

Text to accompany Fens Biosphere Steering Group's *candidate* map submission to UK Man & Biosphere Committee. Prepared in advance of the UK MAB Committee meeting to take place on 6 November 2019

The Fens Biosphere is being developed within the 'Water Works' project which is funded through the People's Postcode Lottery's Dream Fund (Lead partner project 'Water Works': Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire; Lead partner Biosphere development: Cambridgeshire ACRE).

This document has been prepared with input from the Fens Biosphere Steering Group. Last updated: Cambridgeshire ACRE (MN), 29 October 2019 – V.3

About this document:

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This document has been prepared to accompany the preliminary map for the proposed Fens Biosphere reserve and its internal zonation. The key aim is to have this (draft) map approved by **UK Man and Biosphere Committee (UK MAB)** as a **candidate Biosphere map**, a key milestone in the process to nominate part of the Fens area as a new UK Biosphere reserve.

This document sets out the Fens Biosphere partnership's thinking behind the map creation in order to satisfy key UNESCO criteria around the geographical definition of a Fens Biosphere, including location and delimitation of the required three-layered zonation of the biosphere reserve i.e. core area, buffer zone and transition area.

A Fens Biosphere proposal – timeline to date

Since 2017 the partners involved in the Fens Biosphere Steering Group have been engaged in discussions with the UK Man and Biosphere Committee (UK MAB) and the UNESCO MAB Secretariat in Paris about the development of a candidate Fens Biosphere map.

From the outset it was clear that the situation in the Fens is rather different than for most other UK Biospheres, and therefore innovative solutions may need to be found to address UNESCO criteria around zonation, especially defining what would constitute the buffer zone in a Fens Biosphere. UNESCO states that: *'countries maintain flexibility at the national levels with regard to the definition of zones'.*¹ Discussions with UK MAB to date have therefore included conceptual thinking around what, in the Fens, could satisfy the UNESCO requirements for the buffer zone.

In spring 2018, following a successful funding bid from the Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire (WTBCN) to the Heritage Lottery Fund, WTBCN was able to commission Cambridgeshire ACRE to write a feasibility report (finalised Sep 2018).² That report sets out why a Biosphere for the Fens would be beneficial, how best to advance the concept of a Biosphere for the Fens area and what steps are needed to develop this further towards nomination.

In March 2019 WTBCN, in partnership with Cambridgeshire ACRE and other partners, obtained the necessary funding to deliver a two-year Fens Biosphere development project, being delivered as part of a People's Postcode Lottery-funded project *Water Works*; this is delivered from April 2019 until March 2021.³ This should culminate in the submission of a nomination form for a Fens Biosphere to UNESCO before September 2021, for designation in June or July 2022. The Fens Biosphere Steering Group will continue to play a pivotal role in developing the Biosphere towards nomination stage.

In order to further develop the Biosphere plans over the coming two years it is important to have an initial map approved by UK MAB early on in this development stage. Hence this text and accompanying map, providing UK MAB with the necessary information to allow them to progress the plans for the Fens towards (the unofficial) *'candidate Biosphere'* status. Once approved, the map will then become a 'candidate Biosphere map'. This can then be adjusted during 'candidate status' through the necessary and important discussions with all stakeholder groups (including ongoing discussions with UK MAB and the UNESCO Secretariat), before being submitted as part of the nomination by September 2021 at the latest.

Fens Biosphere Ambitions:

The Fens present a unique landscape of low-lying peat and silt soils and waterways where arable agriculture and the conservation of wetland habitats and species co-exist. However, it is also an area where the agricultural output is linked to intensive management of the land, water and other resources and where there are

¹ UNESCO website, <u>http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/main-characteristics/zoning-schemes/</u> ² Route Map towards developing a Biosphere for the Fens. Report for the Wildlife Trust BCN and the Fens Biosphere Working Group, Cambridgeshire ACRE, July 2018,

https://fenlandbiosphere.files.wordpress.com/2019/05/route-map_biosphere-reserve_fens_report_2018_final_v3.2.pdf

³ Announcement of funding form the People's Postcode Lottery Dream Fund for the 'Water Works' project, <u>https://www.wildlifebcn.org/news/water-works</u>

enormous new pressures on land use. Such pressures are exacerbated by the ongoing high population growth and the area's numerous large-scale industrial, quarrying, infrastructure and housing development sites, putting ever more pressure on the scarce soil, water and other key environmental resources.

