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Submission to the Water for Victoria Discussion Paper

from the Mountain Cattlemen's Association of Victoria

The Victorian High Country is the major source of water in our catchments and the single biggest threat to the catchments are the devastating effects of wildfire.

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The management of public land including fire management has been a source of constant debate since European settlement in Australia. Almost from the start, the views on land management of people living and working in the country have differed from people living in urban environments.

Mountain Cattlemen have extensive intergenerational experience of the Victorian High Country dating back to the first European settlement in Victoria in 1834. This knowledge and experience should not be dismissed and denigrated as has happened in the past, and present, by some. An attitude not dissimilar to the past experience of Aboriginal people in this country.

Traditional Ecological Knowledge (TEK)

The Mountain Cattlemen's families have 180 years of cultural traditions in the Victorian High Country, this is known as traditional ecological knowledge or TEK. This term has been used since the 1980's and is used globally.

The definition of TEK according to natural resource use scholar Bikret Ferkes, Traditional Ecological Knowledge is defined as,

> *"…a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment." (National Geographic,* **Voices for Biodiversity** on April 5, 2012)

> *"Traditional Ecological Knowledge (TEK): An accumulated body of knowledge that is rooted in the spiritual health, culture, and experiences of those who are close to the lands. It is based on an intimate knowledge of the land, its physiographic and natural features, climate, and wildlife, and the relationships between all aspects of the environment. Although in many uses it refers to knowledge of Indigenous peoples, others with intimate knowledge and experience of the land also have developed traditional ecological knowledge. (FSC Canada 2004:144)*

Berkes then describes how TEK is useful as a co-management tool.

> *Traditional knowledge, as a way of knowing, is similar to Western science in that it is based on an accumulation of observations, but it is different from science in some fundamental ways. The anthropologist Claude Levi-Strauss (1962:269) argued that these two ways of knowing are two parallel modes of acquiring knowledge about the universe; the two sciences were fundamentally distinct in that "the physical world is approached from opposite ends in the two cases: one is supremely concrete, the other supremely abstract." (Berkes)*

TEK is used collaboratively in management practices of public land in many other countries. The Mountain Cattlemen have a great wealth of knowledge (TEK), and wish to be involved in assisting land managers make better management decisions for the Victorian High Country. If these very important and long ranging decisions, (that are yet to be made and implemented on a tenure blind scale,) involve the use of a combination of fire and grazing in some areas, then nothing should be off the table in this rapidly changing environmental situation.

The Green Factor

Green public land management policies enacted over the last 40 years have been an unmitigated disaster. Major wildfire, now termed Mega Fires, over the last 20 years, are compounding and becoming more frequent. The Green environmental movement blame global warming. That is a cop out for flawed management policy. **In fact, the core reason is excessive fuel loads**.

History

It is important to understand why the High Country has evolved into the unhealthy excessive fuel laden state that it is, a state that threatens the existence of many species and the viability of our river systems. To do this, historical evidence must be read.

About 1920 'patch burning' was banned by the newly formed Forests Commission. This was ignored for some years by the cattlemen who knew the directive was not sound management. Eventually stronger application of the "no fires" rule meant cattlemen gradually ceased the practice. Many abandoned their runs as the land "scrubbed up" and became impractical, overgrown and dangerous.

Those who lived and worked in the High Country have always known that under 'modern' management (which began arguably in 1920), some areas became unsuited to even cool burning because they had increasing fuel loads. Hot fires in those areas would destroy the environment. In the absence of the Aborigines, the cattlemen knew the answer was grazing.

The areas not particularly suited to cool burning under modern management include most of the higher snow grass plains and the Mountain and Alpine Ash country. Historically, this is because these areas would only burn in the drier summer months. Where those areas were grazed and the firestick was used, they enjoyed reduced fuel loads in the event of a wildfire.

Now that the lower areas do not have regular cool burns, (as the Aborigines carried out, or were done by nature) the higher areas need intervention management of fuel. It is needed because hot wild fire from the lower altitudes in the middle of summer will carry across the upper level grasslands that are not grazed, with disastrous environmental results.

After 1920, the build up of fuel began, especially in the non grazed areas of the High Country. The lack of patchwork burning and cattle grazing meant that vegetation grew unchecked and gradually choked the forests with scrubby understory which shaded out the grasses and changed the viable landscape and environment forever. Wildfires, which still occurred regularly, increased in intensity, causing increased environmental damage because they were too hot.

Grazing and Fuel Reduction

Some thousands of years ago, the mega fauna became extinct in Australia so altering the fauna/flora/fire balance. We are unable to return mega fauna but some eminent people in this field have raised the possibility that cattle could be a good surrogate.

Grassland that is not grazed by cattle quickly becomes long and rank. The grass forms mats of dead material which is highly inflammable. It has been observed that on many of the ungrazed parts of the High Plains, grass mats encourage erosion when there is rain which makes deep runnels under the dead grass canopy while it is draining away.

