to restore more meandering watercourses and associated wetland habitats e.g. reedbeds and wet grassland.</p>	
<p>Management recommendations</p>	
<p>A consistent hay cut is strongly recommended for all three fields to control false oat-grass and hogweed. Field 3 would benefit from a double hay cut (early cut in beginning-mid-June, second cut in mid-September) for 2-3 years to reduce the vigour of grass growth.</p> <p>It is recommended to submit Fields 1 and 2 (if not already) to the PHI team at Natural England HabitatInventories@naturalengland.org.uk if you want to include them for future Stewardship applications. Send this report with the botanical datasheet attached to the above email address.</p>	

Table 1. Summary of quadrat data analysis comparing 2022 to 2017

Thedlethorpe Dunes				
	Field 1 2017	2022	Field 2 2017	2022
Ellenberg F (moisture tolerance)	5.9	5.47	5.5	5.18
Ellenberg N (fertility)	4.94	4.83	4.94	4.98
Ellenberg R (reaction)	6.38	6.27	6.14	6.4
Species/quadrat (mean and range /1 m x 1 m)	19.8 (11-28)	20 (18-23)	17.2 (11-20)	16.2 (12-19)

NVC (top 2 MAVIS subcommunities)	MG4b MG4v2	MG4b MG6b	MG4b MG6b	MG4b MG4a
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Table 2. Five categories of meadow restoration progress, measured by indicator scales based on species richness, NVC similarity score and ratios of Grime's plant functional types. Adapted from Rothero, Tatarenko & Gowing, 2020.

Field 1 - 2022	Score of success/progress				
Measure	1 Failure	2	3	4	5 Success
Average scores from five botanical quadrats per field. Calculated in MAVIS					
Species richness (number of species per 1 m ²)	<8	8 to 12	13-15	16-20	>20
NVC similarity score	<50%	50-55%	55-60%	>60%	>60%
C:S ratio	1.65	1.39	1.23	1.1	1.09
S:R ratio	0.67	0.79	0.81	0.89	0.93

Table 3. Five categories of meadow restoration progress, measured by indicator scales based on species richness, NVC similarity score and ratios of Grime's plant functional types. Adapted from Rothero, Tatarenko & Gowing, 2020.

Field 2 - 2022	Score of success/progress				
Measure	1 Failure	2	3	4	5 Success
Average scores from five botanical quadrats per field. Calculated in MAVIS					
Species richness (number of species per 1 m ²)	<8	8 to 12	13-15	16-20	>20
NVC similarity score	<50%	50-55%	55-60%	>60%	>60%
C:S ratio	1.65	1.39	1.23	1.1	1.09
S:R ratio	0.67	0.79	0.81	0.89	0.93