Item 13

North York Moors National Park Authority

18 November 2015

Review of Esk Pearl Mussel and Salmon Recovery Project and future work

1. **Purpose of the Report**

1.1 To inform Members about the Esk Pearl Mussel and Salmon Recovery Project's (EPMSRP) progress over the last three years and future work planned in the Esk Catchment within the North York Moors National Park.

2. **Background to the Species and Why the Esk is Important**

2.1 The freshwater pearl mussel (FWPM) population in the River Esk has been in serious decline due to habitat and water quality issues. FWPM are found in clean, fast running water where the river bed is stable and comprised of a mixture of sand and stones. The species is very long-lived (reaching 100 years or more), but the Esk population has not produced young for over 30 years. The species is dependent on the presence of salmonid fish (salmon and trout) as hosts for its larvae. The Esk is the **only river in Yorkshire** with a FWPM population, and one of only eleven rivers in the whole of England that supports this species.

2.2 FWPM are a keystone species, providing a vital environmental service through their filtering activity as well as stabilising the river bed. FWPM are also an important indicator species that thrives in pristine rivers, so if we can get the river conditions right for them it will also benefit a wide range of other species including invertebrates, fish, birds and mammals.

2.3 The Esk FWPMs are genetically distinct from the rest of the UK populations and they have a high genetic diversity. The Esk population is relatively small (approximately 1,000 individuals) and is located in the upper and middle sections of the River. The population has declined severely over recent years and is still in decline despite positive and continuing conservation action. It is likely that the Esk population will become extinct in the next 25 years unless further action is taken to halt this decline.

2.4 This mussel is classed as *Critically Endangered* on the IUCN Red Data List. It is listed on Annexes II and IV of the EC Habitats Directive and Appendix II of the Bern Convention and is protected under Schedule 5 of the Wildlife and Countryside Act 1981. As a result this species has full protection and is a UK Biodiversity Action Plan species.

2.5 In September 2007, a small number of the River Esk's pearl mussels were moved to the Freshwater Biological Association "Ark" captive breeding facility in the Lake District. This facility is currently breeding FWPMs for re-introduction to the Esk, when the river is in a suitable condition for them to return.

2.6 The River Esk is a **"Biodiversity Action Plan priority river habitat",** due to the presence of a number of Annex II Habitats Directive species i.e. FWPM (*Margaritifera margaritifera*), Atlantic salmon (*Salmo salar*), bullhead (*Cottus gobio*), brook lamprey (*Lampetra planeri*) and otter (*Lutra lutra*). The River also supports populations of brown/sea trout (*Salmo trutta*) and European eel (*Anguilla anguilla*). All the species listed above are **UK BAP Priority species.** The Esk is also the principal Atlantic salmon river in Yorkshire.

3. Background to the Esk Pearl Mussel and Salmon Recovery Project

3.1 The Esk Pearl Mussel and Salmon Recovery Project (EPMSRP) was set up in January 2008 to address water quality and habitat deterioration, and to reverse the decline of the FWPM and Atlantic salmon population in the River Esk Catchment.

3.2 A wide range of partners are involved in the Project including the North York Moors National Park Authority (NYMNPA), Environment Agency, Durham University, Freshwater Biological Association (FBA), Catchment Sensitive Farming (CSF), Natural England, local angling clubs (Glaisdale AC, Esk Fisheries Association, Danby AC, Guisborough AC), Yorkshire Esk Rivers Trust, local wildlife clubs (Whitby naturalists and Upper Esk Valley Wildlife Group) and importantly the local farmers and landowners.

3.3 The Project has brought in external funding from a wide range of sources to benefit the local environment and community since January 2008. This is money that would not have been available had the Project not been in place:

- **Yorventure Funding** - £20K (September 2007-March 2008).
- **Heritage Lottery Funding** - £50K (January 2008-December 2010).
- **LEADER funding** (Rural Development Programme for England - jointly funded by Defra and the European Union) - £78K (October 2009-October 2010).
- **Environment Agency Funding** - £56K (October 2011 – 2014).
- **WREN – Biodiversity Action Funding** - £227K (October 2011 to February 2015) **Appendix 2**.

3.4 The vast majority of this funding has gone to environmental enhancements through on-farm improvement works, such as installation of cattle drinking bays, river bank fencing, troughs, tree planting, pumps, pipework, crossing points and track improvements.

3.5 The Project is supporting local farmers, supporting local suppliers (materials) and providing employment for local contractors.

3.6 See the web page link below for further information about the Project:
http://www.northyorkmoors.org.uk/looking-after/our-projects/pearl-mussels

4. Achievements (January 2008 to February 2015)

4.1 River restoration work and on-farm infrastructure with **53 farmers and landowners** in the Esk Catchment through the EPMSRP providing:

- River bank fencing >47 kilometres
- Cattle drinking bays = 20
- Trees planted = 2790 (19 sites)
- Livestock drinking troughs = 44
- River bank stabilisation works = 15 sites
- Gate improvements/ditch crossing points = 42 sites
- Track improvements/cross drains = 3 sites
- Pasture pumps/solar drinking pumps/spring connection = 5
- Coppicing = 3 sites

4.2 Partnership working and supporting farmers through the Catchment Sensitive Farming (CSF) grant scheme. To help improve on-farm infrastructure for the benefit of the environment (which also has the added benefit of improving farm businesses). A total of 4 farms received grants in 2010, 5 farms received grants in 2011, 15 farms in 2012, 25 farms in 2013 and a number of farms in 2014.

