

Australian weed societies – beyond the millennium

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The second Council of Australian Weed Science Societies (CAWSS) Oration delivered by A. Nelson Johnston at the sixth Australian Weeds Conference in 1981 reviewed the history of Australian weed societies, outlined the challenges they faced and commended actions to the audience. Advances in technology and changes in social attitude during the intervening 30 years have created new challenges. Societies face the additional burden of their administrative committees relying on voluntary participation in an era where weeds workers are increasingly time poor as their workloads increase.

To understand the factors driving the current and future issues facing weed societies, the history of weeds organizations, conferences and journals needs first to be considered. Weed societies were formed to provide a framework for interaction at state and national level. Dissemination of research and extension findings is largely undertaken through publication in peer-reviewed journals and presentations at conferences. The loss or breakdown of any one of these components of the weed science communication landscape would be detrimental to effective weed awareness and management.

Australian societies

The Australian Weeds Co-ordination Committee, a government initiative, organized the first Australian Weeds Control Congress in 1954 (Johnston 1982a) and a further four conferences over the following 22 years. These initial conferences provided a forum for dialogue between government employees, with limited numbers of industry personnel invited to attend.

The early 1960s were considered a golden age for weed science in Australia (Johnston 1982a), with activity being spearheaded by the rapid advances in herbicides. During this period, discussions between people involved in weed control led to the formation of the Weed Society of New South Wales in 1966, closely followed by a Victorian society in the same year. Three more societies were formed over the next decade (South Australia in 1970, Queensland in 1975 and Western Australia in 1976), with their constitutions and objectives based largely on those of the original society.

Discussions in the mid 1970s revolved around the need for a national body, and whether this entity would either replace the state societies or fulfil the function of an umbrella organization. The autonomy of state societies was retained, with the formation of the Council of Australian Weed Science Societies ratified in 1976 to co-ordinate national objectives and activities (Combella 1988). One of the drivers for the formation of CAWSS was the need for a national voice that was proactive rather than reactive for communicating weed science and technology issues to the public (Johnston 1982a).

CAWSS has undergone several changes over time, firstly with the inclusion of the Tasmanian Weed Society which formed in 1995. In 2002, consideration was given to membership for specialist groups such as the Environmental Weeds Action Network (EWAN), but this was not considered appropriate. Some state weed societies merged with kindred associations or changed names, reflecting a broader agronomic or plant protection focus of their membership at various times. The word 'Science' was dropped from the name in 2003 to reflect the nature of the member societies, and thereby finally reflect the originally intended name aimed at attracting maximum membership (Johnston 1982a). Several proposals to form a Northern Territory weed society were actively supported by CAWSS, however a society is yet to be formed. The New Zealand Plant Protection Society became a member in 2006, leading to the current structure of

the Council of Australasian Weed Societies (CAWS).

The formation of an Australasian Weed Society with a membership of individuals was first proposed in 1988 but did not gain support (Combella 1988). Nearly twenty years lapsed before formal linkages were established with New Zealand. Despite the concept of a truly trans-national society of individual and corporate memberships being raised informally on several occasions, formal discussion of the two models of operation is yet to occur in the modern era.

In 1996/97, CAWSS member societies had a combined membership of up to 1300 individuals across five societies (Table 1). By 2002/03, combined membership had declined to less than 800, driven mainly by decreased membership of the South Australian society, and by smaller membership declines of the New South Wales, Victorian and Western Australian societies. The inclusion of the Tasmanian society provided a new source of membership that partially offset the membership losses from other societies.

The current membership has increased, mainly through inclusion of the New Zealand society and growth of the Queensland and South Australian societies. The Victorian and Western Australian societies have experienced continued membership decline. The current combined weed society membership is still well below that reported in 1996/97. Factors contributing to this decline are not readily identifiable, but could relate to level of funding and staff contributing to weeds related work, age structure of society membership, recruitment rate of early career weeds workers, loss of relevance of societies to modern weeds workers, and competition from other organizations for the time and membership of weeds workers.

Registration details at recent Australian Weeds Conferences (AWC) indicate that around 30% of delegates are members of weed societies, 45% non-members, 10% student and the remainder either day registrations, sponsors, keynote speakers

Table 1. Maximum weed society membership levels.^A

	1996/97	2002/03	2010/11
New South Wales	250	150	150
Queensland	250	250	350
South Australia	400	100	150
Tasmania	–	50	50
Victoria	250	150	100
Western Australia	150	100	50
New Zealand	–	–	100
TOTAL	1300	800	950

^ABased on CAWS membership fees, which are levied in 50 member increments.

or complimentary registrations. Societies should note the high percentage of non-members at the conferences and identify and address the reasons why these delegates are not members of weed societies, as these delegates are actively involved in some aspect of weed management and communication.

