

Logging and BMP Use Associated with the Proposed Rule for the Kentucky Arrow Darterⁱ

The following was developed in response to a request by the Kentucky Division of Forestry (KDF) and the Kentucky Forest Industries Association to evaluate the Proposed Rule for the listing of the Kentucky arrow darter (KAD) (*Etheostoma spilotum*) as a federally threatened species. Specifically, the request was to determine the validity of the Proposed Rule's claim that the Kentucky Forest Conservation Act (KFCA) is ineffective as a regulatory mechanism for protecting KAD from the potential negative impacts of logging.

[Reference: Department of the Interior - Fish and Wildlife Service 50 CFR Part 17 - Endangered and Threatened Wildlife and Plants; Threatened Species Status for Kentucky Arrow Darter With 4(d) Rule; Proposed Rule p. 60981 Summary of Factors Affecting the Species, Factor D: The Inadequacy of Existing Regulatory Mechanisms.]

Summary

The Proposed Rule indicated two primary reasons for claiming that the KFCA was ineffective in protecting KAD and KAD habitat from logging activities:

- 1) Silvicultural BMPs required to be implemented on logging operations by KFCA are not specifically developed to protect KAD habitat.
- 2) KDFs logging inspection data showed an inadequate level of BMP compliance to protect KAD habitat.

This report provides evidence that the finding in the Proposed Rule relative to the ineffectiveness of KFCA was based on: 1) a cursory evaluation of KDF inspection data, and 2) analysis of mandatory silviculture BMPs without consideration of newly adopted standards. It is recommended that the USFWS re-evaluate the adequacy of the KFCA based on a more thorough understanding of logging inspection data and new BMP elements that are designed to improve BMP effectiveness in a manner consistent with KAD protection.

Background

As indicated in the Proposed Rule, logging can potentially contribute to degradation of KAD habitat. It is also recognized that correctly implemented silvicultural Best Management Practices (BMPs), while not specifically designed to protect the KAD, can abate sediments and other pollutants from logging operations, helping to maintain and protect KAD habitat. The Proposed Rule referenced Kentucky's requirement for the proper implementation of silvicultural BMPs as part of the KFCA inspection process undertaken by the KDF to enforce the use of BMPs during logging operations. The Proposed Rule also indicated that 19% of the logging operations inspected by the KDF in the counties where KAD is known to occur had a "compliance issue". This finding of the USFWS led, in part, to the conclusion that the KFCA was an "inadequate regulatory mechanism for the protection of aquatic habitats supporting the Kentucky arrow darter". However, the phrase "compliance issue" has broad meaning and could encompass issues that are entirely unrelated to KAD habitat degradation and/or issues that are quickly corrected with limited impact to KAD habitat. This led members of the Kentucky Forestry BMP Board and staff with the KDF and the Kentucky Forest Industries Association to request an evaluation of the interpretation of KDF data and the resulting conclusions in the Proposed Rule.

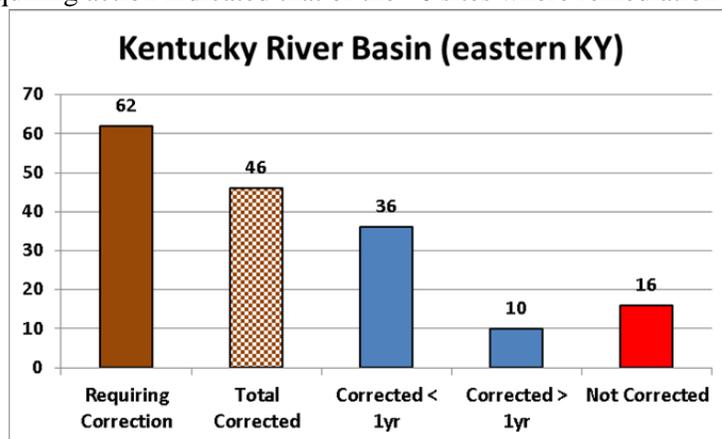
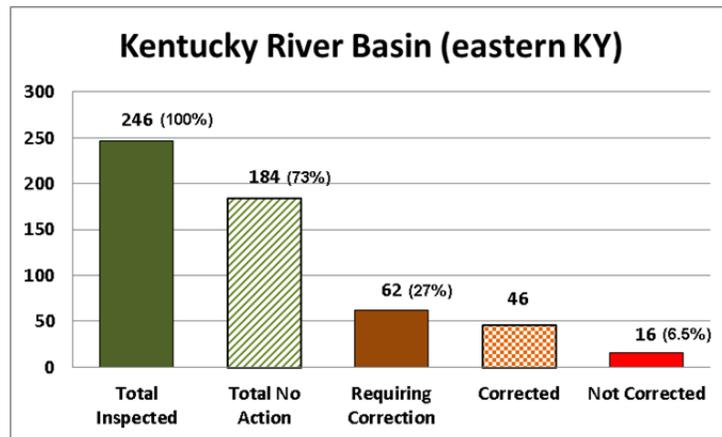
Analysis

The analysis conducted in this report was based on data obtained from KDF inspection records for the counties encompassed by the Proposed Rule. Data included total number of logging sites inspected and number in compliance. Also information was obtained for each logging site involving a compliance issue

including site code, inspection date(s), type of action(s), description of non-compliance, and remediation date (where appropriate).

Logging Non-Compliance. - The following provides a more detailed analysis of the KDF BMP inspection data (through October 2015) referenced in the Proposed Rule. In the Kentucky River basin there were a total of 246 timber harvesting sites inspected (Fig. 1)¹.

