Improved mapping and useability of weed location data recorded by a GPS—distribution of bridal creeper (*Asparagus asparagoides*) in the Wickepin Shire of Western Australia

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Summary

A re-assessment of bridal creeper (*Asparagus asparagoides* (L.) W. Wight) distribution in the Wickepin Shire of Western Australia, found comparisons between surveys conducted in 1993 and 1995 impractical because of the different techniques used. Deficiencies in present weed location recording and subsequent data mapping are greatly enhanced by the use of GPS units in the field.

Introduction

Recording and mapping of weed infestations has progressed little in Western Australia (WA) over recent years. Land management organizations have developed methods to suit their individual purposes at their various operational levels, often with slight variations within the organization of the detail recorded. At the field office level, variations of the basic 'mud map' for individual properties, land parcels, etc. at scales of between 1:50000 and 1:12500 have sufficed. At regional or higher levels in the organizations general distribution maps have been acceptable.

Production Resource Protection Services staff (Agriculture WA) note weed infestations in the field, and submit a standard reporting form to the central computer database in Perth. Generic reports are generated from the database based on the type of query required by the regional office (Table 1).

Here only textual data is recorded electronically, with maps, usually hand-drawn, filed at the local office. Although the database has fields for storing latitude and longitude of infestations (Table 1), field staff have had to rely on information from gazetteers or map estimates to provide this information. This imprecise level information is of limited value to scientists and special interest groups accessing the weed reporting database for research or other purposes.

To measure changes (if any) in the spread of bridal creeper in the Wickepin Shire from 1993–95, the way in which weed infestation data is recorded and stored was raised between Agriculture WA and CALM staff. This paper briefly compares methods of recording weeds in the field and subsequent use of the information.

Methods

Nineteen ninety three data (Table 1 e.g. shire and level of infestation) was useful for general assessment of the weed invasion over a wider area (Scott and Pigott 1993). However, neither these records nor a 'mud map' of bridal creeper distribution could be converted into digital form. In 1995, Global Positioning System (GPS) technology was used to record bridal creeper records in the same manner as Pigott and Farrell (1996). Location data was mapped using Workstation GIS.

Results and discussion

The distribution of bridal creeper in the Wickepin Shire in 1995 (Figure 1), with some exceptions, were generally similar to the 1993 assessment.

The invasion of bridal creeper through the Shire of Wickepin appears to be a steady one. However because of the differences in the way that location data was reported between 1993 and 1995, this is only an assumption. Several populations recorded on the 1993 'mud map' were either smaller or not relocated in 1995. This was likely to be the result of hand-drawing the 'mud map' in the office and without referring to the reporting database. However other infestations, particularly on the Pingelly - Wickepin Rd in the north-east of the Shire have increased substantially. Based on the Roadside Conservation Value map for the Shire of Wickepin, this and other heavy infestations of bridal creeper are on roadsides rated as high or medium high in value. Bridal creeper poses an immediate threat to these

Table 1. Modified extract from the 1993 location reporting data for Production Resource Protection Services, Agriculture WA, with examples of land holder, location and infestation details of bridal creeper (*Asparagus asparagoides*) in the Wickepin Shire of WA.

Shire code	103	103	103	103	103	103
Property #	55933678	54773671	SMRD900	SFWD904	L4299001	HRH200
Surname	nfp[A]	nfp	Main Roads WA	CALM	Wickepin Shire Council	Wickepin Shire Council
Title	nfp	nfp				
Initials	nfp	nfp				
Property name	'Braeside'	'Erinbrook'	Authority job 410430	Res. 9480	Wickepin-Pingelly Road	Harrismith Town
Street name	Road 28	Stock route (3)	Narrogin-Wickepin to Wickepin-Kulin	Malyalling Rock		
Suburb	Wickepin	Wickepin	Wickepin	Wickepin	Wickepin	
Latdeg	32	32	0	32	0	0
Latmin	49	50	0	43	0	0
Longdeg	117	117	0	117	0	0
Longmin	37	30	0	35	0	0
Light	1	1	3	1	1	2
Medium	0	0	0	0	1	0
Heavy	0	0	0	0	0	0
Total	1	1	3	1	2	2

[A] Surname, initials and title with-held from publication.

