

**Conservation Management:
Update on Practical Work and Monitoring**
Report by Environment and Design Supervisor

Summary: This report summarises the practical conservation work delivered by the Authority from its revenue budgets and operational workforce. Conservation practical work, and other work requiring ecologically sensitive delivery, is planned and managed by the Environment and Design Team. The significance of routine fen management in the annual work plan is highlighted, as is the integrated nature of construction and maintenance work delivering a range of corporate priorities and projects. On-going challenges in planning effective ecological surveying and monitoring, on land and water, is summarised, with key work areas for further development in 2014/15 outlined.

Recommendation: That the Authority

- (i) notes this update on the practical conservation work;
- (ii) supports the proposed expansion of fen sites under Authority management noted in Section 2.4; and
- (iii) supports the suggested changes to water plant monitoring outlined in Section 4.

1 Practical Conservation Overview

- 1.1 Routine practical conservation work delivered by the Authority focusses primarily on management of fens, with invasive species control and waterbody restoration work also featuring on an annual basis. A 20% allocation of Operations Technicians time is currently devoted to work focussed on achieving the Authority's first purpose, to conserve and enhance the natural beauty, wildlife and cultural heritage of the Broads. At current staffing levels, this equates to roughly 1000 work days. This proportion of time for practical conservation work is in line with operational budgets set to meet the 60/40 split between navigation and national park expenditure.
- 1.2 As a brief overview of practices, work in the fen habitat involves grazing by ponies or mechanically cutting the tall vegetation, including reeds, grasses and sedges; clearing drainage dykes of silt and plants; and removing trees and scrub from the open fen areas. Invasive plant species that the Authority actively controls includes Himalayan balsam, Japanese knotweed, giant hogweed, Australian swamp stonecrop, parrot's feather and floating pennywort. All these species spread to the detriment of already vulnerable Broadland habitats and native species. Current restoration and management

work in broads and rivers, to improve ecological features and water quality, ranges from small scale fish removal work (biomanipulation) to erosion protection to restore vegetated edges and islands. Costs and income associated with these work areas is summarised for 2013/14 in Table 1 below.

Table 1. 2013/14 income and expenditure for practical conservation

	External Income	Planned cost ^a	Actual costs (to end Feb 2014)
Fen management	106,000	240,700	209,860
Invasives control	0	21,000	19,140
Lake/Riverbank management ^b	40,760	53,000	49,450
Total	145,760	314,700	278,450

^a – costs = operations technicians & Environment & Design Team time; BA plant costs; revenue budget expenditure

^b - includes all Trinity Broad's Partnership work

- 1.3 On a staff time and budget expenditure basis, the fen work is the largest part of the practical conservation programme. It is also the largest source of regular income, being funded primarily through agri-environment payments to landowners administered by Natural England.

Table 2. Annual income from practical management on fen sites 2013/14

Site	Scheme/Contribution	Annual amount £
How Hill, Ludham	HLS (Higher Level Stewardship)	45,350
	SPS (Single Payment Scheme)	4,500
Horning Marsh Farm, Horning	HLS held by Broad's Authority	7,900
	Landowner contribution	3,500
Whitlingham Marsh, Anglian Water	Individual Management Agreements with Broad's Authority	25,750
Decoy Carr, Acle		
Mill Marsh, Barton Turf		
Stanley Carr, Aldeby		
Snipe Marsh, Ludham		
Common Fen, Smallburgh		
Lamb's Marsh, Irstead		
Hulver Ground, Horning		
Hall Fen, Irstead		
Whitlingham Marsh, Norwich City Council		
Burgh Common	Natural England funded	19,000
Ludham Marshes		
Rollesby Poor's Land		
Capital equipment		
Total income		£106,000

The Authority itself holds two Higher Level Stewardship (HLS) schemes, at How Hill and Horning Marsh Farm. The Authority's land at Locks Meadow, Geldeston and Cary's Meadow, Thorpe St Andrew, also attract Single Payment Scheme (SPS) income. Other management agreements exist for an additional 11 priority biodiversity fen sites owned by a variety of third parties, typically holding their own HLS agreements. The annual work programming, budget planning and monitoring is carried out by the Environment & Design Team, with individual Environment Officers having responsibility for the sites listed in Table 2.

