

= Titchwell Marsh =

Titchwell Marsh is an English nature reserve owned and managed by the Royal Society for the Protection of Birds ( RSPB ) . Located on the north coast of the county of Norfolk between the villages of Titchwell and Thornham , about 8 km ( 5 @. @ 0 mi ) east of the seaside resort of Hunstanton , its 171 hectares ( 420 acres ) include reed beds , salt marshes , a freshwater lagoon and a sandy beach , with a small area of woodland near the car park .

The reserve is important for some scarce breeding birds , such as pied avocets on the islands , and western marsh harriers , Eurasian bitterns and bearded reedlings in the reeds . To encourage bitterns to breed , the reed beds have been improved to make them wetter , and the lagoon has been stocked with the common rudd . Typical wetland birds such as the water rail , reed warbler and sedge warbler also appear , and little egrets are common . The reserve has regularly attracted rarities , as its location is important for migrating birds . Ducks and geese winter at Titchwell in considerable numbers , and the reserve shelters the endangered European water vole .

Facilities include three bird hides , a seawatching platform , two nature trails , and a visitor centre . Because of concerns about climate change , a major project in 2010 and 2011 brought improvements to the banks around the freshwater lagoon and the conversion of the brackish lagoon to tidal saltmarsh , a more effective barrier to encroachment by the sea .

Titchwell Marsh is archaeologically significant , with artefacts dating back to the Upper Paleolithic , and has remains of military constructions from both world wars . These include brickwork from a First World War military hospital and 1940s artillery targets for armoured fighting vehicles and warplanes . This internationally important reserve is part of the North Norfolk Coast Site of Special Scientific Interest ( SSSI ) and the Norfolk Coast Area of Outstanding Natural Beauty ( AONB ) , and is also protected through Natura 2000 , Special Protection Area ( SPA ) and Ramsar listings .

= = History = =

= = = To 1972 = = =

Titchwell has a long history of human occupation . Populations of both Modern and Neanderthal people were present in Norfolk before the last glaciation between 100 @, @ 000 and 10 @, @ 000 years ago , and returned as the ice retreated north . The archaeological record is poor until about 20 @, @ 000 years ago , partly due to the prevailing conditions , but also because the coastline was much further north than at present , so that many sites are now under the sea . Early Mesolithic flint tools with characteristic blades up to 15 cm ( 5 @. @ 9 in ) long found on the present @- @ day coast at Titchwell date from a time when it was 60 ? 70 km ( 37 ? 43 mi ) from the sea . Other flint tools have been found dating from the Upper Paleolithic to the Neolithic . As the ice retreated during the Mesolithic , the sea level rose , filling what is now the North Sea , and bringing the Norfolk coastline much closer to its present line ; the remains of submerged forests can still be detected at low tide . By 11 @, @ 000 BC , the makers of the long blades had gone , and peat marshes had formed behind an offshore barrier island or spit . A layer of peat formed between 1920 and 1680 BC and another between 1020 and 830 BC , indicating marshy conditions ; polished Neolithic axes found in those layers were blackened by exposure to the peat .

Two possible timber platforms were identified within the peat at Titchwell , and may be prehistoric . Similar Bronze Age structures are rare , and they may be significant in providing information about early timber construction methods . Medieval and later pottery has been found at Titchwell , and the peat and silts which overlay the sediments deposited by the retreating glaciers have signs of post @- @ medieval ploughing .

The draining of Norfolk 's coastal marshes commenced in the late 17th and 18th centuries , and sea defences including the " Old Lord 's Bank " at Titchwell were shown in maps from 1786 and 1797 . For the next 170 years or so , the reclaimed marsh was arable , producing crops and beef cattle . A huge influx of Pallas 's sandgrouse into Britain in 1853 led to several arrivals at Titchwell , including

mated pairs . The last bird seen was on the saltmarsh , and the rest were on the dunes or in marram grass ; many were shot .

Thornham Marsh , immediately west of Titchwell , was used between 1914 and 1918 by the Royal Flying Corps as a bombing range . Some brickwork on Titchwell Marsh is all that remains of a military hospital dating from that period . A First World War concrete building along the west bank was let as holiday accommodation until the British Army returned in 1942 .

During the Second World War , military defences were constructed at Titchwell . The drainage of farmland behind the banks was stopped , reflooding the former marshland ; zigzag ditches were dug , and pillboxes built into Old Lord 's Bank . Between 1942 and 1945 , the marsh was used by the Royal Tank Regiment ; an armoured fighting vehicle gunnery range was established and new banks were constructed for firing practice , with targets set at 900 m ( 980 yd ) intervals . Some of the still extant islands were built to hold " pop @-@ up " targets , operated by cables from winches in a building whose foundations lie below Island Hide . Remains of the triangular concrete track used by the tanks also survive . Military activities continued after the war , with the Royal Air Force returning to Thornham Marsh between 1950 and 1959 . Bombing practice was supervised from a control tower , which was demolished in 1962 , leaving only a concrete structure opposite the end of Titchwell 's west bank . The remains of two Second World War Covenanter tanks , probably used as targets , are sometimes exposed at low tide .