Seventy-eight percent (184) of the sites inspected met BMP standards. The 62 remaining sites were found to have deficiencies and KDF issued a compliance order. The actions resulted in 46 of the 62 sites being remediated to comply with BMP use. As of October 2015, only 6.5% of the sites (16 out of 246) remained non-compliant. In these cases, the reasons for non-compliance were found to be issues that could contribute to water quality degradation potentially harmful to KAD habitat. However, the 6.5% of cases where BMP implementation was inadequate is significantly less than the 19% figure used as partial justification for the inadequacy of the KFCA. Further analysis of the 62 sites requiring action indicated that of the 46 sites where remediation actions were taken, the majority of the remediation actions were completed within one year (Fig. 2) with the average remediation time of 3.5 months. Counties with significant logging operations, such as Breathitt, Lee, Clay, and Harlan, averaged 2.4, 1.2, 1.7 and 1.5 months for sites to be remediated to BMP standards, respectively. This indicates that in many instances, the negative effects of logging on KAD (if present) were not long lived.



Gaps in BMPs - The Proposed Rule indicated that the Kentucky’s Silvicultural BMPs were not developed specifically to address KAD habitat. This finding is correct. However, the Proposed Rule did not indicate how these BMPs fall short or provide insight into the magnitude of this issue or knowledge of how the newly adopted BMP standards could improve effectiveness for KAD protection. My analysis indicates two specific gaps in the BMPs that could be potentially problematic for the KAD:

1. Provisions for equipment operation in streams when it is the only means of accessing the property.
2. Use of unimproved fords where elevated stream or channel crossings are technically or economically infeasible.

Since these two situations are allowed under current BMP criteria it is not possible to determine to what degree these issues are occurring from analysis of the KDF inspection data. It is reasonable to assume that some trafficking in streams is occurring and undoubtedly there are streams where fords are used for crossing. However, the severity of these issues relative to KAD is unknown. The data does indicate that

¹ The Proposed Rule recognizes that not all logging sites get inspected. However, monitoring conducted by the University of Kentucky and the Kentucky Division of Forestry indicates that BMP implementation on non-inspected sites is similar to inspected sites.

only 5 of the 62 initially non-compliant sites were found to have equipment in streams in violation of the provisions of the BMPs. Two sites were non-compliant with the requirement to use elevated crossing where feasible. The vast majority (over 90%) of the non-compliance was dealing with lack of adequate water control structures on haul roads and skid trails and lack of revegetation. One interpretation of this data indicates that, while running equipment in streams and lack of elevated crossings does occur, the majority of the issues from logging that could impact the KAD are related to inadequately controlling sediment laden runoff from skid trails, roads, and landings. These issues are addressed by current BMPs. If the interpretation provided above is determined as reasonable, then the gaps in the BMPs as outlined above should be appropriately considered in final rule deliberations.

Changes in Kentucky's silviculture BMPs were approved by the Kentucky Division of Water on October 28, 2015. These changes were recommended by Kentucky's Forestry BMP Board, based in large measure to a timber harvesting BMP/water quality research project at Robinson Forest, UK's research and demonstration forest located in Breathitt, Knott, and Perry counties. KAD populations remained robust in streams at Robinson Forest where the 600 acre research harvest utilizing BMPs occurred. Further, the research resulted in changes to improve stream protections including the ability to use a range of technologies for elevated stream and channel crossings, improved ford requirements, implementation of extra measures to decrease sediment delivery to streams, and a change in Streamside Management Zone criteria. These changes in the BMPs will go into effect in 2016 and should directly improve protections for KAD.

In addition, not all timber harvesting operations are inspected as part of the KFCA inspection process. This situation was not indicated as problematic in the Proposed Rule. However, it is one that can reasonably be questioned. Fortunately, data from two separate BMP compliance studies (one by the University of Kentucky and one by the Kentucky Division of Forestry) indicates that BMP compliance is similar between inspected and non-inspected sites.

Conclusion and Recommendation

It is widely recognized that the occurrence of KAD in headwater streams makes it vulnerable to habitat degradation and potential take from logging operations not sensitive to the presence and the habitat requirements of this species. It is also clear that appropriate use and implementation of Kentucky's BMPs, while not specifically addressing all issues associated with the KAD, will provide significant protection for the species. The Proposed Rule is in agreement with these facts.

The analysis of KDF inspection data provided in this report indicates that non-compliance issues were not as severe as interpreted in the Proposed Rule (6.5% versus 19%). It is recommended that the statement in the Proposed Rule: "Because sediment BMPs are not always strictly applied and logging activities often result in water quality impairment, the Kentucky Forest Conservation Act is an inadequate regulatory mechanism for the protection of aquatic habitats supporting the Kentucky arrow darter." be evaluated based on the evidences presented in this report. It also seems appropriate that the evidences in this report be taken into account in decision making processes including KAD listing and if listing occurs, final Rule development where logging is discussed as a potential threat to KAD (as indicated above). Furthermore, the Proposed Rule was drafted prior to the adoption of improved BMP requirements that will provide improved protection for the species compared to current practices. It is recommended that this factor should also be considered.

ⁱ This white paper report was developed by Jeff Stringer, Professor of Hardwood Silviculture and Forest Operations, University of Kentucky, Department of Forestry, in response to a request by the Kentucky Division of Forestry and the Kentucky Forest Industry Association.