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Dear Matthew,

Habitats Regulations Assessment for the application of Cypermethrin, Acetamiprid, and trees treated with Alpha-cypermethrin, on the Welsh Government Woodland Estate 2017-2018

Thank you for giving the Strategic Assessment Team, Natural Resources Wales, the opportunity to provide advice on the Habitats Regulations Assessment (HRA) for the application of cypermethrin, acetamiprid, and trees treated with alpha-cypermethrin, on the Welsh Government woodland estate (WGWE) between May 2017 and May 2018. Our comments are made in the context of our roles under the Conservation of Habitats and Species Regulations 2010 (as amended).

Please note that all of our formal responses are published on the Natural Resources Wales website.

In summary:

- in relation to potential spray sites whose catchment flows in to the upper Afon Eden (namely the Cwrt Plantation and the north western corner of Coed y Brenin (the catchment of the Aber-Serw)) **we do not agree with the conclusion that the proposal to top-up spray with cypermethrin and acetamiprid is not likely to have significant effects on European sites, and it is our advice that an appropriate assessment will be required if it is intended to pursue this aspect of the proposal further.**
- In relation to the remaining potential spray sites covered in the proposal, we agree that there is not likely to be a significant effect on any European sites.

Our specific reasons for providing this advice are set out below:

1. We note that this year's application differs from previous applications in that, due to the imminent expiry of a Forest Stewardship Council (FSC) derogation, cypermethrin

(and alpha-cypermethrin) will not be used by Natural Resources Wales after the end of October 2017. This means that stocks of existing cypermethrin will be used up first, and once these run-out, acetamiprid will then be used should *Hylobius* and/or *Hylastes* outbreaks occur. The stocks are held regionally, so cypermethrin stocks will run out at different times across the country. This is likely to mean that a higher proportion of acetamiprid will be used this year than in previous years.

We also note that whilst spraying is only used as a last resort, based on experience from previous years, it is estimated that approximately 25 to 40% out of the 4,062 ha of potential spray sites will be treated during the twelve months covered by this application i.e. approximately between 1,015 and 1,624ha.

2. In our response to the 2016/17 HRA for the application of Cypermethrin, Acetamiprid, and trees treated with Alpha-cypermethrin on the WGWE, dated 19th July 2016, we specifically flagged up that '*a targeted... monitoring programme for Acetamiprid should be put in place in advance of its more widespread use*'. It is our understanding that (i) there are no studies of the environmental impact on watercourses when acetamiprid is applied via top-up spray, and (ii) that currently no monitoring is being undertaken.
3. The HRA of the current proposal is based on the premise that there are no negative impacts resulting from acetamiprid (or cypermethrin) use in forestry. However, since no monitoring is taking place, this argument is flawed, because an absence of evidence is not evidence of absence. It is also important to note that the various product approvals are based on the assumption that the chemicals will not enter watercourses, not that either chemical would not have significant negative impacts if it entered a watercourse.
4. HRA embodies the precautionary principle, in that the burden of proof is to demonstrate that there is not an adverse impact in order to justify approval. Without either existing studies on the ecological effects of acetamiprid in freshwaters, or ongoing monitoring, there is no relevant evidence base. Where such uncertainties occur, the precautionary principle also means that the HRA should err on the side of caution.
5. In the absence of studies on acetamiprid, the HRA refers in particular to two Welsh studies on cypermethrin^{i ii}. Both of these studies found evidence of cypermethrin contamination of watercourses, including at concentrations likely to harm aquatic life. In the 2010 study, of the eight intensively studied sites, two recorded cypermethrin in watercourses. As a result of this study, the mitigation guidelines were tightened in 2011. In the 2013 study, three out of twelve points monitored in 2012 recorded

cypermethrin in watercourses. The study suggests that forestry was the most likely source of this contamination.

The concluding paragraph of the Conclusions of the 2013 study is reproduced below:

“On the assumption that best practice, such as that outlined in The Forest and Water Guidelines (Forestry Commission 2011) and in FCW and UPM’s quality assurance systems, was followed at all spray plots it may indicate that there is potential for pollution to occur despite best efforts. Although spraying would normally be halted for heavy or prolonged rainfall the acute rainfall events associated with summer storms cannot be predicted within the period that the risk of run-off remains. At the site implicated as the source of the cypermethrin in the Afon Irfon, precautions were taken to increase the buffer area due to the steepness of the slope and increased risk of run-off, but given the significant rainfall events later in the month that precaution may not have been sufficient.” (underlining added).

We note that this study was unable to confidently explain how cypermethrin entered the watercourses, and that the guidelines were not modified as a result of this study.

From an HRA perspective, both studies provide evidence that these chemicals do on occasion enter watercourses, even where the stringent procedures to prevent contamination of watercourses have been followed. Therefore, although these procedures reduce the risk of contamination, they do not appear to eliminate it.

6. We note that both cypermethrin and acetamiprid are being used this year. We welcome the phasing out of cypermethrin by the end of October this year (cypermethrin is highly toxic to aquatic invertebrates), and recognise that acetamiprid is less toxic than cypermethrin. However, acetamiprid is still ‘*potentially very toxic*’ to aquatic invertebratesⁱⁱⁱ.
7. The staged screening analysis presented in the HRA document focuses on the European sites with the most vulnerable features, both in terms of their sensitivity, and the magnitude of the impact should an incident occur. This identifies the population of freshwater pearl mussels (FwPMs) on the Afon Eden – Cors Goch Trawsfynydd SAC as being particularly vulnerable, both in terms of their high sensitivity to poor water quality, the fragility of the population (recognised in Natural Resources Wales’ *Freshwater Pearl Mussel Conservation Strategy for Wales, 2017*)^{iv}, and that the population on this SAC represents what is considered to be the only viable population of this species in the whole of Wales. Put simply, a single incident of pesticide entering the watercourse here could cause the extinction of this species in Wales.

