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**IS RANGELAND RESEARCH DRIVEN BY DISCIPLINE?
AN ANALYSIS OF
THE RANGELAND JOURNAL 1976-1999**

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ABSTRACT

We reviewed the Australian Rangeland Society's (ARS) principle publication, the *Rangeland Journal* (from 1976 to 1999), with the aim of assessing its disciplinary focus over time. The rationale for this study is that we all identify issues/problems differently, and that problem identification is often clouded by our culture. Research is about problem identification and the creative process of seeking solutions. Researchers too have their own 'culture' which is often strongly influenced through years of detailed and specific training. Specialization makes for efficiency, however, it can also narrow the way we define problems. It is broadly recognised that solutions to problems facing society require holistic vision that integrate/incorporate economic, social and biophysical approaches. However, our analysis of the *Rangeland Journal* indicates that social-cultural, economic, and trans- or inter-disciplinary research is lacking in the Journal. The vast majority of articles in the Journal are focused primarily on the bio-physical sciences. This situation poses several key questions for the ARS.

INTRODUCTION

How has rangeland research changed over the past two decades? Has it changed to accommodate needs, or is research driven so strongly by disciplinary vision that it fails to appropriately define problems? These questions provide the context of this paper. Reductionism as an approach to research has come under increasing criticism, because of its apparent inability to provide sustainable solutions to complex real world problems. As a consequence there have been calls for more holistic research. This trend is often expressed as the need to integrate (remove disciplinary boundaries between) social/cultural, economic and bio-physical disciplines in a meaningful way. Figure 1 represents the three major disciplinary fields and in this paper we use this conceptual diagram to present our analyses of the *Rangeland Journal*.

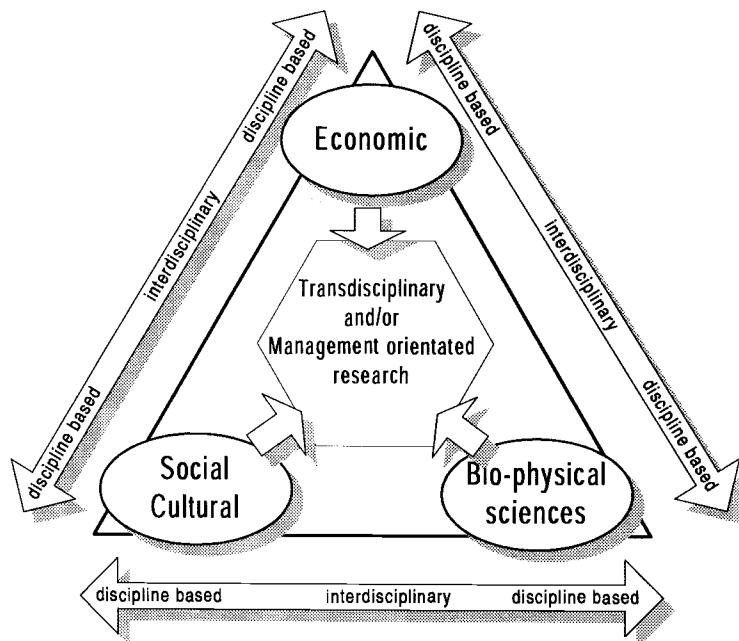


Figure 1. Where do you do most of your research from, and how do you define problems? This triangle represents the three major areas of research often discussed in the context of "sustainable development" and are just as relevant to rangeland research.

We believe that a reflective look at the *Rangeland Journal* is timely given the nature of this conference, and in light of concerns for declining membership and subscriptions to the ARS and the *Rangeland Journal* (minutes ARS annual general meeting, 1999). Our review is intended to determine what is the focus of the Journal and what this may mean for the ARS. It is also hoped that this review will stimulate discussion about the future direction of the Journal

METHODS

All articles published in the *Rangeland Journal* were reviewed for this study. Data were recorded on authorship, disciplinary focus and details related to content. The disciplinary focus of articles was assessed for both the context and the content. The three broad discipline areas of bio-physical, economic and social/cultural were used as categories to classify articles (see Fig 1) and ranked as “Primary”, “Secondary”, “Mentioned” and “Not applicable”. These classifications could be used more than once per article if necessary. These subjective yet self explanatory rankings were converted to the following weightings for the purpose of analysis: Primary = 1; Secondary = 0.4; Mentioned = 0.1; and Not applicable = 0.

“Special issues” were distinguished from “Journal articles”. This distinction was straight forward for editions of the Journal labeled as Special Issues. However, we also defined articles which had come directly from conferences or workshop proceedings as “special issues”. “Journal article” and “Special issues” were grouped over time into periods of approximately the same number of articles (see table 1).