The Fens' peat soils, the 'black gold', is one of the main reasons why this is such an important food-producing area (see maps 3 and 5 in Appendix 1, showing extent of peat in fenland and Land Use Area showing Grade 1 and Grade 2 land dominating Fens Biosphere area, largely corresponding to extent of peat soils). However, peat has become a scarce resource due to ongoing peat loss through shrinkage and fen blows caused largely by intense drainage and farming regimes: most areas that once contained deep peat soils are now reduced to wasted peat or skirt soils (see map 4 in Appendix 1, showing extent of remaining deep peat versus wasted peat in the area).⁴ The greatly diminished peat resource needs to be protected in perpetuity by developing alternative, much more sustainable ways of farming and managing the land, to include methods such as paludiculture (wet agriculture on peatlands) which is being developed through the *Water Works* project.⁵ Preserving the remaining peat soils will also provide a range of ecosystem services beyond those related directly to soil management: in particular, it would directly help carbon reduction and carbon capture efforts, drastically reducing the UK's CO2 emissions from farming, and directly contributing to the UK's new zero-carbon targets for 2050⁶ and the National Farmers Union's own target for zero carbon by 2040.⁷

The Fens Biosphere offers a platform that promotes approaches to managing resources that are less intense and damaging yet provide a viable business model for landowners and communities to deliver a wider range of environmental, social and economic benefits.

The Fens Biosphere will encourage sustainable approaches to land use, nature conservation, socio-economic development and enterprise. In the fenland context this requires working partnerships between land managers, farmers, internal drainage boards, local authorities, researchers, businesses, developers, local communities and user groups.

The Biosphere will offer better sector coordination in developing new approaches to sustainable development and management of the region, conservation of soils and water and amelioration of climate change impacts. It could also allow producers in the region to benefit by using a high-quality Biosphere origin label on their produce. Encouraging locals and tourists to visit and enjoy the special landscape, wildlife, heritage and culture of the Fens will also be an aspect of the work of the Fens Biosphere, whilst new and enhanced green spaces will improve the well-being of people who live, work or visit the area.

⁴ For the most recent (2010, using older data sets) overview of deep peat versus wasted peat in the Fens, see Natural England, 2010, England's Peatlands: carbon storage and greenhouse gases, see map in section 2 in http://publication/30021. Map 4 in Appendix 1 at the end of this document is based on the data behind this map.

⁵ Wildlife Trust BCN website, Water Works project, <u>https://www.wildlifebcn.org/news/water-works</u>

⁶ UK zero carbon ambitions by 2050; see, for instance, <u>https://www.bbc.co.uk/news/science-environment-48596775</u>

⁷ NFU, zero carbon by 2040, <u>https://www.nfuonline.com/news/latest-news/achieving-net-zero-meeting-the-climate-change-challenge/</u>

In this, the Fens Biosphere is working together with existing key initiatives such as those driven by Natural Cambridgeshire, the Local Nature Partnership for Cambridgeshire and Peterborough,⁸ around their key vision for 'Doubling Nature' and promotion of opportunities for net gain for biodiversity and the environment.⁹

By providing a partnership-led 'wrapper' for future resource management and sustainable development initiatives in the Fens, the Biosphere will provide a clear vision and pathway into the future for managing change sustainably.

In the UK Government's draft **Peat Strategy** (2019)¹⁰ and the Government's **25 Year Environment Plan¹¹** there is clear emphasis on conserving lowland peat soils. In addition, the newly launched Environment Bill (Oct 2019) will ensure that **Biodiversity Net Gain** will be a condition of planning, to be underpinned by **Local Nature Recovery Strategies** for every part of England.¹²

The 25YEP also promotes the need for the creation of a **Nature Recovery Network** (NRN). Defra is working towards the publication of a new strategy for nature to replace Biodiversity 2020, likely to emerge in 2021. The Government department is currently working out the details of this new NRN. In this, although not official policy yet, Defra has already announced that it wants to work with local partnerships to deliver projects on the ground.¹³ Moreover, it regards the UK's Biosphere Reserves as a valuable learning resource, particularly for developing partnerships at the catchment scale to deliver sustainable outcomes for the environment. Zonation of the 'Nature Recovery Areas' to be formed is also likely to closely reflect the three different areas of UNESCO Biospheres.

The Fens Biosphere can become a leading example of a Nature Recovery Network, thereby delivering wider political objectives. Locally, the Biosphere can become a leader in showcasing to Local Authorities, other decision-makers and developers how best to implement 'Net Gain principles'. In addition, it could lead the way in

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- ⁹ Natural Cambridgeshire published its vision, 'A Natural Future' in 2018, see <u>https://naturalcambridgeshire.org.uk/wp-content/uploads/2018/10/nc-a-natural-future.pdf</u> and its key target of 'Doubling Nature' was launched by Natural Cambridgeshire in July 2019, <u>https://naturalcambridgeshire.org.uk/wp-content/uploads/2019/07/Doubling-Nature-LR.pdf</u> ¹⁰ See latest on Fens Lowland Peat Pilot to feed into Peat Strategy, <u>https://naturalengland.blog.gov.uk/2019/08/12/peat-pilots-set-to-revive-english-peatlands/</u>
- ¹¹ 25 Year Environment Plan, launched January 2018, <u>https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-</u>environment-plan.pdf and see https://www.gov.uk/government/publications/25-year-environment-plan

⁸ Natural Cambridgeshire, the Local Nature Partnership for Cambridgeshire and Peterborough, <u>https://naturalcambridgeshire.org.uk/</u>

¹² Environment Bill, <u>https://publications.parliament.uk/pa/bills/cbill/2019-2020/0003/20003.pdf</u>. Biodiversity Net Gain: see clauses 88-90; Local Nature Recovery Strategies, see clauses 91-97.