- 1.4 Ecological monitoring and mapping of the priority fen and open water broads habitats forms an integral part of the active management work delivered in-house. Monitoring to enhance knowledge and evidence of the success of management actions, or site trends in habitat quality that require redress, is carried out as part of the annual programme.
- 1.5 The direction of the practical conservation programme for the Broads Authority is guided by the Biodiversity and Water Strategy. The routine works delivered by operational teams are planned to protect and maximise opportunities for biodiversity. When funding and resource allows, specific projects can also be planned and delivered within the annual work programme to meet wider corporate objectives.

2 Fen Management by the Broads Authority

- 2.1 Currently 238 hectares of fen habitat are managed by the Broads Authority under the management agreements set out in Table 2. Table 3 below gives the areas and lengths of fen and dykes managed in 2013/14. Highlighted examples of work on fen sites carried out in 2013/14 includes:

Table 3. Areas and lengths of various fen management work in 2013/14

Fen & reedbed cutting & mowing ^a	15.9 ha
Scrub Clearance	3.6 ha
Pony Grazing	61.1 ha
Ride & dyke bank mowing	7.3 km
Dyke clearance & reprofiling	4.6 km

a – not including commercial cutting

- (i) Hall Fen, Irstead – half of the dyke system was de-silted, as per the HLS agreement. Following pre-works ecological surveys, an abundant water vole population was found along the dykes. Mitigation work to temporarily displace water voles ahead of the excavator work was required. Capital funding from Natural England was also secured, which has allowed restoration of a turf pond whilst the excavator was on site.
- (ii) Cutting agreements with new reed and sedge cutters have been drawn up to regularise the relationship between the Authority and those who

operate commercially on land we manage. Two new reed cutters, Lawrence Watts and Chris Henshall, now have direct agreements to cut reed in specific locations at How Hill and Mill Marsh, Barton Turf, respectively.

- (iii) Burgh Common, Fleggburgh – this year the Authority entered into a brand new ten year agreement with the Burgh of St Margaret & Billockby Trustees of the Poor for management of specific elements of their HLS agreement at Burgh Common. The first restoration job completed was re-profiling some of the older dykes in the centre of the site. An area of fen was also mown by staff using walk behind mowers, assisted by volunteers who raked and heaped up the cuttings off the peat surface.
- (iv) Stanley Carrs, Aldeby – reed cutting at this site in the Waveney valley is a regular feature in the annual work programme, with Operations Technician, Ranger and volunteer involvement co-ordinated by an Environment Officer. Different parts of the fen reedbed are cut on rotation each year, with scrub clearance also taking place to keep trees out of the open fen habitat.

2.2 The fen programme for 2014/15 includes:-

- (i) Delivery of the new fen harvester. August will see the first use of the new 120 h.p. Softrak “Cut & Collect” machine, made on a new design for the Authority by the UK firm, LogLogic. The flail cutting head enables vegetation to be cut and blown into the large bin on the tracked vehicle. Sites lined up for cutting in the coming year include Barton Fen, Barton Turf, Whitlingham Marshes, How Hill and Lamb’s Marsh, Irstead. We continue to work with landowners and their agricultural neighbours to seek for sustainable use for fen arisings, with potential for composting or bioenergy, where and when opportunities become available. The new machine will also be used for meadow cutting at Authority sites previously cut by hand. It can also prepare works sites by removing vegetation ahead of operations using heavy construction plant.
- (ii) Using pony grazing to follow up mechanical cutting of reed and rush in areas at How Hill where an improved mixture of flowering plants is desirable to help support swallowtail butterfly populations.
- (iii) Increasing the area of wet fen habitat at Buttle Marsh, Ludham, the former arable land that the Authority reverted back to semi-natural habitat over 12 years ago, is being planned. There is one final area that has not fully developed with typical wetland vegetation, so a lowering of the soil surface will enable the whole site to meet target objectives.

2.3 Engagement with landowners of high quality biodiversity habitats in the Broads is currently underway to bring more area under agreed conservation management. Prioritisation of sites and work activities will be dependant upon

biodiversity priority and targets potentially met; Authority resource capacity; and gaining appropriate agreement with the landowner.

- 2.4 Monitoring the impacts of mechanised fen harvesting is a priority this coming year, as future consenting from Natural England on very sensitive sites requires an evaluation of operational practice and effects on peat structure and vegetation growth. The outcomes of this work being lead by Sue Stephenson will be reported by March 2015.

