

WILDLIFE HABITAT MITIGATION

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The following is an overview of mitigation the Wyoming Department of Transportation has been performing for wildlife and fisheries impacts with respect to our highway construction impacts.

The Department has performed toad barrier/crossings installations, raptor nest relocations, wildlife fencing and access control on many miles of Interstate 80 and 25 and funding of other wildlife projects in cooperation with the Wyoming Game and Fish Department (WGFD) and Forest Service, as well as numerous mitigation items associated with specific road reconstruction projects.

With regards to wildlife fence, we have not followed up with any kind of formal research on these installations. As a matter of fact, the only information I do have is anecdotal from our resource agency partners and highway maintenance personnel. This tends to make some sense due to the fact that informally collected data is about the only possibility when there is no funding. We are still working at organizing a funding program to see if these and other types of mitigation are beneficial.

Cost of fence is approximately 30% higher than our typical installation, but talking with maintenance, it seems to be quite durable and requires little maintenance.

Some of the fence has ramps that allow animals to jump back into the fenced area. Other fences have one way gates. The fences are typically joined to underpasses to allow movement. Elk and deer use the underpasses, but no one has seen antelope usage. Apparently they are afraid of anything over their heads. According to our highway maintenance and WGFD wildlife biologists and game wardens, deer and elk use the underpasses to pass back and forth under the interstates. They have noticed more elk getting hit around certain ends where the fence converts back to the regular R/W fence. As for the ramps no one has ever seen animals use them.

We have installed two sections of toad barrier on one of our road projects. No information has been gathered on this site. The USFWS requested the structure. Basically, the road fill abuts a one by eight inch board that is nailed to our Right of Way fence. Culverts are constructed and then the board is placed above them to allow only passage through the culverts.

Raptor nest relocation has been pretty successful. We have moved raptor nests from aggregate quarries as well as some of our road construction sites. This Ferruginous hawk occupied the new nest from and aggregate stockpile within the first year. And it has been occupied every year since (1993).

In-stream fishery habitat, as part of mitigation, has been completed on one of the projects I am working on. The Yellowstone National Park to Cody road reconstruction project involved about 14 bridges and many box culverts crossing the North Fork of the Shoshone river and its tributaries. The river is very dynamic and has highly variable flows. This river has many areas that tend to have substantial erosion and migration during spring run off (this slide shows an area where the river used to be all wetland - over the past three years the river has taken out about 10 to 15 m of bank). Then, during low flows the channel recedes from the banks and has very little of the associated cover. In many areas there is only flat wide geometry that does not offer fish habitat. The Shoshone National Forest, Wyoming Game and Fish and WYDOT decided to try installing rock structures in these wide shallow areas in an attempt to create low water habitat. The Shoshone Forest Hydrologist had attended numerous courses by an internationally renowned fluvial geomorphologist and offered a design. This design incorporates excavating a scour hole and then positioning large boulders in a geometry and pattern that provides low water habitat and also the hydraulics to keep the scour hole cleaned out during high flows. The results are not back in yet, but I have seen many of the structures after one above average spring run off, and they look to still be functional.

WYDOT has also taken a different approach to riprap along this river. We typically install riprap to produce a very smooth, consistent face. This usually does not provide any fishery habitat, precludes re-vegetation and leads to increased river velocities along the riprap face. We have used a very different approach on the YNP to Cody road. We have had the contractor place a highly variable size of riprap in a much less consistent line, which provides much more fish cover and appears to neutralize bank effect by roughening it up. I have noticed that this also provides enough flow variability that sediment is dropped out and it looks like we are getting some volunteer revegetation in some areas. Lastly, we have started using box culverts with baffles on small streams that have, or may, support fish. These structures have a concrete baffle formed into the bottom, so all you have to do is excavate a little deeper, set the box and backfill the bottom with stream material. These are used on very small drainages with low quality fish habitat. We have installed bridges over all tributaries with even nominal fish habitat - this is as much due to the variability of stream flows on these creeks.

WYDOT has funded acquisition of wildlife conservation easements to mitigate permanent habitat loss due to the YNP to Cody road project. As is the case all over the nation, in the North Fork of the Shoshone river valley, many acres of habitat are being developed annually. In this regard, knowing that you can not actually replace habitat, the parties involved felt the next best thing is to prevent existing land from being developed. So far, the WGFD, working with the Nature Conservancy, is being very patient in an attempt to obtain as much high quality habitat as possible. There are many obstacles, such as trying to find landowners that will sacrifice getting development prices for habitat and tax breaks; and trying to come up with a compromise on what the landowner can use the land without detracting from the wildlife use value.

Wildlife habitat improvement has also been funded by WYDOT to mitigate short term habitat losses due to plant sites, borrow areas and the time frame for revegetation to occur. WYDOT has funded the Shoshone Forest so they can perform prescribed burns and selective tree clearing to increase forage in certain areas.

Also, WYDOT worked with the Shoshone Forest to close vehicular access to numerous riparian areas that had been pioneered over the years by the local community. This actually improved the habitat in riparian areas by restoring the two track roads to a natural state as well as minimizing the use to foot traffic.

Very briefly, a Wildlife detection system has been installed on a section of one of our state roadways. The system was installed October 1, 1998 but has a number of bugs that are slowly being worked out. The system is supposed to detect deer movement and then trigger the flashing lights adjacent to the road. Hopefully the system will be debugged some time this fall. We would appreciate discussion with anyone who has any experience with a detection system.