¹³ DEFRA Group Discussion Paper, Nature Recovery Network: Discussion Document, <u>https://www.confor.org.uk/media/247417/nature-recovery-network_discussion-document_defra-group_april2019.pdf</u>

showcasing a range of other key benefits: water quality improvements and flood management; pollination; carbon capture; more recreational opportunities; and encouragement of innovation in sustainable food production.

Overall Fens Biosphere map concept:

The draft candidate Fens Biosphere reserve map represents an area with a recognisable landscape character and identity. The area provides for a unique combination of assets, including expansive areas of lowland wetlands containing internationally significant habitats and species. The area also contains multiple wetland vision projects intended to expand designated core areas, and several partnership-led initiatives for landscape-scale conservation in the wider landscape. In addition to the (inter-)nationally significant natural assets, the landscape is also full of highly significant archaeological, cultural and drainage engineering heritage.

Few Biospheres seem to combine its strong natural and cultural assets so well: in the Fens nature and heritage are truly interwoven. For hundreds of years there has been a close relationship in the Fens between its predominant rural, agricultural landscape character, its biodiversity value and intense human land use intervention. Farming and food production are at the beating heart of the Fens: the proposed Biosphere area covers a significant part of Cambridgeshire, a county in which 77% of its landmass is given to agriculture, which is higher than in any other county nationwide. Moreover, although the Fens cover less than 4% of England's farmed area, this fertile land produces an impressive 7% of England's total agricultural production, worth £1.23 billion annually to the economy.¹⁴

Despite this focus on food production, in the largely arable landscape and the associated ditch network that criss-crosses it, wildlife is abundant and the area is a stronghold for many rare species such as spined loach, water voles and turtle doves (although locally this is dependent on the degree of intensity of farming and the type of water and land management).

The distinctive nature of the Fens landscape has resulted in a strong focus on water, connecting all aspects of soil, land and drainage management, nature conservation and its unique fenland cultural and heritage assets including internationally important, well-preserved organic archaeological remains, such as Must Farm, Whittlesey. A UNESCO Biosphere would provide the sustainability ambitions of this key food-producing area and its multiple partners with the international recognition and local pride the area deserves. It would also provide a clear rational for investment of farming subsidies from any future targeted agri-environment schemes and enable their delivery at a landscape scale to maximise benefits.

¹⁴ Delivering for Britain: Food and Farming in the Fens', <u>https://www.nfuonline.com/pcs-pdfs/food-farming-in-the-fens_web/</u>, NFU, April 2019

Having big urban populations close to very rural areas is a relatively unusual feature for Biospheres; in the Fens this provides for great opportunities to link people with their environmental 'hinterland'. In the case of the Fens Biosphere, dense population centres such as Cambridge, Peterborough and Wisbech, together with the multiple historic fenland market towns within and around the area, including Whittlesey, Chatteris, March, Downham Market, Littleport, Ely and St Ives, will act as key gateways to its more rural fenland heart.

Beyond the currently proposed boundaries, the main rivers Cam, Great Ouse and Nene (and their tributaries) flow into this landscape and have a clear connection to the fenland at its heart as key water carriers to the fens, as key corridors connecting nature, and for recreational for the villages and market towns further out. The exact boundaries of the transition area will be further refined following stakeholder and community consultation exercises which will include the use of a Citizen Forum as a key sounding board.

Cambridge is an internationally recognised centre of academic research, with many scientifically based institutions at the forefront of developing global sustainability solutions; academia here is also closely linked to 'think tanks', cutting-edge R&D, digital industries and innovative high-tech and agri-tech businesses some of which also operate in the Fens. Peterborough has strong ambitions to become the UK's 'greenest city', investing for instance in green infrastructure. Wisbech is a potential site for a new generation of a sustainable Garden Town. Taken together, the Fens Biosphere can truly become a leader in sustainability and innovative growth, driving rural development and a more sustainable local economy.



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Above map: Fens Biosphere with proposed external boundaries, key settlements and elements that are at the core of the area's identity and are key focal areas for the Biosphere's buffer zone activities, i.e. peat soils (green) and extensive water network (blue). See Appendix 1 for supplementary mapping information.





Fens Biosphere - Geographical spread:

The draft candidate Fens Biosphere map covers several Local Authorities (see Map 7 in Appendix 1, showing key political boundaries). Core to the Fens Biosphere is the Cambridgeshire Fens, located primarily within the boundaries of Fenland and East Cambridgeshire District Councils, but also crossing the boundaries of South Cambridgeshire and Huntingdonshire District Councils.

In addition the area includes the Cambridge City Council's and Peterborough Unitary Authority's geographical boundaries. To the east the Biosphere edges across the county boundaries into Norfolk and Suffolk, covering the Norfolk and Suffolk parts of the Fens, within the jurisdiction of West Norfolk District Council and West Suffolk Council.

