

Grassland, Grassland Über Alles

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As the level of awareness of grassland conservation issues has grown, so too has the scope of the term “grassland”. It now means more than just a community dominated by grasses. Problems with communication and management are likely to arise from this new usage. Consequently, I propose a significant change in focus from that currently associated with grassland conservation in Victoria.

Introduction

When this paper was delivered in 1992, I had worked for 14 years in grasslands of one kind or another in Victoria and New South Wales. In that time, I had been involved in research, education, restoration and the preparation of management and strategy documents. I had seen the level of awareness of grassland conservation issues grow exponentially not only in conservationists, as might be expected, but in farmers and politicians. However, by 1992 I felt that the message had somehow become distorted. I discuss this below with the advantage (or perhaps disadvantage) of three and a half years and three and a half thousand km separation from grasslands of any type.

Grassland Definition

We define things so that we can communicate their meaning or scope to others. In the case of vegetation, having an explicit definition is especially important because we are trying to convince people with little or no knowledge of plant geography (notably politicians) that they should do something to protect it. The *Flora and Fauna Guarantee Act 1988* introduced a legal imperative for defining assemblages of plants.

In a plant geographical sense, the definition of grassland is clear. It is simply a plant community, in which the structural dominants are grasses. Of the natural vegetation in Victoria, the definition covers many distinct plant communities, including coastal grasslands of *Spinifex*, alpine grasslands of various *Poa* species, and Kangaroo Grass grasslands on the lowland plains of eastern and western Victoria.

Of late, however, the term grassland appears to have acquired a much wider and less focussed meaning. Many people now talk of “the grasslands” as if they are a

single plant community and as if they are spread monotonously throughout the regions in which they occur. I doubt that this usage is deliberate. I expect that it happens through ignorance and, if that is the case, biologists like myself have failed to get the true message across. However, I see at least two problems arising from this generic use of the term.

1. Grassland-centrism

For a time I wondered why alpine and subalpine grasslands are left out of grassland conservation programs such as the Draft Conservation Program for Grasslands and Grassy Woodlands (DCE, 1992). It is not simply that they are covered by Park Management Plans, as that document suggests. Much of the subalpine grassland community (Unit 9) of McDougall (1982), for example, is on private land. To my knowledge no-one has attempted to address the critical issues for this grassland of grazing and ski industry development.

It is also not because such grasslands are unworthy of action that they are omitted. They contain many rare or threatened species (including some probable undescribed taxa). The community (Unit 9) referred to above is distinct and incredibly localised. The exclusion of high mountain grasslands from the grassland fold is also not just snobbishness on the part of people interested in lowland grasslands. Alpine and subalpine grasslands are simply regarded in a different way to lowland grasslands. They are an inextricable part of the alpine ecosystem. Although some of the lowland grasslands may once have been more extensive than their alpine counterparts, they are no less a part of a complex ecosystem. Geoff Carr (this volume) has described the incredible diversity of plant communities on the volcanic plains alone.

In descriptions of the conservation values of grasslands, the values of associated communities are usually not

mentioned or perhaps they are just assumed to be a part of the greater grassland empire. It is hard to tell. On the western volcanic plains, for instance, there are many wetlands, both large and small, and areas of forest, shrubland and hermland. By either lumping them all in with grasslands or, worse, leaving them for some other conservation program, we fail to recognise their true value. For, on the western volcanic plains (as on most other lowland plains), all natural plant communities are threatened. All have been decimated or severely degraded in the past 150 years.

Even within the realms of true grassland, there is a wealth of variation. By using the term grassland generically, we may end up with a reserve system containing a few similar grassland remnants. For the sake of the vegetation we are trying to protect, I believe we are better off referring to the region encompassing the vegetation when we talk about conservation. For instance, on the western volcanic plains what we really need is a system of nature reserves that is representative of the western volcanic plains and not just of someone's idea of a typical grassland.

At the risk of seeming petty, I also point out that not all of what is generally regarded as grassland is grassland at all, in any sense. The northern riverine plains are regarded as part of the once extensive lands containing grassland and grassy woodland in Victoria (DCE, 1992). However, of the treeless remnants I visited in recent surveys of northern Victoria and southern New South Wales (Appleby et al., 1991; McDougall and Kirkpatrick, 1994), I found that the majority were structurally forblands (i.e. dominated by non-graminaceous herbs). The remainder were either chenopod shrubland or grassland.