The wreck of the SS Vina , a cargo steamer built in 1894 , can be seen at low tide . In 1944 , she was anchored offshore for use as an RAF target when a gale dragged her to her present location and sank her . After the war , some of the wreck was salvaged as scrap . The remains of the Vina are accessible at low tide , but visiting them is potentially hazardous as the wreck is quickly cut off and submerged by the incoming tide . A warning sign on the wreck advises anyone reaching it to return to the beach immediately .

Behind the sea wall , the marshes were drained after the war , and reverted to farmland , but the bank was breached in the North Sea flood of 1953 , returning the whole area to tidal saltmarsh dominated by sea aster . The construction of a new sea wall across the reserve created a shallow freshwater lagoon , with a reed bed on its northern side and a vegetation @-@ free brackish marsh .

= = = RSPB era = = =

Between 1970 and 1972 , a pair of Montagu 's harriers , Britain 's rarest breeding birds of prey , nested in the reed bed . The RSPB bought the reserve in 1973 for £ 53 @,@ 000 ( £ 578 @,@ 000 in 2016 ) . The Montagu 's harriers did not return , but marsh harriers did , and the RSPB commenced improving the habitat and facilities , including embanking the lagoons and building a car park and visitor centre . Avocets , then still very rare in the UK , first bred here in 1984 . The visitor centre facilities were improved between 1987 and 1989 to cope with the numbers of visitors .

In 1991 , the sea broke through the dunes at the eastern end of the beach near the former Tern Hide , and the dunes started to erode . The remains of the Second World War tanks first appeared around this time . In the following year the boardwalk at the beach end of the west bank was constructed to protect the dunes , and the seawatching platform was added at its northern end . 12 hectares ( 30 acres ) of land to the east of the reserve was bought in 1993 ; much of this was formerly part of the firing range , and large amounts of barbed wire caused problems when the area was being converted to reed bed and wet grazing meadow . Over the winter , an old hide on the West Bank was demolished and replaced with the current Island Hide . Storms in February 1996 removed most of the dunes east of the boardwalk , and eroded those to the west . The Tern Hide , now cut off at high tide , was dismantled . Developments at the end of the 20th century included the 1997 extension of the visitor centre , which included building a cafe , and the erection of Fen Hide in 1999 , together with a boardwalk path to the hide , and a dragonfly pond .

The reserve covers 171 hectares ( 420 acres ) , and is of international importance for its breeding and wintering birds . It was designated as a Site of Special Scientific Interest ( SSSI ) in 1973 , and in 1986 it was subsumed into the 7 @,@ 700 hectares ( 19 @,@ 000 acres ) North Norfolk Coast

SSSI . The larger area is now additionally protected through Natura 2000 , Special Protection Area ( SPA ) and Ramsar listings , and is part of the Norfolk Coast Area of Outstanding Natural Beauty ( AONB ) . This is the RSPB 's most visited reserve , with about 92 @, @ 000 visitors annually .

= = Access and facilities = =

Titchwell Marsh is next to the A149 road and buses stop outside the reserve . The main track to the beach is a public right @-@ of @-@ way , and the only part of the reserve where dogs are permitted . The reserve is open all year , and access is free , although non @-@ members are charged for using the car park . The main part of the reserve is accessed from the visitor centre using the 1 km ( 1 @, @ 050 yd ) West Bank footpath . After leaving the woodland around the visitor centre , there are two short paths running from the main path ; the 200 m ( 220 yd ) Fen Trail to a hide overlooking the reed bed , and the 100 m ( 110 yd ) Meadow Trail boardwalk loop through wet marsh and past the dragonfly pond . The main footpath continues north past the reedbed to the freshwater lagoon and the Island Hide , then reaches a bank running across the reserve . The new Parrinder hides are placed along this wall . The footpath continues past a tidal lagoon , and over another bank to a saltmarsh , formerly ending at a raised wooden seawatching platform on the dunes by the beach .

The visitor centre and shop are open daily except Christmas Day and Boxing Day . Most of the reserve and its facilities are wheelchair accessible , but the last part of the path to the beach is rough , and accessed via a steep bank .

= = Fauna and flora = =

= = = Birds = = =

The key breeding species are reed bed specialists such as the marsh harrier , Eurasian bittern and bearded reedling , together with the avocet , the RSPB 's symbolic bird . Bitterns stopped breeding on the reserve in 1989 due to inadequate habitat and a lack of sufficient large food fish ; although European eels , a favoured food , are present , the numbers are too low . These problems were addressed by managing water levels and excavating some of the reed bed to create open , reed @-@ fringed pools , and stocking the lagoon with the common rudd ; breeding recommenced in 2004 . In 2011 , there were 80 avocet nests , two pairs of Eurasian bitterns , and four pairs of marsh harriers , the latter successfully fledging seven young .

Other breeding birds include ringed plovers and Eurasian oystercatchers in the sand dunes , and water rails in the reed bed . Sedge , reed and Cetti 's warblers all nest in the wetland , and little egrets are now common on the reserve . In early summer , scarcer migrants like the little gull , black tern , Eurasian spoonbills and garganey may pass through on their way to breed elsewhere .