It is instructive that in late summer, on the forest roadsides, where the grass is short and green, kangaroos, wallabies and wombats can be found; chancing their life against fast driven vehicles, rather than further back on the unpalatable grassland where it is safer for them.

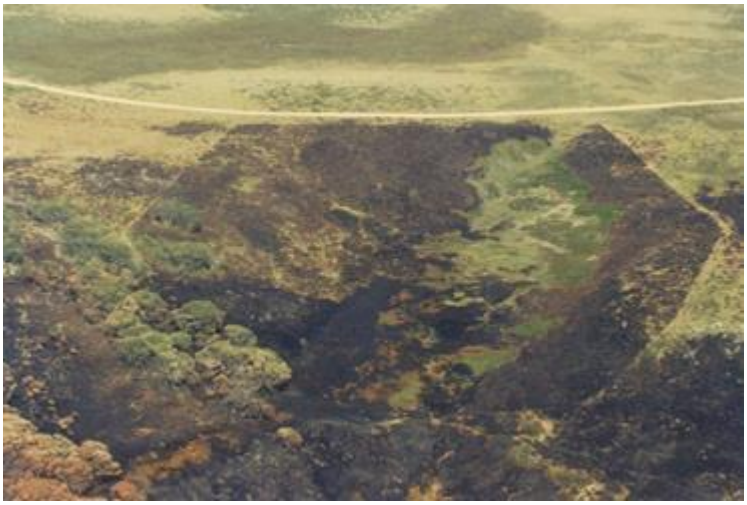
Caption: This photo was taken in Kosciusko national park where grazing had been prevented for more than 20 years at that time. The snow grass is long and matted and rotting. A wildfire would cause extreme environmental damage to the land. Grass mats of dead material are avoided by grazing animals because they know all the protein has leeched away.

Caption: The photos above were taken of Watch Bed Creek in the North Bogongs after the 2003 Alpine fires. The North Bogongs were closed to grazing in the early 1990s. Note the utter devastation of the area. Experienced cattlemen say that if the area had still been grazed, the effect on Watch Bed Creek would have been minimal.

Caption: Nunniong Plateau - Photo Commins family. The fenced plot (ungrazed) demonstrates that grazing reduces fuel loads. The visual evidence is indisputable. These plots are very important and different to the Bogong High Plains plots. The Nunniong plots are fenced with netting thus preventing grazing by rabbits and hares. The various trial plots on the Bogongs over the years have only been fenced with wire to exclude cattle but not other grazing animals. Therefore for many years, the MCAV has questioned the veracity of the Bogong trial work.

Areas in the High Country that were grazed by cattle over summers until 2005 remained short and green. It is documented and has been photographed, that Alpine wildfires in 2003, 2006 and 2009 were reduced in their intensity or actually went out when they reached grazed areas. Some scientists with a personal interest argued against these actual facts after the 2003 fires to achieve their aim which was to remove all grazing.

Caption: South Bogong High Plains - these 2 photos clearly demonstrate how the 2003 alpine fires went out when the fire reached the grazed Alpine grassland. (Simon Turner photo)



Caption: Alpine fires 2003. South Bogong - This photo clearly demonstrates how the fire only burned in the lower forest and in the fenced non grazed grassy area. The fenced plot which had excluded cattle for ten years is burned, the fire clearly stopped at the fence and the grazed area is not burned. (Simon Turner photo)

Now each summer, the areas of the grassy High Plains closed to cattle since 2005 have long dry matted grass which is building up year by year and will explode in an intense environmentally damaging fire. This situation has been exacerbated where recent fires have burnt, because there has been increased grass growth due to the reduction in the canopy.

Wildfire in this situation has an intensity that destroys certain trees especially the Mountain and Alpine Ash. These trees do not display epicormic growth and critically cannot produce seed stocks until maturity, when the re-growth trees are at least thirty years old.

After a high intensity wildfire, the crowns of the trees are destroyed and ash re-growth then becomes mixed with grass. Any subsequent grass fire will destroy the re-growth and that species of ash will be removed and lost, perhaps forever.

These types of hot fires also threaten sphagnum moss beds which formerly had the protection of short green grass, a result of regular grazing and before grazing, regular cool fires lit by the Aborigines and regular lightning strikes. The Bogong High Plains mountain cattlemen observed and told subsequent inquiries how grazed snow grass on the South Bogongs protected the bogs from fire in 2003. This direct observational evidence was ignored.

Caption: This sphagnum moss bed is situated in the ungrazed North Bogongs (VIC) and was burned in the 2003 Alpine fires. It reverted to grass land as the right hand picture demonstrates. Mountain cattlemen point out that no bogs were burned in the grazed South Bogongs in the 2003 fires. (Photos Simon Turner)

The MCAV has never claimed that grazing *prevents* wildfire or reduces the incidence of fire. It rightly claims that grazing reduces fuel loads thus reducing the intensity of wildfire thus protecting the environment especially in the higher, hot fire sensitive zones.