In New South Wales, these communities are regarded as disclimax chenopod or acacia shrubland; i.e. they are believed to have once been dominated by such plants (Moore, 1953). None of this diminishes the extraordinary significance of what remains of these communities. However, the use of "grasslands" in this all-encompassing way does not do justice to the complexity of these plains systems.

2. Mismanagement

So much of what we know about grassland management comes from research on plant communities dominated by *Themeda triandra* (Kangaroo Grass). The need to reduce biomass to maintain species diversity, especially by burning, is now almost axiomatic. However, there are grasslands that are not dominated by Kangaroo Grass and communities that occur amongst Kangaroo Grass grassland, which have no history of deliberate burning. We have little understanding of the effect

of fire on these other communities. I believe the generic use of "grassland" coupled with the focus on management of Kangaroo Grass grasslands may lead to mismanagement.

An example of this mismanagement almost occurred recently. I spoke with many farmers while surveying roadside vegetation on the volcanic plains of western Victoria. They were generally very interested in what I was doing and would stop by the roadside for a chat. This often made work slow but I was rewarded with much information about the landuse history of the area.

One farmer who stopped to talk had heard about the necessity of burning grasslands to maintain plant species diversity. He enthusiastically offered to burn a patch of grassland he had on his property. Indeed, his patch turned out to be a wetland, albeit grassy, but with no recent history of burning. My advice to him was that I had no idea whether burning would be beneficial to his "grassland" but that since it was not normally burnt and would, at most times be difficult to burn safely, he was probably best to leave it alone.

I foresee further management problems arising from the generalisation of grasslands. Some of the species listed as rare or threatened in grasslands and grassy woodlands on the volcanic plains (DCE, 1992) occur principally in non Kangaroo Grass dominated areas. *Lepidium aschersonii*, for instance, normally occurs in "saline situations bordering lakes or in salt marshes. At Lake Beeac ... it occurs in a *Suaeda australis* (Austral Seablite) dominated salt-marsh association" (Leigh et al., 1984). Although in such a habitat it seems unlikely that the species could ever be easily burnt in large numbers, by labelling it as a grassland species, in the broad sense of the word, we risk assigning it to the management that is recognised as appropriate for the nearby grassland in its narrowest sense.

Grasslands have been simplified to the point where the term can only confuse and undermine the importance of protecting a large range of plant and animal communities that have been decimated and continue to be decimated.

A Solution

There has been some suggestion that terms outside our current usage (such as savanna and prairie) be used instead of grassland to avoid the confusion referred to above. This might include words from Australian Aboriginal languages, from which we have accepted very few terms for our vegetation (an exception being mulga).

Foreign words are generally borrowed because there is no single word in a local vocabulary that already captures the meaning required. There is nothing unusual about this. Most of our plant geographical terminology has already come from the northern hemisphere. For example, most of the common names used for Australian alpine communities (eg. fellmark, fen, bog, and even alpine) came from Europe.

One comparatively recent example of borrowing involves the word “tundra”. This word, of Lappish origin, was originally used to name the treeless arctic regions of northern Europe. At some stage its use spread to all arctic regions, including North America. The term was then extended to include high altitude (alpine and subalpine) treeless areas in the lower United States. Such usage became general in the 1960s and 70s and now seems well accepted, although I do recall reading some dissent from a researcher who believed the term was better left for boreal areas with permafrost.

There is even evidence of its spread to the southern hemisphere and tropics (eg. Billings and Mark, 1961, New Zealand; Hope 1986, New Guinea). The obvious attraction of a word like tundra for alpine ecologists is that it encompasses a range of plant communities and the concepts of alpine and subalpine, which are, at times, difficult to separate on the ground.

Objections to such borrowings, although sometimes meritorious scientifically, where unambiguous definition is essential, are not supported by history, where countless terms have been borrowed and re-shaped for new surroundings. The adoption of a word is governed not by its correctness but by its usage. As I have attempted to show, even the term grassland has developed a new meaning in the last decade. We must wait to see whether new terms for our plant assemblages become part of common usage in Australia. The more important question is whether they are useful.

I discuss three options for borrowing.