4.3 In partnership with CSF a range of training events and farm walks have been held for local farmers, such as nutrient management planning, slurry/muck management, water management, soil/manure testing, grassland management, water friendly farming and river restoration techniques. These events not only have the desired benefit of improving the environment, but also help farm businesses to be more efficient and profitable i.e. through better use of mucks and slurries, fertiliser bills can be reduced.

4.4 The EPMSRP has worked with Natural England to promote resource protection options through agri-environment schemes in the Esk Valley (6 farms in the Esk Valley have been given Higher Level Scheme (HLS) agreements.

4.5 Some 18 whole farm plans have been carried out on farms in the Upper Esk Catchment to identify on-farm infrastructure improvements, and to help farmers obtain grants for improvement works and training.

4.6 Catchment scale invasive non-native species (INNS) eradication work is being carried out to remove Japanese knotweed and Himalayan balsam from the Esk Valley. Japanese knotweed control work started in 2009, and for the last 7 years the Project has worked with 32 landowners and farmers over a stretch of 17km of river to control this INNS. Himalayan balsam control work started in 2010, and for the last 6 years the Project has worked with 34 landowners and farmers over a stretch of 15km of river to control this INNS. The Project is trialling a novel method using a rust fungus this year at Ravenscar and Ruswarp on Himalayan balsam, in association with the Centre for Agriculture and Bioscience International and Whitby Naturalists. In the next few years these INNS will hopefully be eradicated from the Catchment.

4.7 The Project has part funded and supported 3 Masters Research students and one PhD student in association with Durham University. These students have carried out a range of water quality and habitat monitoring studies.

4.8 The restoration work that has been carried out on the River Esk has improved the river habitat and water quality in the Esk (reduced sediment and nutrient input), for the benefit of a wide range of aquatic and riparian species. Recent studies carried out on the river substrate, has indicated that some areas of the Esk may now be suitable for the re-introduction of juvenile pearl mussels.

4.9 The project officer has developed a very good working relationship with local farmers and landowners and has built up trust with the local community, which is vital to deliver successful conservation projects on the ground. The project officer has also helped signpost farmers to other schemes and grants that are available i.e. Traditional Boundary Scheme and Woodland Grant Schemes. The project officer offers help and support on the ground to local farmers for other environmental issues.

4.10 Water quality and resource protection are a major theme in the new Natural England Countryside Stewardship Scheme. The Esk Valley farmers who have worked with the Project are now well placed to take advantage of this new scheme, although there are concerns regarding the scoring and range of options that are available and how well farmers within the North York Moors will score against the nationally prioritised scheme.

4.11 An “Esk Catchment Action Plan” has been produced with a local steering group (members come from a wide range of interest groups), this document has set out a plan for work on the Esk into the future and will hopefully bring further environmental benefits and funding into the Esk Valley.

4.12 The “Salmon in the Classroom” project has been carried out with **7 local primary schools** (Castleton, Danby, Lealholm, Glaisdale, Egton, Egton Bridge and Goathland). This has helped to engage local school children with the Authority’s conservation work in the area and the natural environment.

4.13 A dedicated River Esk volunteer group has been set up and monthly river tasks are carried out with support from the National Park’s Volunteer Service. A total of **62 tasks** have been undertaken involving **389 volunteer days**. A range of tasks have been carried out such as river clean-ups, tree planting, fencing, willow planting, river bank stabilisation, hedge planting, leaky dam installation, rhododendron control, Himalayan balsam control, boardwalk repair, conifer thinning, track improvement, drainage ditch improvement and New Zealand pigmyweed control.

4.14 A water friendly farming guide was produced for local farmers to promote best practice (see **Appendix 1**).

5. The Current Position - BIFFA AWARD Partnership Scheme

5.1 A large multi-partner external funding bid was prepared in winter 2014/2015 to continue the work in the Esk Catchment. This was submitted to the BIFFA AWARD Partnership Scheme (which is an invitation-only funding stream for projects with nationally important cultural or biodiversity benefits).

5.2 Biffa Award is a multi-million pound fund that helps to build communities and transform lives through awarding grants to community and environmental projects across the UK, as part of the Landfill Communities Fund. More information on the award is available at www.biffa-award.org.

5.3 The lead partner in the bid was the FBA which runs the FWPM “Ark” facility and captive breeding centre in the Lake District. Four other partners; the South Cumbria Rivers Trust, West Cumbria Rivers Trust, Devon Wildlife Trust and the NYMNPA will carry out restoration work in 4 river catchments (Esk, Torridge, Irt and Dubbs beck).