3 Integrated Conservation Management

- 3.1 Integration of multiple benefits into all practical work areas is high priority in the planning and management of routine and project work delivered by operational staff and contractors. Examples during 2013/14 includes:
- (i) River Ant erosion protection, Irstead – funding from Natural England’s Water Framework Directive was gained to protect the river edge that bounds Hall Fen, part of the Ant Broads and Marshes SSSI. Ingress of river water would threaten the fen and ditch habitat quality, so additional erosion protection was required. The solution developed, with input from the Rivers Engineer, combines bioengineering and soft erosion protection to prevent bank erosion, whilst enhancing the plant growth along the edge of the navigable river.
 - (ii) Slutton’s Dyke, Oulton access clearance – increasing the area of quiet enjoyment on the navigable system needs to be sensitive to protected habitats and species. Slutton’s Dyke, on the western edge of Oulton Broad, had all but closed up, so limited clearance was required to allow canoe passage. Given the difficult working conditions, two amphibious machines were brought in to cut vegetation and dig out shallow areas from the dyke.
 - (iii) Duck Broad vegetation establishment, Upper Thurne – where pumped sediment has been contained in the gabion basket lagoons, the planting and monitoring of plant establishment is crucial to the successful finish of this project design. Following the successful reed establishment in the trial area, planting has taken place on the whole basket perimeter. Through regular monitoring the invasive wetland plant buttonweed was spotted and removed by hand. Further planting is planned for 2014/15 to build on the initial successes in this habitat creation scheme.

4 Update on Broads Water Plant Surveys

- 4.1 The Broads Authority has been surveying water plants within the open water broads since 1983 and has consequently collated a valuable dataset which allows monitoring and analysis of long terms trends of aquatic plants across the Broads wetland system. Water plant surveys in the navigable rivers have been more ad-hoc, depending on local management issues.

- 4.2 Last summers surveys suggest that plant growth and species diversity recovered in 2013, compared to 2012. The cold, wet summer in 2012 resulted in poor plant growth in most locations across the Broads. For example in the Upper Thurne, 2013 was a productive year for plants in Heigham Sound with nine species recorded, the highest number found in the last five years. Encouragingly, the species identified included the Red Data Book (vulnerable), starry stonewort *Nitellopsis obtusa*. Similarly at Hickling, 2013 data indicated a slight increase in the proportions of stoneworts with their highest abundance recorded since 2005. Overall plant abundance in Hickling is however still very low. Horsey Mere continues to have a very low number of species present and in low abundance.
- 4.3 Those broads on the Bure with open connectivity to the river system continued to show the lowest levels of species richness and abundance throughout the Broads. At the isolated Cockshoot broad however, the overall levels of relative plant abundance were the highest since 2009. Opposite stonewort *Chara contraria*, common stonewort *C. vulgaris* and fragile stonewort *C. globularis* were all recorded in 2013 having not been present since 2007. The overall number of species totalled 11, also the highest number for at least five years. Mudpumping of the dyke connected to Cockshoot Broad was completed in 2011. Since then the amount of filamentous algae has markedly decreased, holly-leaved naiad *Najas marina* has spread and other species have appeared in the dyke, adding to the overall improvement of the site.
- 4.4 There are officer and partner organisation concerns that the current survey methodology is becoming increasingly unsuitable and impractical since it's original development in the early 1980's, when very few water plants were present in most broads. The rake trawl method is suitable where small quantities of plants are present, however, where high plant volumes are present in broads like the Martham Broads, it is becoming increasingly difficult to apply the methodology in an accurate, robust and repeatable manner. In order to resolve this issue, the Broads Authority and other interested parties have been investigating alternative methods for aquatic plant survey. Over the last three years, the Authority has been conducting duplicate surveys of particular broads using the current transect based method and a new point based method. The Broads Authority has commissioned a review of these methods and is currently awaiting the final results, before fully committing to a Broads wide shift to the point sampling method.
- 4.5 Development of a regular water plant survey in the navigable river reaches is a priority for the Environment & Design Team during summer 2014. Many upper reaches of the Broads rivers are seeing increased plant growth and spatial extent downstream, as water quality and clarity improves. Close working with the Environment Agency is required, to avoid duplication of their surveys. Better understanding and data on river plant growth will enable protection of any rare species and also inform weed-cutting operations for navigational access.

Background papers: Summary of the Findings of the Annual Macrophyte Survey 2013,
Broads Forum 6 February 2014

Broads Annual Water Plant Survey
<http://www.broads-authority.gov.uk/annual-waterplant-survey.html> (temporary link until 31/4/14)

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Broads Plan Objectives: BD4; BD6 – Biodiversity
NA3 Management of the Navigation Area
TR1 Tourism, Recreation and Access

Appendices: None