

Raising awareness of the broom (*Cytisus scoparius* (L.) Link) problem on the Barrington Tops, New South Wales

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Summary

Awareness of broom as a problem on the Barrington Tops increased following action of the Barrington Tops Advisory Committee and the Barrington Tops Broom Council. This paper describes how publicity and public pressure generated by these groups led to the commencement of a biological control program for broom and illustrates how support can be generated for the management of environmental weeds.

Introduction

When the Barrington Tops National Park in New South Wales (NSW) was established in 1969 there were many hectares of broom, *Cytisus scoparius* (L.) Link, established within its boundaries. The New South Wales National Parks and Wildlife Service (NPWS) surveyed the extent of the problem and sought help from the New South Wales Department of Agriculture and chemical companies. For the next ten years there followed a period of trial and error. However in 1980 and 1981 the use of 2,4,5-T (active ingredient 2,4,5-trichlorophenoxy acetic acid) to spray broom was suspended because of high levels of 2,4,5-T in urine of park workers and damage to native plants caused by the spray. The broom control program had always been limited by the season and the weather. The Forestry Commission also had a major broom problem and used Garlon® (active ingredient triclopyr) on areas close to water and walking trails and 2,4,5-T elsewhere. The Forestry Commission also tried slash, burn and spray but the regrowth was considerable.

Barrington Tops Advisory Committee

The Barrington Tops Advisory Committee for the national park was formed in about 1972. Advisory committees, which initially comprised of community representatives, are appointed by the New South Wales government through the Minister for Planning and the Environment. These Committees advise the Minister via the departmental head who runs the NPWS.

By November 1983 the Barrington Tops Advisory Committee was being told that funding for the broom program is 'something of a lucky dip' and \$10 000 was put up in the budget and for the first time in eight years this was refused and not

included in the NPWS estimates to Treasury. The Regional Director of NPWS then reintroduced the broom item during the allocation of Capital Works Grants and hoped for Ministerial approval. That \$10 000 had already been put up as collateral for a Commonwealth Employment Program grant and as this was a four to one allocation it was well worth the gamble. The NPWS would either have \$50 000, or nothing, to spend on broom control. At this time control measures were hit and mainly miss. Fortunately the money came through that year.

By 1985 the Barrington Tops Advisory Committee decided that the broom problem was becoming serious on the plateau and more reports were coming in of broom colonizing waterways leading off the plateau. These plants at lower altitude appeared to be able to set viable seed. The Committee suggested to NPWS that some of the broom funding be diverted to holding a Broom Workshop to which we would invite as many experienced people as we could from the academic world, neighbouring landholders and local weed control bodies. On 22–23 February 1986, some 27 people came together to camp at Little Murray and put their collective thoughts forward. To those people we are all indebted.

The Broom Council

From that workshop the Committee decided that: (a) there be a regional body formed called The Broom Council, (b) the Council would restrict its charter to the study of broom, (c) membership of the Council would include one person from each of the organizations initially invited to the Broom Workshop, with the power to co-opt extra relevant people (d) the Council be an autonomous advisory and coordinating body, however each member organization must retain responsibility for broom control on its own lands, and (e) the Council would work towards long term biological control of broom.

With NPWS agreement the first meeting of the Broom Council was held at Gloucester on the 24 March 1987, and the following attended:

- Barrington Tops Advisory Committee
Bev Adams, Margaret Mason
- Scone Shire Council
Doug Collison
- Upper Hunter Pasture Protection Board
Ken England

- Hunter Pastoral Company (HPC)
Tony Clark
 - Dungog Shire Council
Eric Pasenow, Des Hopson
 - Gloucester Shire Council
Bruce Redman
 - Gloucester Pasture Protection Board
Bill Carter
 - NSW Department of Agriculture (Gloucester)
John Britton
 - NSW Forestry Department (Gloucester)
Tony Yates, John Freeman
 - NSW Soil Conservation Service
Mike Fletcher
 - Hunter Valley Conservation Trust
Ian Furner
 - Hunter District Water Board
Col McKenzie
 - NPWS
Carl Atchinson, John Trudgeon, Peter van Herk
 - Flick and Company
Peter Edlick
- Those elected to form the executive were Tony Clark as chairman, Carl Atchinson as deputy-chairman/secretary and Tony Yates as publicity officer.

The committee decided that the functions of the Broom Council were to:

- (a) act as a forum for the co-ordination of control activities, information and research relating to broom,
- (b) foster public awareness of broom and to build public support for its long term control, and
- (c) work towards this long term control through biological agents.

In general business, the three organizations represented by the executive (HPC, NPWS and NSW Forestry Department) discussed their recent commitment to the destruction of broom, and a round figure of \$450 000 was estimated as the overall cost. All agreed that the present methods of control were both costly and inadequate.

Biological control

The Barrington Tops Advisory Committee determined that CSIRO research capacity was needed, however, the thrust of CSIRO research was towards weeds of economic significance, particularly pasture weeds, whereas the invasion of broom was largely of environmental concern. However, if funding was available the research might become a higher priority.

A motion was carried that the Council write to the Chairman of CSIRO, Neville Wran, asking him to review CSIRO Plant Industry work on environmental weeds (by Dr. R. Groves) and requesting that CSIRO reconsider biological control research of broom. The Council also requested that the executive ascertain the costs of producing a single page information leaflet, in colour, which could be circulated to relevant organizations, e.g. 4WD Clubs, National Parks Association and Shires. The Forestry Department subsequently published such a sheet. The

Council met every three months, collected data on the broom distribution and continued a campaign to foster public awareness.