Cambridgeshire County Council, the four Cambridgeshire Districts, Cambridge City Council and Peterborough Unitary Authority also work together through a devolved government administration introduced only a few years ago, the Combined Authority for Cambridgeshire and Peterborough. The candidate map for the Fens Biosphere covers much of the area covered by the Combined Authority. The Combined Authority has delegated functions around transport, economic development, skills and regeneration and in 2018 also incorporated responsibilities of the former Local Enterprise Partnership for Cambridgeshire and Peterborough.

Fens Biosphere - Area size and internal zonation:

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The Fens Biosphere has three inter-related areas (core area; buffer zone; transition area), together fulfilling the three complementary and mutually reinforcing functions that Biospheres focus on, i.e. Nature Conservation; Sustainable Socio-Economic Development; and Research, Monitoring and Education. The area is of an appropriate size to serve these three functions, and it includes these functions through appropriate zoning; both are essential elements to qualify for designation as a Biosphere Reserve.

The proposed Biosphere's outer boundaries (see Map 1 in Appendix 1, presenting the Fens Biosphere base map) are defined by existing administrative boundaries at the local level, the Parish boundaries. The total area size of the proposed candidate Fens Biosphere map is 277,543 ha (*Note: This figure being verified*).

Within this boundary, the dominant soil type is peat, intermixed with silt soils (see Maps 3 and 4 in Appendix 1, showing extent of peat soils). Although there are areas with deep peat left, much of fenland's peaty soils have unfortunately degraded over the last few centuries and since the middle of the 20th century thin relict peat has in many areas been fully homogenised into alluvial ploughsoil. As explained above, this rapidly declining peat resource is a key need and driver for Biosphere partners coming together.

Fens Biosphere - Core areas:

UNESCO requires "a legally constituted core area or areas devoted to long term protection, according to the conservation objectives of the biosphere reserve, and of sufficient size to meet these objectives".¹⁵ The core areas are to comprise of those areas that are legally protected and are devoted to nature conservation, contributing to the conservation of nature, landscapes, ecosystems, species and genetic variation.

A total of 6 key sites have been included as core areas (see Appendix 2 for overview of these sites, and Map 10 in Appendix 1 showing their locations); these are the key ecological assets within the fenland landscape with existing national and international conservation designations (all are SSSIs, some are also NNRs; Natura 2000 sites; Ramsar sites).¹⁶ Key amongst these are five sites: Holme Fen NNR; Woodwalton Fen NNR, Wicken Fen NNR, Ouse Washes and Nene Washes); these are all relatively large and are internationally renowned for their wetland habitats and biodiversity.

In addition to these five large core wetland sites, there are several other smaller core wetland conservation sites shown on the candidate map for the Fens Biosphere and all are designated for conservation to at least national level as SSSI or NNR. Those sites that are surrounded or at least adjacent to a buffer zone defined by the extent of the land under management by the Internal Drainage Boards (IDBs) are included on the map (see below under 'buffer' for an understanding of the direct relationship between IDB-managed land and the buffer zone definition).

One significant SSSI site, Chippenham Fen NNR, is not located within an IDB area (as it sits at a slightly higher elevation within the landscape) but is nevertheless hydrologically contiguous with the buffer zone and has therefore been included as a core site. Chippenham Fen NNR is an important fenland wetland site, a classic and diverse fen grazed by water buffaloes. It sits within the hydrological catchment of the River Snail that is connected to the proposed Biosphere reserve IDB network via the historic Soham Lode. It also has biodiversity management standards similar to IDB areas within the buffer zone, as the River Snail is within management remit of the Environment Agency. Technically, this situation makes this area more of a valley fen than a floodplain fen like the rest of fenland, but the site is an important part of the fenland landscape and certainly part of the key fenland SAC suite.

¹⁵ See for instance http://www.unesco.org/new/en/apia/natural-sciences/biodiversity-biosphere-reserves-geoparks/frequently-asked-questions/16/

¹⁶ A further 21 sites (all SSSIs) could arguably also be put forward as core sites but are generally of a much smaller size and therefore excluded here. They appear in Appendix 2, providing further understanding of the number of designated sites in the area. In addition, it is worth noting that there is also a good number of other high value wildlife sites (County Wildlife Sites), the total acreage equalling that of the SSSIs in the area.

The total area covered by SSSIs put forward as core areas in the Fens Biosphere is 4,915 ha. Of this, the total area of SSSIs located within the buffer zone is 4,759 ha, with SSSIs located in the transition area totalling 156 ha (see also Appendix 2). Other designated sites outside of the IDB area-defined buffer zone are not included as core sites and are located within the transition area on the map.

Fens Biosphere - Buffer zone:

UNESCO requires "*a buffer zone or zones clearly identified and surrounding or contiguous to the core area or areas, where only activities compatible with the conservation objectives can take place*".¹⁷ The buffer zone needs to consist of a clearly defined area surrounding the core areas in which activities take place that are compatible with the conservation objectives of the core areas, thereby supporting the multiple functions of the Biosphere while helping to ensure the protection and natural evolution of the core area(s). The buffer zone also needs to be compatible with sound ecological practices that can reinforce scientific research, monitoring, training and education.