5.4 The Project seeks to achieve one key aim – ‘To safeguard the future of some of the most important FWPM (*Margaritifera margaritifera*) populations remaining in England through river restoration and by engagement of local communities.’

5.5 The restoration work will include the identification of priority recovery sites for each population, the identification of threats and works carried out to address these threats, identification of water quality issues and improvements to riparian habitats and restoration of priority FWPM recovery sites. Alongside these activities the FBA will continue their FWPM breeding programme which is in its 8th year and currently holds 6 threatened populations.

5.6 A total of **£1.5million** of funding was secured from BIFFA AWARD (funded through the Landfill Communities Fund) for a **3 year project** to be delivered from **March 2015 to the end of February 2018.**

5.7 A total of **£300K** has been secured for the Esk work. The River Esk Project will build on previous work with farmers to reduce sediment and nutrient input into the Esk. The BIFFA AWARD bid will allow us to carry out a range of improvements to on-farm infrastructure such concreting farm yards, fixing rainwater goods and installing cross drains. The previous project work has not been able to carry out his type of activity in previous funding bids, and this work will be of significant benefit to the farm businesses and the environment.

5.8 The Project is targeting the Upper Esk catchment including all the catchment upstream of Lealholm (including Danby, Castleton, Westerdale, Commondale, Baysdale, Great Fryup and Little Fryup).

6. Future Work

6.1 The ultimate aim of the Project is to restore the River Esk so that a fully functioning river ecosystem will exist, enabling the entire range of freshwater species to thrive.. This will be achieved through working in partnership with the farming community to help improve farm infrastructure which will make farm businesses more efficient and productive.

6.2 The catchment scale restoration work and a healthy river will not only restore wildlife and fisheries, but will also provide social, cultural and economic benefits to the local community.

6.3 The aspiration is to continue to pursue external funding for work in the Esk Catchment into the future (beyond February 2018 when the current BIFFA AWARD Project will end).

7. Financial and Staffing Implications

7.1 Match funding is required as a stipulation of the Landfill Communities Fund and so £9.5K was secured from Yorkshire and North East CSF team, part of Natural England. The remainder of match funding (£20.5K) has been provided by the NYMNPA. There are no new or further financial implications.

7.2 Future match funding (beyond February 2018 when the current BIFFA AWARD project will end) is likely to be required in order to secure funding to continue the work on the Esk. This may come from a combination of bids or from local partners, potentially including the NYMNPA.

8. Contribution to National Park Management Plan

8.1 The EPMSRP helps deliver a wide range of different National Park Management Plan objectives, see below the relevant Policy Number from the Management Plan.

8.2 E11. Existing habitats will be conserved, restored and expanded where appropriate, focusing on enhancing habitat connectivity e.g. river restoration work through the EPMSRP (fencing, tree planting, addressing diffuse pollution).

8.3 E12. The connectivity and resilience of habitats will be improved both within and beyond the National Park, particularly in relation to species rich grasslands, woodlands and river corridors e.g. EPMSRP river restoration work (buffer strips and riparian woodland planting)

8.4 E13. The conditions for wildlife within streams, rivers and riparian habitats will be improved e.g. All work on EPMSRP working towards this.

8.5 E17. Changes in farming practice will be sympathetic to the environment and deliver new features where possible e.g. 1:1 farm visits, farm walks/training (e.g. nutrient management, soil testing) and partnership work with CSF.

8.6 E42. 'Good' status (under the Water Framework Directive) of all water bodies will be achieved, where feasible e.g. All work on EPMSRP working towards this.

9. **Legal Implications**

9.1 Capital elements of the project are delivered under the Authority's Agricultural State Aid Notification.

10. **Recommendation**

10.1 That: Members support the implementation of the current BIFFA AWARD funded project and support future NYMNPA work in the Esk Catchment.

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Background papers/web links to this Report **File ref**

1) River Esk Water Friendly Farming Guide – Good Practice Guide (hardcopies available)

2) Final Report for WREN (October 2011 to February 2015) – Esk Pearl Mussel project (hardcopies available)

3) Durham University Research Work

MRes dissertation - Spatial and temporal water quality in the River Esk in relation to freshwater pearl mussels http://etheses.dur.ac.uk/861/

MRes dissertation - In-stream and hyporheic water quality of the River Esk, North Yorkshire: implications for Freshwater Pearl Mussel habitats http://etheses.dur.ac.uk/7272/

PhD – Spatial and temporal dynamics of fine fluvial sediment transfer: Implications for monitoring and management of upland river systems http://etheses.dur.ac.uk/7307/

MRes dissertation - The hydrochemistry of the hyporheic zone: Assessing ecotone properties for juvenile freshwater pearl mussel (*Margaritifera margaritifera* L.) survival in the River Esk, NE England
http://etheses.dur.ac.uk/11276/

Appendix 1: Water Friendly Farming Leaflet, is also available as a hard copy at the meeting.