Table 1. Number of articles grouped over time into both “Journal articles” and “Special Issues”.

Journal articles	# articles	Special issues	# articles
1976-79	35	1976-79	10
1980-82	41	1980-82	11
1983-85	39	1983-85	7
1986-87	32	1988-90	9
1988-90	31	1991-93	10
1991-93	37	1994	13
1994-96	42	1996	10
1997-99	39	1997-99	7

RESULTS

Figures 2 and 3 present the disciplinary focus of “Journal articles” and “Special issues”, with each circle representing a group listed in Table 1. Because there was no trend in disciplinary focus for either “Journal articles” or “Special issues” we have not indicated which symbol represents which cluster of years. “Journal articles” are firmly rooted in the bio-physical science with an overall balance (including context and content) of 89% bio-physical, 7.4% economic, and 3.3% social/cultural. “Special issues” are more spread although five of the eight clusters are predominantly bio-physical in nature. The combined disciplinary balance of “Special issues” is 54% bio-physical, 15% economic, and 34% social/cultural.

Authorship results are presented in Figs 4 and 5 and are separated out according to the primary focus of articles. State government departments and Federal government research agencies (principally CSIRO) are the predominant contributors to the Journal. Other groups are only well represented in special issues dealing with social/cultural research and economic areas. State government is not represented in “Journal articles” dedicated to social cultural issues. International contributions are limited.

DISCUSSION

The emphasis on bio-physical research in the *Rangeland Journal* suggests that the problems of rural and regional Australia (perhaps a more appropriate expression than 'rangelands') are predominantly related to the hard sciences of ecology and production. Is this the case, or is it that most contributors to the Journal have expertise primarily in the fields associated with bio-physical sciences, and they therefore perceive problems and frame research from a discipline perspective? There have been calls for holism and breaking down disciplinary barriers to solve complex problems, and the problems of the rangelands are clearly a complex interaction of social, cultural, economic and bio-physical issues. This raises questions for the Society about the focus of the Journal as well as its purpose. Is the Journal for members of the Society, the contributors, or a broader audience? If the aim of the Society is to increase communication between the major stakeholders on the rangelands (rural and regional Australia) then this objective is not being well met (ie. the Journal is aimed ecological/environmental scientists as their field relates to the grazing industries). We suggest that there is a mismatch between the objectives of the Society and its publication. The Journal is lost between several purposes which serve different needs: are these the needs of rural and regional Australia and should is be the focus of the Journal? Should the Journal be more inclusive and holistic, more scientific, or more 'popular/practical'? Perhaps this conference provides the opportunity to ask these question. In summary the questions that have come from this study for the ARS are:

- Does the disciplinary focus of research in the *Rangeland Journal* reflect rural and regional issues?
- Who is the Journal's audience and who should the audience be?
- Should the scope of the *Rangeland Journal* be broadened or narrowed?
- Does the word 'rangeland' itself have too narrow a focus that implies the physical resource and grazing industries, and does this limit contributions from other fields?
- How is the *Rangeland Journal* perceived from other interests and stakeholder in other fields related to rural and regional issues?
- And ultimately, does the ARS want/need to change?

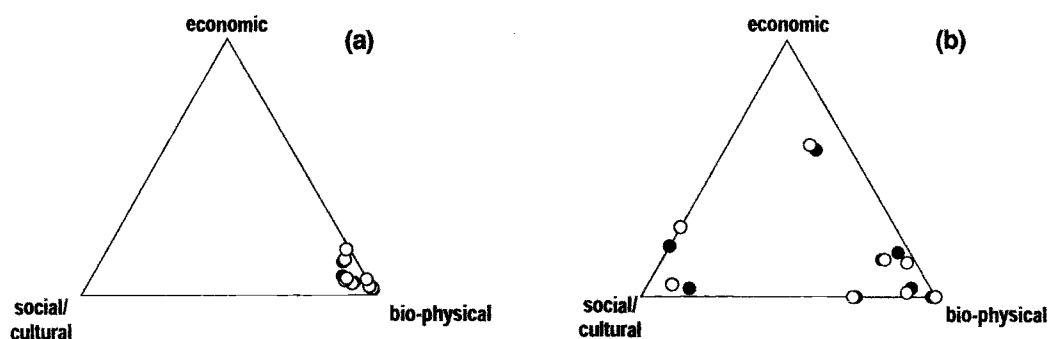


Figure 2. The disciplinary focus of (a) "Journal articles" and (b) "Special issues" from the *Rangeland Journal*, each symbol represents a group of years as shown in table 1. Black circles represent the 'context' of journal articles while open circles indicated the 'content' of those articles.