Savanna

The Shorter Oxford Dictionary defines savanna as “a treeless plain” and traces its origins to the Caribbean (and the language used there) in the 16th Century. That the word is now used widely in Africa, Australia and the Americas means that it has already been borrowed. The important question is “are we allowed to take a term originally used for tropical vegetation and apply it to temperate vegetation?” Of course we are. It is improbable that the original usage would have been particular to the tropics. Such a localised term is likely to have been inclusive (of the elements it described) rather than exclusive (of elements that were irrelevant to its users).

Savanna may have provided a reasonable alternative to our cumbersome “grassland and grassy woodlands” had it not been for the flurry of research activity in savanna vegetation over the past 20 years. It is useful to follow the term’s progress in that time. Huntley and Walker (1982), in a volume that followed a 1979 conference on savannas, wrote:

‘Few ecological terms have generated as much inconclusive discussion as has the term “savanna”. Reference to its supposed etymology, its application by early phytogeographers and its current use in the Americas, Africa and Australia have led most pedantic workers to avoid its use altogether.’

Browsing through the contributions in that volume, it is easy to see what they mean. Walker and Gillison (1982) for instance, in describing Australian savannas, give examples in both tropical and temperate parts of Australia, mainly limiting them structurally. Huntley takes another view, restricting savannas in southern Africa to:

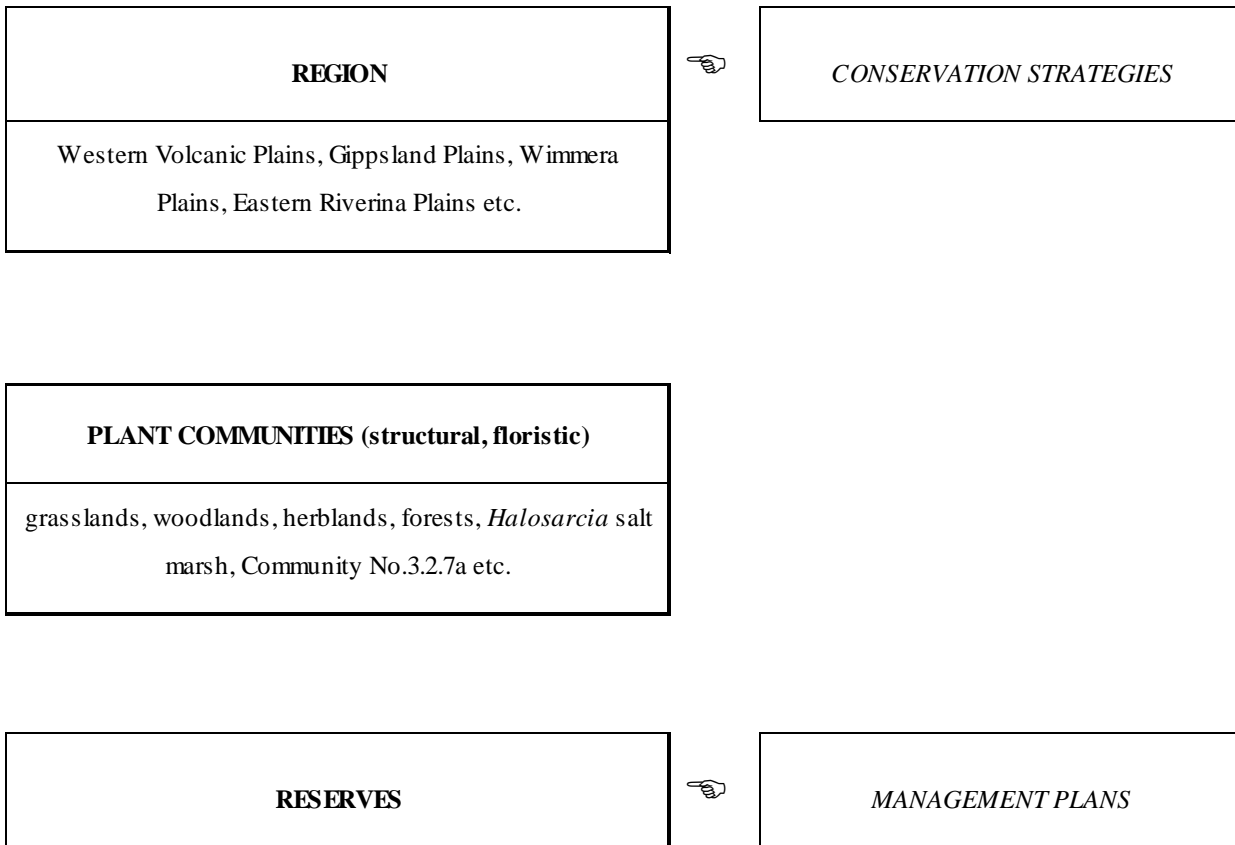
‘all ecosystems in which C_4 grasses potentially dominate the herbaceous stratum and where woody plants, usually fire-tolerant, vary in density from a few scattered individuals to a closed woodland...’

