

## Appendix 5 – Report of site inspection, 15<sup>th</sup> April 2015

- (1) Terry Sheridan**
- (2) Marian O’Driscoll**

**Re: EU Pilot 5450/13 concerning Gearagh SAC and report of site inspection 15<sup>th</sup> April 2015.**

I refer to correspondence from Mr Kevin Corcoran of the West Cork Ecology Centre, Mill Lane Macroom Co Cork to Marian O’Driscoll in relation to the above.

As discussed with the Commission, whose Mr Paul Speight was contacted by Mr Corcoran, I arranged a site visit to the subject area in the company of National Parks and Wildlife Service staff, including Divisional Ecologist Jervis Good, whose report is appended below, as well as Cork County Council Senior Planner Mr Paul Murphy.

The Gearagh area, inclusive of the Special Area of Conservation is a very distinctive place that has evolved into its present format through both natural processes and human influences.

Mr Corcoran’s interest in The Gearagh concerns the future of a part of the Toon River that contains what is known as an anastomosing lowland forested river. In simple terms, this is a very unusual feature whereby the river splits into a myriad of shallow channels within a broader forested alluvial floodplain, which channels, islands and forest represent a very distinctive and fragile ecosystem that is also an area of very high natural beauty. According to analysis referred to by Mr Corcoran and the report of Mr Good, this is a very rare feature and I have no reason to doubt this, not having come across such an area in my experience to date.

### **Report of Site Visit**

Having prepared for the site visit by examining the correspondence above, I travelled extensively around the area in the company of Mr Corcoran over the course of the full day of the 15<sup>th</sup> April last and with NPWS/Cork County Council staff who gave the full morning and early afternoon to the visit.

Mr Corcoran’s central concern is that changing patterns of land use, coupled to further proposed development going through the planning process in the upper reaches of the Toon River, a tributary of the River Lee, have begun to and will further alter the peak or spate load on the River Toon in flood conditions, such as to encourage a scouring of one of the many river channels running through The Gearagh, such that its primary anastomosing feature will be at best damaged or at worst lost, leading to the degradation of this area.

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The contrast between Pictures 1 and 2 illustrates the point above, picture 1 showing the pattern of shallow river channels in the area and picture 2 showing some evidence of local erosion or throw of root systems in the central Toon River channel part of The Gearagh SAC, probably as a result of a recent flooding event.

Without the benefit of a detailed longitudinal and hydrological assessment, it is hard to be definitive about Mr Corcoran's contention, but having visited and compared the parts of The Gearagh in both the areas of the Toon and Lee rivers, it would appear that the Toon river element of The Gearagh SAC is quite different in character, with one river channel being dominant over the others. In the Lee part of the SAC, there is much more of a network of channels.

Whether that is a situation that has always been the case or has come about relatively recently and is becoming more pronounced, I am not in a position to say, suffice to emphasise that without a detailed hydrological assessment and absence of data, it would be difficult to draw definitive conclusions.

In visiting the site, apart from examining Mr Corcoran's claims more closely on the ground, my primary concern was to establish whether development or works, within the meaning of the Planning Act, might be going on in the area that might in some way be contributory to Mr Corcoran's concerns, works which had not obtained planning permission if required and hence had not been assessed as to their environmental effects..

During the course of my site visit, I travelled extensively along the River Toon, including its upper reaches. Mr Corcoran pointed out to me two particular locations that of claimed works in or adjacent to the channel of the River.

Pictures 3 and 4 at the end of this report were specifically pointed out by Mr Corcoran, being, in his view, evidence of locations where local landowners have been engaged in dredging works to reduce local flooding problems affecting a small stretch of a minor local road and agricultural lands.

My own view of these areas would be that in relation to Picture 3, without further evidence such as pictures of excavators working in the river, it would be highly arguable in a court of law whether the river channel was altered at this location as a result of human intervention or through severe and localised erosion as a result of flooding events driven by the increasing incidence of severe downpours and flash floods that seem to be happening in recent years.

