

heCommittee(s):	Date(s):
Epping Forest & Commons	21 November 2016
Subject: Environmental update	Public
Report of: Superintendent of The Commons	For Information

Summary

An update is provided on the environmental and planning issues facing Burnham Beeches and Stoke Common. Such updates are provided for Members on an occasional basis 'as and when' there are sufficient issues to report. The last update was provided to this committee in 2013 and on this occasion the report provides background information to inform newer members of the issues and their history.

Information in this report summarises the results of survey work and monitoring being carried out to ensure that management is appropriate to the world as it changes around the sites. It also highlights current problems such as evaluating and mitigating the impact of local development and of the finding resources necessary to meet the cost of these increasing demands.

Maintaining close working relationships with statutory agencies such as South Bucks District Council and Natural England helps to ensure that appropriate site protection can be achieved via the Council's Local Plan. It also ensures that the status of the Beeches is taken into account in relation to 'new' issues like such as future development at Heathrow airport.

Regular monitoring has highlighted some issues over the last year and resources are being redirected to meet additional work wherever possible. The main areas of concern relate to dust levels which are quite high, the pond outflows require investigation and, despite considerable work, the continuing decline of the old pollard trees, albeit not as fast as prior to the halo clearance and gradual reduction of recent years.

Volunteers and adhoc visits from local naturalists and Societies continue to play key roles in building up a picture of the wealth of rare species that the sites support and supporting staff with regular monitoring and data input.

Recommendation(s) Members are asked to:

- Note the contents of this report

Main Report

Background

1. This report is provided to update the Committee on the progress of various planning and environmental issues that may impact on Burnham Beeches SAC and Stoke Common SSSI. Recent progress with biological monitoring and survey work is also outlined.

Current Position

East Burnham Quarry – History of workings

2. East Burnham Quarry was given planning consent following a Public Enquiry in 1991 at which the City of London unsuccessfully objected to the development on the grounds that it would negatively impact on Burnham Beeches. The site is located less than 600m from the Beeches at its nearest point. Phase 1 of the quarry (that furthest from the Beeches) was completed in 2006 and there was then period of inactivity that ended in 2015. Phase 2 extractions of sand and gravel commenced in October 2015 and the quarry has been operational since then with activity increasing throughout 2016. The first working cell has had almost all the mineral extracted and the quarry operator, Summerleaze Ltd. has indicated that they foresee a cessation of extraction at the beginning of November. They will then start preparing for the landfill of inert clay into the void. The anticipation is that working will commence again in early spring 2017 with infilling of the first cell taking place at the same time as extraction from the second cell, one of those physically closest to Burnham Beeches.

East Burnham Quarry – Hydrology

3. One of the planning conditions imposed on the quarry operator was that hydrological monitoring should be carried out regularly to ensure that there is no impact of the workings on Burnham Beeches. The concern is two-fold, that, during extraction the water table in the Beeches may be drawn down, and that after infilling, the water table may rise. Underground water levels are measured fortnightly by Summerleaze Ltd across a network of dipwells in the southern part of Burnham Beeches and on land between the Beeches and the quarry. A protocol agreed by all parties (including the mineral planning authority – Bucks County Council) state that the measurements should be sent to an independent hydrologist (paid for by Summerleaze Ltd.) who compares the readings with agreed 'envelopes' and, in conjunction with information about water pumping within the quarry site, comes to an opinion as to whether the quarry activities have had any impact.
4. Along the northern edge of the quarry site a recharge ditch has been constructed which provides a method of moving water around within the site to improve the situation in the Beeches if necessary.
5. Currently the dipwell readings are mostly being taken regularly but there are occasions when they are not taken promptly. Negligible water management has been required by the quarry operator and the hydrologist is of the opinion

that there have not been any changes to the water levels in the Beeches that can be attributed to the quarrying operations