8. It is our understanding that most of the waters draining from the Cwrt plantation, and from the forested catchment of the Aber-Serw in the northwest corner of Coed y Brenin, are intercepted and abstracted by the Ardudwy Leat. A proportion of this is then discharged it into the headwaters of Afon Eden via the Afon Crawcwellt North (see accompanying map), where, in low and medium flows, it is estimated that a significant proportion (ca 50%+) of the Upper Eden flow is made up of leat water. This means that water from the Cwrt Plantation and the Aber-Serw catchment flows over all of the FwPM population within this SAC, thereby increasing the magnitude of any pollution incident, should an incident occur.

9. **It is therefore our clear conclusion that, due to:**
 - a. **an absence of evidence regarding acetamiprid's ability or otherwise to enter watercourses, including when used in accordance with current guidelines;**
 - b. **the toxicity of cypermethrin and acetamiprid to aquatic invertebrates;**
 - c. **the published studies on cypermethrin showing that cypermethrin can still enter watercourses even when guidelines are followed, and;**
 - d. **the high sensitivity and potentially very significant magnitude of the impact on the FwPM population of the Afon Eden Eden – Cors Goch Trawsfynydd SAC should either pesticide enter the upper Afon Eden,****it cannot safely be concluded that the proposed top-up spraying operations with cypermenthrin and acetamiprid in the Cwrt Plantation and catchment of the Aber-Serw in the northwest corner of Coed y Brenin are not likely to have a significant effect on the Afon Eden Eden – Cors Goch Trawsfynydd SAC. We therefore advise that either the proposal is amended to avoid this potential impact, or an appropriate assessment should be carried out in relation to this aspect of the proposal.**

10. With regard to the remaining European sites identified in the HRA, the risk to these sites is lower due to a lower spatial risk in the context of the integrity of the site (i.e. a smaller proportion of the site or feature is exposed), and/or lower sensitivity of the freshwater European site features at risk. It is nevertheless essential that operators adhere strictly to the mitigation outlined in the HRA document. As set out in the HRA document, it is also important to formally record all applications, including should there be any failure to follow the mitigation, or accidents, and to report any spillages immediately as described.

11. Natural Resources Wales has a legal obligation under the Habitats Regulations 2010 (as amended) to seek and have regard to the advice in this letter. We remind you that should you be minded not to follow our advice, then there is an agreed Natural

Resources Wales escalation process, which is set out in Operational Guidance Notes 37 and 200.

12. We understand that once the derogation for cypermethrin expires at the end of October 2017, acetamiprid will be used exclusively in its place when it is considered that pesticide application is required due to a *Hylobius* and/or *Hylastes* outbreak. This is likely to lead to a significant increase in its use across the WGWE from 2018. At this stage we wish to raise the following concerns:

- **Monitoring should be put in place to measure the ambient concentrations and ecological effects of acetamiprid use in freshwater environments.** The two key studies quoted in the HRA, and discussed above, both recorded cypermethrin in watercourses, one of which resulted in changes to operating practice. Given its increased importance as a forest management tool in future, a comparable evidence base is needed for acetamiprid. This evidence base will help determine whether or not any further risk reduction measures are required. Without monitoring, Natural Resources Wales is likely to be in a weaker position in a few years' time.

We also draw your attention to the Sustainable Management of Natural Resources (SMNR) Principles^v, in particular:

- a. Manage adaptively, by planning, monitoring, reviewing and, where appropriate, changing action;
 - e. Take account of relevant evidence and gather evidence in respect of uncertainties;
- It is our view that it should not be left to individual annual applications to consider some of the broader issues regarding the use of specific chemicals on Natural Resources Wales owned or managed land – this must surely be more effectively and robustly considered at a strategic level. As we did in our response to last year's application, dated 19th July 2016, we therefore recommend the establishment of a cross-discipline working group/forum within Natural Resources Wales to strategically consider the issues around pesticide application (such as the need for monitoring, or any issues around the introduction of new pesticides), in advance of having to address HRA requirements of any future proposals to spray acetamiprid on the WGWE. Whilst this would not remove the need for future HRAs to consider potential effects on individual European sites, it is likely to make the process simpler and quicker. This recommendation is also in line with the SMNR Principles.

Should you have any queries regarding these comments, please do not hesitate to contact Roger Matthews via the Strategic Assessment Mailbox at:
strategic.assessment@cyfoethnaturiolcymru.gov.uk

Yours sincerely,



Howard Davies
Head of Governance and Planning

References

ⁱ Environment Agency Wales, Forestry Commission Wales, Forest Research, UPM Tilhill, University of Plymouth. 2010. *Cypermethrin use in forestry and its impact on Welsh streams*. A&R/W/SW/10/01. Cardiff, Environment Agency Wales.

ⁱⁱ Johnston D, Aubrey S, Pyott B, Rutt G. 2013. *Monitoring of Cypermethrin use in Welsh Forests 2011-2012*. Bristol, Environment Agency Wales.

ⁱⁱⁱ Willoughby I, Nisbet T. 2017. *DRAFT Acetamiprid use in UK Forestry*. Farnham, Forest Research.

^{iv} Hatton-Ellis TW, Garrett H, Hearn S, Jenkins M, Jones HP, Taylor J, Watkin N. 2017. *A Freshwater Pearl Mussel Conservation Strategy for Wales*. Bangor, Natural Resources Wales.

^v Environment Act (Wales) 2016