Then came a stroke of luck! The Chairman of CSIRO, Neville Wran, was to be guest speaker at a dinner of my old school, Fort Street, at the beginning of October 1987. This gave me an opportunity for some personal contact with Mr. Wran placing the case for research factually before him. During this discussion it was suggested that Mr. Wran might contact HPC and a helicopter trip was arranged as the best way to see the invasion of the weed was from the air. As a result Mr. Wran inspected the area in November 1987 when broom flowers were at their best.

Then followed publicity of a sort the Broom Council could not generate. Deputy Leader of the National Party in the Federal Parliament, Mr. Bruce Lloyd, accused Mr. Kerry Packer (Proprietor of HPC) and Mr. Wran of cronyism in question time in the Legislative Assembly. The media ran the story for twenty-four hours with the television and the papers *concentrating* on the visit. Suddenly everyone knew about and saw in flower broom on the Barrington Tops. Immediate retractions were demanded and received, so the media publicity continued for another few days.

The Shires of Scone and Gloucester wrote to the Leader of the National Party, Ian Sinclair, to acquaint him with details of the Broom Council and its work. State

Member for Scone, Colin Fischer, went on radio and issued a press statement and also wrote to Mr. Wran commending him for his 'genuine attempt to observe at first hand this pernicious and insidious noxious plant'. The Broom Council had now achieved aims (a) and (b) and set about gaining aim (c), a program for biological control, funded by government departments and the HPC.

After a change of government in the NSW State election in 1988, the Broom Council invited the Minister for Agriculture and Rural Affairs (the Honourable Ian Armstrong), the Minister for the Environment (the Honourable T. Moore) and the Minister for Natural Resources (the Honourable Ian Causley) to come to see for themselves the current and potential broom problem on the Barrington Tops. Local members were aware that representatives from the Broom Council had attended National Party Meetings in their electorates and had promulgated the necessity for government action to be taken immediately if the broom infestation was to be contained in the future.

The three ministers and two local members, members of the Broom Council, the Advisory Committee, the NPWS, and the Forestry Department gathered at Polblue half way through 1988 and with the assistance of two helicopters donated by HPC flew on a surveillance tour of the area covered by broom. All costs up to this point in time had been borne by individual members of the Broom Council or the two Departments, NPWS and Forestry.

The Broom Council told the Ministers that the Council's estimated cost of establishing a broom biological control program would be approximately \$78 000 in year 1, \$174 000 in year 2 and \$141 000 in year 3 and subsequent years. CSIRO and HPC had committed themselves and it was hoped the NSW government would do so as well. By 19 October 1988 there was a joint submission from the Ministers for Agriculture and Rural Affairs, the Environment, and Natural Resources for a special allocation to partially fund a research project by NSW Agriculture and CSIRO to develop a broom biological control program. Accordingly it was recommended that special allocations be made over the next three financial years to meet two-thirds of the estimated costs of the research program. This amounted to \$38 000 in 1988/89, \$125 700 in 1989/90 and \$108 500 in 1991/92.

The Broom Council had now completed all three functions that it had set out to achieve in its first two years.

Conclusion

The Barrington Tops Advisory Committee and the Barrington Tops Broom Council managed to raise awareness of broom as a problem on the Barrington Tops through publicity and public pressure. As a result funds were committed in 1989 for a biological control campaign. This paper describes activities necessary to generate State government support for projects aimed at controlling invasion of key environmental weeds in National Parks.

An introduction to the biogeography and ecology of broom (*Cytisus scoparius*) in Australia

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Summary

Broom (*Cytisus scoparius* (L.) Link), a shrub with several uses in its native Europe, was first introduced to Australia in about 1800 and has now become widely established at many places in moist, cool temperate regions. Single populations are probably rather uniform, but there are genetic variations between populations reflecting multiple introductions. Herbivores, both native and released in a biocontrol program, have so far had little impact. At Barrington Tops (New South Wales), the largest Australian infestation, undisturbed stands in eucalypt woodland expand at c. 0.5 m per year. Seed dispersal by animals, vehicles or other agents leads to establishment of new, distant populations. Older plants

become prostrate, with thinning eventually leading to patchy regeneration. Major disturbance results in massive regeneration. Broom may have substantial ecological impacts upon regeneration of overstorey trees, survival of understorey plants, and fauna.

Introduction: broom in Australia

Broom (*Cytisus scoparius* (L.) Link) is a member of tribe Genisteeae, family Fabaceae, a group of shrubs predominantly native to the Northern Hemisphere. No members of this tribe occur naturally in Australia. However, several species are naturalized here, those of greatest concern (so far) being broom, Montpellier broom (*Genista monspessulana*

(L.) L.A.S.Johnson) and gorse (*Ulex europeus* L.) (Hosking *et al.* 1998). Of these, broom is arguably the most serious invader, being widespread in southeastern Australia in little-disturbed as well as in pastoral and peri-urban environments. Montpellier broom, though widespread, is predominantly an invader of relatively disturbed sites, and gorse is significant only within a more limited, southern range.

Broom forms a novel, dense shrub layer in grasslands and open forests, shading out understorey plants, affecting animal distributions and populations, and having serious impacts on various human activities. Its canopy provides a foliage projective cover usually exceeding 50%, and in eucalypt woodland at Barrington Tops its above-ground biomass (of which 13–27% is in the form of green shoots) has been recorded at 0.26–2.63 kg m⁻² (Hosking *et al.* 1998). Similar values of 1.6 and 2.1 kg m⁻² have recently been reported in north-west Tasmania (Barnes and Holz 2000), respectively in and between tree rows in young eucalypt plantations.

Although broom is still expanding its range, population, and impact in