The key issues regarding buffer zones, as required by the criteria in the Statutory Framework of the World Network of Biosphere Reserves¹⁸, therefore, are: 1. Are they "clearly identified" (i.e., do they have clear boundaries that can be explained)? 2. Are they "surrounding or contiguous to the core area or areas"? and 3. Do only "activities compatible with the conservation objectives take place" in them?

The situation in the Fens is unusual amongst UK Biospheres in that the area does not have an existing landscape designation such as a National Park or an Area of Outstanding Natural Beauty that could readily form the default buffer zone. In order to still fit key UNESCO criteria for the buffer zone, the Fens Biosphere has gone for an alternative, locally appropriate and ecologically compatible solution in the form of the areas covered by selected Internal Drainage Board boundaries. The total area covered by the proposed buffer zone is 175,598 ha (*Note: This figure being verified*).

The Fens Biosphere's buffer zone is defined by an extraordinarily extensive and frequently biodiverse ditch network and of the surrounding, largely arable landscape that it serves. The ditch network and arable landscape together are very important in delivering buffer zone objectives, creating a well-managed,

¹⁷ See for instance <u>http://www.unesco.org/new/en/apia/natural-sciences/biodiversity-biosphere-reserves-geoparks/frequently-asked-questions/16/</u>

¹⁸ Statutory Framework of the World Network of Biosphere Reserves, UNESCO 1996, <u>https://unesdoc.unesco.org/ark:/48223/pf0000103849</u>

ecologically coherent and connected suite of sites that are in sympathetic management with the core areas, supporting their biodiversity interest, and creating a more permeable countryside through which fenland wildlife can move.

In summary, the Fens Biosphere's Buffer Zone is defined as follows (all further explained in detail below):

- 1. Boundaries of the Internal Drainage Boards which are dominated by peat or peat-remnant soils these contain conservation-sympathetic management of the ditches in the extensive 'wet net'
- 2. Land in conservation management, i.e.:
 - Boundaries of land in countryside stewardship agreements;
 - Nature-Friendly Farming Zones and Catchment Sensitive Farming clusters in the fenland area;
 - The Wildlife Trust's Living Landscapes and the RSPB's Futurescapes programmes covering the Fens;
 - Major long-term visionary restoration projects, such as the 100-year Wicken Fen Vision and the 100-year Great Fen Vision, and other ecological restoration projects in the Fens.

An **Internal Drainage Board** (IDB) is an operating authority within water catchment areas with permissive powers to undertake work to secure clean water, drainage and water level management within drainage districts. IDBs have responsibilities for the maintenance of drainage channels (drains), pumping stations and other infrastructure. IDBs carefully control water levels, to manage the risk of flooding and to provide water for irrigation of some of the most productive farmland in the country (90% of the Fens' farmland is Grade 1 or 2).

The Internal Drainage Boards (IDBs) have clearly defined boundaries and cover the areas in between and around almost all core areas (see Map 9 in Appendix 1, showing IDB boundaries covering the Fens Biosphere). Crucially, they also support activities that are compatible with the conservation objectives of those core areas, as IDBs have a statutory duty to further the conservation of wildlife in performing their duties. The exact buffer boundaries are defined by those IDBs where peat soils are the dominant soil type (Compare Maps 3 and 9 in Appendix 1, depicting peat soils and the IDB boundaries). Included in the buffer are the IDBs within the Ely Group of IDBs (area to east of Ouse Washes), the Middle Level Commissioners (area from Ouse Washes to Nene Washes) and the North Level Drainage Board (north of the Nene Washes) which contain peat soils. These three IDBs are the overarching, coordinating IDBs for the tens of more local IDBs within their boundaries. Those IDBs containing only silt soils (roughly those to the north and east from the line between the bottom ends of the Nene Washes and Ouse Washes) are either included in the transition zone or not included at all in the Fens Biosphere.

The majority of connecting ditches (see Maps 6 and 9 in Appendix 1 showing waterways network) are managed by the IDBs who have a statutory duty to maintain these waterways and improve their ecological condition, whilst conserving and enhancing their biodiversity. Wherever possible, IDBs already incorporate conservation work to benefit wildlife in their area, within their work on the ditches and drains. Many of the managed drains, ditches and waterways are already good for aquatic biota and many potentially good with further management or restoration. The IDBs' conservation duties are formalised through the implementation of the IDBs' Biodiversity Action Plans (BAPs). The BAPs focus on conserving and enhancing biodiversity on and alongside the waterways network, whilst exploring opportunities for this network to buffer core wetland sites, enhance corridors connecting core wildlife sites, and create sustainable use areas through wildlife-friendly farming practices.