In the autumn , species arrive from the north , some , such as black @-@ tailed godwits , curlew sandpipers and little stints just passing through , pausing for a few days to refuel , others staying for the winter . This is also a good time to see bearded reedlings . Offshore , great and Arctic skuas , northern gannets and black @-@ legged kittiwakes may pass close by in favourable winds .

Large numbers of ducks winter on the reserve , including many Eurasian wigeons , Eurasian teals , mallards and gadwalls , and smaller counts of goldeneyes and northern pintails . Offshore , there may be large " rafts " of common scoters , and smaller numbers of common eiders , long @-@ tailed ducks , velvet scoters and red @-@ throated divers . Brent geese feed on sea lettuce and other green algae , and hundreds of European golden plovers may roost on the reserve at high tide . In the evenings , large flocks of pink @-@ footed geese fly over Titchwell on their way to roost , and barn owls and hen harriers quarter the marshes . This is the season for flocks of lesser redpolls , sometimes accompanied by a rarer common redpoll , and snow buntings are to be found on the beach .

The reserve 's location means that migrants may be found , sometimes in huge numbers when the

weather conditions are right . These may include vagrant rarities . A black @-@ winged stilt , which acquired the nickname " Sammy " , arrived in 1993 and became a permanent resident up to its disappearance in 2005 . Other rarities in recent years include a Baird 's sandpiper , a broad @-@ billed sandpiper , a thrush nightingale and an Arctic redpoll , all in 2004 , a stilt sandpiper in 2005 , and a black @-@ winged pratincole and a black @-@ headed wagtail in 2009 .

= = = Other animals and plants = = =

Water voles are a highly threatened species in the UK , with a huge decline in numbers , mainly due to predation by the introduced American mink . They are still common at Titchwell , which is one of a number of East Anglian sites now of national importance for this species . Both common and grey seals can be seen off the beach . Other vertebrates include European eels , common toads and three @-@ spined sticklebacks .

In summer , the dragonfly pond can hold up to ten species of dragonflies and damselflies . The nationally scarce moth flame wainscot has bred at Titchwell since 1996 ; other Lepidoptera may include migrants such as the painted lady , the diamondback moth , and especially the silver Y , which can occur in huge numbers ; 90 @,@ 000 were recorded on the reserve in July 2010 , feeding on sea lavender .

The saltmarsh contains glassworts and common cord grass in the most exposed regions , with a succession of plants following on as the marsh becomes more established : first sea aster , then mainly sea lavender , with sea purslane in the creeks and smaller areas of sea plantain and other common marsh plants . The drier areas contain maritime grasses such as sea couch grass and sea poa grass . The reedbeds are dominated by common reed with saltmarsh rush , brackish water crowfoot , sea clubrush and common bulrush also common in the various wetland habitats .

= = Recreation = =

As the RSPB 's busiest reserve , Titchwell Marsh has a significant economic impact on its locality . A 2002 survey reported that an estimated 137 @,@ 700 visitors spent £ 1 @.@ 8 million locally in 1998 . The tiny village of Titchwell has two three @-@ star hotels and a shop selling telescopes and binoculars , although it does not have a general store or a public house .

A 2005 survey at Titchwell and five other North Norfolk coastal sites found that 39 per cent of visitors gave birdwatching as the main purpose of their visit . The 7 @.@ 7 million day visitors and 5 @.@ 5 million who made overnight stays in the area in 1999 are estimated to have spent £ 122 million , and created the equivalent of 2 @,@ 325 full @-@ time jobs .

= = Threats = =

The soft rocks of the North Norfolk coast have been attacked by the sea for centuries ; at Titchwell Marsh , the beach and sand dunes protecting the northern edge of the reserve have been eroded , and climate change has increased the likelihood of damage to the freshwater areas of the reserve . The predicted increasingly stormy weather could damage the dune system and expose the soft earth banks to wave damage , or the sea could just over @-@ top the defences , as it had done in the 1953 floods . Either way , the conservation value of the reserve would be adversely affected , especially through the potential loss of the bitterns . Rather than reinforce the outer bank , it was decided to undertake a managed realignment . Between 2010 and 2011 , the banks on the east and west of the reserve were reinforced , and the sea wall to the north of the fresh marsh was rebuilt on the line of the old Parrinder bank . The old Parrinder Hide was replaced by a pair of modern hides , retaining the original name . Designed by HaysomWardMiller , these hides won an award from RIBA for their architectural style . The former brackish marsh north of the new wall has been modified by creating a breach in the east bank . This will allow tidal flooding and the eventual establishment of saltmarsh on what is now named Volunteer Marsh . The new saltmarsh will protect the rebuilt Parrinder wall , slowing erosion . Nevertheless , it is estimated that by 2060 the beach may have

advanced halfway across the new tidal area . Other improvements were made to the reed beds and islands in the freshwater lagoon , and a new sluice was installed . New reedbeds were created east of Fen Hide , which can be accessed by trails opened in 2012 . The first part of the trail is open all year , but the " autumn trail " , running up from the woodland in the southeastern corner of the reserve , is accessible only from August to October .