Literature Review #3: Topic Summary

Black bears in the wild exhibit unique behaviours to help them survive in their habitat, which is especially important for bears being released from rehabilitation (Kemmerer, 2015). Conflict with humans has increased in the past 30 years due to the presence of urbanization (Beecham et al., 2015). This urbanization has caused rehabilitation of black bears to become more prevalent due to injuries and death which can leave cubs orphaned and/or injured (Pyke & Szabo, 2017). Some worries involving black bear rehabilitation was that the bears would lose their ability to survive in the wild due to them not learning the correct behaviours through a maternal figure (Clark et al., 2002). It was also a concern that bears would end up being dependent on human resources due to habituation during rehabilitation (Cressey, 2015). This literature review examined the behaviours seen in black bears following their release from rehabilitation such as habitat and resource selection and conflict behavior with humans.

Habitat and resource selection of rehabilitated black bears is a key interest of researchers. The lack of a maternal figure and being rehabilitated during development is a concern that the bears would not know how to find the correct habitat and resources (Smith et al., 2016). To study this, researchers used GPS collars and ear tags to track their bear's movement away from their release site (Gillikin, 2021; Smith et al., 2016). Release sites are chosen specifically for the bears as they contain the correct resources for them (Gillikin, 2021; Smith et al., 2016). The results from Gilikin (2021) showed that rehabilitated bears matched behaviours of wild bears in terms of finding proper resources and habitats and did not stray to far from the release site (Gillikin, 2021). The results from another study also found that there was no obvious pattern for

dispersal direction, possibly due to a small sample size, and they found that male bears tended to disperse more than female bears (Smith et al., 2016).

Potential conflict between humans and rehabilitated bears due to resource and habitat selection is also a worry of rehabilitators. This is a concern because it is believed that the bears could potentially begin seeking out human resources due to them becoming habituated and dependent on humans (Blair et al., 2019). To study this, researchers used GPS collars and ear tags to track the bear's movement towards human resources and track if any conflicts occurred (Smith et al., 2016; Myers & Young, 2018). The results of Myers & Young (2018) showed that the numbers of conflict behaviours were shown to not increase within the rehabilitated bears and the bears were not more likely to seek out human resources (Myers & Young, 2018). The results within the study by Smith et al. found that while most of the rehabilitated bears dispersed away from human resources, some bears still displayed nuisance behaviour (Smith et al. 2016). Hashem's study done in 2019, used a different methodology by looking through the literature to see the efficacy of rehabilitation (Hashem, 2019). It was shown that bears were involved in more human conflict after release if there was more human interaction during rehabilitation and a shortage of natural food in the release site (Hashem, 2019).

Conflict behaviour requires more research, as it is still unknown whether cubs coming from mothers with a history of high conflict behaviour will also produce higher incidents of that behaviour (Blair et al., 2019). One suggestion for future research would be to investigate

whether different types of enrichment strategies influence a bear's behaviour once returned to the wild and whether some strategies are more helpful than others.

The results of all the studies showed that the black bears released from rehabilitation showed very similar behaviours to that of wild-reared bears. These results can be attributed once again to the ecological adaptations of the animals that have not been influenced by human interactions during the developmental stages. Through evolutionary influences the bears understand the resources needed within their habitat and do not need to seek out human resources to survive. Overall, the studies concluded that black bear rehabilitation is a viable solution to helping wildlife management.

References

Kemmerer, L. (2015). Bear basics. In L. Kemmerer (Eds.), Bear Necessities: Rescue, rehabilitation, sanctuary, and advocacy (pp. 15–34). Brill. https://doi.org/10.1163/9789004293090_003

Myers, P.J., & Young, J.K. (2018). Post-release activity and habitat of rehabilitated black bears. *Human-Wildlife Interactions, 12*(3), 322-337. https://doi.org/10.26077/jnft-5796

Clark, J.E., Pelton, M.R., Wear, B.J., & Ratajczak, D.R. (2002). Survival of orphaned black bears released in the Smoky Mountains. *Ursus. 13*, 269-273. http://www.jstor.org/stable/3873207

Beecham, J.J., Hernando, M.D.G., Karamanlidis, A.A., Beausoleil R.A., Burguess, K., Jeong D., Binks, M., Bereczky, L., Ashraf, N.V.K., Skirpova, K., Rhodin, L., Auger, J., & Lee, B. (2015). Management implications for releasing orphaned, captive-reared bears back to the wild. *The Journal of Wildlife Management, 79*(8), 1327-1336. https://doi-org.ezproxy.lib.ucalgary.ca/10.1002/jwmg.941

Pyke, G.H., & Szabo, J.K. (2017). Conservation and the 4 Rs, which are rescue, rehabilitation, release, and research. Conservation Biology, 32(1), 50-59. https://doi-org.ezproxy.lib.ucalgary.ca/10.1111/cobi.12937

Cressey, C. L. (2015). 9,540,000 Square Miles, 800,000 American Black Bears, 3 Rescues. In L. Kemmerer (Eds.) Bear Necessities: Rescue, rehabilitation, sanctuary, and advocacy (pp. 90–98). Brill. https://doi.org/10.1163/9789004293090_010

Blair, C.D., Muller, L.I., Clark, J.D., & Stiver, W.H. (2019). Survival and conflict behavior of American black bears after rehabilitation. *The Journal of Wildlife Management, 84*(1), 75-84. https://doi-org.ezproxy.lib.ucalgary.ca/10.1002/jwmg.21783

Smith, W.E., Pekins, P.J., Timmins, A.A., & Kilham, B. (2016) Short-term fate of rehabilitated orphan black bears in New Hampshire. *Human-Wildlife Interactions, 10*(2), 258-267. https://doi.org/10.26077/grqp-ty92

Gillikin, M.N., Urbanek, R.E., Olfenbuttel, C., & Dukes, C.G. (2021). Spatial analysis of rehabilitated American black bears to assess conflict potential. *BioOne Complete, 32*(15), 1-11. https://doi-org.ezproxy.lib.ucalgary.ca/10.2192/URSUS-D-20-00025.2

Hashem, B. J. (2019). Evaluating the success of an orphaned American black bear (Ursus americanus) rehabilitation program in Virginia. Journal of Wildlife Rehabilitation, 39(2), 7–12. https://theiwrc.org/wp-content/uploads/2019/05/39_2_F.pdf