The IDBs' statutory duty to conserve and enhance biodiversity will be central to the effective management of the *wet net* network of water bodies in the buffer zone, to support and link the statutory wetland sites in the core area. The **Guide to Good Ecological Potential in Fenland Waterbodies**¹⁹, developed in partnership between the EA, ADA and all IDBs in the fenland area covering the Biosphere shows how to incorporate environmental enhancements in drainage channels and is based on good practice examples developed across the Fens over the last decades.

All three overarching IDBs, as well as the national drainage authority, the Association of Drainage Authorities (ADA) have agreed and fully support that the extent of the ditch network they collectively look after should be used as the boundary for the Buffer Zone around which the Biosphere candidate map is structured. Working with the biosphere concept, the IDBs see clear opportunities to better promote wildlife corridors and the conservation value of water courses to their members and the general public.

The buffer zone surrounds and connects the core sites within the fenland landscape. At first glance the map might show an apparent lack of connectivity across the buffer zone and between it and the core sites. This, however, is deceptive: there is **great connectivity across the entire buffer zone by a vast network of water courses** (waterways, ditches, drains and other bodies of water), also connecting all the core areas in the process.

The area included in the buffer zone is almost all **at an elevation of 5 metres or less above sea level, with peat soils being the dominant soil type within this geography (see Map 3 in Appendix 1 showing 5 metre contour line and extent of peat).** Across the Fens as a whole the network of waterways (rivers, drains and ditches) crisscrossing this relatively flat fenland landscape stretches to a total length of 26,978 kilometres; Extensive areas of the **ditch network**, running through the primarily agricultural landscape, are recognised for its high biodiversity value (ditches being known in the Fens in the world of conservation as the 'hedgerows

¹⁹ Association of Drainage Authorities & Environment Agency, 2017, <u>https://www.ada.org.uk/wp-content/uploads/2017/09/Guide_GEP_Fenland_Water_Bodies_web.pdf</u>

of the Fens'). Collectively they provide the "backbone" of the biodiversity interest and potential of the buffer zone, as recognised by the Fens Biodiversity Audit (2012).²⁰

This extensive waterway network is illustrated on the map by the primary and secondary network of large and smaller rivers and main drains (see Map 2 in Appendix 1; note that the full network is much more extensive with multiple ditches and drains in between, as shown in Map 6 in Appendix 1). The Fens Biosphere partnership refers to this network as the '*wet net*'. Note that the connected drains and rivers within the buffer zone are almost exclusively straight, due to their man-made and man-managed nature, showcasing the artificial landscape created here since the late Medieval period; this contrasts with the waterways in the transition area (the 'fen edge') which are generally more sinuous, indicative of their more natural origins and relatively higher geographical situation (above circa 5 m above sea level).

Based on the geography defined by the IDBs, land management in the buffer zone will be hydrologically coherent. Terrestrial land management regimes within this area do vary but riparian, water and ditch management across the buffer zone is consistent. The conservation-sympathetic management of the ditches in the 'wet net' will be further supported by land in conservation management and countryside stewardship agreements, complimenting the key ditch network that is the key feature in this fenland landscape.

In addition to the IDBs', responsibility for management of parts of the *wet net* also lies with the Environment Agency and individual farmers/private landowners, for the main waterways and land drains respectively. These are managed and maintained in a manner complimentary to the IDBs' work on the ditches. The Environment Agency also has a statutory obligation to seek good management under the Water Framework Directive, being implemented in the surface waters of the Fens to ensure the highest ecological status or potential.

Most of the land in the buffer zone is privately owned and is either under agricultural production and/or managed for nature conservation. Many farms have **environmental stewardship agreements** (*Note: supplementary map is being created, which will show relatively large uptake of environmental stewardship schemes in the Biosphere*). Most, though not all, of the areas managed as nature reserves are owned by conservation NGOs and consist of landscape-scale ecological restoration sites that surround or are contiguous with the core nature conservation sites. These sites have typically been expanding through arable reversion since the 1990s. They are usually not designated though they have high conservation value and have also been used for innovative research and education work around issues of climate change, biodiversity loss, habitat connectivity and natural capital accounting.

Although agri-environment schemes evolve continuously, and post EU-Exit arrangements for future, similar schemes have not yet been worked out in detail, overall there has always been a high uptake of such schemes with local landowners. Moreover, there are several groups of farmers and landowners in the area who

²⁰ Fens Biodiversity Audit, 2012, <u>https://www.fensforthefuture.org.uk/admin/resources/5fensbiodiversityauditfinalreport24-10-2012.pdf</u>

actively work together to improve wildlife-friendly framing practices across the landscape, across the clusters of farms involved in schemes, with voluntary arrangements for minimum amounts of land set aside for wildlife (usually at least 10%).

Active Nature-Friendly Farming zones are being supported by the RSPB around Thorney, Manea and to the south of Ely, plus farmer clusters through Natural England's Catchment Sensitive Farming work around Somersham; each of these schemes involve many farmers and their landholdings (*Note: supplementary map is being created, which will show the locations of these farmer-led wildlife-friendly farming initiatives across the Fens Biosphere*). In addition, large areas of the fenland landscape within the buffer zone are targeted for landscape-scale conservation priorities through national schemes, most importantly the Wildlife Trust's Living Landscapes²¹ and the RSPB's Futurescapes programmes²². In all above-mentioned areas, activities are compatible with the conservation objectives for the core areas, with implementation not limited to the areas in and around the ditches, whilst ensuring that improvements are looked after in the future.