In relation to Picture 4, I would be very cautious about suggesting that simply because there is deposition of aggregates in a field beside the river that this alone indicates dredging. Again, without further evidence of the actual alleged dredging taking place, it would also be highly arguable as to whether development took place and certainly the elapse of time would present further challenges.

Furthermore, even if the locations in the pictures have been modified by works in the meaning of the Planning Act, the scale of such activity is at the very minor end of the

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scale and on the evidence presented, enforcement action by the local planning authority could be a very challenging, expensive and ultimately futile exercise.

Mr Corcoran also stresses the potential impact on the area of windfarm development, which it should be stressed has not happened to date, and therefore cannot have impacted to date on the SAC. I agree with Mr Corcoran that it is essential that the determination of planning applications for wind farm developments in the area should address all environmental impacts, including hydrology.

I note that with regard to the Cleanrath wind-farm (PL04.240801), DAHG did raise the requirement to avoid increasing downstream erosion by providing sufficient storm-flow attenuation capacity and that condition 8 of the grant of permission by An Bord Pleanála requires the disposal of surface water throughout the site to comply with the requirements of the planning authority.

The above points to the fact that EIA scale development in the area is being assessed not only with regard to their direct effects but indirect and cumulative effects also.

Taking account of all of the above and Mr Jervis Good's report, causality between the evolution of local land use patterns and what may or may not be happening to the catchment of the cannot be proven on the basis of the evidence presented by Mr Corcoran.

### **Recommendation**

I have visited the area the subject of Mr Corcoran's complaint and I have listened to his views and examined the papers supplied to the Commission. Having undertaken the above, considered the report of Jervis Good and discussed the matter on the day with DAHG/NPWS and Cork Co Co staff, my conclusions are as follows:

- (1) It is very doubtful if planning permission was required for the activities pointed out to me by Mr Corcoran;
- (2) The characteristics of the Toon River/Lee River elements of the SAC in The Gearagh are worthy of further examination from a hydrological perspective.
- (3) The best course of action would potentially be to compose a small working group including representatives of the NPWS, ESB (who own much of The Gearagh SAC lands) to consider whether there would be merit in having the further analysis at (b) carried out with a view to developing the potential of the area as a nature reserve, conservation demonstration project and tourism asset.

I would be firmly of the view that it would be desirable to encourage the formation of such a group to inform the management of this very distinctive and sensitive area.

Niall Cussen

Principal Adviser

30<sup>th</sup> April 2015

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## Appendix 1: Report of Jervis Good NPWS

### Site Damage Assessment

(Regulation 35 (European Communities (Birds and Natural Habitats) Regulations 2011) site damage assessment)

*Ref.:* **RESD53**

*Project:* Toon River erosion

*Site/Species:* The Gearagh cSAC (108)

*Subsite:* The Gearagh woodland

*Grid. Ref.:* W2970

*Officer:* Jervis Good, NPWS regional ecologist.  
Dept. of Arts, Heritage and the Gaeltacht (NPWS), c/o Dept. of Agriculture, Oak House,  
Bessborough Road, Blackrock, Cork. 076 - 1002502. [jervis.good@ahg.gov.ie](mailto:jervis.good@ahg.gov.ie)

*Date:* 17 April 2015.

### **Background**

The River Toon flows into The Gearagh alluvial woodland (a priority habitat in The Gearagh cSAC) downstream of Toon Bridge, where it enters probably the best of the very few examples of an anastomosing<sup>2</sup> lowland forested river in north-west Europe. Approximately 0.4km below Toon Bridge the larger River Lee begins to contribute to the anastomosing system from the south. However, the issue here is whether increased spate loads (increased hydrographic peaks) on the Toon River itself are creating a canalisation of the Toon River within the alluvial forest, to the detriment of the anastomosing system, and whether this is leading to (a) erosion and loss of islands in the Toon part of the system, and (b) isolation and drying of diversion channels. Apparently, a critical feature of anastomosis is the occurrence of erosion resistant banks and stable channels (unlike braided rivers), and the question here is whether these are being eroded by human-influenced activities in the Toon River floodplain upstream, and whether future surface drainage for wind-farms, such as the Cleanrath wind-farm (recently granted permission by An Bord Pleanála (PL04.240801) will contribute to this.