Conferences

Regional weeds conferences have been held in the United States of America since 1938 (Timmons 2005). As far as can be determined, the Australian Weeds Control Congress in 1954 was the first conference of its kind in the region where weeds workers within Australia could interact and share information. After CAWSS commenced co-ordination of these conferences in 1978, conferences catering for a wider audience were held triennially until 2002 when a decision was made to increase the frequency to biennial.

Internationally the Weed Society of America, now the Weed Science Society of America (WSSA), was formed in 1954 and held its first conference two years later (Timmons 2005). The formation in 1960 of the European Weed Research Council, precursor for the European Weed Research Society (EWRS), accelerated closer linkages between the 24 member countries in addressing problems caused by weeds (Van Der Zweep and Hance 2000).

Regional societies continued to develop with the formation of the Asia-Pacific Weed Science Society (APWSS) in 1967 at the highly successful Weed Interchange Conference in Hawaii (Chen 1988). The Asia-Pacific Weeds Conference has continued since on a biennial basis, although there has been a decline in delegate attendance levels (Figure 1). The golden age of the APWSS conferences was during the 1980s when average attendance exceeded

400 delegates per conference. Attendance levels have been in decline since, with average attendance since the turn of the century being around 230 delegates. Factors driving this decline may be difficult to identify, but discussion addressing this trend of declining attendance is needed to ensure the long term viability of weeds conferences.

Communication between regional weed societies led to the formation of the International Weed Science Society (IWSS) in 1975, with EWRS, APWSS, WSSA, WSSEA (Weed Science Society of Eastern Africa) and ALAM (Asociacion Latinoamericana de Malezas) the core regional societies (Fryer 1978). Australia played a central role in the initiation of international conferences by hosting the first IWSS congress in Melbourne in 1992, with subsequent conferences being held

quadrennially around the world.

The move in 2002 from triennial to biennial AWC conferences was driven largely by the presence and activities of the Co-operative Research Centres (CRCs). The CRC for Weed Management Systems operated between 1995 and 2001, and was succeeded by the CRC for Australian Weed Management which operated until 2008. These CRCs provided a national forum for increased communication and research within the weeds community. There was approximately a 60% increase in the quantity of presentations at AWCs during this period, which is a direct reflection of the impact CRCs had on weeds research and communication. The absence of a suitable entity in the future to fill the role played by the CRCs may see this period become known as the golden age of weeds communication in Australia.

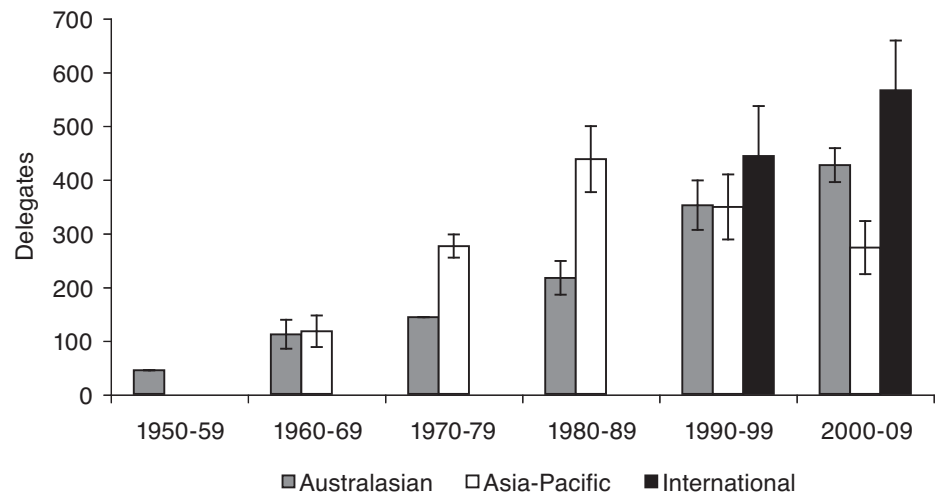


Figure 1. Number of delegates per weeds conference type (decade average ± s.e.). [Attendance at the 5th AWC (1976), 1st CAWSS (1978), 9th AWC (1990) and 17th APWSS (1999) conferences not known].

Table 2. Origin of Australasian Weeds Conference (AWC) delegates.