In 1982, many of Victoria’s grassy systems would have fitted many of the savanna definitions. In 1988, however, savanna researchers proposed the use of indices of plant growth, plant available moisture and plant available nutrients to define their field (Medina and Mott, 1988). By 1991, the term savanna had been removed from the grasps of any temperate grassland advocate. At least for the people doing research on them, savannas are grassy woodland plant communities of the tropics and sub-tropics (Werner, 1991). They will no longer easily occur in Victoria.

Prairie

Prairie found its way into the North American vocabulary from Latin via French. The Shorter Oxford Dictionary defines it as “a tract of level or undulating grassland, without trees, and usually of great extent” and gives its first recorded use in today’s sense as 18th century.

Curtis (1959) narrows the definition to communities dominated by grasses, having less than one mature tree per acre. Risser et al. (1981) see prairies as more than a North American phenomenon, ascribing them to most continents. Laycock (1979) lists several types of prairie in North America and separates them from other grasslands in the arid and montane zones. Prairies are therefore a subset of grasslands. They are the subset occurring in the non-arid lowlands and dominated largely by peren-

Figure 1. Proposed hierarchy of terms for Victorian plains vegetation and conservation practice

nial grasses. Victoria's lowland grasslands could be much the same subset.

The adoption of "prairie" to describe our plains systems may make some people feel uncomfortable, especially those who oppose the widespread infiltration into our vocabulary of jargon from the United States. However, the prairies of the United States, like our plains, have been pushed by modern agriculture to the brink of extinction. The U.S. prairie conservation and restoration movements are advanced. Even if we don't adopt their name, we have a lot to learn from their experience.

Steppe

To a large extent, steppe is the European equivalent of prairie; the major difference being that steppe may include all treeless vegetation regardless of its elevation. I have read that steppe shares its etymology with *Stipa* (a grass that apparently dominates some Russian grasslands), so there may be justification for adopting the term, at least in northern Victoria, where the genus is dominant at times.

My solution

Terms such as prairie and savanna may be rich and evocative, which could be especially useful when trying to

convince politicians to protect many remnants at large cost. However, they are little more than synonyms for grassland. I do not believe there is anything inherently wrong with grassland as a term. It is the way it is used that could be changed.

Our threatened plant and animal communities will have a better chance at real conservation if the emphasis is explicitly shifted from single communities to systems of communities. In the case of grasslands, this could be achieved partly by educating people to use the term correctly, as a name for a particular type of plant community. Of more importance is the need to emphasise the systems containing grassland communities, as is done with alpine grasslands.

I suggest a regionalized approach to terminology (and ultimately conservation and management) as more logical and productive (Figure 1). Under this scheme, the grasslands of Victoria would be parts of the Western Volcanic Plains, the Wimmera Plains, the Gippsland Plains, the Mallee, the Alps and so on.¹

¹ The grasslands and other plant communities of the northern Victorian riverine plains extend well into the South Western Plains Botanical Division of New South Wales. A possible moniker for this system would be "the eastern Riverina plains". Regardless of its name, conservation programs need to encompass all of the system rather than one artificially created by State boundaries.

Conservation strategies would be prepared for each region. Obviously there is more urgency in some regions than others. Strategies would seek to protect representative stands of the range of communities present. Grasslands would have equal ranking in this scheme with other plant communities. This does not mean that they would necessarily have equal significance. The emphasis would simply be shifted to a higher level, the ecosystem. Management documents would be site and community specific, thus avoiding confusion such as that described above.

Conclusion

I believe conservation of remnant vegetation would benefit from a regional approach. In particular, terms such as grassland should be removed from the top of the hierarchy of terminology. The change I propose is significant but it need not be unattainable. The production of regional planning documents for each of the regions containing threatened grasslands and other communities would help change people's perception of the ecosystems and the issues involved in their protection. However, I can see that shifting the emphasis may prove difficult when so much of the awareness and support gained over the past 10 years has been under the banner of grassland conservation.

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