### **Site Damage Assessment**

The site was examined by NPWS regional staff on 15 April 2015 with the complainant, Mr Kevin Corcoran, who has over 30 years of detailed experience of the ecology of the site, and would have a subtle understanding of early warnings of structural changes in the system. However, if an independent assessment is required, the changes are yet too subtle for this

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<sup>2</sup> 'Anastomosing' rivers have multiple, interconnected, coexisting channel belts on alluvial plains (Makaske, B. (2001) Anastomosing rivers: a review of their classification, origin and sedimentary products. *Earth-Science Reviews* **53**: 149-196). The river and the woodland habitat must be taken together as a coherent biogeomorphological system (Brown, A.G. (1997) Biogeomorphology and diversity in multiple-channel systems. *Global Ecology and Biogeography Letters* **6**: 179-185).

ecologist, who lacks the fluvial geomorphological understanding necessary to definitively determine if such changes have occurred in the system as a result of works in the upstream floodplain, as opposed to the general increase in erosion due to the increase in magnitude of rainfall events.

In the absence of a fluvial geomorphological assessment of the change in the Toon river part of The Gearagh system, it is not yet possible to determine whether there was any damage to the structure and function of the alluvial forest, such that it would result in long term drying of channels and forest soils, further erosion and reduced anastomosis. There was evidence of thrown trees adjacent to the river main channel, but it is difficult to distinguish cause-and-effect when comparing wind-throw and water erosion.

If an independent fluvial geomorphological assessment is to be carried out, its scope would usefully include the following questions:

- (1) Based on Mr Corcoran's data, historical and recent maps, other data available on the system<sup>3</sup>, and the current channel configuration of the anastomosing system as affected by the Toon River, is there evidence of increased erosion which could cause future drying out of the northern channels and future loss of downstream woodland soil? The alternative hypothesis of increased localised erosion solely due to wind-throw exposing rootplates would need to be eliminated.
- (2) Is there evidence of recent (in the past decade) removal by machine of bed sediment or reduction in floodplain capacity or increased land drainage in the Toon River, upstream of the Toon Bridge, which could have significantly contributed to increased hydrographic peak within the Toon River part of the cSAC? The alternative hypothesis of increased erosive potential solely due to the increase in magnitude of rainfall events<sup>4</sup> would need to be eliminated.

Photographs of several of the locally eroded areas within the cSAC were taken by the NPWS during the site inspection, and are available on request.

It is not clear if an offence has occurred under Regulation 35(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), concerning works in the Toon River upstream of Toon Bridge. Any Ministerial Direction under Regulation 36 to restore

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<sup>3</sup> E.g. Brown, A.G., Stone, P. and Harwood, K. (1995) *The biogeomorphology of a wooded anastomosing river: The Gearagh on the River Lee in County Cork, Ireland*. University of Leicester Occasional Papers in Geography No. 32., Leicester, UK.

<sup>4</sup> E.g. Fowler, H.J. and Kilsby, C.G. (2007) Using regional climate model data to simulate historical and future river flows in north-west England. *Climatic Change* **80**: 337-367.

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the catchment of the site should probably also await the determination of damage, if any, following a geomorphological assessment.

With regard to the Cleanrath wind-farm (PL04.240801), the Department raised the requirement to avoid increasing downstream erosion by providing sufficient storm-flow attenuation capacity (submission to Cork County Council of 14 July 2011). Condition 8 of the grant of permission by An Bord Pleanála requires the disposal of surface water throughout the site to comply with the requirements of the planning authority.



## Appendix 2: Photographs of the Area

### 1: Picture of the typical myriad of shallow river channels in The Gearagh



### Picture 2: Recent throw of tree's and associated erosion of islands



**Picture 3: Upstream section of the Toon River indicating river channel modification**



**Picture 4: Upstream section of Toon River: deposition of loose material alongside indicating the possibility of dredging**





**Picture 5: Mature Fresh Water Pearl Mussel specimen in the channel of the adjacent anastomosed section of the River Lee**



**Picture 6: The beginning of the ESB Carrigadrohid reservoir and flooded area downriver of The Gearagh**