Origin	13AWC		14AWC		15AWC	16AWC	17AWC
	2002	2004	2004	2006	2006	2008	2010
	Perth, WA	Wagga Wagga, NSW	Wagga Wagga, NSW	Adelaide, SA	Adelaide, SA	Cairns, Qld	Christchurch, NZ
Australian Capital Territory	29	30	30	28	28	41	8
Northern Territory	10	5	5	14	14	0	3
New South Wales	61	105	105	65	65	59	20
Queensland	52	53	53	75	75	195	29
South Australia	35	28	28	112	112	26	12
Tasmania	14	10	10	9	9	3	2
Victoria	37	65	65	60	60	36	22
Western Australia	175	24	24	42	42	19	9
New Zealand	17	13	13	23	23	6	81
International	54	14	14	42	42	18	15
TOTAL	484	347	347	469*	469*	403	201

* includes 14 cancelled registrations.

The 13th AWC in Perth coincided with the changeover between the two CRCs and drew the largest attendance of any AWC, 484 delegates including 104 day registrations (Table 2). Attendance levels were lower at the 14th AWC, possibly attributable to this conference being held in Wagga Wagga and therefore the first AWC held outside a capital city. Attendance at the following two conferences exceeded 400 delegates, possibly due to the 15th AWC in Adelaide being held in the home city of the CRC and the 16th AWC in Cairns coinciding with the closure of the CRC. The reduced attendance at the 17th AWC in Christchurch could be a reflection of a number of factors, including the closure of the CRCs, the offshore venue creating a travel barrier for some Australian delegates, the prevailing economic environment, and recent climatic conditions (droughts and bushfires in Australia and earthquakes in New Zealand).

There is a two- to six-fold increase in delegates originating from the same state or country hosting the AWC (Table 2). The six-fold increase in local attendance at the 13th AWC held in Perth may be influenced by the 104 day registrations, the highest number of day registrations for the past five conferences. New South Wales weeds workers regularly represent a large contingent of the AWC delegates, which together with the regional conference venue may account for the modest two-fold increase in local attendance at the 14th AWC.

More Western Australian weeds workers travelled to the conference in South Australia than to conferences held elsewhere in Australia or New Zealand. Similarly, more Victorian weeds workers attended conferences in the neighbouring states of South Australia and New South Wales than when conferences were held at more distant locations. This suggests that ease of access to the conference can influence interstate attendance.

The current schedules for the Australasian and international weeds conferences result in every second AWC being held in the same year as the international conference. When this happened in 2004 and 2008, international delegate numbers at the AWC were lower compared with 2002 and 2006. Factors driving the low international attendance at the 17th AWC in 2010 are not known in the absence of an IWSS conference that year. It is notable that the three AWCs with lower international attendance were all held in non-capital cities, suggesting that the potential additional travel to reach the venue may deter some people from attending.

The quadrennial frequency of the IWSS conferences appears to be providing stability in attendance levels, while there is a trend of reduced attendance at the biennial APWSS conferences. The time may

be right to reassess the frequency of the Australasian conferences and consider a return to triennial AWC conferences. If the absence of a CRC is the major factor behind the reduced attendance, delegate numbers at future biennial AWC conferences may be lower than those experienced during the past decade. Other factors that would favour a triennial AWC include minimizing clashes with the IWSS conference, decreased frequency with which industry and government agencies are approached for sponsorship, increased opportunity to complete research between conferences, and an increased chance for each conference to be differentiated by its theme.

Journals

The journal *Weeds*, renamed *Weed Science* in 1968, commenced in 1951 as the first scientific periodical catering to weed management (Timmons 2005). EWRS commenced the equivalent European-based weeds journal *Weed Research* in 1960 (Van Der Zweep and Hance 2000). By 1978 weed science literature had expanded and was comparable with other branches of crop protection, although the quantity of Australasian literature lagged behind that available in other regions (Fryer 1978), notably with the lack of a regional weeds journal. The APWSS is now associated with *Weed Biology and Management*, the international journal commenced in 1975 by the Weed Science Society of Japan.

The development of an Australian weeds journal is intrinsically linked with the formation of CAWSS. In 1979, CAWSS approved a proposal by John Swarbrick to commence the journal *Australian Weeds*, with the first edition coinciding with the AWC held in September 1981 (Swarbrick 1984). Prior to this time, many weeds research developments in Australia went largely unreported, partly due to the lack of a local journal (Swarbrick 1981).

After several years of operation, *Australian Weeds* was replaced by *Plant Protection Quarterly* in 1985 under the editorial leadership of John Lenaghan (Richardson 1989). *Australian Weeds* was acknowledged as the official journal of CAWSS, although the linkages between *Plant Protection Quarterly* and CAWS are less formal or apparent.