Some concerned and independent scientists have commented that there appeared to be deliberate misquoting of the cattlemen's point of view by other scientific people during the Esplin enquiry into the 2003 Alpine fires.

The 2003 Bushfires

The 2003 fires were one of the Alpine areas largest environmental disasters since European settlement.

> Jurkis states: *A study following the 2003 alpine fires in Victoria (Williams et al. 2006) purported to show that grazing had not reduced fire intensities or fire occurrence compared with ungrazed areas. However fire intensities were estimated only in heath where limited grazing has little impact on vegetation (Williams et al. 2006), whilst fire occurrence in grassland was generally low (15 out of 113 points). In any case, ignition depends on the presence of fuel not the quantity. Thus the design of the study did not allow a robust test of the hypothesis, and the conclusion that grazing to reduce fuel was not justified on scientific grounds (Williams et al. 2006) is questionable. Recent modelling (sic) within the Bushfires CRC has supported the well known facts that wildfire control is easier and safer where fuels have been reduced by prescribed burning. Obviously the area and location of burning are important, but burning a small proportion of the landscape can have a significant impact on wildfire control (King et al. 2007). There is a wealth of evidence that burning and/or grazing can prevent accumulation of fuels, and affect their arrangement and their seasonal flammability. It is a well established principle of physical science that these factors affect fire behaviour and intensity. The moderating effects of fuel reduction on fire behaviour have been repeatedly demonstrated (e.g. Underwood et al 1985, McCaw et al. 2003,) therefore it is unproductive to continue to divert resources to research and modelling that tests these established facts.* (Jurskis,2006)

Areas devastated in the 2003 fires now have fuel loads in the order six times greater than prior to 2003. The next mega fire, and it will happen unless urgent action is taken, will be of an intensity and power never seen before.

Reducing the intensity of wildfire protects sensitive land, vegetation, native animals and water systems from destruction. The Aborigines knew this and we need to revert to their practices.

Water and the Catchment

The immediate destruction of the flora and fauna by high intensity (hot) fires is only the beginning in the deterioration of the landscape. Soil loss in the catchments resulting from the massive wildfires in recent years in Victoria must be in the millions of tons. Nutrient loss in turn must also be massive.

Research by hydrology Professor Jacky Croke post 2003 fires ACT titled "Soil Erosion Control and Mitigation on Forest Roads: Post Bushfire. Road Rehabilitation in the ACT Forest Estate", estimated that up to 200 tons of soil per hectare eroded from some catchment slopes. This severely reduced the water quality and capacity of Cotter Dam.

Research by two eminent academics, Professor Peter Attiwell, former Dean of Botany, Melbourne University, and Professor Mark Adams, Dean of Agriculture at Sydney University, in a book "Burning Issues" published by the CSIRO shows water yield is less than 80% of normal in the years following a high intensity fire.

Rivers in the lower catchment become toxic, killing aquatic life and become undrinkable to livestock. Rivers become lifeless like the scorched bush.

Nutrient loss combined with a much reduced water yield due to the "blotting paper effect" of increased biomass, can lead to Blue-Green algae outbreaks.

Another factor that effects water yield is the loss of snow by evaporation. Mountain Cattlemen are not aware of any research in this field, but is an observation, that it is huge. When snow grass becomes long, rank and senescent, (as pictured in the caption of long rotting grass in Kosciusko National Park) the early snow falls sit on the elevated litter where much of the snow evaporates into the atmosphere. Where grasslands are short and with less scrub, the snow packs more densely, not dissimilar to a groomed snow slope at a ski resort. This results in greater absorption into the ground and thus greater water yield.

Continued green environmental policies have allowed fuel loads to reach dangerous levels. To continue this type of management will see more frequent conflagrations such as the 2003, 2006, 2009 fires and eventually, an Alpine desert.

Lower in the catchments, ill- advised Government and Catchment Management Authorities are advocating all water courses be fenced off from livestock. This is another recipe for disaster, especially in Eastern Victoria. These corridors become havens for vermin such as rabbits and weeds, with excessive growth in biomass. The creeks and rivers become conduits for intense fire and subsequent erosion. To enact such a strategy, in many areas, will again destroy what they are trying to protect. One glove should not fit all. Fencing off waterways may be appropriate in some areas of the State, but not mandated.

Conclusion

On- going research by Professor Mark Adams, suggests that the model of management to provide the best fuel reduction and water yield strategies for the High Country is a combination of low intensity burning and controlled cattle grazing.

Firestick ecology as practiced by the Aborigines and Mountain Cattlemen must be re adopted before that knowledge is lost.

To quote eminent eucalypt scientist and author of the recently published book "Firestick Ecology – Fair Dinkum Science in Plain English" Vic Jurskis, "Ecological history shows that we must apply the firestick frequently, willingly and skilfully to restore a healthy, safe environment and economy.

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