East Burnham Quarry - Dust

6. The quarry operator runs a dust monitoring point in the Burnham Beeches Estate yard and also has equipment to dampen dust along the roads and tracks in the quarry site. In addition, the City of London carries out some simple dust monitoring within the Beeches using sticky pads which are sent to a laboratory for both analysis and interpretation of the results. Levels in the last 18 months since recommencement of the quarrying have regularly produced high levels of dust. Five monitoring periods recorded levels defined as 'objectionable' in terms of public responses (exceeding 0.70% Estimated Area Cover per day) and the majority of the others were defined as 'possible complaints'. The quarry operator has questioned whether the high dust levels are as a result of the quarry workings or the many smaller development sites around the edge of the Beeches, which certainly must contribute to dust levels.
7. Discussions with the consultants, along with Natural England's Air Quality Adviser, suggest that it would be beneficial to increase the monitoring to include a method that provides figures more comparable with National guidelines (per volume of air rather than area covered on a sticky pad), a directional component and the ability to analyse the dust content to better establish its origin. Some of these methods were used in the past in the Beeches but ceased when the quarry was not operating. It is unlikely that Natural England or the quarry operator will be willing to fund this extra monitoring.
8. Various funds have been explored for grants but none so far have been applicable. It is likely that this increased monitoring will be needed for a period of 3-4 years while the nearest cells are being worked. Infilling may be just as dusty as the extraction, although the initial soil stripping is probably the activity that produces the most dust. Staff from the Markets & Consumer Protection Department have offered to lend some equipment to help build up a better picture of the background dust levels and the impacts of different activities, although this will not address all the recommendations. Natural England have provided guidance on the best course of action should dust levels be shown to be elevated and impacts seen on the Beeches (including sensitive plants such as lichens). This issue will be added to the local risk register and where possible local risk budgets will be used to meet the demand.

East Burnham Quarry - Lichens

9. Lichens within the Beeches are studied in relation to the impact of dusts from the quarry site. Permanent quadrats (specific areas on trees) were set up on oak trees in 1993 (at the time there were very few lichens on beech trees). They are monitored each year by a lichenologist and the number of species, area of cover and health of the lichens recorded. A set of triggers have been established which would indicate cause for concern over changes in air quality. 21 quadrats were recorded in 2016, no triggers were exceeded.

East Burnham Quarry - Liaison meetings

10. The mineral Planning Authority (Bucks County Council - BCC) is responsible for ensuring compliance of the quarry operator with the planning conditions. Prior to 2015, when the quarry was operational, liaison meetings chaired by BCC and attended by key organisations and adjacent Local Authorities were held six monthly to air issues of concern and find solutions. One indoor and an additional site visit were held in 2015 but despite repeated reminders no further meetings have been organised. It seems that shortage of staff and pressure of work has resulted in this not being a priority for the County Council. Instead, CoL officers have liaised independently with one of the Directors of Summerleaze Ltd and regular site visits made to ensure a good working relationship continues and to provide a forum to raise issues of concern.

Progress with local plan – South Bucks District Council (SBDC)

11. SBDC are making very active progress with their Local Plan. Regular meetings have been held with Planning Policy Officers and Natural England to ensure that the status of Burnham Beeches as a Special Area of Conservation (SAC) is taken into consideration when discussion housing allocations. SBDC are also holding discussions with neighbouring authorities such as Slough Borough Council through the 'duty to cooperate' requirement.
12. The next document for consultation has just been released which is a presentation of the preferred options for the release of Greenbelt in the district. This is the result of detailed consideration of over 400 sites submitted in the call for sites earlier in the year. 15 sites are suggested which would accommodate roughly 50% of the housing allocation for the District. Currently only one release site is within 5km of Burnham Beeches, at Beaconsfield, which is a large one suitable to accommodate 1500-1700 homes.
13. The main concern over the impact of additional housing in close proximity of Burnham Beeches is the increased visitor footfall and associated air quality issues due to housing and cars. The Beaconsfield site is large enough that sufficient green infrastructure can be accommodated within the development proposals. The other 50% of the housing requirements will need to be met by windfall and this will have to be accommodated within the existing settlements and outside green belt, which will no doubt include Farnham Common and other village envelopes within 5km of the Beeches. A Habitats Regulations Assessment will be needed for the local plan and thus the consequences of these windfall developments on the SAC will need to be addressed. Ongoing discussions between SBDC, NE and CoL are attempting to find a long term solution.
14. It is hoped that the Local Plan can be finalised in 2017 but the housing allocations for all the Local Authority areas adjacent to South Bucks, which includes Slough, Windsor & Maidenhead and Wycombe are all trying to shift allocation between each other (and Aylesbury Vale further to the north) so the situation is subject to flux and each are dependent on each other. In addition Slough have been given an extra year to produce their plan because of the impact of the Heathrow expansion.