Plant Protection Quarterly has a broader focus covering all aspects of applied plant protection and two clear objectives; firstly, to be a forum for weeds communication in Australia, and secondly to maintain quality of information through the peer-review process. Rob Richardson has served as Editorial Director since 1988 when both John Lenaghan and Inkata Press relinquished their roles as editor and publisher, respectively (Richardson 1989). Both the journal and Australian weed societies were established for the benefit of the weeds workers, suggesting that the societies need to be

proactive in ensuring the long term future of the journal as a vehicle for domestic scientific communication.

Future issues

At the time when the various state and national societies were being formed, the challenges facing weed workers fell into three broad categories; multidisciplinary research, integrating weed management with farm operations, and the environmental and social aspects of herbicide use (Johnston 1982b). These categories reflected the growing reliance on herbicides and the arrival of the concept of Integrated Weed Management (IWM). While some of these issues remain at the forefront of weed science, technology and social change have driven the emergence of new challenges.

Pesticide use

Ten years after the arrival of the first herbicides in the early 1940s, weeds started to become constituents of undergraduate courses and the responsibility of extension specialists (Timmons 2005). The herbicide industry provided a great deal of impetus and financial support for weeds research over the following 30–40 years, before it was noted that erosion of patent recognition and increasing regulatory demands were impacting on the ability of industry to support research (Johnston 1982b).

Pesticide safety remains a major concern expressed by the general public. Pressure continues to be placed on regulatory bodies in terms of what pesticides should be registered, and what restrictions should be imposed on pesticide application. The emergence of crops with herbicide tolerance traits has tended to create polarized views based on the understanding individual have of the technology and the potential benefits to be derived from the use of the technology. The prevalence of herbicide resistance in weeds and the potential to create 'super weeds' is another aspect of pesticide use often raised in public forums. Weed societies have a role to play in ensuring that the public have better access to information on pesticide safety and the impact that new technology and legislation is having on pesticide use.

Education

CAWS currently provides several awards available to post-graduate students and early career weeds workers, but this does not address the issue of encouraging people to enter the field of weed management. Johnston (1982b) advocated the establishment of a Chair of Weed Science to promote undergraduate training in weed science, and potentially drive the provision of external professional development courses for weeds workers. This concept, while not vigorously pursued to

date, could increase recognition of weeds training at the tertiary level.

Some state societies are engaging with undergraduate training through the provision of awards and this is a positive move. Initiatives such as the national *Weed Warriors* program should be supported by state and national societies as an avenue to reach primary and secondary students. Recruitment of new weeds workers does not start only with tertiary graduates, but with raising awareness and interest in weed management at an earlier age. These future weeds workers also represent the future of weed societies.

Communication

A national or trans-national weed society must develop and maintain lines of communication with all sectors of society to be an effective voice for weed management. This starts with engaging with industry to keep weeds at the forefront of research through the provision of adequate funding. Weed research had a golden period during which research was largely driven by herbicides and funding from that industry sector. Changes in public perceptions of weeds and increasing regulation in the pesticide sector has created a shift in the focus of weeds research and extension, opening new avenues for potential collaboration and funding. The environmental impact of weeds is generating more public interest and participation, and represents an area where weed societies need to develop linkages.

Collaboration with special interest groups and other administrative bodies should be a focus of weed societies. Kindred organizations such as the Weeds Officers Association of NSW have many similar values and objectives, and offer a pathway for interaction with specialist communities. Development of working groups, similar to the model used by EWRS, could also assist in strengthening interaction between members of individual weed societies. Formal interaction with bodies such as the Australian Weeds Committee is also needed to keep weed societies relevant and in a position to provide input into the legislative decision process affecting weed management.

Aside from external communication, the success of a national body such as CAWS is reliant upon good governance and internal communication. Lack of continuity of corporate knowledge can result in progress on issues and protocols being lost over time, leading to reinvention of the wheel. Policy and process needs to be reviewed and updated on a regular basis, and should not be allowed to be simply forgotten. As early as 1982, Johnston (1982b) raised the importance of CAWSS adopting policies on weed research, extension and legislation and being proactive at the political and community levels to raise

awareness of weeds. Individual weed societies and CAWS, as the umbrella organization, need to develop a coordinated and consistent program to engage with politicians and the general public to ensure that weed management receives appropriate recognition and support.

Fryer (1978) noted that weed science does not thrive because of the weeds themselves, but as a result of the energy and drive of dedicated individuals who actively promote weed research and extension. Now is the time for discussion on how individual weed workers can participate in weed societies to proactively raise public and political awareness of problems caused by weeds, disseminate information, and encourage more people to embrace the challenges posed by weeds.

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