In the Fens we have key conservation organisations which are all actively involved in developing the Biosphere, most importantly the RSPB, National Trust, the Wildlife Trust BCN and the Wildfowl and Wetlands Trust. They all have strong track records in restoring fenland habitats, often adjacent or near to key core areas. In many cases, these are part of major **long-term visionary restoration projects**, such as the 100-year Wicken Fen Vision²³ and the 100-year Great Fen Vision²⁴ (*Note: supplementary map is being created, which will show the range of ecological vision projects covering parts of the Fens Biosphere*).

In addition, there are extensive and very successful **ecological restoration projects** following aggregate extraction within the proposed Biosphere area, such as the RSPB's Ouse Fen close to the southern end of the Ouse Washes, where good numbers of bitterns have returned after decades of absence in the area and which will become the UK's most extensive reedbed by the late 2020s (together with nearby RSPB Fen Drayton Lakes this provides a crucial biodiversity corridor between the Great Ouse Valley and the Ouse Washes). There are also major habitat replacement schemes being developed (and planned) by the Environment Agency, to the east of the Ouse Washes to compensate for ongoing deterioration of the SSSI status of the washland within the Ouse Washes itself. All these schemes are in active management, owned by conservation organisations or in long term lease, and are compatible with the conservation objectives for the core areas.

There are further, visionary wetland habitat restoration projects in the proposed Biosphere area including the expanding Norfolk Wildlife Trust's Wissey Living Landscape around Hilgay in the Norfolk Fens and the RSPB's Lakenheath wetland reserve in the Suffolk Fens (both are in the buffer zone). Other important

²¹ Wildlife Trust's Living Landscapes, <u>https://www.wildlifetrusts.org/about-us/vision-and-mission/living-landscapes</u>

²² RSPB Futurescapes programmes, <u>https://www.rspb.org.uk/our-work/conservation/landscape-scale-conservation/futurescapes/</u>

²³ National Trust, Wicken Fen Vision, <u>https://www.nationaltrust.org.uk/wicken-fen-nature-reserve/features/wicken-fen-vision</u>

²⁴ Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire, Great Fen, <u>http://www.greatfen.org.uk/about/introduction</u>

initiatives also partly overlap with the proposed Fens Biosphere such as the Great Ouse Valley Trust's ambitions for enhancing the Great Ouse and Fen Edge area either side of St Ives, from St Neots to Earith.²⁵ Some nature reserves are privately owned, farmer-led habitat creation initiatives within the buffer zone (e.g. Kingfisher Bridge south of Ely). The key difference with landscape-scale work in Wicken Fen, Great Fen and around the Ouse Washes is that above-mentioned initiatives are not necessarily being developed around nationally or internationally designated sites, although they are delivering equally valid ecological outputs.

To summarise, although it cannot be guaranteed that all land within the buffer will be managed in ways that are "compatible with the conservation objectives" at all times, since the majority of it is farmland in private ownership, there is high confidence that the Biosphere Reserve will help complete a transition whereby most land is managed in a way that is sympathetic and complementary (or at least not in detriment to) the conservation objectives of the core areas particularly within the wet net where the key ecological interest lies. It will do this through a diverse mix of public duties, agricultural subsidies and private initiatives as outlined above, and through future opportunities coming out of the post-Brexit ELMS and public money for public goods model to be implemented by the Government. In this respect, its ambitions, framework for delivery and scope of influence are very similar to other areas such as AONBs and NPs that already enjoy buffer zone status, despite not being able to mandate exactly how individual landowners can use their land.

Fens Biosphere - Transition area:

UNESCO requires "*an outer transition area where sustainable resource management practices are promoted and developed*".²⁶ This is the outermost area, where most people tend to live, in both urban and rural contexts. The transition area is the part of the Biosphere where most of the activities around sustainable development will take place, promoting and developing economic development that is socio-culturally and ecologically sustainable.

The Fens Biosphere transition area is based on Parish boundaries consisting of parishes in the Fens and the Fen-edge area abutting the buffer zone, with an additional key 'areas of influence' around the key urban towns and cities (Cambridge, Peterborough and Wisbech) which function as a key gateway to the fenland landscape within. Some of the main market towns and small cities such as Ely, March and Chatteris are largely built on higher ground, the 'fen isles' and are surrounded by the *wet net* in all directions: these towns are within the buffer zone, but most of the bigger conurbations are not and are instead located within the proposed transition area. Most of the population therefore lives in the transition area rather than the buffer zone.