Heathrow Airport

15. The decision to build a third runway at Heathrow will impact directly and indirectly on the SBDC area. It will also impact greatly on several other sites of nature conservation interest. There are likely impacts on Burnham Beeches in terms of air quality issues as well as through increased demand for housing locally. Both SBDC and NE are already in discussions with Heathrow concerning environmental issues and Burnham Beeches will be included as one of their issues of concern.

Thames Water & the Nile

16. Over the last three years we have been contacted periodically by the resident of a property which adjoins the Nile Stream, slightly up-stream of where it enters the Beeches. In periods of heavy rain the property's sewers overflow and contaminated water flows into the Nile. This has often been followed up by chemicals used by Thames Water to clean up the situation. Your officers (along with two local residents) have been in contact with Thames Water each time this has occurred. We have been told that the system is designed to respond this way in periods of especially heavy rain and that it only happens in exceptional circumstances. However, this is now happening on a far from exceptional basis (five times in the last 12 months). Thames Water has assigned an officer to the case and CoL officers will continue to push for a long term resolution.

Pond outflow and survey

17. The outflows of two of the ponds in Burnham Beeches were surveyed in 2011. One is leaking and both have outflows initially constructed in the 1940's which are made up of a mixture of different materials capped with concrete. At the time there was a proposal to replace both outflows with a simpler structure, more in keeping with the ponds' natural appearances but at significant cost. Due, at that time, to the lower priority of these in relation to dams in other CoL open spaces, work on this plan was postponed. In summer 2016 the ponds were visited by two Engineers from the City Surveyors Department. In their opinion, complete replacement of the outflows was not needed although there is still a need for the leak to be resolved and its cause established. Various lower cost proposals have been suggested and the favourite option currently is to engage an initial contractor to carry out a CCTV assessment of the pipes to see if the cause of the leak can be established.
18. This summer a biodiversity survey of the two ponds was carried out, including the plants and invertebrates. The Fresh Water Habitats Trust was employed to do this, although the field work has been completed not all the samples have been identified yet; the report is due by the end of the year. Sadly one of the key dragonfly species that bred in Middle Pond (Downey Emerald) was not seen, and hasn't been seen for several years now. Visitors have expressed concern recently about the encroaching vegetation within the ponds and the report will include recommendations for management.

Regular monitoring of vegetation

19. During the summer months the vegetation in 16 different plots in Burnham Beeches is monitored. The plots were started in various years but many of them date back to 1990 and they document the transition of various areas

through management from secondary woodland to heathland, mire or wood pasture with a series of controls that are still dominated by dense woodland. The results are used each year to compare with targets outlined in the management plan to ensure that the ongoing management is having the desired impact. Several of these plots have additionally been analysed using multivariate statistics and it is hoped will be the subject of a scientific publication.

Regular monitoring – Impact of grazing

20. In addition to the vegetation plots described above, those areas of the Beeches that are grazed are assessed with specific consideration to the impact of grazing. A Grazing Impact Assessment (GIA) system is used based on a detailed study in 2006 adapting a method devised by Natural England for monitoring grazing on heathlands. The subsequent annual check focuses on the impact of the grazing/browsing livestock on trees, shrubs and ground vegetation as well as the Scheduled Ancient Monuments. It also enables a quick check to be made of particular rare species within the Beeches and ensures that the impact of the grazing is examined in a critical way. For the first time in 2016 a GIA was carried out for the northern part of the Beeches where grazing has been possible due to the virtual fences. The recommendations from the GIA include ensuring a watching brief is maintained in a two small areas that may be subject to trampling pressure or heavier browsing pressure but do not highlight any areas of major concern.

Regular monitoring of pitfall traps

21. Within the wood pasture restoration area the ground running invertebrates have been recorded through the use of pitfall traps (plastic drinking cups sunk into the ground). A similar set of traps are located nearby in an area still dominated by secondary woodland. These traps have now been running for 26 years, for the last 10 years or so entirely through the use of volunteers who service the traps, sort the catches and identify the invertebrates. In the last year all the data has been put onto spreadsheets and when budgets allow a scientist at the Natural History Museum will do the analysis for us. It is an unrivalled database documenting changes over this period of time.