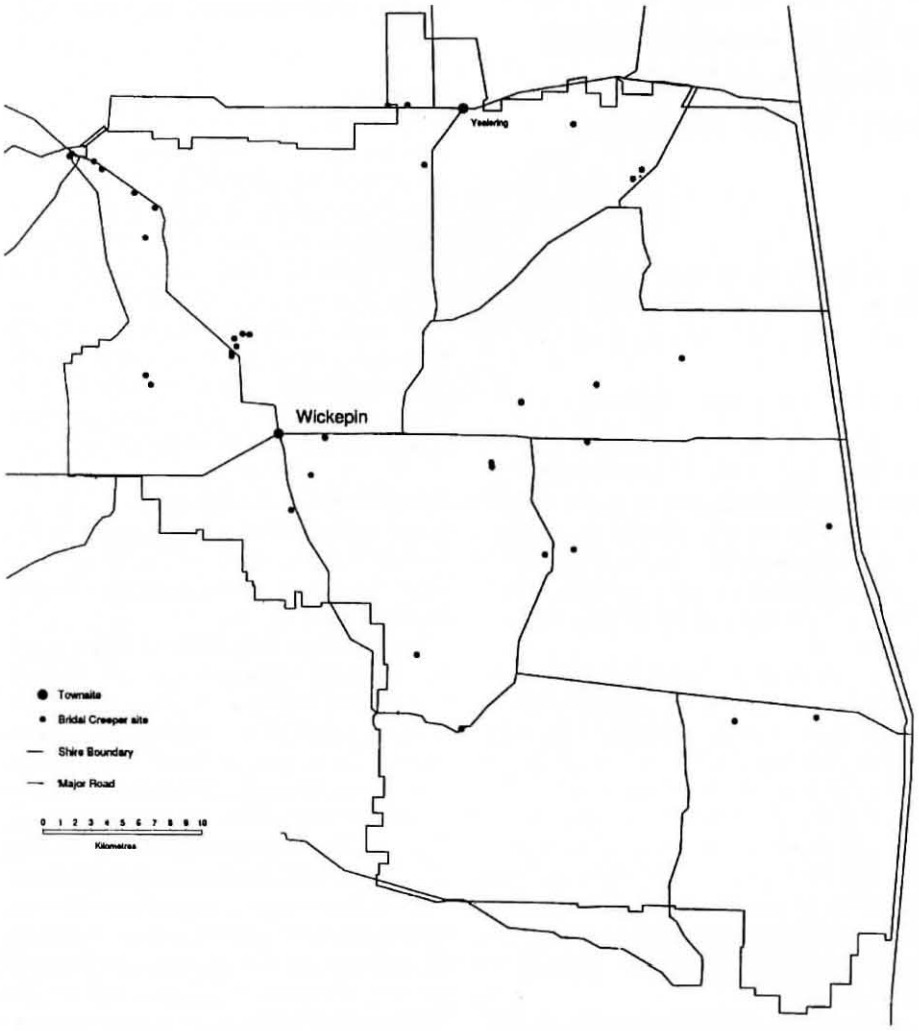

Figure 1. Distribution of bridal creeper (*Asparagus asparagoides*) in Wickepin shire by APB (1995) based on locations recorded by a GPS unit.

roadside remnants and immediate control is recommended.

Location data recorded in future surveys could be used to better assess bridal creeper invasion using GIS and also monitor the affect of planned control work on bridal creeper in the Wickepin Shire. Use of digital data-sets such as Roadside Conservation Value with locality data for a variety of weeds and other environmental impacts would prove to be a valuable aid to management.

Conclusions

The use of GPS units by land management agencies for recording weed infestations, locations of endangered flora sites and other areas of interest have become standard practice. The availability of GPS units throughout regional areas is increasing usage by field staff. For weed control projects involving various government agencies and community groups portability of reliable information is essential. Staff time in the field can be more efficiently used and monitoring the progress of weed control and rehabilitation projects over time is more achievable. Finally, land management agencies need to maintain descriptions of digital data available for various regions to improve accessibility and avoid duplication.

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