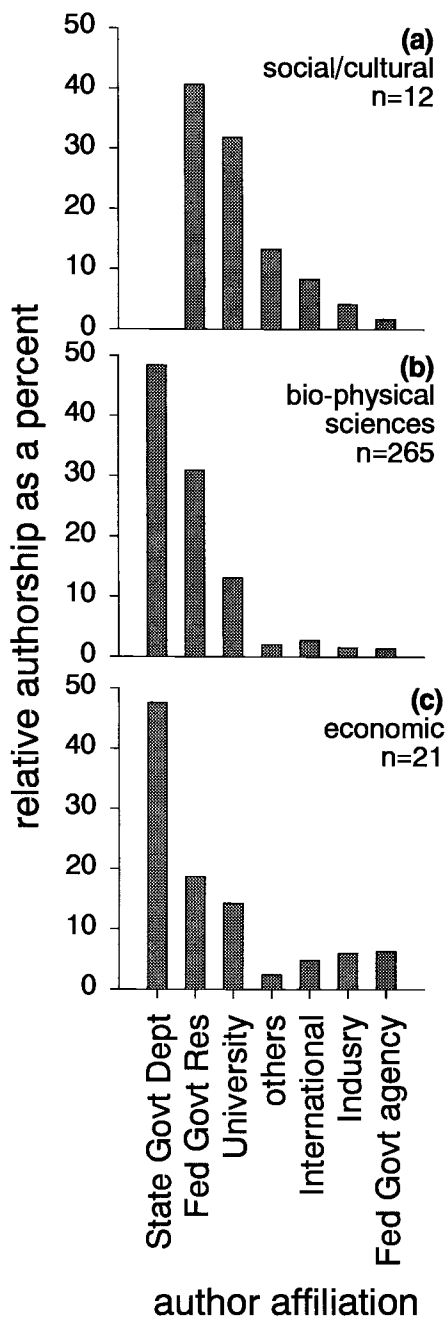


Figure 4. Who writes what sort of research in normal 'journal articles'? Author affiliation as a percent relative to each of the major discipline areas, a) social/cultural, b) bio-physical, and c) economic. These data include the content of all **journal articles** from 1976 to 2000. The total number of articles contributing to each disciplinary category is indicated below each discipline title.

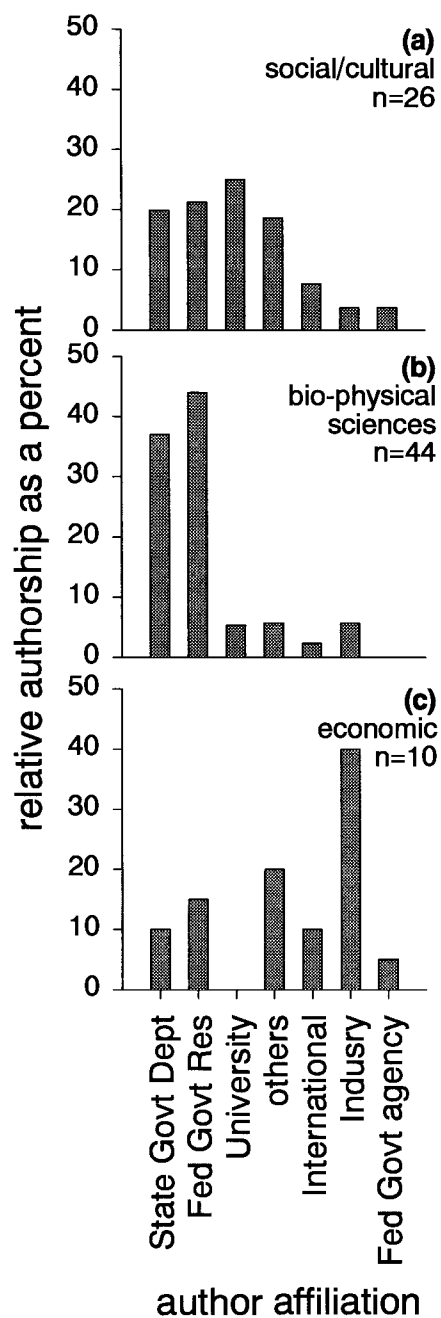


Figure 5. Who writes what sort of research in 'special issues'? Data are the same as Fig. 4 except they are based on contributions to 'special issues'.