Visitor counts

22. Automatic car counters record the numbers of cars through the main gate at Burnham Beeches (as well as some of the public roads). Periodically (approximately every 5 years) this is calibrated by counting the number of people and dogs in the cars. At the same time counts are also made of visitors using the other smaller entrances around the Beeches. These counts have recently been made over the period of a year (2015-6) to encompass a variety of different weather conditions, school holidays, term time etc. The last counting day was in August. The data was all put on to a data base by a volunteer and sent to a consultant for analysis. The report is due in December 2016.

23. Recent finds

24. Survey work by volunteers, biological recording groups and contractors has added to the species list for the Beeches and 're-found' some unusual species. Interesting finds include:

25. Plants: *Stellaria pallida* (Lesser Chickweed) county scarce; *Potentilla argentea* (Hoary Cinquefoil) last seen in BB in 1987; *Cerastium diffusum* (Sea Mouse-ear) 4th record for Bucks; *Trifolium arvense* (Hare's-foot clover) on the café roof, the first record for Burnham Beeches since 1926; *Filago minima* last seen in BB in 1977; *Geranium rotundifolium*, last seen in BB in 1954. Several of these species are in areas where the grazing has been re-introduced recently using the virtual fences.
26. Lichens: A visit from two members of the British Lichen Society resulted in the discovery of *Bacidia incompta* a Red Data Book species listed as vulnerable on an ancient pollard, four species considered to be 'notable' and new to the site, two species of fungi that grow on lichens, one only previously known from one other site in the UK and the other first discovered in the country in February 2016 and a fungus living on holly leaves that was formerly thought to be a lichen and has been found in less than 12 sites in the UK.
27. Beetles: Burnham Beeches was part of a National Project using pheromone traps to look for a range of Long-horn beetles, many of which are associated with decaying wood in veteran trees. This was the second year of the project and for the second year running we recorded no beetles in the traps (two ran during the summer months). Similar 'nil returns' were recorded for many of the other trap locations.

Old pollard work programme

28. All the old pollards in Burnham Beeches were resurveyed in winter 2015 with a view to renewing the work programme for the trees for the forthcoming 10 years. Due to pressure of work the report and final work programme was not completed until 2016. There are currently 382 live ancient pollards in Burnham Beeches. 388 trees have had some sort of restoration work carried out on them, many of these several times. Calculation of the mortality rate for the trees shows that this has declined since the commencement of the restoration work. Studies elsewhere suggest that a population of at least 160 hollow trees, at a density of at least 2.8 per hectare and a mortality rate of no less than 1.3% per year is required to support a long term and thriving population of invertebrates associated with such trees. For Burnham Beeches the figures are: Beech - 306 old pollards at a density of 1.8/ha and a mortality rate of 1.61%. Oak – 76 old pollards, 0.4 trees/ha and a mortality rate of 0.37%. These figures suggest that there is cause for concern for both species but for slightly different reasons. There are other trees within Burnham Beeches that are hollow and provide some suitable decaying wood habitat but considerably fewer oak than beech. Previous studies have also shown that there is a recruitment gap for both species, but most pronounced for oak.

Bat surveys

29. Old pollards are surveyed remotely for bat roosts in the summer prior to winter restoration cutting work. This year 30 trees were surveyed using Anabat which is a detector that is left out in or near the trees overnight and the recordings subsequently analysed. The likely presence of bat roosts nearby are indicated by the number of bat passes per 30 minute period (the bat

species are not identified as this is too time consuming, although it could be done at a late date). Although no roosts were confirmed, four trees were found that will be subject to careful inspections immediately prior to the pruning work being carried out. 2016 is the last year this type of survey will be carried out as the new Departmental Bat Policy places more emphasis on climbing inspections prior to cutting.

Rothamsted moth trap

30. The static light trap to record moths on a nightly basis as part of a very long term monitoring network continues to run each night close to the office at Burnham Beeches. The network provides crucial information about the appearance and spread of species of concern as well as documenting changes in the native desirable moths. Identification is organised by Rothamsted Research Station who normally also put the data onto spreadsheets and send it to us for our records. At the beginning of 2016 there was a large backlog of data input but now it is all up to date due to the hard work of a volunteer.

Long Term Monitoring Network (LTMN)

31. Burnham Beeches (along with Epping Forest) continues to be a site in the Natural England LTMN. Standard monitoring is carried out on each of the sites which are nature reserves spread across the country. Some regular annual monitoring at Burnham Beeches (butterfly transects, bird transects) form part of this along with some bespoke monitoring commissioned by NE. This year the Beeches should have had the vegetation monitoring repeated (NE Funded) but lack of finance meant that woodland sites were postponed. On the positive side, ammonia monitoring which ceased a couple of years ago, started again on 1st November 2016 using methods that are comparable with a National network.