²⁵ Great Ouse Valley Trust, <u>http://greatousevalleytrust.org.uk/</u>

²⁶ See for instance <u>http://www.unesco.org/new/en/apia/natural-sciences/biodiversity-biosphere-reserves-geoparks/frequently-asked-questions/16/</u>

The total area covered by the proposed transition area is 96,447 ha (*Note: This figure being verified*). The exact extent of the transition boundary will be decided through stakeholder and community engagement during development towards Biosphere nomination.

There is a clear identity to the Fens area identified through the outer Fens Biosphere boundary, as set out above in the section about the overall map concept. The Local Authorities covered by the transition area are also committed to sustainable development. In addition, there are known initiatives such as the Great Ouse Valley Trust that cover part of both transition and buffer zone that the Biosphere will work with to enable sustainable development and enhance the biodiversity of the area.

Historically the cities and towns within the proposed biosphere transition area had strong commercial and material links with the Fens, with many goods being transported between the two via the waterways. Today these waterways still provide important links between the cities and towns and their fenland hinterlands but with a stronger emphasis on waterborne recreational activities.

Cambridge will form an important part of the transition area. The number of academic (University of Cambridge and Anglia Ruskin University) and businesses dealing with sustainability, climate change and agri-tech developments is vast and still growing. In addition, there are bodies such as the Cambridge Conservation Initiative (CCI), a partnership between the University of Cambridge and leading national and international biodiversity conservation organisations, and Cambridge Conservation Forum (CCF), a collaboration of over seventy conservation organisations, aiming to influence biodiversity conservation locally, nationally and worldwide. The CCF provides unique networking opportunities for the huge number of Cambridge-based organisations, institutions and consultancies with a focus on biodiversity conservation and/or sustainability of natural resource use; this is the largest such cluster anywhere in the world, with many organisations actively involved in research, conservation and development of the Fens and shaping its future character. The Global Sustainability Institute (GSI) of Anglia Ruskin University is committed to developing practical solutions to local and global sustainability challenges through research and education and is actively involved in Fenland projects.

Appendix 1: Further maps.

Map 1: Fens Biosphere - 'Base-map', showing overall geography and internal zonation proposed:



Fens Biosphere - Supplementary maps :







Map 3: Peat and 5 metre contour line, showing extent of area classified as part of the Fens:



Map 4: Map showing extent of deep peat versus 'wasted peat', based on most recent data compiled originally published by Natural England in 2010:



Map 5: Agricultural land classification, showing extent of Grade 1 and Grade 2 soils in this part of the Fens:



Map 6: Map showing full network of ditches, drains, rivers and other water courses across the proposed Fens Biosphere geography:



Map 7: Local Planning Authorities covered by the proposed Fens Biosphere, also showing the key core wetland sites:

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Map 8: Local Planning Authorities (purple) and Parish Council boundaries (black). Parish boundaries form the basis for the external boundaries of the Fens Biosphere:



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Map 9: IDB boundaries (black lines) with their names. These statutory IDB boundaries form the basis for the buffer zone definition:

Map 10: Key SSSIs in area:



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Appendix 2: Overview of SSSIs included as core areas within the draft candidate Fens Biosphere map:

			Interest	Other designations for this site			
	SSSI name	SSSI area (ha)	type				
Designated sites included as core areas for proposed Fens Biosphere							
1	Woodwalton Fen	208.65	Biological	Ramsar, NNR, SAC			
2	Nene Washes (Whittlesey)	1512.29	Biological	Ramsar, SAC, SPA			
3	Wicken Fen	255.04	Biological	Ramsar, NNR, SAC			
4	Holme Fen	269.41	Biological	NNR			
5	Ouse Washes	2513.55	Biological	Ramsar, SAC			
6	Chippenham Fen & Snailwell Poor's Fen	155.57	Biological	NNR, Ramsar, SAC			
Other SSSIs, generally much smaller; not included as core areas for proposed Fens Biosphere							
7	Histon Road	0.62	Geological				
8	Chettisham Meadow	0.68	Biological				
9	Upwood Meadows	6.03	Biological				
10	Berry Fen	15.28	Biological				
11	Delph Bridge Drain	0.14	Biological				
12	Soham Wet Horse Fen	33.80	Biological				
13	Woodwalton Marsh	0.76	Biological				
14	Adventurers' Land	10.12	Geological				
15	Stow cum Quy Fen	29.86	Biological				
16	Warboys Clay Pit	12.64	Geological				
17	Warboys & Wistow Wood	44.49	Biological				
			Mixed				
18	Ely Pits and Meadows	85.84	Interest				
19	Dogsthorpe Star Pit, Peterborough	36.36	Biological				
20	Brackland Rough	10.69	Biological				

21	Wilbraham Fens	61.99	Biological	
22	Upware North Pit	1.08	Biological	
23	Upware South Pit	1.09	Geological	
24	Cam Washes	166.52	Biological	
25	Bassenhally Pit	8.60	Biological	
26	Devils Dyke	39.77	Biological	
27	Snailwell Meadows	15.20	Biological	

Note: SSSI = Special Site of Scientific Interest; NNR = National Nature Reserve; SAC = Special Area of Conservation; SPA = Special Protection Area.