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RECREATION DAMAGE IMPACTS BIGHORN WILDLAND

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Recreational activities are continuing to cause environmental damage in the Bighorn Wildland according to the results from the first year of AWA's Bighorn Recreation and Impact Monitoring Project. In spite of the Forest Land Use Zones that were implemented in the Bighorn Wildland in 2002, the study documented illegal OHV off trail and out of season use, and severe damage to both trail structure and vegetation from both motorized and non-motorized recreation.

The growing threat to landscape integrity due to human use, particularly motorized use, is widespread and well documented. Historically, the Alberta Eastern Slopes Policy that prohibits motorized recreation in the Prime Protection zone has protected much of the Bighorn. However, this policy was poorly enforced. In 2002 the government legalized motorized recreation in the Bighorn Wildland on designated trails with the implementation of their newest management strategy, Forest Land Use Zones. Trail monitoring is therefore crucial within the Bighorn Wildland to identify local physical and environmental impacts on the landscape, identify illegal off trail or out-of-season use by recreationists, and understanding the impacts of recreational activities.

Project Overview

The Bighorn Recreation Use and Impact Monitoring Project was designed to identify and assess the current status of recreational activity in the Bighorn Wildland and document the effects that these activities are having on the landscape. The monitoring project study area is located within the Bighorn Wildland's Upper Clearwater/Ram Forest Land Use Zone (see map). Over the years, this particular area has become highly utilized by motorized recreationists and is also a favourite area for horse use. The project consisted of collecting data on trail condition as well on OHV use along selected trails. We collected data and mapped 50 kilometres of trail, over which we established approximately 90 sites and collected data from 7 TRAFx counters.

OHV activity is popular in the area and makes the most visible impact on the ground. Monitoring identifies where this particular activity is occurring, the intensity of use and the impacts of their use. TRAFx counters were used to record and monitor the number of passes made by OHVs along selected legal designated and illegal non-designated trails. A designated trail is defined as a trail that legally allows specified activities at specified times of the year. A non-designated trail is a trail where specified activities are illegal at all times.

It is anticipated that during the four years of this study, correlations may be made between the intensity of trail use and the physical condition of the trails. Because the 2003 season was the first field season for the monitoring project, the data collected will serve as baseline results in which to compare data collected from the next 3 years of the project.

Aerial Surveys

Damage seen on the ground was substantiated through aerial surveys undertaken last year. The scarring left on the landscape can clearly be seen from the air. This technique of monitoring gives a bigger picture of the entire area and can help to pinpoint where hotspots of activity or inactivity and damage or no damage are occurring. AWA will continue with aerial surveys of recreational use during the next year.



**Trail Condition**

We collected data on trail condition including trail slope, width, recreational use type, and the structural and vegetation damage along the trails to help assess the pattern, intensity, and extent of recreational use in the area. Data was collected for both systematic and random sites. A systematic site is a portion of trail selected for repeated monthly data sampling. Random sites of damage target randomly created damage on and off trail outside of a systematic site.

A total of 69 systematic sites on both designated and non-designated trails were selected for monitoring of trail condition. A total of 22 random sites were also surveyed on designated and non-designated trails along the trail network.

The most telling measures of trail condition were those measuring the degree of structural and vegetation damage. Structural damage is a measure to indicate the integrity and level of degradation of the trail. Similarly, vegetation damage indicates the intensity of use of the trail through the presence and absence of vegetation. Structural and vegetation damage can be caused by a high level of use of the trails that can lead to the presence of rutted features, the removal of vegetation and the scarring of the landscape.

It was determined that 48% of systematic and random sites suffer Moderate/Severe to Severe level of structural damage. Similarly, it was found that 86% of systematic and random sites exhibit Moderate/Severe to Severe level of vegetation damage.

OHV Use

A total of 1395 passes made by OHVs were recorded by the 7 TRAFx counters over a six months period. The number of monthly passes were as follows:

June	38
July	267
August	629
September	214
October	221

These numbers illustrate the intensity of use by OHVs on samples of both designated (legal) and non-designated (illegal) trails. The results show that the greatest number of passes were recorded in the month of August. This may be due to weather and/or the onset of hunting season.

The majority of the passes counted were recorded on the legal, designated trail. Of the 1395 passes, a total of 886 legal, in season and on-trail passes were recorded. In total, 509 illegal (out of season and/or off trail) counts were recorded. Results also show that a total of 669 passes were made on weekends, while 726 were made on weekdays. Both legal and illegal use was recorded on weekends and weekdays.

Although the majority of the counts recorded occurred on a legal designated trail, the number of illegal counts cannot be dismissed. Non-designated trails must not to be used for motorized recreational activity. Therefore these trails, including areas adjacent to trails, and stream crossings should not be experiencing any illegal use. What the data shows is that not only is illegal use occurring out of designated seasons, but is occurring off trail. Because illegal activity is also occurring off trail, SRD officers must patrol off trail areas to enforce regulations and catch those who are non compliant. The amount of illegal use may be due in part to poor signage in the area in terms of their message, number, location, and size.

Although this was the first year of study, a few inferences can be made between trail condition and OHV use. We expected that non-designated trails, which should be free from OHV activity, would be in a relatively pristine form. Results show that despite non-designated trails experiencing far fewer passes by OHVs than designated trails, the degree of structural and vegetation damage recorded indicate a high





level of severity. These findings are consistent with the literature, which found a direct relationship between the number of OHV passes over the same area and the degree of vegetation damage. In one study up to 99% of vegetation loss resulted after only 32 passes by OHVs.

Equestrian Use

The Bighorn Wildland is a popular destination for equestrian enthusiasts and, although recognized as a traditional backcountry activity, the impacts of horse use on the environment are a concern for backcountry managers. The ecological impacts we observed from horse use included deep trail ruts, soil compaction, devegetation, and stream erosion.

Structural damage to trails in the form of soil erosion and deep rutting was observed. Horse trails are unique in that they tend to be quite narrow and deep, depending on factors such as soil characteristics and moisture. In some trails in the study area, depths of 28 cm were measured. Trampling by horses has compacted the soil and has led to the complete removal of vegetation (severe vegetation damage). Similar damage in terms of devegetation, trampling and erosion was also recorded along stream edges.

During AWA's Historic Bighorn Maintenance trip in the Wapiabi, severe erosion, weed infestation and devegetation were noted during cleanup efforts of degraded horse camps. AWA sent documentation of the damage to Alberta Sustainable Resource Development, which subsequently closed the camp.

Conclusion

The results of our work will make a difference in enforcement and the long-term management of wilderness throughout Alberta. A few months ago, I had the opportunity to meet with the Minister of Sustainable Resource Development, Mike Cardinal, and many Alberta MLA's to discuss Bighorn management issues and AWA's recreation trail monitoring. I have also met with SRD staff to coordinate protective monitoring efforts in the Bighorn Wildland.

AWA will be starting the 2004 Bighorn Monitoring Field Season in May 2004. We are always looking for enthusiastic and experienced volunteers. To find out more about the 2003 results or, if you would like to participate in 2004, please contact Lara at the AWA office, 283-2025.