Research project on time of year to cut trees

32. In 2011 a literature review was commissioned to look at additional methods that might be appropriate for managing veteran trees. Several avenues from this literature review have been followed up, one of which was to look more closely at the best time of the year to cut trees. Although it is generally assumed in the UK that trees should be cut in the winter, the physiology actually suggests that the spring or early summer might be better. Plots of young trees were set up in Burnham Beeches and cohorts of trees cut as 'young' pollards in spring, summer, autumn and winter for beech and summer and winter for oak. They were cut in 2012-13 and the results recorded initially after two growing seasons. Some oak trees died but all the beech trees survived. There appeared to be no differences between the responses of the beech trees cut in different seasons but oak trees grew better if they were cut in the summer (it is interesting that oak trees are not normally cut in Burnham Beeches in the summer now because they tend to be badly affected by oak mildew). These trees will be examined in detail again after more growing seasons. In the meantime they have also been used as part of a volunteer project to see if there is any correlation between trees coming into leaf early in the season, early autumn colours and tree health.

Stoke Common

33. Annual vegetation monitoring at Stoke Common included recording of three plots to look at the impact of restoration work, two exclusion plots to demonstrate the impact of not grazing the common and a Grazing Impact Assessment to look in detail at the impact of the grazing on specific plant species and features used by invertebrates. No major issues of concern were found.
34. Interesting plants recorded this year on Stoke Common include abundant *Veronica scutellata* (Marsh Speedwell) a county scarce species that is doing particularly well on the Common and *Cuscuta epithimum* (Common Dodder) on the other side of the Common from where it was recorded two years ago. *Erica cinerea* (Bell Heather) continues to grow well in some of the areas where trees have been cleared.
35. The Bucks Fungus group visited Stoke Common at the beginning of October. They were a little disappointed to find that we had cleared more pine trees as part of the planned heathland restoration work and thus the diversity and abundance of some of the mycorrhizal species of fungi associated with pine trees had declined. However they discovered some interesting species associated with heathland, such as *Coltricia perennis* (Tiger's eye) and *Panaeolus fimicola* (Turf mottlegill) both new to Stoke Common and *Psathyrella lutensis*, new to the county. One of the rarer bracket fungi, *Ganoderma resinaceum* was discovered on two oak trees, previously recorded on one.
36. An entomologist has been surveying Stoke Common this year for flies and has also recorded some bees. He is still identifying the catches he made over the summer and will also work on some material caught during other projects. His most exciting find so far is a Red Data Book bee called *Nomada guttulata* which is nationally rare.

Flag ship pond work at Stoke Common

37. The Fresh Water Habitats Trust has been awarded a Heritage Lottery fund project that includes work on 'Flagship ponds'. These are ponds that are considered of National Importance for their wildlife. Two of the ponds on Stoke Common are designated as Flag Ship Ponds. As part of the grant a group of volunteers was trained up in carrying out chemical analyses of the water. In addition a consultant was employed by the FHT to survey the plants around the ponds in detail.

Corporate & Strategic Implications.

This work supports the following City of London Key Policy Priorities and Open Space Objectives:

KPP3. *Engaging with London and national government on key issues of concern to our communities such as transport, housing and public health.*

KPP5. *Increasing the outreach and impact of the City's Cultural, heritage and leisure contribution to the life of London and the nation.*

OSD1. Protect and conserve the ecology, biodiversity and heritage of our sites.

Conclusion

38. Survey work continues to confirm the importance of both Burnham Beeches and Stoke Common as very special places for wildlife. Monitoring plays a valuable part in ensuring that the management continues to be positive for key species and associations of species and can highlight any issues before they become problematic.
39. The impact of local development continues to be of concern and officers are working closely with those from other organisations to discuss options for putting in place systems to protect Burnham Beeches, in particular, using the obligations of the SAC status. Volunteers continue to play a valuable role in our work, although there are many specialist areas where consultants are required, which of course has financial consequences. Providing support and supervision for volunteers and contractors is essential to ensure the work carried out fulfils the aims and requirements of the site management plan and is of the highest quality obtainable. Partnership working with other organisations is essential.

Appendices - None

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