Summary

Surveys of the temperate perennial pasture zone of New South Wales in spring 1999, autumn 2001 and spring 2001 recorded Hypochaeris radicata L. (catsear or flatweed) as the most common broadleaf weedy species. The pasture species, Trifolium subterranean L. was the only broadleaf species which exceeded or equalled H. radicata in paddock frequency for each of the three seasons surveyed. The weediness of H. radicata remains a vexed question when the plant’s grazing attributes are taken into consideration.

INTRODUCTION

Hypochaeris radicata L. (family Asteraceae) is considered to be a common perennial weed of pastures, rangelands, lawns and roadside throughout Australia (Auld and Medd 1987, Cameron 1988, Harden 1992). Although found in all States, it is most widespread in the temperate zones of Tasmania, Victoria and New South Wales (Cameron 1988).

In a survey of the perennial pasture zone (PPZ) of New South Wales in spring 1999 (Dellow et al. 2002), H. radicata was found to be the most widespread broadleaf weed. Subsequent surveys of the same zone in autumn 2001 and spring 2001 confirmed this original finding. The PPZ includes the tablelands and near western slopes running north-south for a distance of around 1000 km from Queensland to Victoria. Covering approximately seven million hectares, the PPZ accounts for nearly half of the sheep and cattle production of New South Wales (D. Vere unpublished analysis of ABS statistics).

This paper discusses the grazing attributes of H. radicata as well as its weedy properties. The possibility of biological control is also considered.

MATERIALS AND METHODS

The original spring survey was conducted from 6 September to 18 November 1999 (Dellow et al. 2002). The data of Hill et al. (1999) was used to define the PPZ, excluding all areas classed as cropping, annual pastures or forest. A total of 142 randomly selected sites were sampled. More sites than required were generated to allow for exclusion of unsuitable locations. Sites deemed unsuitable included paddocks that had been cultivated within the previous 12 months, those that were less than five hectares in area or that were heavily wooded. For practical reasons, paddocks selected for the survey had to adjoin public roads.

Each paddock was sampled with 20 one-metre square quadrats arranged in an M-shaped transect. The transect began at least 30 m from fence lines and the quadrats were spaced at 10 m intervals. At each quadrat an estimate was made of the percentage ground cover for every species present. Where species could not be identified, specimens were collected for further identification or were grown out to maturity and forwarded to the National Herbarium in Sydney. A visual estimate of the above ground biomass was also made at each quadrat. During the survey, biomass samples were routinely cut and later dried and weighed and the regression of estimated versus actual biomass used to correct all of the estimations.

Two subsequent follow-up abridged surveys were conducted over the same PPZ in autumn 2001 and spring 2001. The autumn survey was conducted from 26 March to 2 May 2001 and included 36 of the original 142 sites. The spring survey was conducted from 17 September to 9 November 2001 and included 77 of the original spring 1999 sites. The same data were recorded from each site for all three surveys.

RESULTS AND DISCUSSION

The two subsequent autumn 2001 and spring 2001 follow-up surveys confirmed the finding of the original spring 1999 survey (Dellow et al. 2002). The original survey showed that of the total of 176 taxa identified, H. radicata was the most frequent broadleaf weed present in 71% of paddocks (Table 1). The subsequent autumn 2001 and spring 2001 data (Table 1) showed H. radicata to be likewise the most commonly occurring broadleaf weed, occurring in 72% and 69% of paddocks respectively.

Likewise an earlier survey conducted in the New England Tablelands showed H. radicata to also be the most frequent species (McIntyre et al. 1993).

Based on these figures (Table 1), and that it is suspected of causing stringhalt, which is an abnormal gait in horses (Cunningham et al. 1981), H. radicata should merit consideration as a serious weed problem. However, H. radicata is a species that is avidly selected by grazing sheep and can make a major dietary...
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contribution of quality forage (Leigh and Holgate 1978). Simpson (2000) also describes *H. radicata* as a good quality sheep grazing forb on the Southern Tablelands with a crude protein level of 17.6% and a digestible dry matter of 66% to 69%. Similar results have been recorded for the Central Tablelands (16.4% crude protein and 70.3% digestible dry matter – S. Priest pers. comm.). These figures indicate a valuable forage species. Despite the relatively good quality forage that *H. radicata* represents, its low biomass means that it could form a significant dietary component for only a short period, at the beginning of a grazing episode. While it formed as much as 19% of pasture biomass at one site, it accounted for only about 3% overall. The importance of species that are selectively grazed is likely to be underestimated in any survey but it is clear that *H. radicata* was an important pasture component at only a few sites.

Throughout New Zealand *H. radicata* is also considered a common pasture and grasslands weed (Webb 1988). In New Zealand the Cynipid wasp *Phanacis hypochoeridis* (Kief.) Eady and Quinlan causes severe galling of the peduncle of *H. radicata* (Lintott 1975). This small wasp is of European origin and although it appears not to be present in Australia (P. Gillespie pers. comm.), could be considered a biological control agent in Australia.

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**REFERENCES**


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**Table 1. Frequency and abundance of *Hypochaeris radicata* and *Trifolium subterraneum* in spring 1999, autumn 2001 and spring 2001 surveys.**

<table>
<thead>
<tr>
<th>Species</th>
<th>Paddock frequency (%)</th>
<th>Mean proportion of total pasture biomass, where present (%)</th>
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</thead>
<tbody>
<tr>
<td><em>H. radicata</em></td>
<td>71</td>
<td>72</td>
</tr>
<tr>
<td><em>T. subterraneum</em></td>
<td>80</td>
<td>75</td>
</tr>
<tr>
<td>No. of sites surveyed</td>
<td>142</td>
<td>36</td>
</tr>
</tbody>
</table>

na = not analysed.